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ISSUE 12 OCTOBER 1992

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





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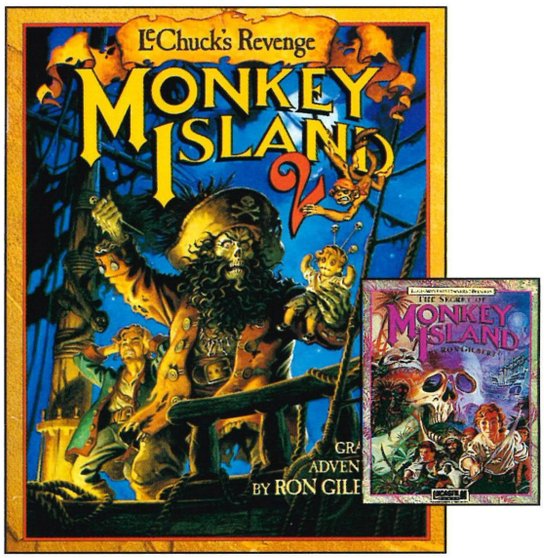
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LAUGHS FOR PC

Side-splitting pirate adventure

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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.

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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.



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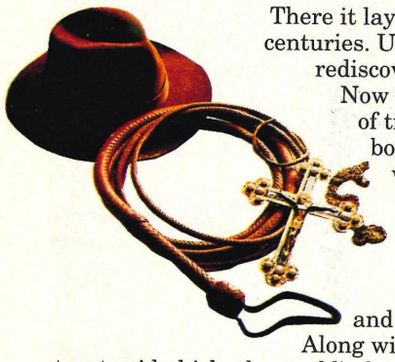
ADVENTURE FOR PC

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?





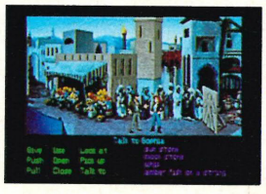
There it lay undisturbed for centuries. Until the Nazis rediscovered the Kingdom. Now it will only be a matter of time until they have a bomb so powerful it will draw World War II to a conclusion. Schnell!

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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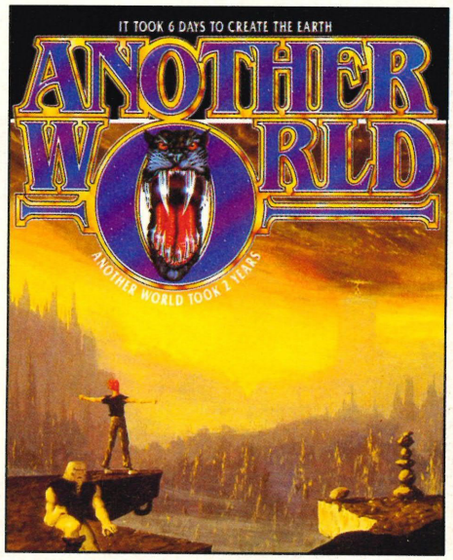
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ADVENTURE FOR PC

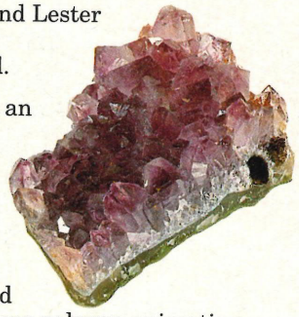
You're about to enter "Another World"

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,



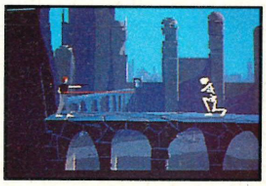
a bolt of lightning struck and Lester was teleported into a different dimension. Into Another World.



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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Printed in the UK

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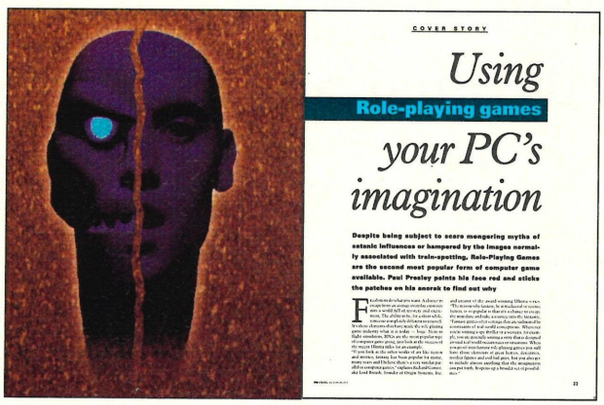
128 **COVER DISKS**

3.5" disk owners are in for a treat this month with playable demos of World Tennis Championships and The Lost Files of Sherlock Holmes, while 5.25" owners can get stuck into World Tennis. Impatient to get going? Put your cover disk into the drive, log on to it, and type PCR (Enter) to start. For full instructions, turn to page 128.

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26 **The 30 best role-playing games**

RPGs have developed from tabletop days and rudimentary screens the graphically spectacular Ultima Underworld and the like. Paul Presley takes you on a tour of this popular gaming genre.


COVER STORY

Using

Role-playing games

your PC's imagination

Despite being subject to scare mongering myths of satanic influences or hampered by the images normally associated with train-spotting, Role-Playing Games are the second most popular form of computer game available. Paul Presley paints his face red and sticks the patches on his anorak to find out why

34 **The Elite phenomenon**

In 1984, Ian Bell and David Braben wrote Elite, and created a computer gaming milestone. It's taken eight years for Braben to develop Elite 2 — what has he been doing all this time?

38 **Choosing and using a printer**

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50 **Win the Creative Multimedia Upgrade Kit**

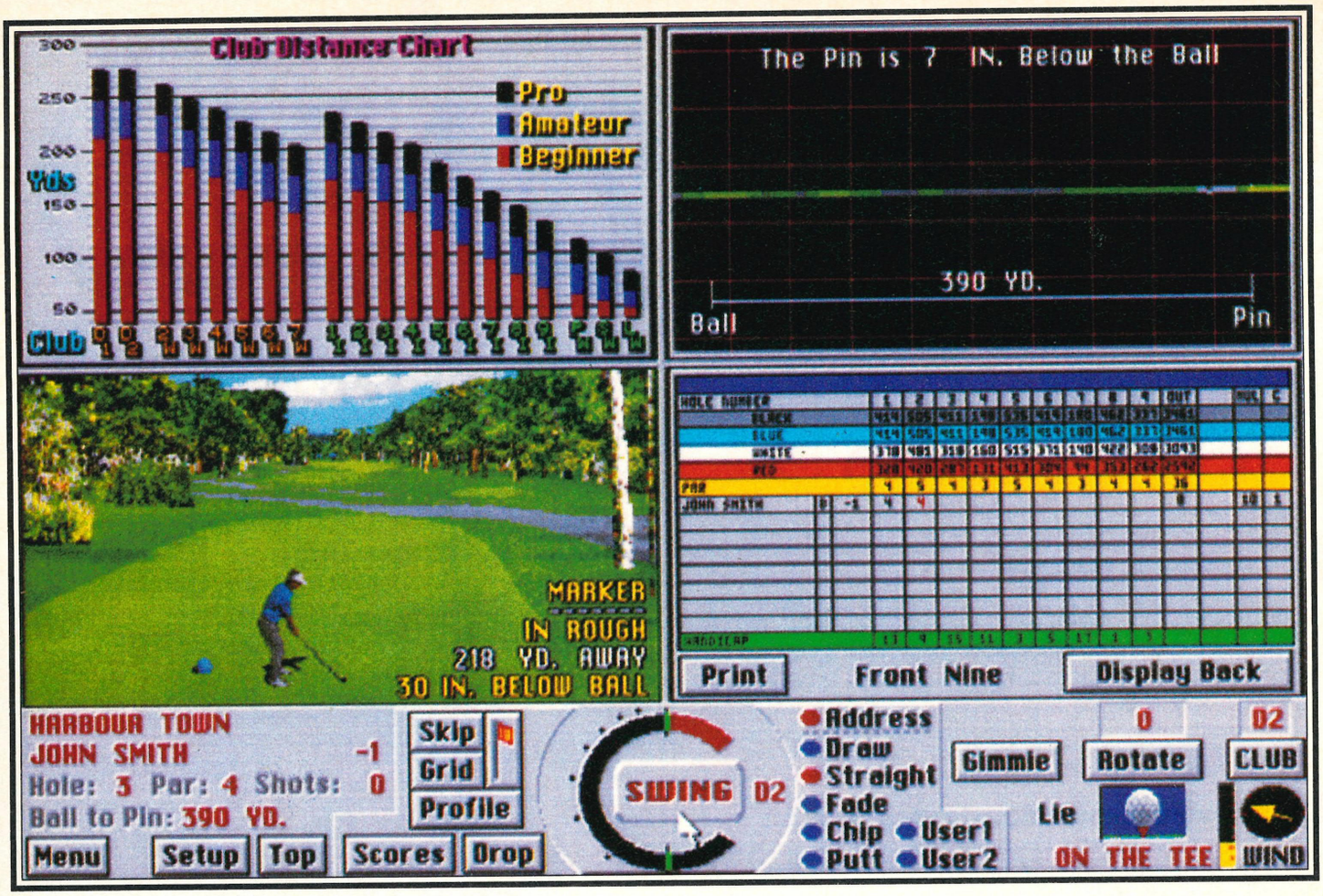
There's a CD-ROM upgrade kit and a Sound Blaster Pro board up for grabs in this easy-to-enter competition.

117 **Win Lord of the Rings — limited edition**

To accompany the release of LOTR2, we've got a bumper package of limited edition prints, and the books themselves, to give away.

132 **Fitting a hard disk**

Now that our First Steps series has run its course, this is 'second steps': a refresher course on upgrading and getting the most out of your machine. Plus a comprehensive buyers' guide.



Links 386 Pro.

The rest are strictly amateur.







There are other golf simulation games. And there's Links 386 Pro.

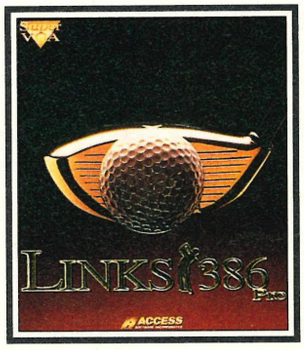
It's like trying to compare a crazy golf tournament with the Ryder Cup.

The Super VGA graphics are so realistic, you'll imagine you're driving up the fairway of the featured championship course, Harbour Town, or any of the 7 separate championship courses currently available.

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

But the real beauty of Links 386 Pro is that it's simply great fun to play around on. Again and Again. Whether you're a pro or not.

Links 386 Pro is compatible with MS - DOS computers with 386 or 486 processors and requires Super VGA Graphics, Hard Disk & 2 MB RAM.



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Chris "Wing Commander" Roberts is the first into the hot-seat to tell all about his favourite computer game, past or present.



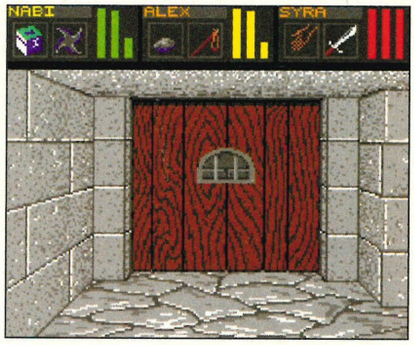
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18 **News**
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143 **Next Month**
What's in store in PC Review.



"Dungeon Master's appeal extends far beyond the superficial delights of the 3D graphics ... it's actually a brilliantly designed game" – Dungeon Master review, starts page 66.



Contributors



Rob Beattie
The former editor of PC User and What Personal Computer, Rob Beattie used his own trials and tribulations with MIDI as a basis for his series of articles on the PC and music (page 36). His interest in music also extends to playing acoustic guitar in a local pub band, and writing regular album reviews for Q magazine.

Mike James
PC Review's Q&A 'agony Uncle' Mike James has been involved in personal computing since the early days. He built his own 6800-based machine back in 1977 and acted as a consultant to Personal Computer World magazine. He has been responsible for 50 or so books, including the 21 Games For ... series, the Games Master series, Creative Graphics and Animation and so on, with the latest being QBasic: the Language of MS-DOS. He has also spent some time as a senior lecturer in computer science at Teesside University but thankfully gave it all up to carry on having fun with machines.

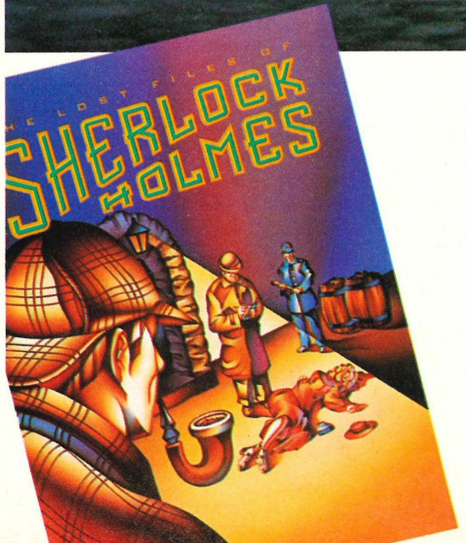
Steve Cooke
Steve Cooke is currently editor of IBM's Helpware magazine, and was formerly editor of PC Leisure, PC Review's previous incarnation. He has written for a number of other computer magazines over the years, and has also worked as a playwright and scriptwriter for the National Theatre and BBC Radio, among others. An avid computer chess player, he makes an ideal candidate to review Capstone's Grandmaster Chess (page 86). Computer chess, Steve says, highlights the foibles of both players: the computer plays around and the human being just sits there and computes.



Paul Presley
PC Review's staff writer is a self-confessed role-playing game fanatic (when we can tear him away from the flight simulators, golf games, and graphic adventures, that is) He has played RPGs, tabletop and board games extensively since his schooldays. With four years of computer games journalism behind him, including a stint on our sister magazine, The One, his only ambitions left are to travel, and to promote world peace.

"THE LOST FILES OF SHERLOCK HOLMES"

FAR FROM ELEMENTARY MY DEAR WATSON.



London, 1888 and a desperate murderer stalks the ghostly cobbled streets of old London town.

His victim, a young actress, has been found lying in a pool of blood, outside the backstage door of the Regency Theatre.

A non-plussed Scotland Yard is convinced that Jack the Ripper has returned to strike fear into the heart of the City.

In desperation they turn to your good self, in the guise of the celebrated sleuth Sherlock Holmes, as the only prospect of uncovering the murderer's true identity and putting him behind bars.

To aid you in your quest, you have your trusty companion Dr Watson, and you can call on the help of that wonderful motley gang of reprobates, The Baker Street Irregulars.

Leave no stone unturned in your search for clues hidden in over 50 different, authentic locations throughout a Victorian London.



Each one painstakingly and stunningly recreated in 256-colour VGA graphics and brought to life with breath-taking animation and digitised speech.

In the course of your investigations, you must meticulously scrutinise the stories and unravel the alibis of a long list of suspicious characters. Many of whom you'll recognise from the original Conan Doyle stories.

No other game has ever captured atmosphere, mystery, intrigue and tension so convincingly.

"The Lost Files of Sherlock Holmes" has everything - cutting edge technology, a classically-scored sound track allied to challenging game play.

Seek it out!

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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. If you have access to CIX (Compulink Information Exchange) you can send your letters to our mailbox – our ID is pcreview. Star Letters win software prizes!

Games as movies

I am a film student and the other day some chums and I were discussing using the critical techniques we've been learning about (ie, genre, narrative, auteur theory, etc) and applying them to computer games. This might be an interesting exercise in light of recent industry hype surrounding the so-called interactive movie. You never know, it might even help convert the great unwashed and the gutter press from their view of computer gamers as spotty, maladjusted trainee serial killers. Stupid people seem to have respect for academia and I believe computer games deserve this treatment and should be considered a cultural medium like TV or movies.

Just a thought you might be interested in — if we manage to stay away from Ultima VII for long enough, we'll knock something up and send it in, I'd like to hear your and PC Review's views on the subject anyway.

Neil Thomson
Walkington
Nth Humberside

Certainly, developers such as Lucasfilm Games and the late Cinemaware employ talent directly from the film industry and companies such as Dynamix use real-life actors as 'models' for computer characters, so correlations are more relevant now than some years ago.

Maybe I'm blinkered, but I thought the spotty and maladjusted label was pretty outdated now and never all that applicable to the PC fraternity in any case.

FAI: Find Another Irishman

When I was reading your review of European Championship 1992, I noticed a mistake in your Game of Two Minutes column at the bottom of pages 68-69. I suspect you have realised it by now, but I thought I'd be fussy for once.

When Ray Houghton crossed for Niall Quinn to ripple the back of the net just before half time, I was surprised to see the half time score read England 1, Eire 0. Now I never knew that Ray Houghton and Niall Quinn played for England when they were wearing green shirts. Somehow I don't think Jack Charlton would be too happy!

W E Chapman
York

Glamour fixture

I would like to begin this letter by quoting a sentence from Issue 10, page 69, in the Alternatively ... section of the review of European Championship 1992. You were referring to Kick Off and how bad it was, when you said, "Avoid it like a Wimbledon-Luton fixture at Selhurst Park". When you printed this you must have known you would get a complant from either myself or the other Luton supporter.

I would just like to say that this was an unnecessary statement to make, and I am appalled that the best PC magazine in the shops would use such a phrase. However, I would be prepared to settle this issue out of court, for say, a copy of European Championship 1992.

Richard Stevenson
Leighton Buzzard
Beds

Actually, Richard, we've got off lightly – the Wimbledon supporter hasn't written in yet.

An Irish blessing

I would like to commend Ciarán Brennan on his truly inspired review of European Championship 1992 in Issue 10. I think he should be given a raise or a promotion immediately – both would be preferable. I will finish by sending him an Irish blessing: "May you marry a rich woman with no sense, may you have 10 strong sons and 10 beautiful daughters, and may you be in heaven half an hour before the devil knows you're dead".

Tony Flynn
Co Louth
Ireland

Trek tracking

Looking back at Issue 6 (specifically to look at the "Alternatively" box in Star Trek: 25th Anniversary), I still found myself without a clue as to what I should buy. I and half my family absolutely *love* Star Trek, and are always looking for more games to add to our collection.

To get to the heart of the problem, could you please expand on "Various Shareware" (page 42 Issue 6. It would be even better if you dedicated a page or two to it. (By the way, I've no problems with hardware specs, with a 386DX 33Mhz, SVGA (1Mb), 2Mb RAM and DR DOS 6). Your help would be greatly appreciated.

Paul Paskin
Perth
Scotland

"Various Shareware" means that the games we mentioned are available from a number of shareware libraries and outlets. There are a number of public domain and shareware Star Trek titles, most of which concentrate on the strategic element rather

than action. You perhaps shouldn't expect too much in the way of gorgeous graphics, but they are certainly worth a try at the price.

Beastless PC

Psygnosis is known for its excellent arcade games, eg, Shadow of the Beast 1 and 2. Even though Beast 1 had boring and repetitive gameplay it was very addictive, due to the urge to see what was next and of course the stunning graphics, sound and 128 colours on screen, which isn't bad for the Amiga. Beast 1 appeared on all formats except, of course PC. Why? Not enough demand. But this is changing. Now most PC gamers enjoy arcade games. The proof is that Apogee get 400 registrations a week. Therefore there is no reason for not bringing out top quality PC arcade games. But when Beast 3 comes out Psygnosis will have another excuse. So please ask them about this when you visit them or I'll cut my throat in anger and frustration!

The quality of programming is appalling. The Bitmaps had to use 16 colours in VGA mode to get it to run at 17 frames per second-which I consider jerky, not "smooth and unobtrusive". They also used mixed dot shading which makes the game look like it's in EGA and it's blockier than the Amiga. Apogee also uses 16 colours and can get 40 frames per second and you think the Bitmaps can do no wrong. Anyway these are my points. At this moment I'm fit to sell my PC and get an Amiga. Only Apogee prevent me from doing this.

John Bonnet
Co Kerry
Ireland

Psygnosis confirmed to us that none of the Beasts are planned for the PC in the next year, although they added that this doesn't mean they'll never come out. The "excuse", as you put it, is that the PC games the company is working on at the moment are all originals and it would rather concentrate on creating new games directly for the PC than doing straight conversions.

Your argument seems to be more that there aren't enough high quality arcade-style games for the PC, with which I'd agree, but you only have to look at the history and development of the PC as a leisure computer to understand why this should be so. It simply wasn't designed with this application in mind.

More and more publishers, including British publishers, are looking at the PC as a prime development machine and I think the number of arcade-style titles is set to increase towards the end of the year.

Freeing memory

In Issue 8 I read your article on memory for the PC. Besides being informative, it highlighted the problem of TSR overcrowding, a concern for all gamers with more and more memory hungry games (such as Ultima VII and Falcon 3.0) on the market.

Your article referred to MS-DOS 5.0 being able to 'loadhigh' drivers. This is obviously an improvement but looking through the rest of the computer press there are operating systems who claim to be better. At the Which Computer Show during April I saw the launch of OS/2 ver2. Upon discussion of memory management the demonstrator showed me an equivalent to Mem/c in MS-DOS.

The result was that conventional memory was nearer 720K and even after TSRs there was still 650K free, enough to deal Ultima Underworld.

Also DR-DOS 6.0 has had reports to have better memory management than MS-DOS 5.0. Maybe you would like to comment and look at the potential of a future article on operating systems (which would be an excellent compliment to your hardware studies in First Steps with the PC).

I look forward with interest to your future issues.

Niall C Chinn
Egham
Surrey

Keeping up with the Joneses

I flipped open Issue 7 of PC Review and my eyes fell on Mr Christopher Bridgman's letter complaining that, in no uncertain terms, his PC was way too fast (or the flight simulator was too fast – if that's the case give it to me!)

I own a 16Mhz 286 compatible with a Sound Blaster and VGA monitor. Just two years ago I assured my father that the 286 would be faster than anyone would want it and that it would be around for at least five to seven years. Boy, was I wrong!

You see, *nothing* (well, almost) works on 286s now! Oh sure I can load it up but I can also jog round the block and return to see it still loading! i'm sure such programs/games could have been made a wee bit faster. Games like Wing Commander II, Rocketeer and so on take forever to load and do not play well, especially if the Sound Blaster is used (for music and speech) so what should I do now? Don't tell me to upgrade just like that (rich kid's alternative) because who knows, in another six months time, no one would want to use the 386 anymore simply because it's too slow!

And another thing: who decided that 640K would be more than

Star*letter*

Where are they now?

Once upon a time, long before the PC had developed VGA graphics, long before the PC was even considered for playing games on, there existed a computer called the ZX Spectrum. And, I'm proud to admit, I've owned one for almost 10 years now, alongside my trusty PC ... although a tape deck and Basic are no substitutes for a zippy hard disk and DOS, so I can't say that I've used my Spectrum much recently!

However, what the little Spectrum lacked in graphics, sound, and speed, it made up for in the gameplay department, and many talented software teams sprung up with some great little time-consuming oddities. Many of these disappeared without a trace — and I was wondering if you could enlighten me as to what happened to the following people, and whether their games ever made it to the PC:

1) Matthew Smith (Jet Set Willy, Manic Miner)
2) Fergus McNeill/Delta4 (The Boggit, Bored of the Rings)
3) Ultimate/RARE (All sorts of great stuff)

People like that do not deserve to be dropped from grace – where on earth do all the forgotten 8-bit programmers and designers get to? Do they wander the streets of Manchester, sobbing into the linings of their anoraks, longing for the games of yesteryear ...?

Adam Moss
Stowmarket
Suffolk

I don't think the three you mention are exactly crying into their anoraks, although Matthew Smith has certainly been quiet for several years. We hear he's still working for Software Projects (but then, they've been quiet for several years). Fergus McNeill is working for Online Entertainment and wrote the CD-ROM game A Town With No Name, which we reviewed in Issue 11, and RARE is working full-time on Nintendo NES console games. Its latest titles include Wizards and Warriors 3, and Solar Jetman – which is indeed a distant cousin of Lunar Jetman, which appeared under the Ultimate name in 1983 for the Spectrum.

anyone would need? He should be tried and found guilty of lack of foresight (and stupidity) along with the guy(s) who invented EMS, XMS, LIM, HMA and so on!! Why can't there just be one standard? Or at least software that emulates, especially for 286 owners, which doesn't gobble up all base memory? Although I may have extended memory, I have not enough base to run anything! Right now I claim to have 1Mb of RAM, but actually only less than 640K is used ...

On top of all this, out comes the new multimedia Sound Blaster Pro and Ad Lib Gold cards. Either I invest in one now or waste cash, hard disk space and time installing the supposedly fantastic treats of audio-visual delight, which come on, what, 10 to 20 high density floppies? Nah, 500 is more like it (a CD-ROM holds about that much, right?).

Ah well. I shouldn't covet my neighbour's wife, right? Even if it happens to be his PC. I suppose I could survive with outdated programs (which are usually much faster but more useless, or contain less useless stuff, depending on which way you look at it). I have even decided to use my trusty pen and write, rather than type ...

If you could, please recommend good emulation software drivers (not hardware please!!) and win a 486 for me. I'm just kidding about the 486, but a guy can dream.

Chun-Yin Wang
Belfast

PS I second Mr Chris Thompson's notion: forget the FM channels of PCMed sounds and introduce an eight channel sampling sound board!

Not enough information

I am writing to complain about the review of Chessmaster 3000 in Issue 4 of your magazine. The hardware requirements box did not point out the fact that you need 640K of memory and high density floppy disk drives (if you want to install the game to floppies), two things that 512K, low density disk users like to know!

You may respond with the cry that "but it was clearly stated on the side of the box, and you should have noticed it before you bought it ..." However, there are many readers of your magazine who use mail order suppliers because they are usually cheaper than the high street price. Although my supplier does state which graphics modes a program is compatible with, there is not room to tell the amount of necessary RAM, or whether a hard disc is needed, or whether high density floppies are needed, etc. Anyway, shouldn't the hardware requirements of a game be dealt with in the hardware requirements?

Jon Hawkins,
Stoke Bishop,
Bristol

Er, yes, Jon. If you look at the reviews in this issue, you'll see that we have begun an even more detailed specifications panel, which, we hope, no longer leaves anything to chance.

Pet sounds

In response to Chris Thompson's letter, in May issue of PC Review (this was about Amiga and ST machines being able to produce better sound that a PC with a sound card). I too have come across this problem.

I still own an ST and the sound quality, when playing Amiga MOD files is a lot better than anything I've seen my Sound Blaster card do. For that reason, I decided to build a suitable device to give my PC the ability to reproduce sound in a similar manner to the ST and Amiga. After writing a device driver for a Public Domain program. I was able to play Amiga MOD files through the board I built and it sounded a lot better than any ST program I have for playing them, and was able to appreciate the stereo effects so missing on the standard ST.

Put a reasonable processor behind sample playing and you can achieve really good effects. I've managed to write a program in C, to play two separate sample simultaneously, at 80Khz each. The board could quite easily support eight channel MOD/sample files and is reasonably cheap to build.

I would like to market this board but don't really know who to approach, any suggestions? There seems to be a demand for such a device and I would be glad to hear from anyone who would be interested in marketing my board. My address is below should anyone wish to contact me.

Shane Cook,
1 Polborder,
St Mellion,
Saltash,
Cornwall,
PL12 6RE

Graphics, what graphics?

I have purchased PC Review on a regular basis over the past months and it is an enjoyable computer magazine, on my humble Amstrad 1640 (humble being the understatement). I have three urgent

COMPETITION *WINNERS*

Beauty and the Beast (Issue 9)

This competition was evidently great fun to have a go at, but judging from the entries, rather more difficult than most. Our gruesome twosome of game character composites drew some, shall we say, 'imaginative' entries. Thus, we have considerable pleasure in announcing that David Bracher, of Wigan, Andrew McInroy, of Kilwinning, Ayrshire, and David Parnell, of Bromsgrove, Worcs, battled through the red herrings, not only to identify the body parts correctly, but also to leap out of the PC Review hat into the judges' hands. A copy of Disney Animation Studio to each of you Real Soon Now.

For anyone still stuck, the answers were as follows:

Beauty
Head: Disney Animation Studio
Body: Realms
Legs: Heimdall

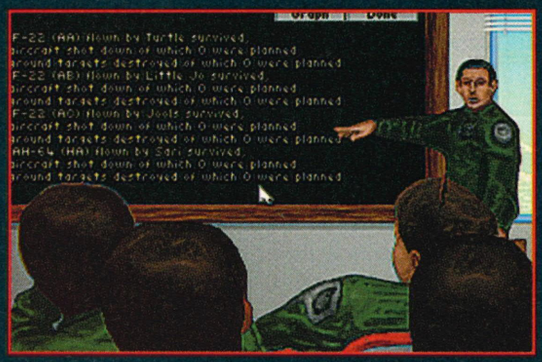
Beast
Head and arms: Gods
Body: Elvira – Jaws of Cerberus
Legs: Dune

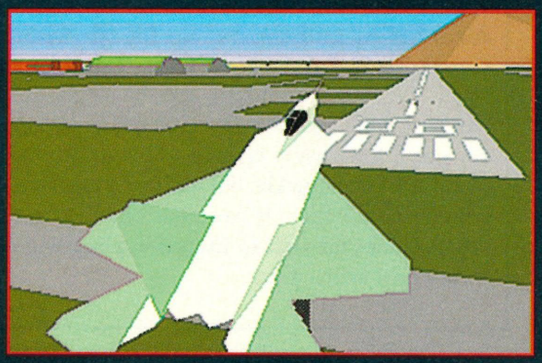
Caption Competition 2 (Issue 10)

We are pleased to report that the standard of entries for the second Quit caption competition was definitely higher than that for the inaugural effort. Domink Diamond is evidently more inspirational than the heir to the throne. Stephen Garfitt asked us to mention his name anyway, so I think we can consider that done, and I hope it serves some purpose, Stephen. Adam Moss was an early front runner, if only because he enclosed a camomile tea bag with his entry, and we do like presents, but then, he's also responsible for this month's Star Letter, and we reckon one prize per issue is probably enough, don't you, Adam?

In the end, the field was left clear for S Jensen, of Watford, and the admirably succinct caption: "My credentials, Domink Diamond ...trainspotter!" A piece of software to match the quality of this caption will be in the post, Mr/Ms Jensen.

ATAC





A strategic flight simulation from MicroProse

The year is 2003 and a problem that has plagued the old century is beginning to strangle the birth of the new one. Drugs.

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questions to ask. The first is concerning the demo disk supplied on Issue 8 June 1992, reading the instructions on the Gallery picture I was intrigued by the technical specifications quoted:

CGA: No
EGA: No
VGA: No
Hercules: No
Roland: No
Ad Lib: No
HD: No
Joystick: No
Mouse: Yes
Keyboard: Yes

Is PC Review hiding a revolutionary new type of monitor soon to be available on the market? The second is why would you like to use the keyboard or mouse on a frozen picture?

My third and final question is about "badgering": this is when a company orders hardware from another company and sticks its logo on and adds £300 to the purchase price. Then it has the gall to say it is produced by them, surely this is untrue? The secret about badgering is as closely guarded as the Crown Jewels but to trade people this is common knowledge. When people are buying a computer, they are inevitably lured by the prestige and popularity of the name. However, in many cases, the computers are often produced by some Far Eastern company. If this type of marketing was continued ou;ide of the computer world would we have Skoda cars with Mercedes badges driving around?

Alan Roderick
Swansea

PS Are you the new Information Exchange? I am referring to the star letter on Issue 8, 1992, what on earth has this got to do with computers? Can you please send me information on the Morris Marina convertible?

The Gallery screen resolutions were obviously top secret, but you use the mouse or keyboard to select the pictures from the menu and to exit to the menu again.

Now, "badgering" is a fascinating concept. Does it have anything to do with 'badging', the practice by which many, many manufacturers source components from a number of companies to be assembled in their own PCs? You may be surprised at where many car components come from.

Falcon update

I can answer the final point raised by Peter Worlock in his excellent review update on Falcon 3.0c. It is now possible to send an SAE to MicroProse at the following address to receive a 'patch' disk to upgrade all earlier versions of 3.0 to 3.0d: MicroProse Unit 1, Hampton Road Industrial Estate, Tetbury, Glos GL8 8LD.

Dr Johnathan Cobb
London W3

Waste not

As the new EEC laws on packaging comes into the limelight, it should be mentioned that computer software packaging is one of the worst. Many leisure software products are very popular because of their glossy image, both inside and outside. Today, however, more and more people are becoming aware that these glossy images, especially the over-elaborate packaging, are not really necessary, and now it is apparent that they are responsible for environment damage.

Watching a recent news broadcast, I noticed that several environmental groups were appealing to the public to speak out against heavy packaging in commercial products. If this does not include computer software, then this letter has gone to waste, but if there are others out there who agree with my feelings on this subject, it would be great to see them published.

If you feel strongly about heavy packaging, you can contact your lcoal branch of Friends of the Earth, and they will be happy to hear your views on the subject. If large software companies continue to release their titles in huge packaging with wasteful advertising leaflets, then they will continue to harm the very environment we live in, outside our computer screens.

Paul Freeman
Plymouth

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 our trips to Psygnosis and Mindscape, so if you've already applied, you may be hearing from us soon. If you haven't applied yet, get that form sent in quickly.

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.

Name.....
Address.....
.....
.....
.....
Daytime tel no:.....
Evening tel no: (leave this blank if you prefer) .....
Age: Under 16 ❑ 16-25 ❑ 25-40 ❑ Over 40 ❑

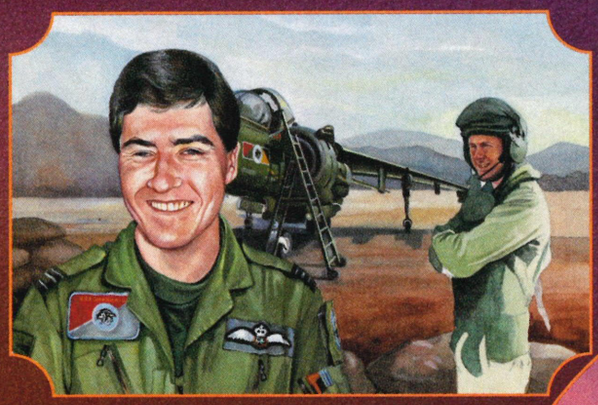
NB if you are under 16, please get your parent or guardian to sign this form as well giving their consent for you to take part.

Which company would you like to visit?
Domark ❑ Virgin ❑ Mindscape ❑ Bitmap Brothers ❑
Psygnosis ❑ Other (if applicable)
.....
Any particular reason for your preference(s)?
.....
.....
.....
.....

Send this completed form, or a photocopy, to
On the Spot, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

PC Review October 1992

HARRIER Jump Jet



After months of basic, advanced and operational training my CO gave me the OK. He thought I was good enough to fly the Harrier in active operations.



A week later the squadron were facing a real enemy on the Chinese border. We were dispersed in 'hides' close to the battlefront.



The battle was raging a few miles in front of us. It was not long before we were called to provide close air support. The Harriers were armed with Sidewinders and Cluster bombs.





The weapons boys worked hard arming the rockets. They wanted to give us the best chance out there and we all felt we were part of a team.

When all was ready I climbed into the cockpit of my GR.7. My heart pounding, the adrenaline rushing around my body, waiting for the green light.

Then there was no time to think. A short take - off and in minutes my threat warning radar was flashing. My hand moved automatically to the ECM button. I was ready!



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PCR-J-1

NEWS

Prices tumble as specs rise

The pricing policies of the major PC manufacturers are becoming reminiscent of the Argentinian economy, with new price cuts now being announced almost daily.

What's more, not only is it possible that your machine may have fallen in price between the time you leave the shop and first boot it up, its architecture may also have become obsolete as the 'entry level' for IBM-compatible specifications is rising almost as quickly as the prices are tumbling.

This month, three major hardware manufacturers — Ambra, Commodore and Elonex — have dropped the prices of their basic configuration machines by up to 20 per cent, while the standard processor speeds are moving ever-upwards.



Commodore's price cut announcement came at the launch of its new 'Powerline' range, pictured above, designed for the business and corporate buyer, which ranges from a sub-£1,000 486SX machine to a 33Mhz DX model, which comes in at £1,199 when equipped with the standard 52Mb hard drive.

The Maidenhead-based firm is also expected to announce further cuts to its 386-equipped models next month.

The extensive Ambra range (see PC Review, Issue 10) is also offering across-the-board price cuts, from the basic model Sprinta (with standard VGA and a 40Mb hard drive) down from £885 to £759, to the top of the range Hurdla (with SVGA and a 160Mb hard drive) which falls from £1,215 to £1,105.

Direct sales specialist Elonex claims that its entry-level computer, the PC-333, is the first ever 386SX-based machine to offer Intel upgradability as standard. For those of you who didn't catch Intel's series of 'Fantastic Voyage' TV adverts which featured a journey through a PC's innards, this system allows any suitably-equipped computer's motherboard to be easily upgraded as chip technology improves.

In addition to the 33Mhz speed, the PC-333 features a 50Mb hard drive, 2Mb of RAM, a 32K cache, a low-radiation SVGA monitor and Windows 3.1 and MS-DOS v5.0 — all for £795.

A note of caution to those of you putting off buying a newer model in the hope of continuing price cuts: the current price drops are at least partly inspired by a price war between the major chip manufacturers. As soon as this comes to an end, PC prices could easily begin to rise again, which makes deciding when to buy about as tricky as playing the stock market really.

All of the prices quoted above are exclusive of VAT and carriage. Contact numbers are as follows: Ambra (0800) 386386; Commodore (0628) 770088; and Elonex (081) 452 4444.

Sierra offers third quest



Fans of Sierra On-Line's husband and wife game design team, Lori and Corey Cole, will be pleased to hear that the pair are just putting the finishing touches to the third game in the ever-popular Quest For Glory series.

Taking up where Trial By Fire (above) left off, Quest For Glory III: The Wages Of War will allow players to either import their original game character from either of its predecessors, or to invent an entirely new character from scratch — once again choosing to be either a fighter, a magician or a thief.

Set in the land of Tarna, a place reminiscent of Egypt and Babylon, Quest For Glory III continues the series' theme of adventure and romance, making use of more than 1,000 hand-painted backdrops and Sierra's unique 'roto-scoped' character animation.

In addition to announcing Quest for Glory III, Sierra has this month acquired Bright Star Technology Inc., a Washington-based software developer which specialises in language learning software.

"Bright Star is an excellent strategic acquisition for Sierra because its high quality software includes the unique feature of synchronised speech which will provide a major advantage to our educational products," explains Sierra's president, Ken Williams.

Acquiring Bright Star should also help Sierra achieve its goal of becoming the leader in the educational software market within five years.

Quest for Glory III will be available this autumn. For more information on this and the forthcoming Bright Star range, contact Sierra On-Line's UK office on (0734) 303171.

IN BRIEF

UBI SOFT SIGNS PSYCHO

Ubi Soft has employed the services of none other than Stuart 'Psycho' Pearce, Nottingham Forest hit man and prospective England captain for its forthcoming football compilation.

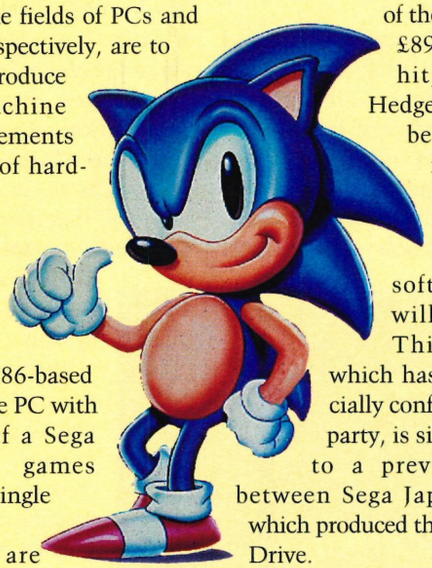
Psycho's Soccer Selection consists of Kick Off 2, World Championship Soccer, Manchester United and International Soccer Challenge. More from Ubi Soft on (081) 343 9055.

SONY GETS SET

Electronics giant Sony will soon make its first foray into the European computer games arena, with the PC's CD-ROM platform possibly as one of its first targets.

Mega alliance for Sega and Amstrad

Amstrad and Sega, two major players from the fields of PCs and video games respectively, are to join forces to produce a hybrid machine which offers elements of both styles of hardware.



Provisionally entitled the Mega PC, the machine will combine the hardware of a 286-based IBM-compatible PC with the innards of a Sega Megadrive games machine in a single unit.

First units are expected to appear before the end of the year, priced at £899. Sega's major hit, Sonic The Hedgehog, may well be bundled with it, but no details are yet available as to what MS-DOS software, if any, will be included. This venture, which has yet to be officially confirmed by either party, is similar in nature to a previous alliance between Sega Japan and IBM, which produced the ill-fated Terra Drive.

Games take to the airwaves

PC gaming seems to be becoming trendier by the minute, as MTV Europe has added coverage of computer games to its usual diet of pop videos and news.

The games coverage is text-based and runs on MTV Text, an Oracle-style service which began transmitting at the beginning of August. The new service includes 20-30 pages on computer games, which is updated once a week.

MTV Text is available to existing satellite and cable viewers who are equipped with a Teletext-mode TV set.

Users of the world unite

Dorset-based computer supplies firm CLP is encouraging the nation's PC users to club together, in order to reap the benefits of bulk buying from its latest catalogue.

Those hunting for good deals on supplies such as printer paper, disks, monitor stands and other consumables and accessories can now join up to obtain the maximum discount, provided the total order exceeds £150 (exclusive of VAT).

As long as an order can be delivered to a single address, CLP will accept payment in any number of cheques or credit card numbers.

And it doesn't even matter if you haven't got a PC-owning friend in the world, as CLP will register your name and put you in contact with other interested individuals in your area — almost like a digital dating agency.

A consortium pack comprising five catalogues, a poster and a special order form is available to anyone calling (0258) 459544.

Its Sony Electronic Publishing (SEP) subsidiary has appointed a European boss, and although no details are available, it's thought that its first compact discs should be released just prior to Christmas.

SHOPPER DROPS GAMES

With two major games-specific shows planned this autumn, the organisers of this year's Computer Shopper show have put plans for a dedicated games hall on hold — although it's thought that there will still be a place at the event for a small PC games presence at the show at Wembley Exhibition Centre between November 19th and 22nd.

A word to the wise...

US Gold would like to have a word with you — several words in fact, as it has announced that it's to release an all-new PC version of that family favourite, Scrabble.

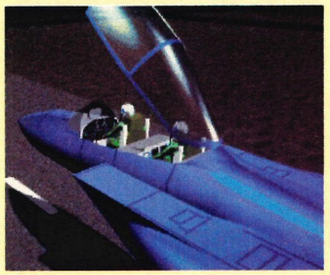
Although there have been previous incarnations of Scrabble on the PC, this one is based on a software 'engine' which has twice won the Scrabble competition at the Computer Olympiad, an annual contest where the world's best software writers pit their programs against one another.

Officially licensed from board game manufacturer Spears, and programmed by top development team Arc, Scrabble allows up to four players, computer or human, to take part, with all options accessed via a point and click interface.

There are 12 different skill levels, ranging from lowly level one (which makes use of a vocabulary of 2,400 short, common words and averages eight points per turn) to the daunting heights of level 12, where the computer is equipped with a 134,900-word vocabulary — and knows how to use it.

Options available include practice mode, variable 'thinking' time for the computer, advice mode, and you can even take a print-out of the board's final layout. US Gold's Scrabble will be released some time next month — there are no details of price available as yet.

COMING SOON



F15 Strike Eagle III is a not entirely unpredictable addition to MicroProse's Strike Eagle series. Due out next month (October), F15 III has yet to have a definite price tag applied.



After the huge success of Michelle Pfeiffer's catsuit on the big screen, Konami is releasing Batman Returns, the game, for the PC this autumn – price yet to be fixed.



It can only be the distinctive graphic style, above, of French developer Delphine, and its new PC arcade adventure Flashback, to be released before Christmas.



Don't worry, it's not those turtles back again ... these creatures are Battletoads, from the forthcoming arcade style game of the same name from Mindscape, due out next month.

COMING SOON



One of this year's most eagerly-awaited games, Chris Roberts' Strike Commander, is due out in November. Roberts promises a graphic and aural spectacular for power PC owners.



Ultima VII Part 2: The Serpent Isle takes you out across the Britannian Ocean to the Serpent Isle of the title, in your quest to save Britannia. Scheduled to arrive before Christmas.



Legend of Valour is an RPG in a humorous vein, written by Corporation author Kev Bulmer. Due out in November from US Gold, this could give Ultima Underworld a run for its money.



Coktel Vision's strangely spelt Gobliins are back for more arcade and platform style mayhem and high jinks. Available in both 16 and 256 colour versions, this is due for release next month.

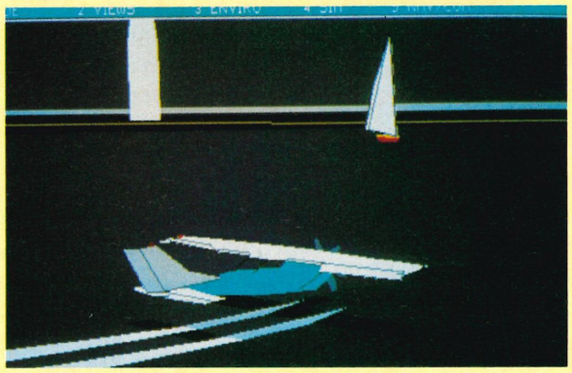
Microsoft gets hard

Following its drive into the games market with the release of Microsoft Golf For Windows (see News, last issue), the US software giant is set to make further inroads into the PC's leisure domain with a pledge to produce more home-based software and the first hints of a new hardware platform.

According to the firm's product marketing manager for hardware and consumer products, Gillian Kent, the golf game will just be the first in a series of new games specifically designed to ease the new user into the joys of the Windows environment.

"We'll definitely be producing more games," she says. "Although it's unlikely that it will be the usual shoot 'em down type — we're looking to produce a more serious type of game, something a little more unusual."

It's likely that any further games produced by the firm will have third party involvement; Golf was produced with a little help from Access (the developer of Links), while Microsoft's original leisure program, Flight Simulator (below), was developed in conjunction with SubLogic.



On the hardware front, news has come from the US that Microsoft has formed a "strategic alliance" with the hardware manufacturer and retail chain Tandy, to produce an all-new home entertainment/education system.

It's believed that no actual hardware exists as yet, but the finished unit will incorporate a CD-ROM drive and an adapted version of the Windows graphical user-interface as its operating system.

Other reports have it that the new machine will be able to play games, deliver news and entertainment and receive satellite-transmitted movies, although neither party was in a position to confirm or deny any of this.

Prose pumps 'em out

One-time flight simulation specialist MicroProse seems to be on a mission to become known as the Busiest Software Publisher In The World, as this month's announcement of additions to its software catalogue and an all-new user club testifies.

The first of the new titles, due out at any time now, is Global Conquest, a blend of military action and strategy from Dan Bunten, the creator of Command HQ.

Then, staying with the military theme, two of the most highly-acclaimed flight simulators of recent times, MicroProse's Gunship 2000 and Spectrum HoloByte's Falcon 3.0 (which the 'Prose distributes in Europe) will be given a new lease of life later this month, when each is augmented by its first mission disk.

Operation: Fighting Tiger will be the first of two 'campaign disks' for the most recent incarnation of the F-16 simulation, Falcon. Set above three new theatres of war — India/Pakistan, Japan and Korea — this digital add-on will feature new aircraft and mission types for the experienced pilot to get to grips with and new enemies to face.



There are new enemies in the Gunship 2000 Islands and Ice Scenario too, but this add-on disk also promises to enhance the original game program. More traditional RPG fare will also be available this month in the form Challenge Of The Five Realms (below), from Paragon Software, producer of the well-known Megatraveller series.

Designed by MegaTraveller's creator Marc Miller, Challenge casts the player as the young Price of Alonia and sets him the task of fighting the evil Grimnoth and thus saving the land from darkness.

The adventure theme is carried on in MicroProse's next release. Rex Nebular and the Cosmic Gender Bender is an animated graphic adventure.

Based around one space explorer's quest to retrieve a lost vase, RN and the CGB takes place on Terra Androgena, a planet entirely populated by bizarre alien women — sounds like a cue for Leisure Suit Larry meets Space Quest. The game will feature lip-synched digitised speech and an 'intuitive' interface allowing the delivery of detailed commands.

Meanwhile, the firm is to back up all this new output with the MicroProse Gold Club, a user group open to anyone who's ever returned one of those warranty cards which falls out of every 'Prose game box.

Membership is free, and will entitle the user to information about forthcoming releases, demo disks, technical advice and special offers.

Further details on both the user club and the many games mentioned above can be had from MicroProse on (0666) 504326.

curse of ENCHANTIA









Sucked into the cursed land of Enchantia, Brad finds himself chained and manacled inside a castle's dungeon. He escapes from the castle via a subterranean cave system and meets fortune tellers, magicians, dragons, elephant seals, fire demons plus many other colourful characters both friendly and otherwise!

Travel with Brad to the Valley of the Lost, the Ice Palace and the Graveyard in his quest to ensure his safe passage home.

Curse of Enchantia is available on Commodore Amiga 1 meg only) and IBM PC compatibles.





Screen shots from various formats.

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Multiple movements at Mindscape



Prolific software publisher and distributor Mindscape is set to caus a few ripples in both the CD and disk publishing ponds, with the announcement of new titles and re-releases at 'budget' prices.

The firm's major news in the CD-ROM field is that it has signed a deal with the top US book publisher Grolier to handle its computer products. This new arrangement starts with the release of CD-ROM version three of the Grolier Electronic Encyclopedia (reprogrammed to meet the MPC standard) in the UK and throughout Europe.

A little less culture will then be offered by Mindscape's latest disk release, Moonstone, which is a gory 'hack and slash' affair, and sets you the task of finding the mythical rock of the title and returning it to its home at Stonehenge. The accompanying blurb describes the game's "subtle role-playing" elements, but basically it's little more than an entertaining carve-'em-up.

The blood-letting will begin later this month, when Moonstone is released, priced at £30.99.

Moving swiftly back to the mighty CD, Mindscape's affiliate publisher Origin is to test the water of 'mid-priced' CDs with the launch of two new compact compilations.

The first of these new discs will feature Wing Commander II (see picture), Special Operations 1 and 2 and a speech accessory pack, while the second comprises Underworld and Wing Commander II. Both will be priced at £49.99.

Commenting on the venture, Origin's European brand manager Jennie Evans said: " These products will test the water for our other CD developments which is where we see our future lying."

A number of Origin's conventional titles are also to appear with Mindscape games on another new budget label, the Classic range.

Priced at £19.99 each, the line-up consists of seven of the firm's titles: the original Wing Commander, 4D Sports Boxing and Driving, D/Generation, Ultima VI, Aces of the Great War and Das Boot.

For more information, call Mindscape on (0444) 246333.

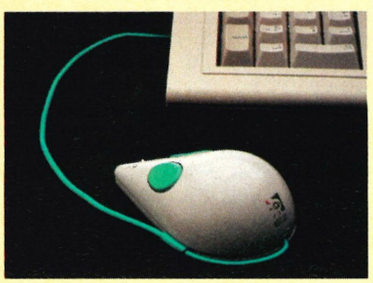
Logitech cuts up mice

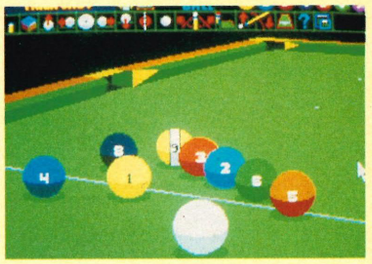
Major replacement mouse and peripheral supplier Logi (UK) is cutting prices across its Logitech product range, a move which will be "...most appreciated in this time of high interest rates, where any form of saving is a real boon," according to the firm's general manager, Brendan MacFerran.

The price reductions are as follows:

- The majority of the MouseMan range (including right-handed, left-handed and large models) drops from £65 to £49, while the Cordless version moves from £120 to £89.
- The standard TrackMan trackball falls from £85 to £69, while the portable model drops nine pounds to now retail at £84.
- The Kidz Mouse (which should need no explanation) is now £37, dropping from £46.
- The firm's DOS-based hand scanner, the ScanMan 32, has fallen £30 to £99.

All of the prices quoted above are exclusive of VAT. For more details, contact Logi on (0344) 891313.





Virgin dips into pool

Stick and ball fans have never had it so good, for no sooner has Virgin Games launched the chalk-tabulous snooker action of Jimmy White's Whirlwind Snooker on the unsuspecting PC world, than it cues up a simulation of pool to follow it to the table.

Once again conceived and executed by top programmer Archer MacLean, Pool will probably even carry the author's name, as there isn't really a professional pool player famous enough to match the Whirlwind.

In terms of gameplay, Pool will feature four variations on the basic game: eight-ball and nine-ball, both played to either US or UK rules.

Once again there will be an option to play human against human and to perform a series of trick shots — in fact, if the first game is anything to go by, this should be the nearest thing to having a pool table in your living room. Archer MacLean's Pool is due to make its debut in the Spring of 1993. Further details from Virgin Games on (081) 960 2255.

IN BRIEF

A CUSTOMARY SOLUTION

Just over a year ago, self-confessed 'computerholic' Mel Noonan began to find it hard to remember which keys performed which functions among his many games, utilities and simulations.

"I was getting a little confused by the way that software companies use different keystrokes to do different things," he says.

The result was a stunningly simple idea — through a newly-formed company, Silverbird, Noonan began to manufacture and distribute a series of blank keyboard overlays which PC users can customise to fit their own favourite programs.

Silverbird PC Keyboard Overlays come in packs of five and are available directly from the manufacturer. For more details, call (0525) 872614.

EAST MEETS WEST

The end of the Cold War may have put paid to any chance of the East and West's military hardware ever squaring up to each other for real, but a new compilation from Domark, Head To Head, brings together Domark's own addition to the digital airforce, MiG-29 Superfulcrum, and F-19 Stealth Fighter from simulation specialist MicroProse, a good buy at just £39.99.

For further information, Domark can be contacted on (081) 780 2222.

JIMMY WHITE's

'WHIRLWIND'

SNOOKER

BY ARCHER MACLEAN



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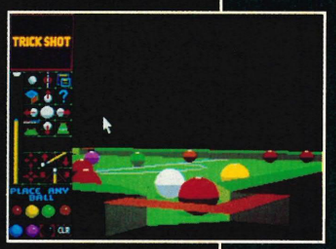
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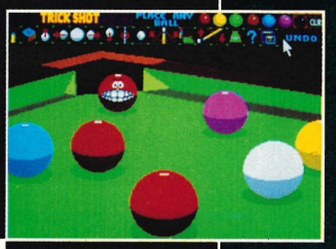
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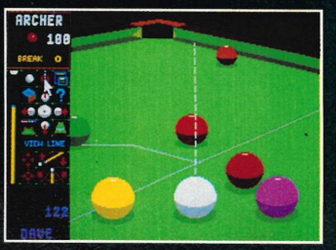
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Virgin GAMES

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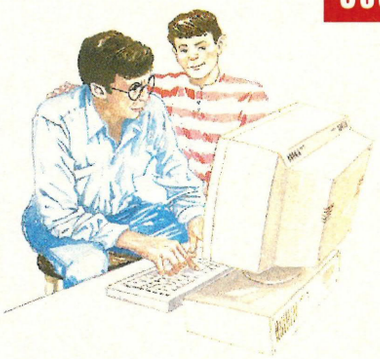
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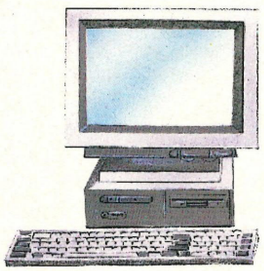
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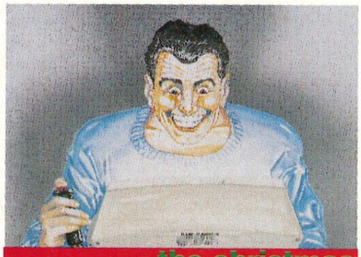
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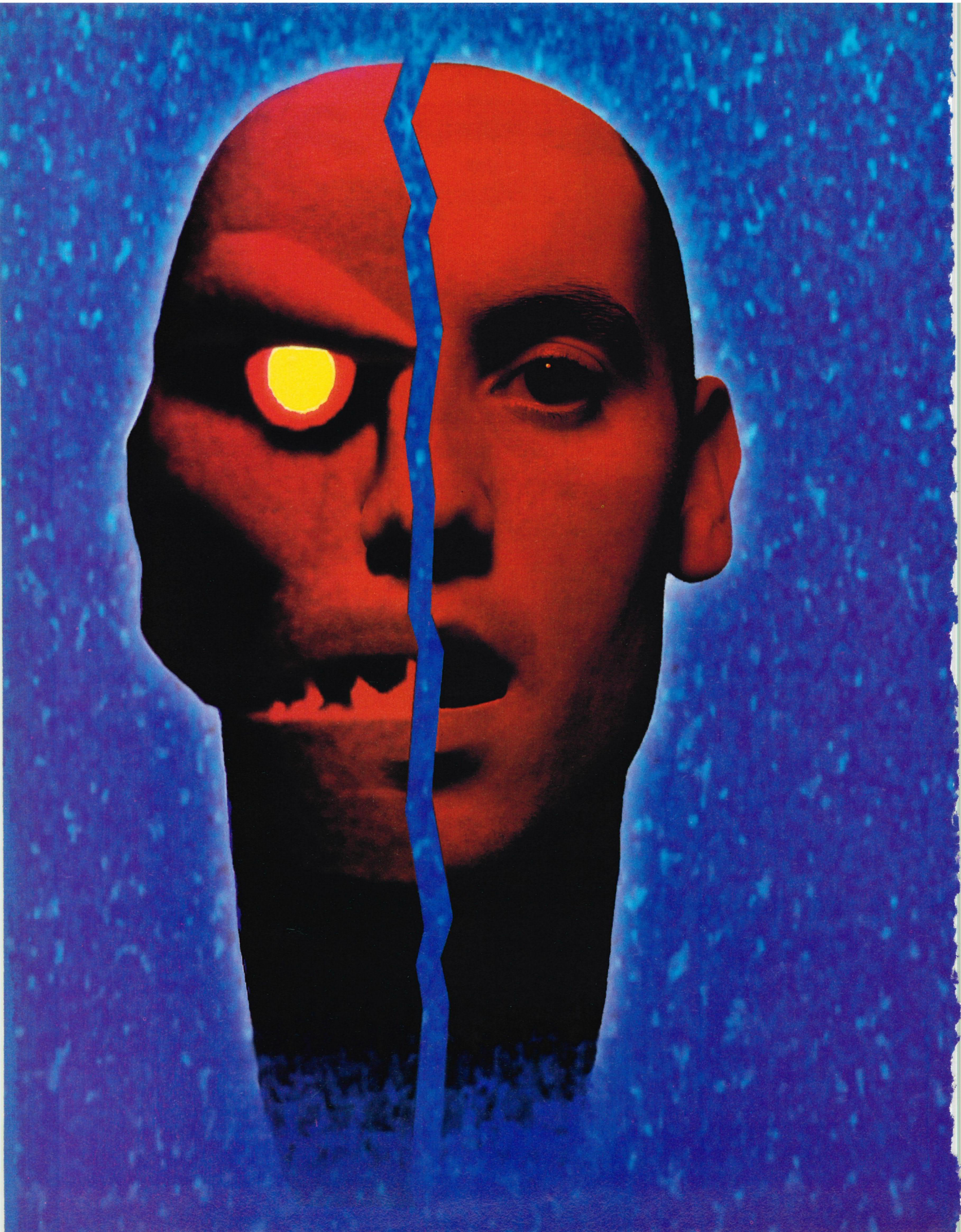
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Which of the following are you interested in seeing?

☐ Desktops ☐ Portables ☐ Apple Mac
☐ Amiga/Atari ☐ Software ☐ Printers



Using Role-playing games your PC's imagination

Despite being subject to scare mongering myths of satanic influences or hampered by the images normally associated with train-spotting, role-playing games are the second most popular form of computer game available. Paul Presley paints his face red and sticks the patches on his anorak to find out why

Freedom to do what you want. A chance to escape from an average everyday existence into a world full of mystery and excitement. The ability to be, for a short while, someone completely different to yourself. It's these elements that have made the role-playing game industry what it is today — huge. Next to flight simulators, RPGs are the most popular type of computer game going; just look at the success of the recent Ultima titles for an example.

"If you look at the other works of art like fiction and movies, fantasy has been popular for many, many years and I believe there's a very similar parallel in computer games," explains Richard Garriott, aka Lord British, founder of Origin Systems, Inc, and creator of the award-winning Ultima series. "The reason why fantasy, be it mediæval or science fiction, is so popular is that it's a chance to escape the mundane and take a journey into the fantastic. Fantasy games offer settings that are unlimited by constraints of real-world conceptions.

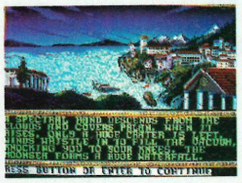
"Whenever you're writing a spy thriller or a western, for example, you are generally writing a story that is designed around real-world occurrences or situations. When you go off into fantasy role-playing games you still have those elements of great heroes, detectives, mother figures and evil bad guys, but you also get to include almost anything that the imagination can put forth. It opens up a broader set of possibilities."

The PC Review RPG round-up

For those of you that can't wait for the virtual world simulations of the future, why not try one of today's existing RPGs? Here we take a look at practically every RPG currently available. Apologies if we've left any out.

Tabletop conversions

The AD&D series
SSI/US Gold, price varies
SSI's hugely successful conversions of the most popular tabletop RPG of all time started way back in 1988 with Pools of Radiance. At the time, it was considered state-of-the-art (PCs were still very new to the world of games at this point) and managed to reproduce almost all of the tabletop game's complex rules faithfully. Unfortunately for SSI (and for the players), the system never really got much of an overhaul as time went by and the current releases (Pools of Darkness, Treasure of the Savage Frontier) look as dated as the original games now do.



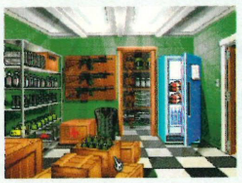
The Dragonlance series
SSI/US Gold, price varies
Dragonlance was a spin-off from the mainstream AD&D tabletop game, first appearing as a set of novels and later becoming an addition to the game. SSI was quick to cash in on the success of the series and produced a series of games using the standard AD&D system but set in the Dragonlance world.



MegaTraveller 1 & 2
Paragon/Empire, £34.99 each
One of the most successful sci-fi RPGs was GDW's (Games Designers Workshop) MegaTraveller, mainly due to the unique character creation system and realistic view of the future. Paragon's conversion of the system resulted in two (so far) fairly enjoyable games. The only problems with the games come with trying to re-create the rules for combat and space travel giving both games an over-complicated and unplayable feel.



Space 1889
Paragon/Empire, £39.99
Continuing its line of GDW conversions, Paragon's next release was of the rather bizarre Victorian space opera, Space 1889 (not to be confused with the Gerry Anderson classic Space 1999). Unfortunately the task proved a bit too challenging and the resulting game is fairly lifeless (although very technically accurate) and non-too enjoyable.



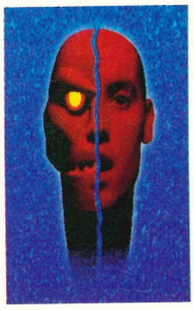
Twilight 2000
Paragon/Empire, £39.99
The third GDW game (or fourth if you count MegaTraveller 2) to make the transition from paper to PC was the post-apocalyptic Twilight 2000, a game of World War III freedom fighting. This time Paragon has gone for a very different approach employing everything from 3D action to isometric adventuring. It's not a bad effort and, despite slightly tiresome movement commands, it can actually become quite absorbing.



Buck Rogers I & II
SSI/US Gold, £34.99
Just recently, TSR (the company responsible for the tabletop versions of AD&D) went for something of a Buck Rogers bonanza. A spate of RPGs, board games, novels, comics and other assorted accessories emerged, along with SSI's computerised version of the game. Sadly, it hasn't really learnt from its previous errors and has used the same system seen in all its other titles (with appropriate modifications to the rules) and as the whole Buck Rogers phase has slowly faded, so too has interest in any subsequent titles.

Tunnels and Trolls
New World Computing/US Gold, £30.99
Before Thatcher there was Churchill, before Jean-Luc Picard there was James T Kirk, before PC Review there was PC Leisure and before Dungeons and Dragons there was Tunnels and Trolls. The granddaddy of all RPGs found its way on to our monitors quite a while back but

From the top: SSI's Pools of Darkness (from the AD&D series), Paragon's MegaTraveller 2, Buck Rogers (again from SSI), Paragon's Twilight 2000 and New World Inc's Tunnels & Trolls.



The whole genre of computer RPGs has progressed in leaps and bounds over the past few years, from the time when the screens were full of numbers, tables, charts and two-colour icons. These days, game designers seem to be going out of their way to provide the player with something that looks like nothing on earth and plays the same way. You're lucky if you even see a number outside of a manual's page indicators any more.

From dice to DOS

Role-playing games really achieved a widespread popularity with the emergence of Dungeons & Dragons back in the early 70s. As a board game, it was unique in that it didn't use a board, relying on the players' imaginations to create the settings and perform the actions. The key to every game was the Dungeon Master, a referee overseeing the whole game. He or she would hold all the information relative to the particular adventure or quest being played and would tell the story, calculating the actions of the players with the rest of the surroundings and relating the results in a narrative form.

The computer's role was to take over the job of the DM, allowing for a single player to control the whole group in one go. The advantage of this is that facts, calculations and tables could be called up instantly, eliminating the exasperating need to refer constantly to game manuals and work out what one dice roll means from another. The disadvantage is that you lose all the human elements associated with running a decent game, the ability to adapt to ever-changing events, to react to the unpredictable nature of human players and to allow a complete sense of freedom for the player's actions. No computer, no matter how large, can ever hope to anticipate a player's every move.

They can get pretty close, though. US Gold's Bob Malin, co-ordinator for SSI products in the UK, feels that the relationship between tabletop and desktop games isn't too distant. "SSI originally made a very good translation of the [AD&D] tabletop rules and systems. They were very faithful to the system, every single dice roll that you do in the game is accounted for in the Pool of Radiance engine. Because people were very familiar with the tabletop game and they could see that the computer game, in the form of Pool of Radiance, was a close copy, it was easy for them to get into."

It seems that despite the fact that the Eye of the Beholder style games seem to be the major players over here, in the States there is still a large following for the statistic-led, menu-driven games. This kind of number-crunching doesn't appeal to everyone though. "With computer fantasy role-playing games, there are two ways that I see them going," muses Garriott. "There is the character growth prod-

uct and the alternate life product. When I see a lot of people that play Dungeons & Dragons style games, I see people that sit around and say, 'My wizard is 25th level, he has a 35 strength and a sword that is +5 and he has 4,392 experience points'. Those kind of people play in order to fight battles and increase the power of their characters in order to battle against tougher and tougher situations.

"That's not the direction that I tend to go. I try to give you an alternate reality to play around in. I don't want you to think about your numbers or your stats, I don't necessarily want you to know that one sword is worth five points and one is worth six. In my mind, those things are secondary. In a real world you have a favourite sword because it feels better to you. It seems to do more damage when you use it, but you don't really absolutely know unequivocally that it is better. Instead I bury those features and focus much more on the story and you living out your alternate life, which means that the growth of your character is much more subtle and is not the principle objective."

Graphically intense

The majority of gamesplayers want something that's going to push their machines to the limits in both the graphical and playable departments, not settling for anything less. The most influential European RPG of late has been Shadowlands (see review in Issue 9), using a more attractive isometric viewpoint to run the game while still keeping to standard RPG traditions. "The impression I've had is that American role-playing games started on the PC format when it was very, very rudimentary," says Dean Lester, Managing Director of Teque and designer of Shadowlands. "CGA was a powerful medium in those days, so graphically intense role-playing games were unknown. They had to have lots of stats with very crude graphics because that was all the machines could handle. Over here in Europe we are much more geared towards good graphics and smart presentation, so when we started getting involved with RPGs we tended to bias them towards Amigas, which had graphic capabilities that are only recently being overtaken by top-end PCs.

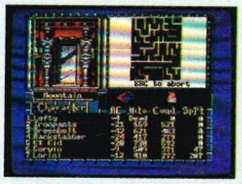
"We started on a more powerful machine, slightly later in the day, so our games tended to be more graphically orientated both from the hardware base and from the type of gamesplayer that we had. We had a much more arcade-biased games playing public than the Americans who were probably quite happy to have a PC version that was running on very crude graphic cards. As long as the stats were there and the graphics sort of represented vaguely what they were supposed to, people were happy. Hence the early Ultima series."

Nowadays with the emergence of games like Ultima Underworld and Ultima VII, it seems that everyone is taking advantage of powerful graphics cards and high quality presentation. Companies like Origin are investing a lot of time and money into finding new ways to draw the player closer into the game and increase the overall feeling of being there. Multimedia is a major buzzword here and one of

RPG round-up...











From the top: Ultima VII and The Savage Empire (from the Worlds of Ultima series) both from Origin, The Bard's Tale III from Interplay, Bane of the Cosmic Forge – Wizardy VI and Lord of the Rings (again from Interplay).

never really made much of an impact. Even so, it's an enjoyable little game, faithful to the rules of the original and far more playable than most of the AD&D range.

The Battletech series
Infocom, price varies
The actual tabletop version of Battletech is more of a strategy game than a role-player, although there are plenty of supplements that provide a wealth of background material and bring the whole genre to life. Infocom's computer versions are very much in the vein of standard CRPGs, but have the added advantage of hulking great robots tearing each other to shreds. The two RPGs are really quite absorbing but by far the most playable Battletech game is, unfortunately, a 3D arcade blaster. Still, can't win 'em all.

Fantasy Games

The Ultima series
Origin/Mindscape, price varies
Ever since Ultima I, there is no denying that Origin has been on to a winner. The Ultima series has just gone from strength to strength with each successive title more absorbing and playable than the last (with the exception of the latest instalment — Ultima VII — which has too many faults to offset the typically high quality of atmosphere). The key to the series is the believable settings and wonderfully crafted storylines that Richard Garriot has put into each game. The last two games (VI and VII) do require pretty powerful PCs but for the most part, they're well worth it.

The Worlds of Ultima series
Origin/Mindscape, £36.99 each
As a supplement (or spin-off if you're feeling cynical) to the Ultima series, Garriot has so far produced two Worlds of Ultima games, taking the hero of the previous seven titles to completely new adventures. The first — The Savage Empire — is a tribute to all the Land That Time Forgot type of films, with dinosaurs aplenty and ancient tribesmen. The second — Martian Dreams — is on a similar premise to Space 1889, but much, much better. Both games are totally absorbing and make a wonderful introduction to the wide world of CRPGs.

The Bard's Tale series
Interplay/Electronic Arts, price varies
One of the biggest 'cult' CRPGs was Interplay's The Bard's Tale. As a game it plays fairly similarly to the early SSI/AD&D titles, but for the time, the graphics were much better and there was a little bit more to it. Subsequent releases, while always trying to improve upon the original, have never quite been as absorbing as the first was. That said, there is an exceptionally large BT following out there and as most of the titles are available on budget (as well as a Bard's Tale Construction Kit if you should so desire) you may find them worth a look.

The Wizardry series
Sir-Tech/US Gold, price varies
One of the strongest 'also-rans' of the 80s was the Wizardry series (now up to number six in its long-running series), which to date has sold over three million games. Despite being relatively unheard of over here, Stateside Wizardry is almost as much a national institution as Ultima. Wizardry VI is really just paving the way for Wizardry VII, an all-singing, all-dancing affair to rival Ultima Underworld (supposedly).

Lord of the Rings
Interplay/Electronic Arts, £34.99
What was supposed to have been the definitive J R R Tolkien computer game has turned instead into a bit of a disappointment all round. Having previously appeared as a heavily bugged text-input adventure game, Interplay's version of the classic fantasy novel looked every bit as promising as it boasted, but playing it is another matter entirely.

Times of Lore
Origin/Mindscape, £25.99
Although quite old now, one of the best alternative CRPGs to come out of the Ultima stables during the 80s was Times of Lore. Even though it has been surpassed by many other titles, TOL is still strangely absorbing and very playable. It seems that good storytelling is going to beat good systems every time and Origin can barely put a foot wrong in this department. It's also worth noting that this is an early Chris Roberts game, the man who went on to bring us Wing Commander I and II. How times change, eh?

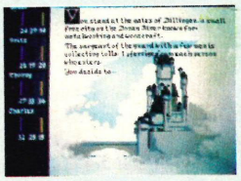
RPG round-up...

Darklands
MicroProse, £49.99
In what looks like a promising release from a company that has practically never set foot into the RPG world, Darklands takes you to mediaeval Germany, being both historically accurate as well as interesting to play. At the time of writing, it's still not quite ready for review but all the early impressions look good. In a slight deviation for the norm, urban encounters are all text driven as opposed to graphically displayed, with multiple choices making up the main heart of the adventures. Watch out for a review soon.

Magic Candle II
Mindcraft/Electronic Arts, £34.99
It may look like nothing more than a typical CRPG, but Magic Candle II has rather more going for it than most of today's offerings. For one thing, you're not restricted to a measly six characters, MCII allows you to have up to 31 willing heroes. Also you are able to split groups up, have characters wander off to do their own thing and generally behave in a very realistic manner. The Magic Candle series isn't the most widely popular, but for those that do experience it, you're in for quite a treat.

Science Fiction Games

Bad Blood
Origin/Mindscape, £35.99
Also dealing with life after the bomb, Bad Blood is the game that bridged the gap between RPGs and Wing Commander for Chris Roberts. Using an Ultima VI style interface, it's likely to be more widespread than the EA title, but for all its glamour it's no more enjoyable. It is nice to see Origin try new things, but it's also proof that even it doesn't have the Midas touch with everything.



Hard Nova
Electronic Arts, £25.99
Mixing most types of science fiction with a healthy dose of Cyberpunk, Hard Nova pits you as an intergalactic mercenary, struggling to eke out a living, working for whoever pays the most. Hard Nova uses several innovative control systems and does a pretty good job of conjuring up a hostile vision of the future. It tends to be more strategy inclined than anything else, but that's not always a bad thing.



Horror Games

The 7th Guest
Virgin, £TBA (CD-ROM)
It's hard to call Virgin's multimedia extravaganza an RPG, but then it's hard to know what to call it. Certainly, you take on the role of another character and wander round a different environment, interacting with plenty of NPCs and in a way it's really just a very enhanced version of Ultima Underworld. The 7th Guest could very well be what the future of CRPGs will be all about and for more details, watch for a review in the next few months.



The Legacy
MicroProse, £TBA
Falling somewhere between The 7th Guest and Eye of the Beholder, The Legacy (previously called Haunted) takes you into a creepy old mansion with a dark and sinister secret (what mansion would be complete without a dark and sinister secret, eh?). Using superbly animated creatures and breath-taking 256-colour backdrops, The Legacy should be well worth waiting for. Once again, look for a full review very soon.



Elvira, Mistress of the Dark
Accolade, £40.86
Based on the cult TV horror queen Elvira, Accolade's little excursion into the world of CRPGs found itself with quite an audience. Relying on shockingly horrific graphics and Carry On style smutty humour, Elvira can actually be reasonably entertaining and in places manages to outshine its sequel.



Elvira II, The Jaws of Cerebus
Accolade, £39.99
Based on the success of the original Mistress of the Dark game, Accolade saw fit to release Elvira for a second outing, this time taking her from her rundown old mansion to the studio lot of her latest B-movie. The studio gets overrun by evil, Elvira once again finds herself trapped and it's up to you to save the day. Although it's not nearly as atmospheric as the original game, Elvira 2 does have some nice moments, but not really enough to make it last.

From the top: MicroProse's Darklands, Electronic Arts' Hard Nova, Virgin's multimedia epic The 7th Guest, The Legacy (again from MicroProse) and Elvira, Mistress of the Dark from Accolade.



the most imminent CD-ROM releases to really take advantage of the technology is Virgin's The 7th Guest, a trip into a haunted mansion through the eyes of the player. It uses full-motion video and 256-colour backgrounds, combining it with the kind of freedom of movement found in Ultima Underworld.

As the PC becomes more powerful, we tend to get closer and closer to true role-playing within a game, but there is one all-important aspect that remains missing. "The Game Master interaction and the tapestry of the world detail is completely achievable," confesses Garriott. "The part that's tricky is the interaction between the players actually playing the game. That will be entirely achievable at some point, but it will likely manifest itself the best when we have full networking of computers.

"In fact, then it may even be better than paper gaming. One of the limitations with that type of RPG is that a lot of it is done mentally. When you describe what a room looks like and ask what the players do, the detail of the action is not nearly as quick or as accurate as a visual simulation. If you do network five computers together, the rooms are automatically generated in real-time, you really do see your characters there in real-time and in the end you will also see every action. And under the presumption that you can all talk to each other — are in the same room as each other — it would be the optimum blend. Five players all sitting around a real world. The very next step from that is virtual reality."

But no matter what happen with the technology applied to RPGs, one thing holds true throughout — they are certainly much more than just your average game. Dean Lester sums it up best. "Role-playing games should be a software experience rather than a program."

Devil worshipping

One of the more common myths about role-playing games is that the whole genre is a haven for satanic rituals and devil worshipping. There have been numerous occasions when the more devoted religious fraternity have discovered that a suicide victim (usually with severe mental disorders) happened to play Dungeons and Dragons one Sunday afternoon several years back and have made the connection, got on their high horses and started screaming for the games to be banned.

These images are often only reinforced when you consider the generally violent nature of most fantasy role-playing games, swords flying left, right and centre and foul creatures with fangs just waiting to rip you to shreds. But when you consider that most games are no more violent than the typical Arnold Schwarzenegger film, you begin to wonder where the fanatics are going to stop. Satanism in Eastenders? Features on how to sacrifice goats in Blue Peter?

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Ned '92

RPG round-up...

First-person perspective games

Eye of the Beholder I and II
SSI/US Gold, £30.99
The first RPG to really break the mould and open up the genre to a much wider audience was SSI's AD&D-based, first-person perspective Eye of the Beholder. Instead of using the traditional overhead view of multiple characters, Eye lets you see the action through the eyes of your heroes. Eye II is pretty much the standard SSI sequel, the same system with a different story attached. It does little to further the system but still manages to remain quite playable.

Might and Magic III
New World Computing/US Gold, £40.99
After dishing up the usual RPG fare for the first two titles, the third Might and Magic jumped on to the Beholder bandwagon and really went to town. A larger display screen than the Eyes, more party members at one time and a greater sense of environment all led the way for the game's good points, a number of bugs and programming faults brought up the rear. There are bug-free versions currently available and on the whole MMIII is fairly enjoyable, but not much of a rival to Eye.

Dungeon Master
FTL/Psygnosis, £34.99
Another forthcoming product that's been forthcoming for quite some time. It was the original game to use the first-person technology, employing it on the Amigas and STs several years before SSI caught wind of it. It also had unique character generation and magic systems and, on the whole, was one of the finest 'mainstream' RPGs ever. The PC version has been 'just around the corner' for some time now and hopefully will be just as good when it finally arrives.



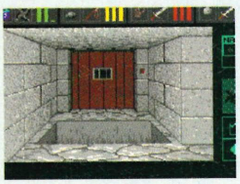
Ultima Underworld
Origin/Mindscape, £39.99
The premier first-person RPG comes, naturally enough, from the premier RPG producers — Origin. Underworld takes the genre one step further than the static flick screen effect seen everywhere else, giving the player smooth scrolling bitmap overlaid 3D (coupled with the usual high class storytelling and presentation). Underworld really is one of the best things to hit the mainstream CRPG market since Dungeon Master and shouldn't be missed by anyone with an ounce of sense (and a PC powerful enough).



Isometric Games



Shadowlands
Domark, £29.99
It's debatable whether you'd call isometric games RPGs or arcade adventures. On the one hand, they allow a much wider audience to dip their toes into the genre, on the other, they tend to put off the more devoted RPGer. Of all the isometric games around though, Shadowlands is easily the best, giving you total real-time control over four separate characters as they search for a dead man's bones.



Shadow Sorcerer
SSI/US Gold, £30.99
One isometric game that would definitely fall into the realms of RPGs is SSI attempt to further the Dragonlance series and break away from the traditional gaming systems. The actual game is really pretty bleak, but it should appeal to anyone looking for an easy entry into the genre.



Cadaver
Renegade, £35.99
Something that really falls on to the thin line between RPG and arcade game is the Bitmap Brothers' approach. Cadaver concentrates heavily on the puzzle solving element of an RPG, using icons to control the central character, which is what gives it the overwhelming arcadey feel. Cadaver is very rewarding to play though and could be just the thing if you're after a change of pace.

Legend
Mindscape, £30.99
Something of a cross between Cadaver and Shadowlands, Legend uses Cadaver-style icons with a multi-character party and couples it with all the good aspects of most standard CRPGs. The magic system uses runes and mixing bowls, there's an auto-mapping facility to chart your progress, wilderness travel uses an overhead view map, etc.

From the top: SSI's ground-breaking Eye of the Beholder, Origin's ground-breaking Ultima Underworld, Domark's ground-breaking Shadowlands, FTL's Dungeon Master and Mindscape's Legend.

AN RPG GLOSSARY

(or just what is a bastard sword?)

RPG — Role Playing Game.

CRPG — Computer Role Playing Game.

FRPG — Fantasy Role Playing Game. The term RPG can usually be preceded or followed by any other suitable initial(s), eg, SFRPG — Science Fiction Role Playing Game. Quite often the G is left off the end, as in FRP — Fantasy Role Playing or Player.

D&D — Dungeons & Dragons. The first tabletop role-playing game to achieve a widespread success.

AD&D — Advanced Dungeons & Dragons. A bigger, more detailed version of the original D&D game.

PC — Player Character. These are the characters under the player's control, from a single fighter to a party of warriors, wizards and priests.

NPC — Non-Player Character. This is the term given to the remaining, computer controlled characters, ie, everyone NOT under human control. These can sometimes be members of the players' party (as in the Ultima games)

HP — Hit Points. A measure of how healthy the character is. Usually when a character's HP is reduced to zero (through various wounds) he is considered dead or unconscious. Occasionally you are allowed to resurrect the dead or nurse the wounded back to health. Not all games use hit points as a measure of vitality, some use health, some rely on energy, while others even have life points. HP are the most common.

Stats — Most RPGs rely on fairly comprehensive statistics (or stats) to create the characters. The most common six (taken from the AD&D game) are strength (STR), intelligence (INT), wisdom (WIS), dexterity (DEX), constitution (CON) and charisma (CHA). A character with a high charisma score, for example, would usually be able to charm his or her way out of most situations. A character with a low intelligence score would probably just hit everyone.

Skills — Some games use skills to further enhance the characters. These can be anything from horse riding to weapon handling. With most games, the skills improve as time goes on, indicating the player's growing proficiency in that particular area.

Alignment — A measure of how good or evil a character is. Most heroes are normally good and most enemies are normally bad. Neutral characters tend to be simple animals just looking to protect themselves and not involve themselves with others or people who generally think of number one but aren't adverse to helping out others every now and then.

Level — As players win fights, uncover treasure and generally progress through a game, they increase in levels. As a level number increases, their skills, HP and general stats also tend to increase to reflect their growing maturity.

Party — The term given to the player's group of PCs.

DM — Dungeon Master. Sometimes called the Game Master or the Referee. The DM plays the part of the computer in all tabletop games, telling the stories and holding all the information needed to play the game.

Turns — A measure of time. Some games are run in real-time in which case everything continues to happen at a constant rate. Games that use turns (such as the AD&D range) allow you to select an action for each character after which they then select the actions for each of the NPCs before finally carrying them all out, stopping after a set period of time to allow you to select your next set of actions and to begin the process all over again.

Tabletop — A role-playing game played in the traditional manner with dice, paper and pens as opposed to computer.

Bastard sword — A large two-handed, double-edged sword, so named because when you hit someone with it they tend to reply "That hurt, you bastard".



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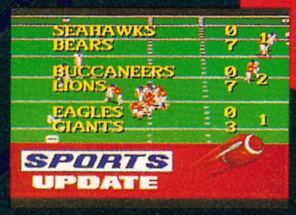
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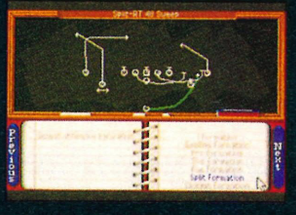
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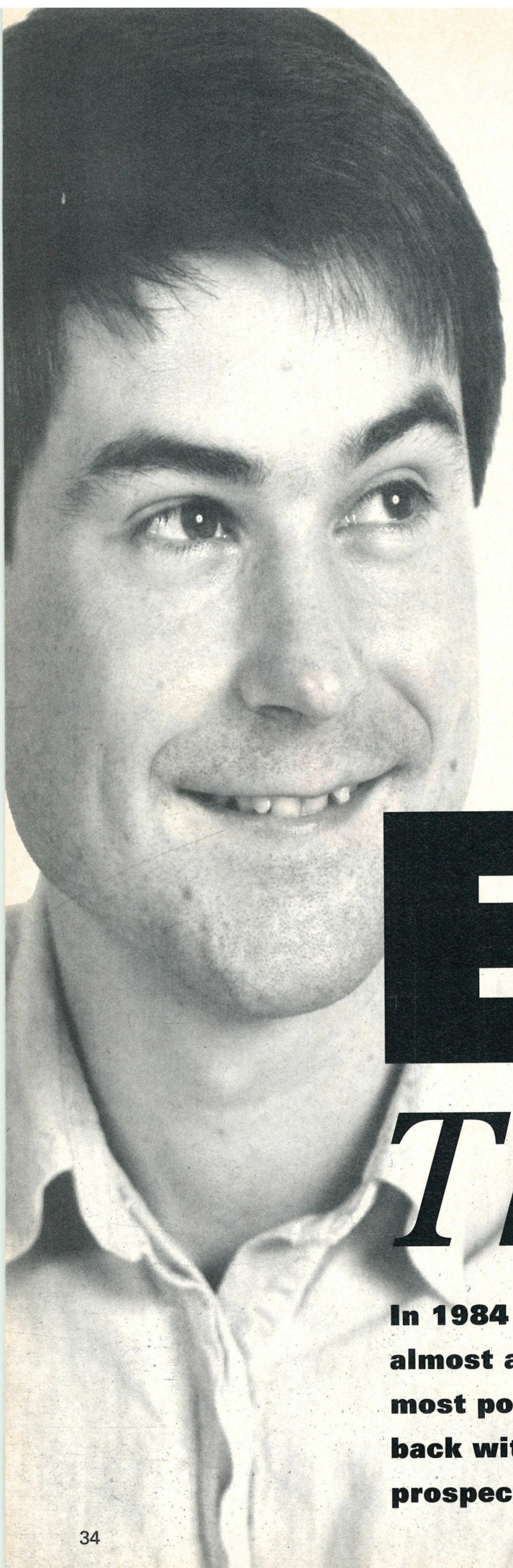








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Elite

The legend

In 1984 a true computer legend was born. Now, almost a decade later, the man who gave us the most popular space trading game of all time is back with a vengeance. Paul Presley looks at the prospects for Elite II

There is a school of thought in the computer gaming fraternity that if it wasn't for Elite, we wouldn't have any of today's high-class 3D polygon simulators. There is also a school of thought that says that Elite was the death of computer games simply because nothing that could come along after would ever be able to better it. One man who hopes that this second notion isn't true is Elite's co-creator David Braben, because if this were the case, the chances of success for his long-awaited sequel would be pretty slim.

Elite II has been on the cards now for four years, this time being developed solely by Braben instead of with his original partner, Ian Bell, the very much unsung hero of Elite, although the PC versions of the game are being programmed by Chris 'Elite Plus' Sawyer. Also back on the team is Konami's Colin Fuidge acting as the project manager, in much the same manner as he did with the first game back at original publisher Telecomsoft.

Elite was very much ahead of its time back in 1984, performing feats that had never been seen before outside the arcades. Wire-frame 3D graphics, challenging and original gameplay and a complete absence of dot-eating yellow monsters. "Although the software houses' reaction to the game was very positive," remembers Braben, "Thorn EMI, which was one of

the major players at that time, turned it down saying that it was too different to the other games. It didn't have three lives, it didn't have a score, it didn't have any of the classic things contained in, say, Pac-Man."

Despite these 'limitations', when Elite was released by Acornsoft (initially just on the BBC Micro) in the four months before Christmas it sold over 100,000 copies, with Braben netting an estimated £1 per unit. Since then, taking into account all the other versions (from the Sinclair Spectrum, to both Elite and the upgraded version, Elite Plus, on the PC) that figure has risen by well over seven times that amount.

So did Braben rest on his laurels and enjoy his new-found wealth? Well, to a certain extent, yes. He now lives in a riverside flat in Cambridge and owns an Audi sports car, but he hasn't stopped programming. Almost before the original Elite was finished, he and Bell were already developing Elite II, to the point where a rough version was running on the BBC. "Back in 1986 I started on the sequel," says Braben, "along with Ian Bell, which we got to a playable state on the Commodore 64 but we had to abandon because it was too slow."

But now the real thing is upon us, albeit currently on the Amiga. Braben has never really come to terms with the PC and its many programming languages, preferring to stick with what he knows and leave the rest up to someone else. Chris Sawyer is the man responsible for the PC version but while he's in charge of the programming, the design of the game is still very much up to Braben.

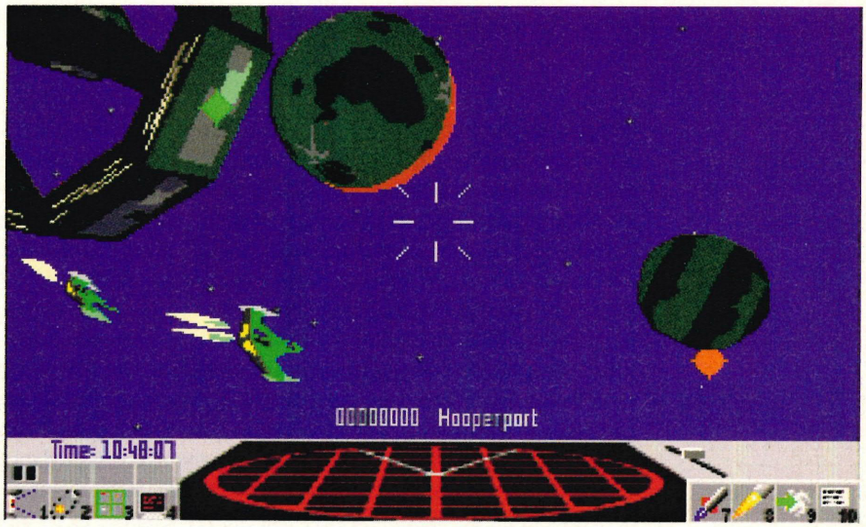
What's new for Elite II?

Elite II, or rather Frontier – Elite II as the game is actually called (although Braben may not be one for just putting a 'II' on the end of a sequel's name, if Elite II wasn't on there somewhere it probably wouldn't sell nearly as well as publisher Konami is hoping) is very much what you'd expect of a sequel to the best game of all time. Everyone had their own grievances when they played Elite. Some wanted external views of their ship, some wanted to be able to fly vehicles other than the Cobra, some (in fact most) wanted to be able to fly on to a planet's surface. All of these things are now possible, plus much more.

• *is back*

Elite II is actually set in our own solar system and contains over 100,000,000 planets (compared to a mere 2,000 in the original), all of which have been accurately mapped thanks to diagrams, algorithms and data from a Cambridge University's astronomy and science departments. And yes, being our solar system, Earth is in there. Now you finally get to see what our beloved planet is like in the year 3200.

As far as the actual gameplay goes, Braben has ensured that it sticks to its roots of freedom to do what you want. Trading is still an integral part of the game, but unlike before it's not nearly as important to the overall aim of making money. Missions are on offer at local space stations for the skilled (or unskilled) pilot, pirate gangs are always on the lookout for new members and subsequently bounty hunting is an even more important and rewarding task than before. Although it's an oft-touted phrase in computer games, Elite II is designed to offer the player complete freedom to do whatever he or she wants, within a well structured and believable game world.



Gone are the days of the dodecahedron space stations with blank faces. Space stations of 3200 are huge rotating wheel affairs with competent traffic control and tough police crews. Here we see a small gang of fighters leaving for parts unknown.

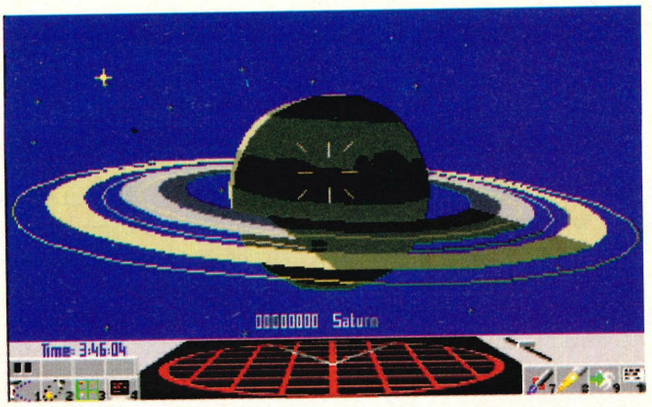
The politics of the game centre around several large corporations (similar to the background seen in the Alien series of films) all out to run a profitable business but not adverse to the odd spot of illegal activity to ensure a favourable outcome. Become a particularly notorious pirate, for example, and you may find yourself being hired by one company to attack another's freighter convoy. There are governments trying to keep the peace all round and the notorious police Vipers are still in business, shooting first and asking questions later, but you'll tend to find that the further away you get from the 'civilised' areas of the galaxy, the more dangerous and notorious the bad guys become.

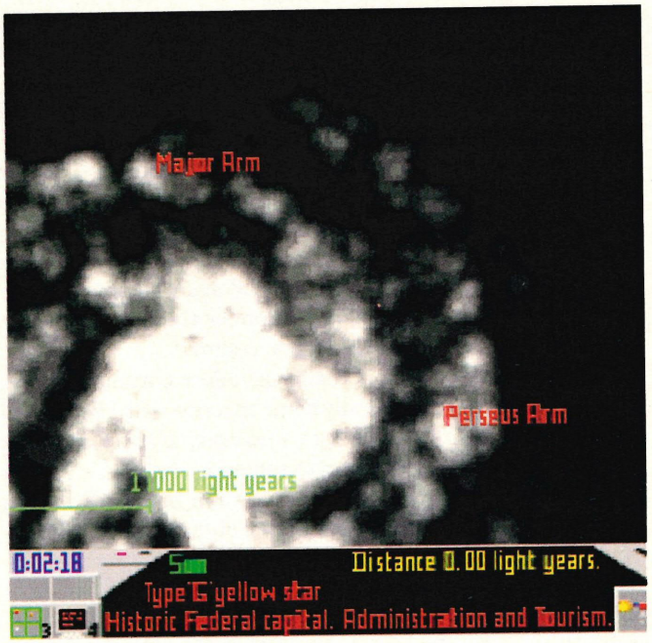
Shooting from one end of the galaxy to the other is still just as simple as before, from a player's point of view. From the more technical side of things, hyperspace is a lot more realistic (or about as realistic as a mythical form of travel can be). "The thing about Hyperspace," explains Colin Fuidge, "is that when someone would travel through it, what they'd actually be ▶

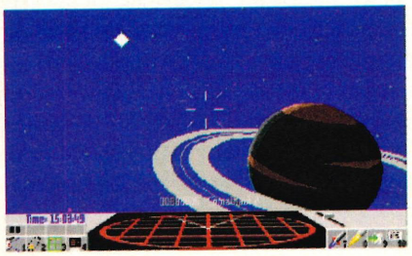


... including good old London town. Take a look at the clockface on the church. As an example of the amount of detail contained within the game, this clock keeps real-time accurately, no matter where you are in space.

doing is ripping a large hole in the space-time continuum, bending space until the arrival and destination points were next to each other and travelling through the hole from one point to another. What this does is leave a big hole in space behind the player's ship that will gradually diminish." Elite II recreates this effect in a most spectacular fashion. A crackling bolt of electricity forms in front of your ship (akin to the time-travelling effect in Back to the Future) from which emerges the 'warp-hole'. Your ship is pulled into it and deposited on the other side. However, if you then turn around or use a rear view you can still see the hole – complete with electricity bolts – and can continue to use it until it diminishes. Now the really importance of this is that anyone else can use it too. "In the original game," continues Fuidge, "people would use the Hyperspace to escape from battles. Not any more, as once you jump out, whoever was attacking can follow you. It works both ways though. Say you arrive in a system and see a hole still crackling away you know that someone has just jumped out and you could follow for a spot of piracy." All of this scientific reality means of course that there is no more Witch-space, home of the ruthless Thargoid empire.

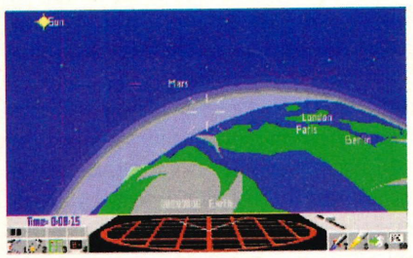






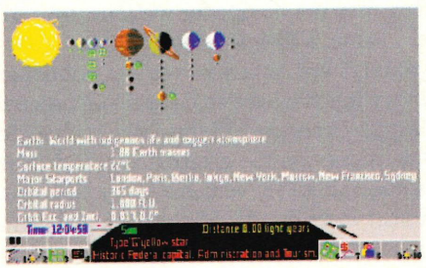
A good example of the planetary detail is Fomalhaut 2, ringed by an asteroid field. As with the rest of these pictures, this is taken from the 16 colour version of the game. At the time of writing the 256 colour versions are still in the early stages.

The whole game is based around scientific fact though, from the varying effects of gravity on different planets to the make-up of star systems themselves. Different systems have different coloured suns, casting different coloured shadows on ships and planets, binary systems exist for the more touristy of you (a binary system is one in which one sun orbits around another sun, occasionally with other, rather hot, planets to boot). Braben has also created a way to attach polygons to the surfaces of planets giving moons an uneven, rocky, even volcanic, texture when viewed from orbit.

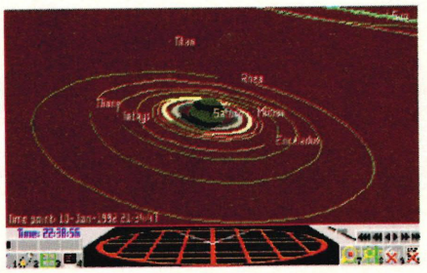


And here's Earth in the year 3200. The design of the continents isn't quite finished yet, so don't worry about the slightly odd looking Europe. As you can see all of the major cities are still here and all can be visited...

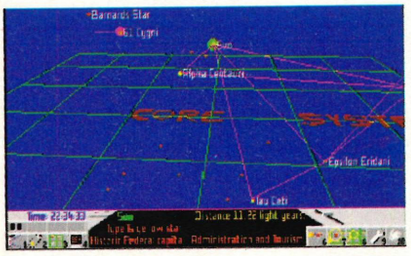
Speaking of graphics, smooth polygon curving is being used for the first time in a computer game, giving planets a truly circular surface with volcanoes that look a little more defined than the usual gradually decreasing pyramids and allowing ships to have curved wings and a wealth of different shapes. Small fighters have sleek aerodynamic lines to suit their sporty nature while huge 30 mile freighters, though tending to be rather more blocky, can actually have small domed cities on them.



Information on a planet or a solar system can be called up on these data screens. Space stations, ports, planetary mass, population and many other trivial (or not-so trivial) snippets can be picked up here.



Saturn lies at the centre of this planetary map, showing its various moons and the position of the sun. As the planets rotate so the map changes.



There are several different map screens in Elite II, the most common of which is this Core System map showing the surrounding planets, systems and suns. From here you can plot your course and see exactly how far one spot is from another.

I could go on listing the features of Frontier Elite II for ever. I could mention the inter-ship communication, the black market for illegal trading, the insurance policies for ship damage, the various ship identification markings, the brand new space station wheels, the military bases or the customised ships. I could mention the war zones, the dozens of new ship types and the fact that they are so detailed you can go right up to the back of one and read the warning stickers next to the engines. I could even mention the fact that Konami is hoping to release Elite II on the PC by November, but would you believe me? More to the point, can we really believe Konami? Whenever it arrives, though, Frontier Elite II should be big, literally. ■

LASER SQUAD

We need a leader. We have many missions to complete. We have to assasinate leaders of our aggressors, we have to destroy heavily guarded installations. We have many enemies, and they are not all human. We need to cross alien landscapes, over rocky surfaces, through vast subterranean caverns and across insect infested swamps. We need help. We need a leader.

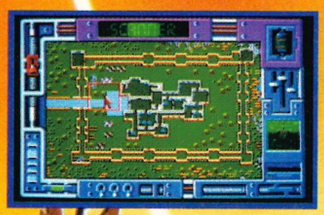


















"Laser Squad" has that elusive blend of excitement, challenge and addictiveness all mashed into one. Definitely on the short list for all time classics" 88% Zero.

KRISALIS SOFTWARE LTD.

"A terrific game that is superbly playable" 93% Amiga Format.

Laser Squad attracted universal acclaim when first released onto the market. Krisalis have now upgraded and expanded Laser Squad into a first class strategy game which requires 8 meg of hard disk space. VGA 256 colour mode supports Ad Lib and Sound Blaster and Roland.

Krisalis Software Ltd., Teque House, Masons Yard, Downs Row, Moorgate, Rotherham, S60 2HD Tel: 0709372290

Making an impression

A printer may not be the most obvious upgrade for the PC games player, but your computer set-up can be strangely incomplete without one. Without a printer, your data has nowhere to go; you can write letters to your heart's content, but you can't send them; you can create graphics or simple DTP'd documents which never see the light of day, and you can't even use the facility that many games offer to print out 'state of play' sheets or high score tables

Even without identifying these specific needs, a printer is usually somewhere near the top of people's wish lists.

Printers come in three main varieties: dot matrix, inkjet and laser. There are other technologies, as used in LED, thermal and daisywheel printers, but in terms of quality, availability and value for money, it is the first three that rule the roost. If your current acquaintance with printers is restricted to the large, grinding office workhorse, set to churn out interminable accounts figures in the night in spotty script, you will be relieved to hear that personal printers are not like that. You can buy a compact, quiet, versatile model which will print in a variety of styles; it just probably won't be as fast.

For anyone spending their own money, printers are largely still a black and white medium. Colour dot matrix printers are the cheapest, using a coloured ribbon to output in up to seven colours, and will add a certain pizazz to your letters and other documents, but they are still not entirely suitable if you require colour fidelity. Inkjet printers offer the best balance between colour quality and price.

There are also a couple of other points to bear in mind. If *all* you want to do is print out address labels, there are dedicated label printers such as Seikosha's Smart Label Plus, which costs just under £200, and is designed simply to churn out labels. Secondly, if you want to use the printer to print on multi-part forms, you need a dot matrix model – this can't be done on a non-impact printer such as a laser.

Like much PC hardware, there is a balance to be achieved between fast advancing technology, and fast falling component prices. You can never hit your finger on a spot and say "this is the best time to buy a printer", but in the last couple of years there hasn't been a bad time to buy a printer; nearly all represent excellent value for money.

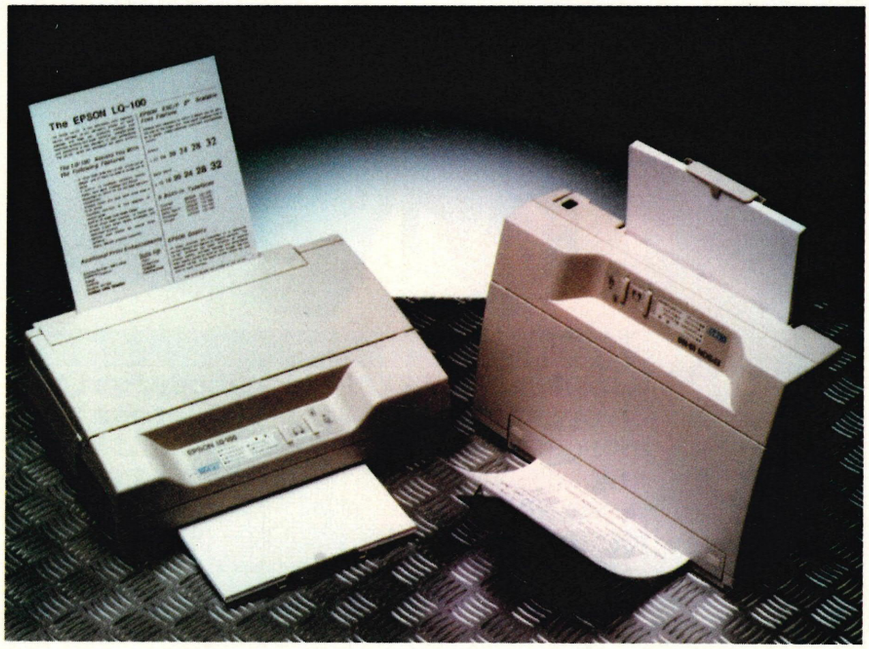
Once you have bought your printer, you need to get it and your PC talking to each other. The most popular printer interface is a Centronics parallel interface, which is an absolutely standard cable connecting the PC's printer port to the corresponding port on the printer. You can also buy printers with a serial interface but these are more complicated to set up and less common in the shops.

Having made the physical connection, you now need to make sure that your printer will understand the messages being sent to it from your software. If you are using a word processor or desktop publishing program, there will usually be a set of printer drivers supplied with the program. At some point during the initial installation, you'll be asked to select a printer from the list and the program will then install that printer's driver for you.

Games which have a facility to print out high scores or progress reports usually have a very basic printer driver which should work without any special configuration in either IBM or Epson mode – and most others.

You may well find that the exact model number of your printer isn't on the list – but don't despair. Printers normally come with built-in emulations for IBM Proprinters and Epson FX80s; software generally supports these two at the very least, so if

Choosing and using a printer



Epson's 24-pin LQ100 has a very small footprint for a dot matrix printer, making it easy to store. The solid box design also makes it quieter in use.

you're stuck for a suitable printer driver, try one of these, and set your printer up to match. Exactly how you do this varies according to the type of machine: on a dot matrix it will usually be a question of changing one of the DIP switches tucked inside the printer somewhere; on a laser the emulation is normally set via the control panel.

Dot matrix printers

Cheapest to buy and cheapest to run are dot matrix printers. These print characters, or graphics, line by line, by firing the pins on the printhead at the paper; between printhead and paper is an inked ribbon. The printhead may have nine pins arranged vertically on the head, or 24 pins in two rows of 12. The resolution (fineness of print) is obviously better with 24-pin printers, and they are also faster. Print quality also depends on the mode you are using for output. In draft mode, a dot matrix printer prints each line with just one pass of the printhead and the end result will have that familiar dotty look – but it will be quick. For final copies of letters or reports, or your CV, you'll probably want near letter quality mode, for which the printhead will make two passes at each line, the second very slightly offset from the first, so that those gaps between the dots are filled.

Dot matrix printers work at their best outputting text from programs running under DOS. While happy to cope with graphics, printing slows down enormously to churn them out, and you'll often get a gappy, venetian-blind effect on the finished article. Output from Windows documents is also graphics-based and correspondingly slower.

The latest 9-pin models are not to be sniffed at if your documents don't have to be absolutely pukka; near letter quality on these machines may not be very fast but the print can be surprisingly crisp and clear. Many also have a variety of fonts (typestyles) available and increasingly ingenious means of controlling the printer from the front panel. To print in colour, you need a printer specifically capable of so doing, which will come with a multicoloured ribbon.

With a price difference of around £50-£75 between 9-pin and 24-pin dot matrix printers, you may well decide that it's worth the extra for the speed and the better print quality – especially in draft mode. If you have some more cash to spare, however, you might well consider an inkjet printer. Incidentally, don't think of recommended retail prices as gospel; if you shop around you will invariably find printers well below RRP, with 9-pin dot matrix models starting at around £120 and 24-pins at around £170 (these prices, and all others quoted in this article, include Vat). The very soft pricing in the printer market is why prices quoted here are necessarily vague.

Major names in the dot matrix market include Citizen, Star Micronics, Panasonic, Brother, and of course, Epson. Epson's new LQ100 is designed to be quieter than most with its boxy, padded casing. Panasonic and Brother both make sturdy, no-nonsense machines, while Star has long been noted for the value for money of its long-running LC-labelled series.

Inkjet printers

Two companies dominate the inkjet market: Hewlett-Packard and Canon, although this a fast-growing technology and other companies such as Olivetti, Brother and Epson are getting in on ▶

the act as well. Inkjets are frequently touted as the cost-effective alternative to a laser printer – similar print quality at about half the price. Certainly the print quality is a step up from that produced by dot matrix printers: properly rounded letters without any suspicion of dottiness, but with the cheaper, more mass-market orientated inkjets you can still tell the difference between their output and that of a laser quite clearly.

Inkjets are reliable and quiet in operation, thanks to their lack of moving parts. While Canon calls its models bubble jets, and HP uses the term inkjets, the technology is based on the same principle. The printhead is composed of minute nozzles, behind which is an ink well. A tiny jet of ink is forced out of the nozzle on to the paper to create each dot – characters being made up of a matrix of 18-48 dots. If this sounds a slow and cumbersome operation, bear in mind that the individual nozzles are too small to be seen with the naked eye, and that the ink is squirted on to the paper hundreds of times a second.

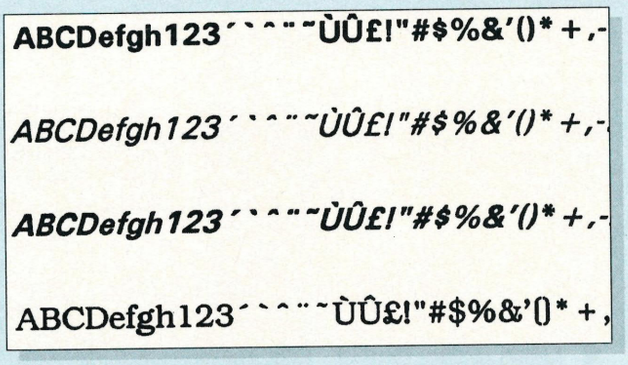
This makes inkjets a fast and precise means of printing. The printhead and ink cartridge are often combined in an all-in-one unit; when the ink cartridge runs dry, it and the printhead are removed and a replacement clipped in place. This makes the running costs of an inkjet rather more than that of a dot matrix, and for that reason, you may want to look elsewhere if you're going to be making heavy use of the printer.

There is one word of warning for those who want to combine using both single sheets of paper (with letterheads, etc) and continuous stationery (with the perforated sprocketed strip at▶

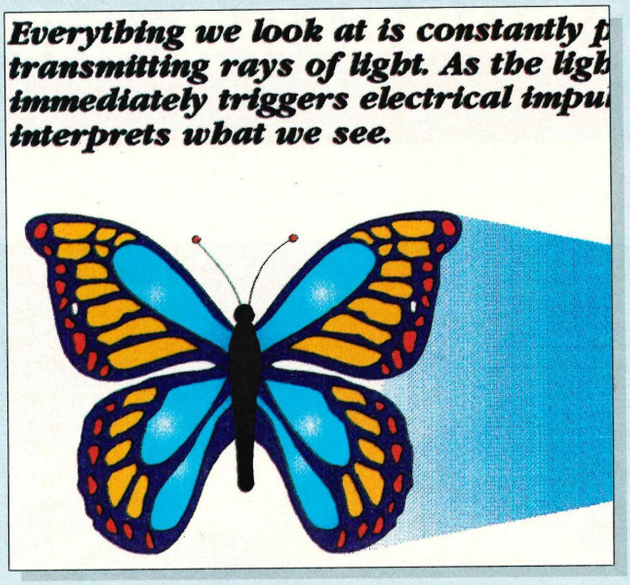


The new BJ-10ex in Canon's highly popular range of compact bubble jet printers, designed to be portable, for use with laptops. That didn't stop desktop users falling for them as well, though.

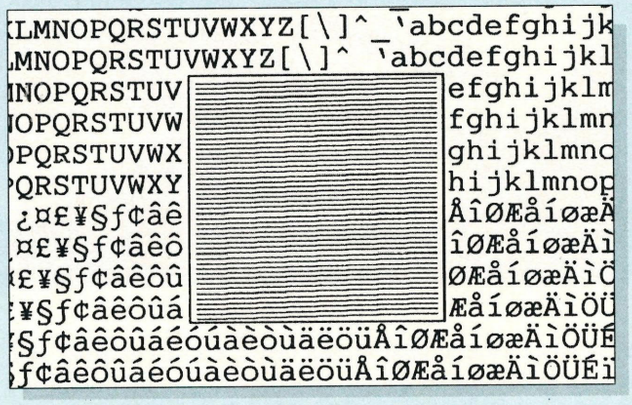
Laser print: this sample showing various internal fonts comes from a Brother HL-8V, and is shown at actual size. Compare the definition of characters with the inkjet sample, below.



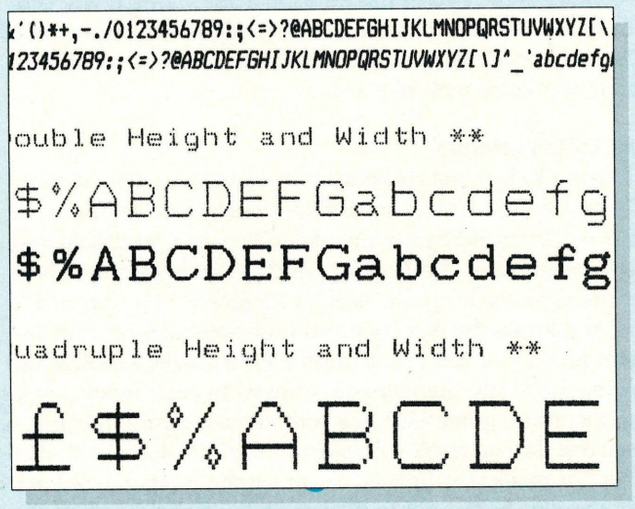
Colour inkjet: actually Canon's BJC-800 bubble jet. The warmth and strength of the colour are eye-catching, but you can see the difference in character crispness between this and the laser samples.



Brother's laser again, this time showing sample graphic and shading definition. Graphics are printed at a resolution of 360 dots per inch. Again, compare the type with the dot matrix sample, below.



Citizen's 9-pin dot matrix Swift 9 shows that low-cost needn't mean blurred and dotty. This sample is in near letter quality mode, with the printhead going over each line more than once to fill in the gaps.

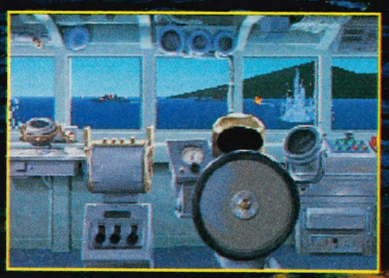


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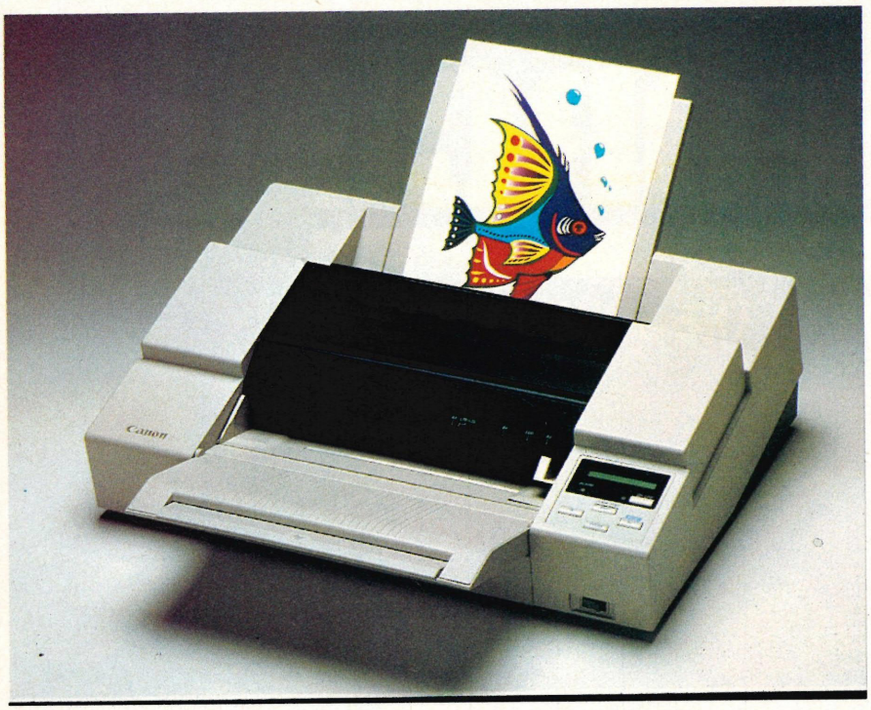
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each side). Some inkjets will use both, sometimes the tractor feed mechanism is extra and some will take single sheets only. However, they no longer need special paper.

An inkjet is probably your only choice if you absolutely must have good quality colour printing without remortgaging your house. Colour inkjet printers have a multiple printhead with differently coloured ink cartridges and colours – normally four: cyan (light blue), magenta (deep pink), yellow and black. These are mixed to produce the precise desired hue at print time, to excellent effect.

Lack of moving parts also means that inkjet printers can be made more easily portable than most, and Canon's BJ-10e range, pictured on page 40, is about the nearest any printer is going to get to a glamorous fashion item. Even if you don't need printing on the move, the newest BJ-10ex – which you should be able to find for just over £200 – will fit snugly on your desktop with room to spare. Canon also makes colour inkjets, including the high-end BJC-800, whose output is shown here, but that will set you back around £1,700.

Canon's rather swish desktop-sized BJC-800 is a top-of-the-range colour bubble jet printer. It will set you back around £1,700, but just look at the quality of the output.

The other major player, Hewlett-Packard, has the DeskJet 500 in both black and white and colour versions, starting at around £330 for the mono models and £500 for colour. Shop-around prices for other manufacturers' low-end mono inkjets generally start at around £200.

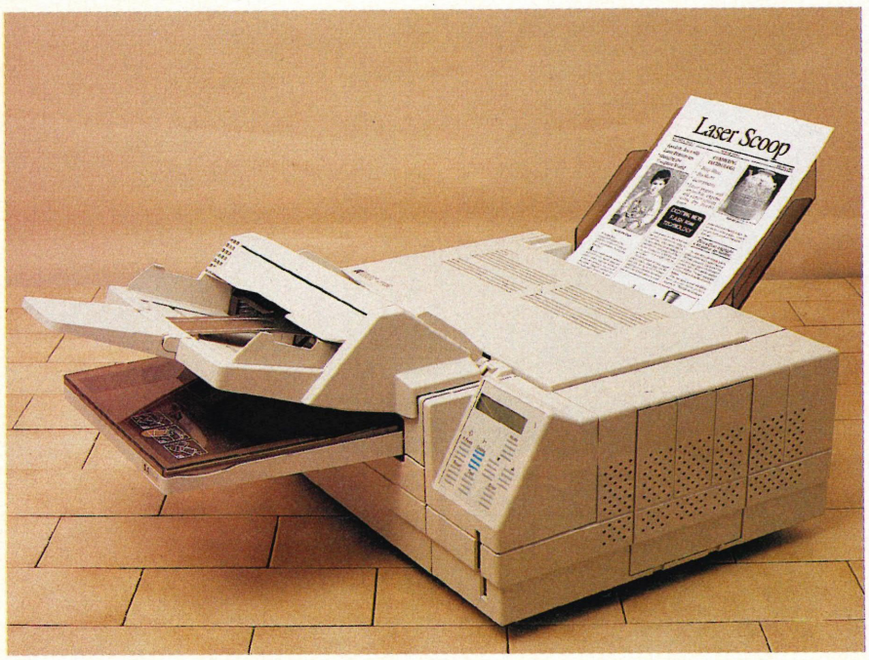
Laser printers

It's only comparatively recently that laser printers have come within the province of the consumer, with prices plunging from over £1,000 to around £500 for a low-end personal model. Laser print quality is unarguably superior to the other technologies, above, coming close to genuine published print, and you will also get clear crisp graphic images.

If you want to do desktop publishing work, or your documents really do need to score in terms of presentation, then a laser printer is the sensible choice.

Dot matrix and inkjet printers are called 'line printers', suitably called, since they output your text or graphics one line at a time. Laser printers, on the other hand, are 'page printers': they take each page of data from your PC and process it in memory before outputting it on paper. Laser printers not only resemble photocopiers in looks, the technology used is similar as well. An image of the page is charged by laser beam on a drum unit, and toner powder is applied to it. The toner sticks to the positively charged places on the drum and drops off the negatively charged areas. This pattern is then transferred to paper. Maintaining a laser printer involves buying new toner, or a new toner cartridge.

One term bandied about a lot with laser printers is Postscript, which is a page description language, and to a large extent independent of software and manufacturer. If the program supports Postscript and the printer supports Postscript, they should talk to each other. Postscript compatibility is most often required for professional graphics and quality desktop publishing output, but most laser printers usually have IBM ProPrinter and Epson emulations too, and Hewlett-Packard's PCL 5 language in its LaserJet III is often emulated by other laser printers as well, so you're aren't stuck without it.



The Ricoh LP1200 laser printer can be bought for around £800. It has HP's PCL5 page description language built-in, plus 2Mb memory for processing graphic images.

Few laser printers in the 'personal' price bracket (which I've arbitrarily set at under £900) will come with Postscript compatibility built-in. HP LaserJet III emulation certainly helps when it comes to getting the best out of the printer using software drivers.

Laser printers will only take single sheets of paper, and although you can buy special sheets of labels designed for use with lasers, you will have a less than hilarious time should you try to feed an envelope through your machine, or attempt to print on a multi-part form. Furthermore, at prices the consumer can afford, this is still a strictly black and white printing technology only.

All the usual suspects contribute to the laser printer market: Epson, Citizen, Brother, Star Micronics, Fujitsu, Hewlett-Packard, et al. Most in the under £900 bracket print out at around four pages per minute – this is a manufacturer's estimate which you almost certainly won't be able to match if you try to time print output in 'real life' – but it's entirely adequate unless you are going to be using it for really heavy duty work. ■

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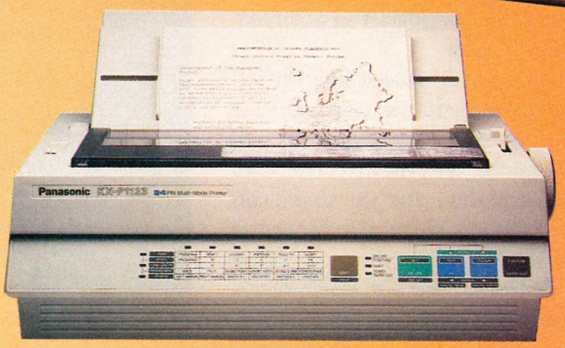
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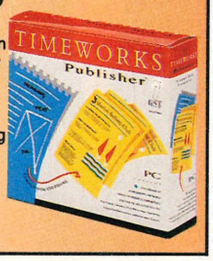
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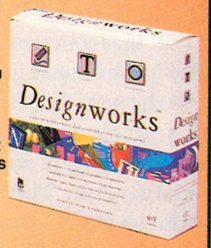
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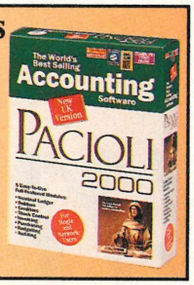
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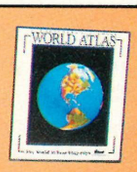
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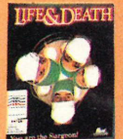
Paper Boy 2



Chessmaster 2000



Mavis Beacon Typing Tutor



Life & Death



MIDI *and multi-*

In this, the final part of our series, I'm going to look a little more closely at what information is actually being sent and received by various kinds of MIDI-equipped instruments, examine a 'high end' PC set-up fine-tuned for blazing Windows performance, a couple of budget score writing programs, talk a bit about some of the semi-pro instruments you can audition, and describe the advantages of recording the lot on to a multi-track tape recorder.

We've already discussed how MIDI-equipped instruments can communicate to each other in a variety of ways and how, for example, a keyboard can be used to control and then play the sounds on a drum machine. We've also looked at the way MIDI speeds communication between devices by using a 16-channel highway to send and receive its information. But what exactly is this stuff that's pouring down your MIDI cables, and what is it doing?

The stuff that concerns us here is usually called 'performance information' and relates to the actual notes being played. To take a simple example: imagine you have a main keyboard attached to a second sound module. The sound module has got these great string sounds that you like, so you use it all the time. When the two are connected through MIDI and you play the sounds on the module by using the keyboard, consider the sort of information that might be transmitted when you play a single note.

Obviously, there's the note itself (whether it's a $C^{\#}$, or a D^{b}) but let's consider some other important factors. How hard did you hit the note and how long did you hold it for, when did the note actually stop sounding and how long did it take to stop sounding? The receiving instrument needs to know all these things, otherwise you'll be playing this long shooshy string sound and it'll come out as quick deep stab. So MIDI-equipped instruments take care of this by sending each other lots of information about the notes they're playing. All the bits to do with the way a note is sounded are called 'Note On' messages, and all the bits to do with the way a note ends are called 'Note Off' messages.

Because we're talking about communications, numbers inevitably come into it. To communicate how loud a note is being played, MIDI sends a number between zero and 127 (where zero is 'pardon?' and 127 is 'aargh!'). When you release the note, it works the same way except that this time a zero means the note isn't released at all, and 127 means that it stops instantly. Similarly the notes themselves are numbered so that 60 represents middle C, 72 is the same note one octave up, and so on.

Let's take a different example. Suppose you're doing that great sax intro to Baker Street — the one that slides up the scale

at the beginning of each phrase. You've spent some time perfecting the performance — which isn't easy, if you think about the differences between *really* playing a sax solo and trying to duplicate it on a keyboard using the pitchwheel (a sprung wheel on the keyboard which, when turned, dynamically slides a note up or down) to kind of 'sleaze up' between the notes. Unfortunately, the sax sound on your keyboard's dreadful, so you've borrowed a friend's Korg M3R and are going to use that. Here MIDI helps out by transmitting not only the notes, how hard you hit them, how long they're held for and when they stop, but also the vital information about how far you bent the pitchwheel to get that sax-like slide at the beginning.

Last, let's look at what are called 'program changes', a delightful example of how having a MIDI 'standard' doesn't necessarily help at all. Let's say you're using your keyboard to control another MIDI sound module that's full of these great sounds, but can only play one of them at a time. Some of the time you can fudge it using other instruments, or by physically having the unit nearby and manually switching to a different sound, but that only works if there's a gap in the song and you're fast enough. MIDI lets you treat each sound as a 'program' (it has a number between 0 and 127, natch) and allows you to change from one program to another, to another, and so on in the course of a song by sending a program change message. It's great.

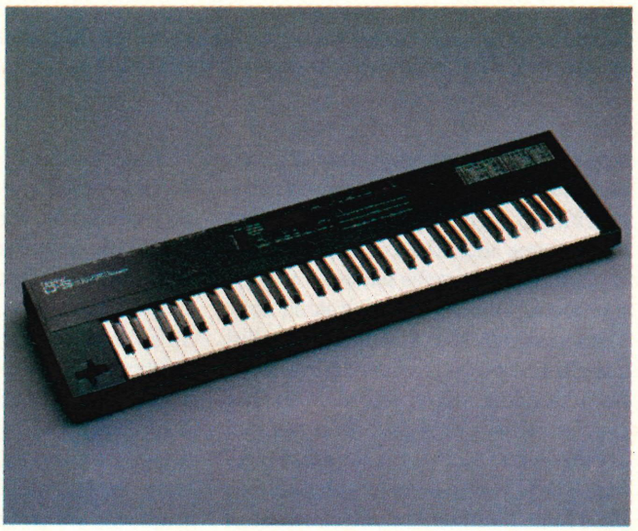
However, because different manufacturers assign very different sounds to the same numbers, program number 66 might be a stereo reed on one synth, a helicopter on another, synth strings on another, and double bass on a fourth. Thus, you'll need to know exactly what instruments have been set to what programs on the sound module to avoid some unexpected — occasionally hilarious — results. Unless of course, you enjoy being surprised by a helicopter solo ...

MIDI also looks after rather more global settings which are common among most modern synths. When you're running a computerised setup, one of the most important of these is called 'Local Off'. What this basically does is to sort of 'detach' your main keyboard from its own sounds and pass control across to the PC. The first reason this is so useful is because it prevents the keyboard from playing its own sounds in unison with those from the sound module which it's supposed to be controlling.

Secondly, it allows you to control every single sound in your MIDI setup from the PC so you can switch from sound to sound without ever touching any of the actual instruments you're using. It's a bit like being on the bridge of the Enterprise and leaving Mr Scott to do all the dirty stuff. Some otherwise excellent synths, like the Roland D10, don't have a Local Off, and while you can fiddle a way round the problem, it's awkward and ought to be unnecessary.

Two of the other most important ones are 'Omni On' and 'Omni Off'. These messages tell the attached MIDI equipped instruments to receive and act on messages on all 16 MIDI channels (unsurprisingly Omni On) or to only receive messages on the specific channel they've been manually assigned. (For more on channels, see Issue 11).





Roland's CM 300 sound module (top), and, below, the same company's D% keyboard. The D5 is essentially a companion keyboard to the D10, but minus the latter's drum sequencer. It's a good, entry-level keyboard, with clean, accurate sounds.

tracking

Rob Beattie concludes his explanation of the way MIDI can control music on the computer, and looks at multitracking recorders and score-writing software, in the third and final part of our series on the PC and music

There are loads of other different kinds of MIDI messages — global and more specific — that we don't have time to deal with here, but the above gives you a flavour of the sophistication built into MIDI.

Four track tape recorders

For his last album, it's said that Michael Jackson had three 48 track digital tape decks slaved together. They recorded on every single track, and then sorted the mess out in the final mix. It must have been hideously traumatic. Fortunately, those of us with only a few hundred quid to spare can avoid this sort of problem.

If you're going to be taking your sequenced recordings and adding live instruments (like voice and guitar) there are two ways to do it. First you can buy a mixer and plug that into a good stereo ▶



The Sound Canvas module includes the same sounds as in Roland's JV30 keyboard (pictured right). Also note that nattily stylish remote controller unit to add to your collection.

tape recorder. Next, plug all of the outputs from your synths and sound modules into it, then plug in your guitar and microphone and adjust the levels so you can hear it all. Start the sequence and the tape rolling and play and sing along 'live'.

Alternatively, you can buy what's called a multi-track tape recorder. These differ from standard stereo recorders in that they allow you to record on a number of different 'tracks' — in our price range, four. These machines come with their own little built-in mixers so you can control the volume and tone of each track. But most important is the flexibility they give you when recording.

A simple example. You've recorded everything (drums, bass, piano and strings) using one synth and your PC. You take a jack to jack lead (the kind electric guitarists use) and plug it into the first input on the multi-track (which corresponds to track one); press record and set the sequence running.

Once you've finished, rewind the tape recorder and press play — you'll hear what you've just recorded, just as you would on a standard tape deck, but because this is a multi-track recorder, *you've still got three tracks left*. So you can plug a microphone in the second input (track two) and record the vocals while listening to all the instruments playing back.

Rewind again and hear the backing instruments with the vocals — and there're still two tracks left, so you can add an acoustic guitar, or do that bagpipe solo you've always dreamed of.

There's more to recording with multi-tracks — mixing recorded tracks together (bouncing), the effect on quality of recording at different tape speeds, the best kind of noise reduction, how easy it is to add effects to a track, and so on. But they basically do the same thing. I use a Fostex X-28 (guide price: £315) but the Yamaha MT120 (guide price: £320) comes recommended and there are lots of others. Phone numbers are in the Contacts panel over the page.

The hardware

This issue, rather than look at a PC with an individual piece of software, I'm going to talk briefly about a very high end, cheap PC from DAN Technologies which makes an outstanding music machine, and then look at a couple of score-writing programs that you can use to print and distribute your meisterwerks.

The DAN for Windows machine is a Mad Max of the PC world. For just £1,716 you get a 50MHz 486 with 8Mb of memory, a 210Mb hard disk, super VGA monitor (which does 256 colours at 1024 x 768 resolution), mouse, DOS, and Windows 3.1. Apart from the price, two things make it stand out. First, it uses an S3 graphics accelerator card, which kind of barges the main processor out the way saying 'leave this to me' and takes over all the display work; second, it has a massive 2.5Mb of cache memory on the hard disk controller which means that data moving to and from the hard disk goes like ▶

Instruments

There's no way I can cover all the different kinds of instruments available, but here are some — inevitably — biased observations, based on those I've used, along with others that I've heard, or that friends have recommended.

Last time I said that if you wouldn't be ashamed to play down the local pub with a particular instrument, then I'd put it in the semi-pro category. The Yamaha in Issue 11 might just stretch to that, the electronic drum kit certainly would, while the Casio wouldn't. But the list below will certainly do the trick for good home recording and live gigs.

Keyboards

Roland's JV-30 (below) is about the best of the current bunch. Lots of features, good sounds and a full-sized keyboard make this one of the most versatile synths around. Natural instruments (pianos, bass, brass, strings) are dead good and synthy pads also hit the spot. Very good drum kits (including that hard to find TR808 synthetic sound) built-in reverb, chorus, easy to use keyboard splits and other combinations. Plenty of daft, highly realistic sound effects and a brilliant banjo complete a fine — if a little expensive — purchase. (Same sounds in Sound Canvas module — £450). Guide price new: £750.

The Kawai K4 is a good budget choice. Fewer facilities than the JV-30, but still eight sounds at once, full-sized keyboard and it includes drum machine and digital effects to add depth to the sounds. (Also available as a module without effects for £299.) Guide price new: £499.

The Roland JX-1 only plays one sound at a time, but they're good and it's excellent value for driving sound modules. Guide price new: £299.



The Roland D10, a very good entry level semi-pro keyboard with built in drum machine (including sequencer) and good basic sounds which while not as 'big' as some more modern synths, are clean and accurate, and it has reverb. (Also check out the cheaper, but drum sequencer-less D5). Guide price second hand: £400-£450

Drum machines

The Alesis SR-16. An outstanding drum machine with fantastic sounds (good for rock, country, rap, hip hop, anything) great digital effects, footswitch sockets, good manual, and look at the price. Guide price new: £299.

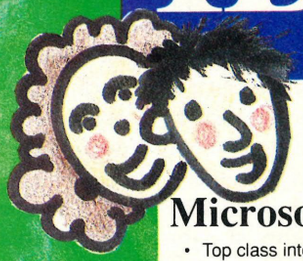
The Roland TR505. Excellent entry level machine with good sounds, but no effects. Footswitch socket and not bad to program. Guide price second hand: £139.

Sound modules

Good second hand modules to check out include the MT-32, a multi-timbral module with good, plain sounds at a price under £200; the Yamaha EMT-10, which only plays two sounds at a time, but has fabulous pianos, good synthy strings, choir and acoustic guitar for £150-£200; the Cheetah MS6, which has lots of the heavy fat sounds associated with house music, as well as light wibbly New Age effects. Very different, though. Guide price: £250.

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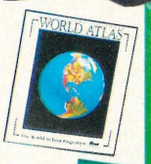
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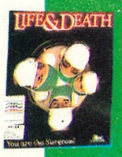
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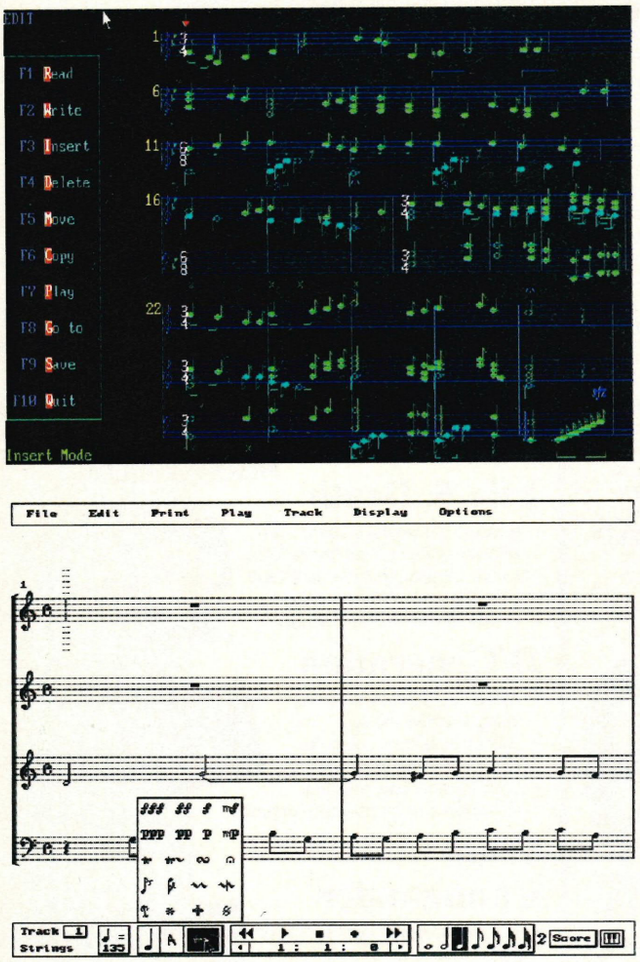


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IBM7A



The graphical edit screen of SongWright (top) is harder to read and also isn't terribly intuitive. Available options are listed as menu choices on the left.

QuickScore (above) combines the tape transport metaphor (see the cassette-like controls at the foot of the screen) with conventional musical notation.

a train. Unlikely to score well in a beauty contest, the DAN is undeniably well-built with plenty of room for expansion (six empty slots) and there's also a joystick port as standard. As part of another ongoing test I installed a Sony CD-ROM drive which still left room for a fourth device, either a second floppy disk drive, or a tape streamer.

But it is the combined welly of the processor, cache and on-board graphics that really makes the difference when running Windows music software; and even making use of widely available DOS performance benchmarks, the DAN comes in at around 60 times faster than the original IBM PC/XT, and its disk is nearly three times as fast at reading and writing information than an IBM PS/2 Model 70. Phew.

Software

Described a little grandly as a "music processing system", SongWright (£99) is a cheap DOS-based program which allows you enter, edit and annotate musical scores. Once you're happy with the result, these can be printed.

Like QuickScore (see below) it seems unnecessarily awkward to use — there's no 'print' command, for example, instead you have to do it through the 'write' menu which is also used for saving files. It also mixes text and graphics modes unpleasantly so that at certain points the cursor is a difficult-to-see oblong, and at others, it's a standard arrow.

Notes can be recorded from the keyboard or using an attached MIDI instrument, and you then have a reasonable set of editing options for things like transposition, inserting crescendos, slurs and so on, as well as adding lyrics, headings, other annotations, and even guitar chords. After some tinkering to get my LaserJet-compatible to talk to SongWright, the resulting output was very good, though I found the facilities for text annotation clumsy, and the overall program seems a bit complicated to use.

Dr T's QuickScore Deluxe (£99) is rather easier to use, but more difficult to configure to work with a MIDI interface card. Here's an example: "where 'hhhh' is the I/O address of the device in hexadecimal, 'x' is the interrupt request number the device uses, and 'c' is the DMA channel used." You actually have to type this in at the DOS prompt, assuming you can work out what it means. Thank you, and good night.

Once installed, QuickScore uses the normal sequencer tape transport type of controls but puts them underneath a musical stave — which sight readers will be more at home with. It also offers a number of ways to enter the music — including directly with the mouse and keyboard, or by using an attached MIDI keyboard, just as you would with a more conventional sequencer. Note editing is a little easier in QuickScore than SongWright. Here, to move a note you simply draw a square round it with the mouse and then copy it into the clipboard, move to the new insertion point and paste it back into the score. You can control the velocity of notes, quantise a particular passage, change the octave, it supports multiple time signatures, transposition, and has enough other features to make it worth the modest price. Dr. T should do something about the installation though — particularly the misleading claim that it runs in 540K when it actually needs more like 590K. Unfortunately, despite its sophistication the finished result isn't as slick as what you get from SongWright which prints as quickly, but is much better at handling the curves of individual notes, clefs and so on.

These are by no means the only score writing programs available for the PC. Your local music store will have more details, or you can try Digital Music on 0703 252131

At the start of this series I said that MIDI was 'a nightmare' and I still think that's true. However, I changed my mind as to the reason it's a nightmare. Basically, it's the people involved with MIDI who make it hard to understand, who jargonise it, who write the awful, awful manuals you get with some instruments, and who are so into the technology that they can't stop to explain to the rest of us what on earth is going on. I hope this series has done something to redress the balance.

Which about wraps it up for now. There's so much that I've had to skip (or simply ignore in the interests of trying to get in there quickly and establish some general concepts) that we could easily do another series. There's lots of technical arcana that I've avoided in the interests of clarity, and so much more to say about choosing and using instruments that I just had to stop somewhere. ■



Roland's MT-32 multi-timbre sound module: the sounds aren't that exciting, but at £200 or so, the price is highly acceptable.

Contacts

Casio	(081) 450 9131
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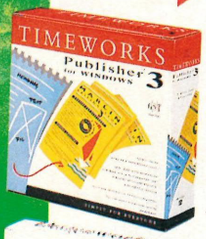
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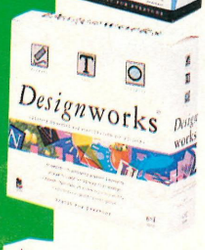
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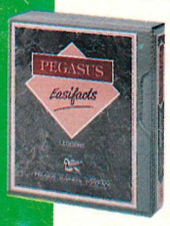
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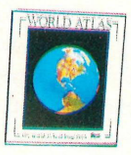
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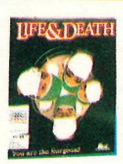
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Reviewed in Issue 11, the Creative Multimedia Upgrade Kit comprises a Creative Labs CD-ROM drive, Sound Blaster Pro soundboard, Windows 3.1, and three CDs to get you going: Sherlock Holmes Consulting Detective, Microsoft Bookshelf for Windows and the Creative Sounds CD, which will give you all sorts of sound effects within Windows.

The drive itself fits inside your PC's casing (yes, it does come with instructions) and the upgrade is reasonably simple to perform. The inclusion of Windows 3.1 and the Sound Blaster Pro in the package is more than just extra goodies — it'll bring your PC up to Multimedia PC (MPC) standard.

Sherlock Holmes Consulting Detective is an excellent example of how multimedia can offer a completely different gaming experience to disk-based software. The CD holds three video whodunnits for you to solve, using clues garnered from the video sequences, on-screen newspaper 'cuttings' purportedly from the London Times, Holmes's own casebooks and his network of informants.

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All this is on offer to our top prize winner. But for the next person out of the PC Review hat, we also have, again thanks to Westpoint Creative, a Sound Blaster Pro soundboard and all associated software.

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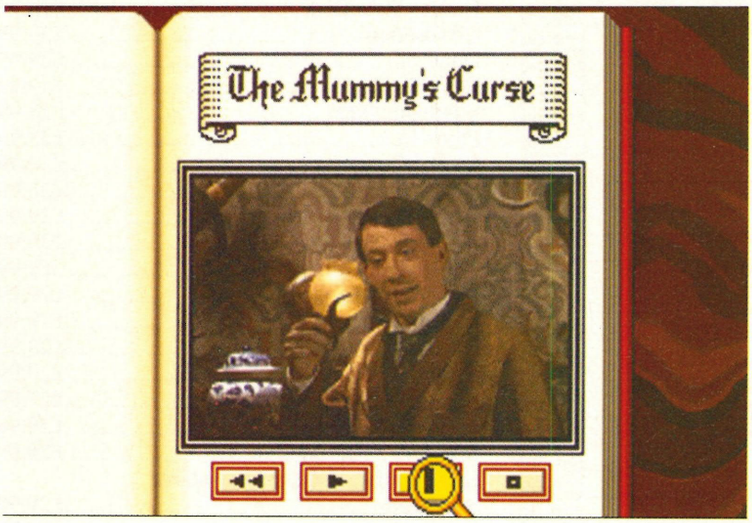
How to enter

OK, having convinced you that this is a competition you cannot afford not to enter, this is how you go about it. Below there are three questions about the components of the Creative Multimedia Upgrade Kit. Answer these correctly on the form provided (you can use a photocopy if you don't want to cut up the magazine), stick this to the back of an envelope or postcard, and send it post haste to

Multimedia Upgrade competition
PC Review
EMAP Images
Priory Court
30-32 Farringdon Lane
London EC1R 3AU.

The closing date is October 17, 1992, and no entries received after that date will be considered. The results will be announced in the January 1993 edition of PC Review.





Warning

One word of warning: prizes in this competition are *not* suitable for use on an 8086, 8088, or laptop PC, and if you have a 286, 12MHz or faster is preferable. If this has scuppered your hopes of entering, we do have another competition in this issue on page 117, for which the prizes don't even require you to own a computer!

Rules

The winner of the Creative Multimedia Upgrade Kit will be the first correct entry drawn at random after the closing date.

The winner of the Sound Blaster Pro soundboard will be the next correct entry drawn at random.

No entries received after the closing date will be considered. Only *one* entry per person, please.

No employees, or their relatives, or associates of Creative Labs, Westpoint Creative, or EMAP Images are eligible to enter the competition.

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

The questions

Sherlock Holmes: what *was* "the curious incident of the dog in the night time"?

Microsoft Bookshelf: how many republics were there in the pre-1991 USSR?

Sound Blaster Pro: how many FM voices does the Sound Blaster Pro have?

Multimedia Upgrade competition

Answers

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.....
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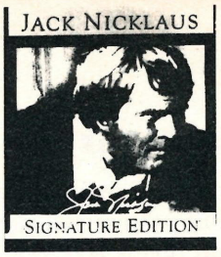
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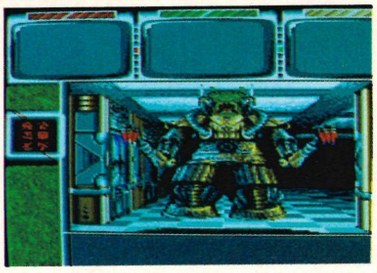
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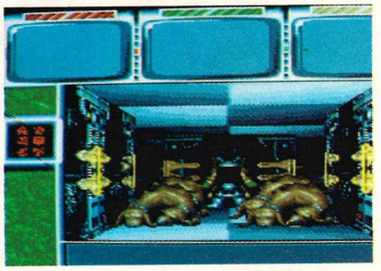
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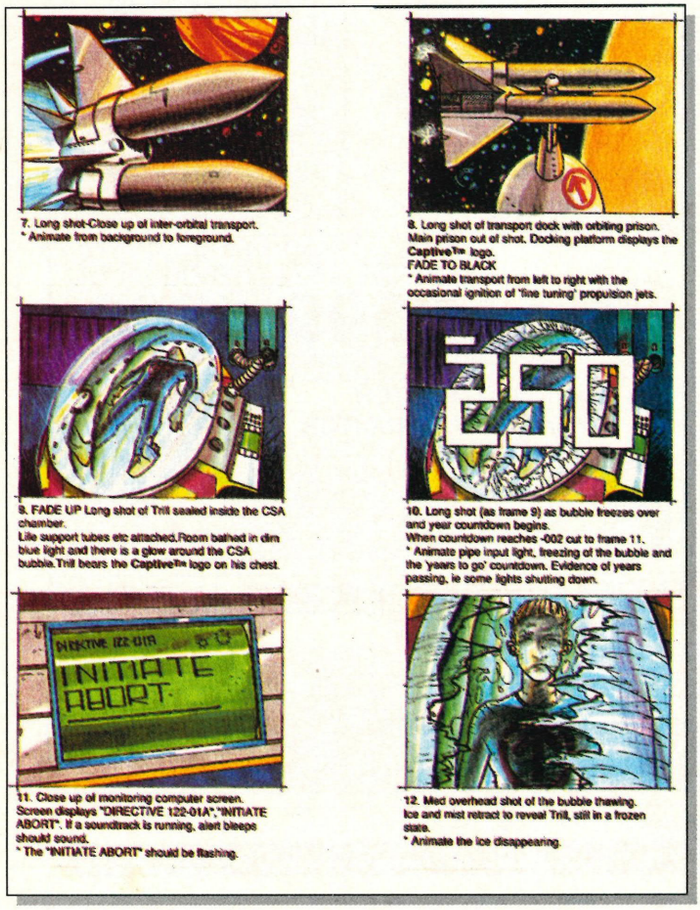




Captive

The Quest for Freedom

The long awaited conversion of the classic 16-bit shoot 'em up set in randomly generated mazes



Part of the original storyboard for Captive. Each individual screen and its possibilities would be mapped out on paper, and put together on these boards in order to check that the plot was complete, had a logical flow to it, and, for continuity, that elements such as the Captive emblem appeared in the right places at the right times.

Developer Tony Crowther has a healthy track record in the field of cleverly crafted arcade style games, starting with Monty Mole back in the early 80s, and diversifying slightly with recent offerings such as Captain Planet and Knightmare.

With Captive, however, he moved further into the role-playing mould, while still retaining plenty of shoot 'em up elements. Captive is set in a vast network of randomly generated dungeons with, hey, a first person perspective, just as any self-respecting RPG-style game is these days.

"Having written all those 'kiddies' games, I really wanted to get my teeth into something more adult," says Crowther. "I wanted to write a game that was longer, and I wanted to include that role-playing aspect – I'll admit I was heavily influenced by Dungeon Master at the time."

Already a hit on other formats, Crowther and co-designer Ross Goodley are putting the finishing touches to the PC version, which has a number of enhancements and 'extras' over the originals.

The end result looks as though it will combine the action-packed moments of Eye of the Beholder with the sense of discovery in Ultima Underworld, in a futuristic setting. The game begins at a 100-mile an hour pace and rapidly increases from there: it is a true test of both reflexes and intelligence.

The plan is to offer continual excitement throughout, with lethal gun battles, practical puzzles, tactical options, strategic decisions and diverse economic challenges. Crowther wants Captive to appeal to both RPG-ers and shoot 'em up addicts, and early versions suggest he may well have got the mix right.

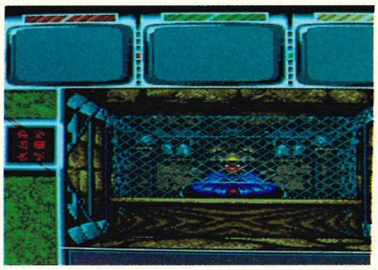
Aside from the action, he has also deliberately written in a pervasive sense of suspense and tension. According to Crowther, "The game is based around atmosphere. This was plain to see in the Amiga/ST versions. However, when we decided to release a PC version of Captive, we also wanted to increase the tension by various means.

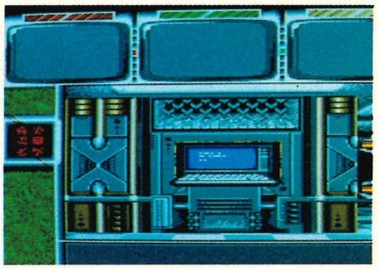
"First of all, we took full advantage of the 256 colours available on the PC to improve the graphics as a whole. We also introduced a new animated introduction scene, re-worked the sound to make it more 'panicky', and used the latest programming techniques to make the game run very fast indeed. In addition, we have included the random dungeon generator (RDG), which should keep PC gamers occupied for some time."

The RDG will work like this: when you have completed the 10 levels in Captive (this is estimated as taking anywhere between 50-300 hours) and rescued the program's central character, Trill, he is immediately recaptured and you'll be asked if you wish to save him again. If your answer is yes, the Captive program generates a completely random dungeon (no two are the same) and you set off in search of Trill once more.

This sounds all fine and dandy, but bearing in mind the RDG program can generate up to 65,000 different levels, Tony estimates that if Captive was played by a fanatic for three hours every day, it should still take them over 50 years to complete the full game."

Set in the far, dark future, Captive is based around the adventures of a man called Trill, who is charged with "conspiring to bring about the downfall of the state," and after serving





200 years of his sentence – cryogenic suspended animation is the preferred means of punishment in Captive – is brought back to life. A serious firefight has taken place outside his cell and that the battle has destroyed every living (or frozen) person in the institution, leaving Trill trapped inside his cell alone ...

Trill finds a portable computer in his cell, which is connected to four droids outside. Obviously an escape bid can be mounted, but how?

Captive is very much a 'play and discover' game. Crowther admits that "the rulebook has been left deliberately vague because we wanted to give the players a real challenge. It contains only the basic information, along with several handy clues, and we believe that players will get a lot of enjoyment out of fathoming out how the game system works."

Once your droids are in a futuristic dungeon and they have fought a few opponents, you begin to appreciate the sheer power of the game. Opponents come at you thick and fast, and you are continually on the look out for that surprise attack. Not only do you have to destroy your opponents, but there are various tasks to complete too.

On each planet you must obtain passwords from lab technicians (who turn into werewolfs when attacked) to feed into computers, which supply you with probes when correctly addressed. These probes, when launched from your spaceship, will land on the next planet you have to visit and lead you to the next dungeon.

Before you leave a dungeon, you arrange for your droids to find a certain amount of dynamite, which must be thrown into the generators that supply the power for the dungeon. This will ensure a chain reaction that will destroy the whole dungeon, not to say planet. But, if you don't lead your droids out of there and back to your spaceship quickly enough, they are all killed.

That said, help is at hand in the shape of new technology. Various chips can be added your droids that make your life a lot easier, including a much appreciated auto mapper and a direction finder. The latter is especially useful, because once you have obtained the passwords, worked the computers, obtained the probe, sabotaged the generators and are ready to run, it points the way out of the dungeon and to your spaceship.

Crowther is currently finishing off Captive II: the Freedom Fighters, and this time he is working on both the PC and Amiga versions at the same time, so they should have the same release date, which should be around the end of this year. The second game will include even more features, which, he says, "are looking even more swish than the original.

"Working on the PC has given us access to some excellent art packages and programming software, which we will use to push the machine to its limits."

Title:	**Captive: the Quest for Freedom**
Publisher:	**Mindscape**
Genre:	**3D maze game**
Programmer:	**Tony Crowther**
Release date:	**Late September/early October**
Price:	**£34.99**



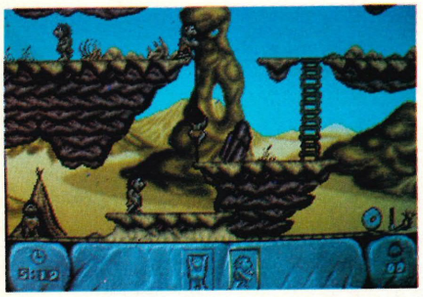
Captive author Tony Crowther (right) is co-designing the PC version of the game with Ross Goodley: "This is the first time I've been properly involved in a PC conversion of my games."

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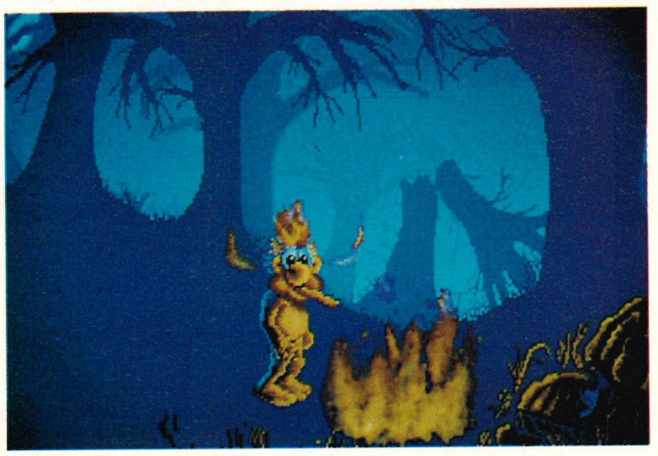
Get your humans from one side to the other.



The ropes look as though they will come in handy here.

Humans

A platform-based puzzle to exercise the mind more than the reflexes



Fancy tackling a cartoon-style puzzle game which sets you the task of guiding and helping a band of cute (but fairly stupid) little creatures through a number of hazard-filled levels?

Now that may sound a little too familiar — but make no mistake, you won't find the heroes of this tale hurling themselves off any cliff ... these guys are Humans, and it's your job to help them evolve, as much as keep them alive.

Designed by Rod Humble and John McKinnon, originally for Atari's handheld Lynx video game console (where it goes by the strangely misleading title of Dino Olympics — misleading, because it's got precious few dinosaurs and even less sport), Humans has now developed into what Imagitec boss Martin Hooley is proud to describe as "a true PC game — complete with 256-colour graphics, hardware scrolling, the lot. It really shows the machine off to the best of its capabilities."

Apart entirely from this technical polish, the finished game will eventually boast a total of 80 levels (all of which are already designed on paper and 40 of which are complete in all respects), with backgrounds built from seven different block sets, allowing a great deal of variety in the visuals from level to level.

Starting out in control of a tribe of eight cute and cuddly Neanderthals, it's the players mission to complete a set task with each new level. As more and more levels are completed, the tribe grows ever bigger — which can offset any losses incurred in the later stages.

Unlike Psygnosis's classic puzzler Lemmings — which this game has been lazily compared to on many occasions — success here isn't simply a matter of guiding your gang from one side of a level to the other: the tasks set range from inventing the wheel to rescuing a captured princess.

No matter what the task though, the level is usually completed by a blend of strategy and teamwork, with each of the on-screen players having to be called into play to help his brothers out.

Variety is also the name of the game with regards to the Humans' skills and abilities, as the diminutive characters pick up extra attributes all the way along their evolutionary route: your standard Human can barely manage to climb on to a mate's shoulder to reach a difficult platform, but by the time you've finished a few levels he should be handling spears, wheels and fire with consummate ease.

And it's a good thing too, because as the game progresses, the puzzles become more and more abstract, not to mention complex, the levels become increasingly 'dynamic' (incorporating collapsing bridges, random pressure pads which set off traps, obstacles and other cunning traps) and other, less civilised creatures begin to poke their uninvited noses into view — including the particularly ferocious Tyrannosaurus Rex.

Whatever the obstacle or puzzle in question though, the action is always icon-driven and relies more on the player's speed of mind than their speed of hand — although even this will be put to the test at times.

In addition to making full use of VGA's 256-colour capacity, the program also includes support for Roland, Ad Lib and Sound Blaster cards, with the development team particularly proud of the Roland soundtrack. This, however, should come as no surprise, as Imagitec has been responsible for a great many PC soundtracks in the past, including just about everything published by Gremlin, a number of games from Electronic Arts and MicroProse and even the Bitmap Brothers' Gods.

The programming work has been entirely carried out at Imagitec's Leeds base, with Les Long responsible for coding and Andrew Gilmour, Slick, Julian Holton, Louise Herd and Peter Goldsmith taking care of the graphics between them.

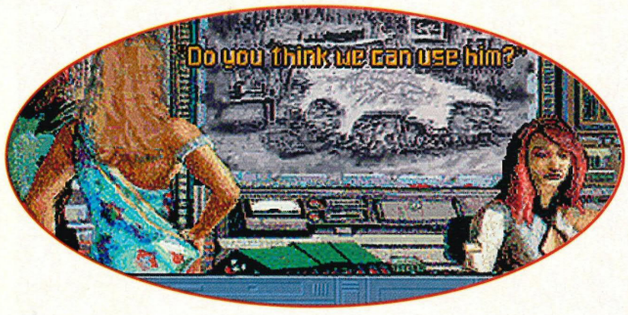
With design work now finished and coding close to completion, whispers are already starting as to the possibility of the now-developed Humans making a reappearance or two in the future — but maybe you should concentrate on getting this little lot through their predicament safely before we start to talk of sequels.

Title:	**Humans**
Publisher:	**Mirage**
Genre:	**Arcade/puzzle**
Programming team:	**Imagitec**
Release date:	**September**
Price:	**£29.99**

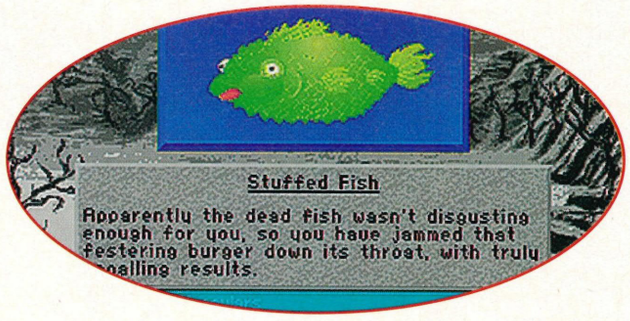
REX NEBULAR



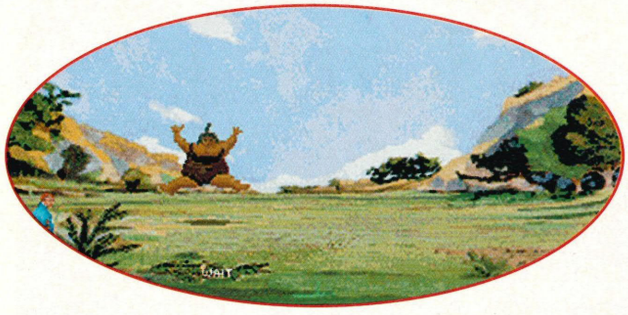
And The Cosmic Gender Bender™



Interstellar stud Rex crashes on all-female planet Androgena. The natives want him to father a new race of males. Rex is confused. Should he keep searching for a rare vase or revert to the role of a ladies man?

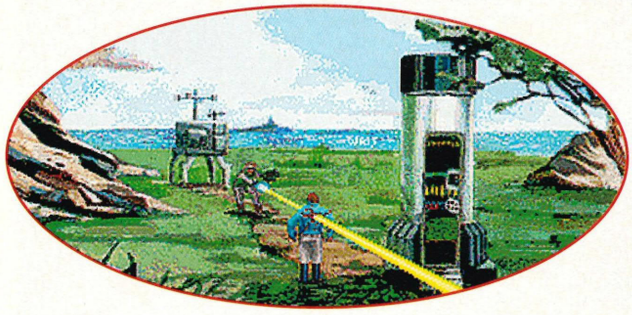


Can you get Rex past a vile cave-guarding monster deep underwater? Could the answer be to toss it a slimy dead fish stuffed with a hamburger rancid with larva and other indigenous life forms?



You must stop our hero from being eaten alive by a hideous, giant, cannibal woman. Can you mastermind her downfall using only exotic fruit and a bunch of leaves?





Or can you stop the evil Zartox from scoring a hole-in-one in Rex? Get him into the teleporter pronto and whisk him away to the city? Help him 'make like a banana and split'?

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and the Cosmic Gender Bender
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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 dissected and evaluated, with clear comparisons made to similar games on the market. We've made a few changes — improve-ments, we think — to the way the reviews work, so read on to see how to get the most out of them

Specifications

PCs come in so many different flavours and configurations that just finding out a PC-compatible game really is compatible with your set-up can be a minefield. We've made our TechSpec even more detailed than before, while retaining its 'at-a-glance' convenience.

The graphics, soundboards and control sections tell which devices are supported by the game in question. You'll notice that we've expanded the soundboard list to include the Sound Blaster standard.

Disk requirements clarifies whether a game needs to be installed on to hard disk, how much space it takes up if installed to hard disk, and we also note if the game comes on high density disks.

The performance section isn't quite so clear cut. Publishers often state a set of minimum hardware requirements on the box, but these can be very minimal indeed. Our optimum performance level is a subjective rating, and gives you not the publisher's base specification required, but rather the minimum needed to enable the game 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.

Shareware

From this issue onwards, we're giving shareware the recognition it deserves, with our new independently written column on the best and most interesting of the latest shareware and public domain releases.

This issue also sees the start of our 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.

Alternatively

We believe games should be placed in context. You may like the sound of game Y but thinks it sounds a bit technical, or the interface a bit unfriendly.

We'll tell you about alternative games of a similar style, subject matter, or interface, which might be more to your taste (or warn you off those which are inferior to the game being reviewed, however superficially similar).

Two Minutes

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



Rating system

We give a simple, no-nonsense single mark out of 10 to sum up what we feel the game deserves. 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 practise 'contemporaneous marking' (for want of a far better term). That means that games are rated relative 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. By the time it arrives, if it looks excellent compared to everything else around at the time, it'll still be worthy of its eight or nine.

ADVENTURES

Dungeon Master *66*
FTL

Laura Bow 2: Dagger of Amon Ra *82*
Sierra On-Line

ROLE-PLAYING GAMES

Lord of the Rings 2 *102*
Interplay/Electronic Arts

SIMULATIONS

B17 Flying Fortress *60*
MicroProse

PGA Golf for Windows *80*
Electronic Arts

STRATEGY GAMES

A-Train *74*
Maxis

Hong Kong Mahjong *78*
Interplay/Electronic Arts

Grandmaster Chess *86*
Capstone

Utopia *94*
Gremlin

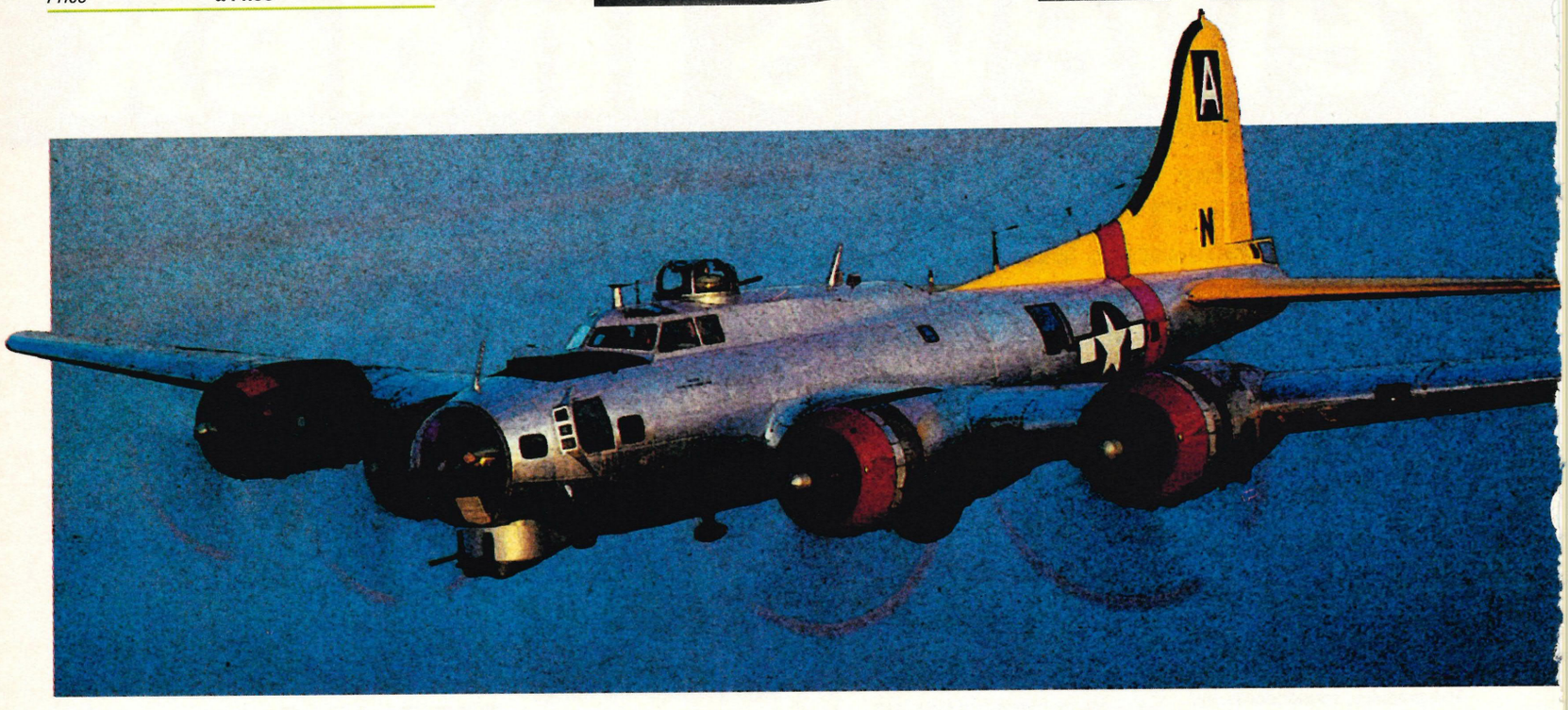
Theatre of War *98*
360/Electronic Arts

SHAREWARE *108*



B17

Title	**B17 Flying Fortress**
Publisher	**MicroProse**
Contact	**(0666) 504326**
Price	**£44.99**



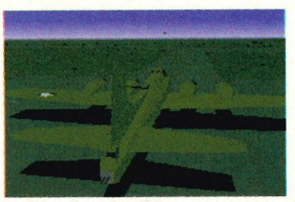
It's kind of odd when you think about it. Back in 1943 it took anything up to a 120 men in a dozen aircraft well over two hours to drop around 200 bombs, in order to destroy just one military target. Nowadays one man in a plane the size of a decent family hatchback can send a single bomb right up to the front door of the target, get it to knock on said door before opening it and introduce itself with a tip of the hat before turning everything within a five-mile radius into radioactive dust.

Still, computer games have always been about mass carnage on a grand scale and there's nothing quite like a spot of carpet bombing to really make you feel as though you're doing some damage. MicroProse's B17 Flying Fortress takes us back to those good old days of 'cabbage crates over the briny' and airmen with handlebar moustaches large enough to swing small children from.

Even before the game starts proper you can tell that this is a British-made flight sim as opposed to the usual all-singing, all-dancing American affair. It's nice to see MicroProse starting to really make use of its British teams, but unfortunately they still have a bit to learn about presentation. After the stunning intro sequences seen in Gunship 2000 and F117A Nighthawk, you'd be forgiven for expecting something really flashy here. Heh, heh, more fool you. A list of credits and a picture of a Betty Grable lookalike that winks at you. Not really stirring stuff.

As a game this is quite a departure from the usual batch of single-seat fighters from various time-periods simulators and apart from the odd non-combative airline sims, I don't think I've ever had the chance to fly something as big as this before. Although when I come to think about it, perhaps 'fly' isn't the word to use

The expected lifespan of the average B-17 crewman was not a long one even though a crew would only have to fly 25 missions before they were allowed back home. The most tense part of any mission was the take-off, as demonstrated here ...



Try to have a tape of the Dambusters music playing in the background as you read this bit. It's 9:45am and the squadron prepares to take to the skies of war-torn Europe. The pilot waits for permission to take off.

Flying Fortress

Ten men, four engines, eight guns and a very big plane. MicroProse takes a step in a new direction with its latest flight simulation

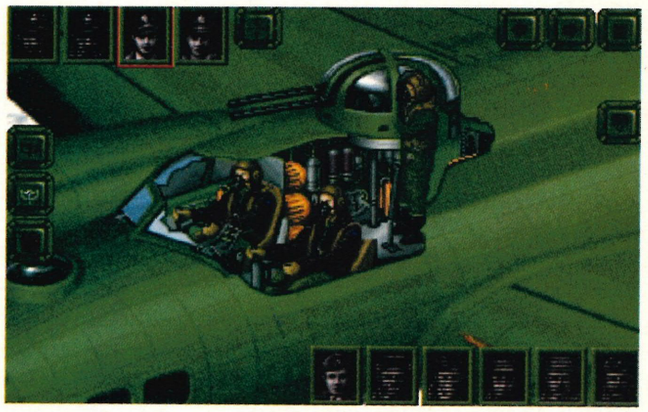
as more often than not you leave the actual flying up to the computer while you take care of the numerous other areas of responsibility – guns, navigation, bombing, first aid, etc.

As is usually the way with MicroProse flight sims, the manual is jam-packed with interesting information about the B17 and its role in the war, while still managing to cover comprehensively all the aspects of actually playing the game. It's quite entertaining to read, mainly due to the newspaper cuttings of real-life war stories and the stunning aerial photography of B17s in action. Where it doesn't work as well as it could have done is in the training walk-through. It's pretty sketchy and open-ended, as opposed to the training flights seen in MicroProse's other simulations. It needn't have been as B17's actual training mission is always the same and none of the options vary.

Right from the start, the links between this product and development team Vektor Grafix's previous simulation (Virgin's Shuttle) are apparent. A very similar graphic style exists in both the three dimensional areas and presentation screens, and Shuttle's infamous rows of instrumentation panels is evident in the B17's three-part control panel. It's not a bad style to look at, though, since the 3D is actually pretty good and the B17s themselves are very well detailed. Even the explosions are better than most as not only do you get a column of smoke, you also get to see the plane break up as it plows into the ground. Particularly nice to watch are the reconnaissance tapes of your targets in the mission briefings. This is certainly one of the better looking flight sims of late and the high standard of presentation almost lasts right into the start of each mission.

If you've seen the film Memphis Belle you must have got really caught up in that moment when the squadron of B17s taxied out of their parking bays and out on to the runway, before taking to the skies and flying off into the sunrise. How I wish a computer game were able to inject such feelings of awe into a moment.

In theory it would have been possible here, with a nice little scene showing the bombers rolling out while a stirring musical score thundered on in the background. Instead, being the detailed simulation that it is, B17 throws you into control right from the start, allowing you to taxi around the airbase at ridiculously inappropriate speeds, careering into hangars and the other taxiing aircraft while you struggle with the controls. It's almost a whole new game – B17 bumper planes. I actually quite enjoyed this part of the game, switching views from one aircraft to the next and watching eagerly as each of these huge goliaths of the air rolled to ▶

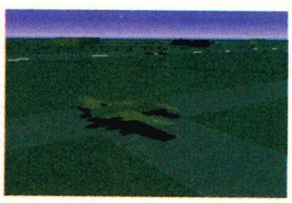


Moving around inside the B17 is achieved from these cutaway illustrations. Each section of the aircraft is depicted right down to the manual bomb release and fire fighting equipment. If a crewman gets injured you can heal him by having one man apply some first aid.

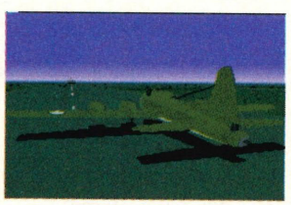
Two Minutes *of taking off*



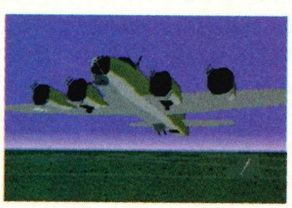
Taxiing the Flying Fortress around the base, the pilot checks on the positions of the rest of his flight. The lead element should already be in the air and the rest of his squadron should be just ahead of him.



Reaching the edge of the runway the pilot applies the brakes while he waits for the first two planes to take off. Ideally there should be a one minute gap between each plane's departure. The first one is moving now.



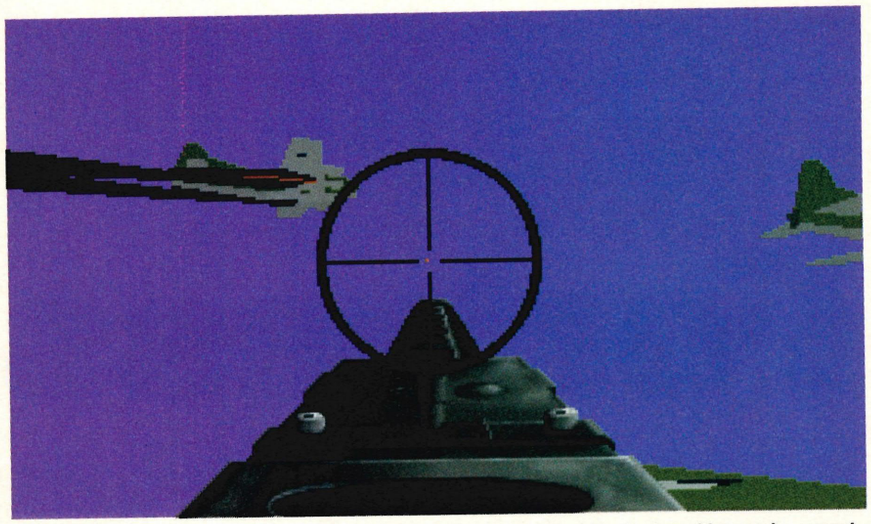
Our turn at last, and the pilot taxis to the start of the runway, releases the brakes and applies full power. The engines start to turn, the plane picks up speed and the crew brace themselves for imminent take off.



At 120mph, the B17 lifts up smoothly into the air. The undercarriage is raised and the crew realise there is no turning back now. Guns are tested and the pilot starts to join the other planes in the formation.



And so they're off to bomb another target. The group heads off towards the first waypoint and the crewmen prepare to face death in the face once more. After 25 missions they'll be home. This is just the second.



To defend your Flying Fortress you have eight gun positions to choose from. Each position can be computer controlled (if you assign someone to the gun) but manual control can be had when necessary.

the edge of the runway and hurtled into the air and into the game proper.

Before anyone takes off though, it's mission briefing time. If the take-off sequence lacked atmosphere then this more than makes up for it. First of all there's a stirring piece of music to set the mood, real Where Eagles Dare stuff, impressive enough through a Sound Blaster Pro but with a Roland, well, it'll blow your socks off.

The whole pre-mission thing is actually very well handled and very solid. You start by customising your bomber by naming it and picking from a selection of decorative nose-artwork. Then it's on to the crew and a forties-style flash-bulb photograph adds a man to your team one by one. It's all cosmetic frills but it does add to the general war-time feel that the music is managing to give off.

Into the briefing room and a general unveils the map of Europe in front of the crew. A series of options allows you to check on the mission details, look at a close-up eight-way scrolling map of your route and run reconnaisance films of the targets. Unfortunately the map tends to scroll rather too fast and you find yourself going from Calais to Rome before you get a chance to stop it. In comparison, the target films are actually quite jolly, a mono fly-by of the target and the surrounding area to make target location when using the bombsight easier.

The manual actually helps out here, or rather the technical supplement does as it lists a series of sample targets at the back to give you a better chance at remembering what makes an airfield different to an aircraft factory. That's the thing about B17, it's all too easy to line yourself up on the wrong target and while 'targets of opportunity' are always nice, you are supposed to be doing your job properly and angering the CO is almost as simple as crashing a plane.

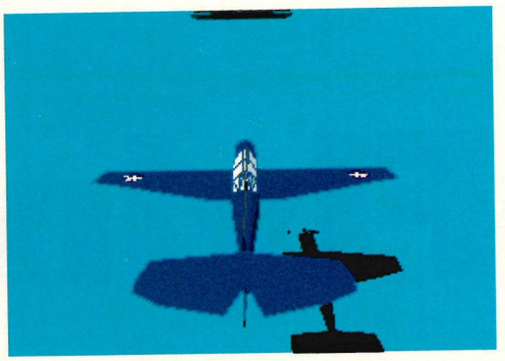
The whole briefing section (with the slight exception of the speedy map) works smoothly enough to get you excited and looking forward to the coming mission. Which would be fine if the actual flight simulation aspect of the game lived up to it. Technically it's fine and in some places it's very enjoyable, but others ...

What makes B17 different from most simulations is the very plane itself. The Flying Fortress had a crew of 10 and Vektor Grafix has accurately recounted each of their functions for you to have a go at. This doesn't mean you have to make mad dashes from the cockpit to the tail gun and back again to keep it all working, each crewman has his own intelligence and will quite adequately take care of his own area of responsibility. For the main part the computer controls things pretty well – it's even possible to just let it fly the whole mission for you – and it's here that we really stumble over the game's biggest problem.

No matter how many missions I flew and no matter how much I participated in the action, I never really felt as though I was fully involved. Our squadron would fly into an enemy fighter patrol and I would race to one of the gun positions but after five or 10 minutes of wild misses I was just switching back to automatic and letting it get on with it itself. The amount of times I ended up taking pot shots at my own aircraft – simply because they were easy to hit and destroy – doesn't bear thinking about.

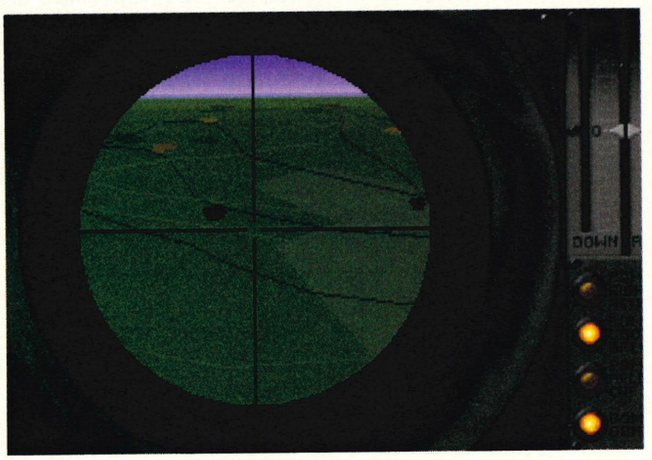
It got better as it went along (as with most things, practice makes perfect) and I even managed to shoot down an enemy fighter ... once. What annoyed me more than anything else about the dogfighting sections was that none of the other B17s, and I mean none of them, ever took a single shot at anything else. My plucky band of fliers were the only things shooting (and therefore the only things missing by miles).

One thing worth mentioning for all you keyboard controllers out there are the gun controls. You really need a joystick to have any chance of hitting something. Really, controlling the guns with the keyboard could have been a lot smoother instead of the massive jerks you actually get. It's actually a very odd method for aiming. The normal cursor keys are used to move around and holding down Shift allows you to fine-tune it, but you can't actually use the Shift key until you've started moving the guns around and once you change direction you have to release

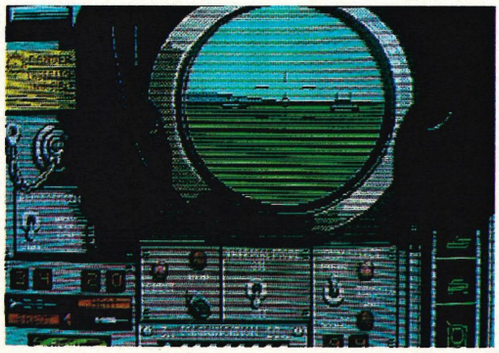


Aces of the Pacific
Dynamix, £39.99

This game offers a different look at WWII aircraft, this time in fighter planes over the seas of Japan. Aces is certainly competent, good looking, very well presented and easy to pick up and play. What it doesn't do is take Dynamix much further than it reached with Red Baron. It's easier to fly than B17 and possibly a little more fun.

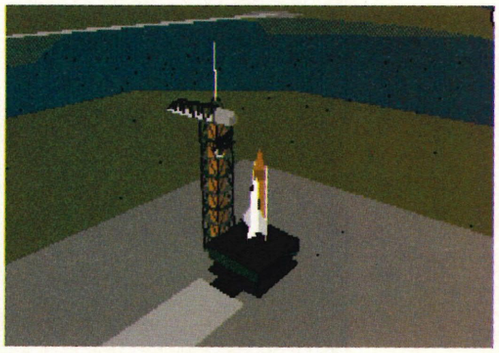


Each B17 is equipped with a Norden Bombsight in order to aim and drop the bombs. Once the sight is active the bombadier actually has control of the plane and needs to keep his sight 'locked' on a target for around 20 seconds in order to hit it. If successful the results speak for themselves.



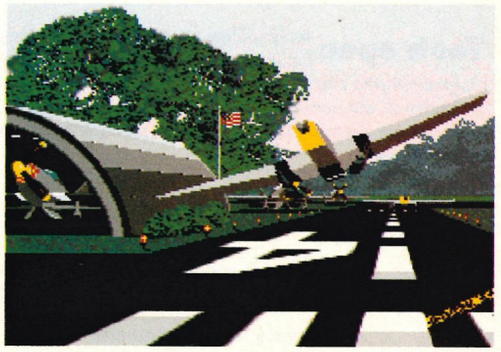
MegaFortress
Mindscape, £35.99

This adaptation of Dale Brown's best selling novel Flight of the Old Dog is one of the few other simulations to put you in actual command of a large bomber (although this time it's a B-52 Stratofortress with stealth capabilities and air-to-air missiles). Unfortunately it's not as playable as it could have been and can at times appear a little user-unfriendly.



Shuttle
Virgin, £49.99

Vektor Grafix's previous simulation takes you to the dizzy heights of outer space in the ultra-realistic space shuttle simulation. It does tend to be a little too realistic, meaning that you will have to spend a long time mastering the controls. Both Shuttle and B17 have a distinct graphic style and there's no mistaking that they come from the same team.



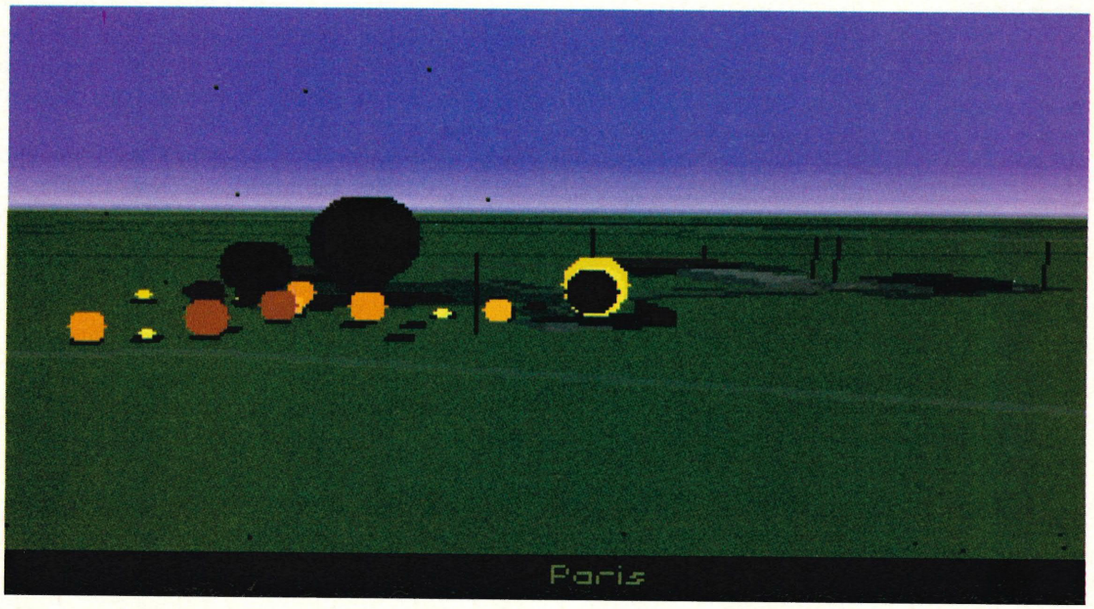
Heroes of the 357th
Electronic Arts, £34.99

A substantially smaller bomber but a surprisingly similar game. Although the P52 Mustang flown here is merely a single-seat multi-role fighter, the basic principle is still the same. Heroes is pleasantly entertaining to a certain degree, if a little sparse in graphic detail, but like B17 tends to become repetitive pretty soon.

and repress it to continue fine-tuning. Holding down Shift continuously from the start would have been a much simpler and more user-friendly way of doing things. The message is simple – get a joystick, it's much easier.

The most important moment in each mission is obviously the moment you start the bombing run. The actual mechanics of dropping the bombs work fine and the whole process is actually quite entertaining. The problem with it lies in small areas of detail. For a start I've never quite worked out why you are put in charge of determining when the whole group drops their deadly cargo. The radio operator has the message 'Bomb on my command' to send to the group, but they never bomb until you do anyway. It all tends to make me think that yours is the only plane with a crew inside.

Another problem is missing the target and coming round again. Fair enough, you've slightly altered your course to come round again but once the bombs have gone and you turn for home, why does your navigator keep insisting that you're way off course when you actually perfectly on line? This whole section just about sums up all that is wrong with B17. There are no really big problems, just a heap of very minor irritants.



Another weapons factory bites the dust. Reverse target views allow you to get a good look at the damage you manage to cause on each mission. You can also watch the action through the doors of the bomb bay, but there's nothing quite like a ringside seat.

It wasn't long before I found a set pattern for each mission and while I guess that real B17 bombing runs were always pretty much the same, it still means that the game didn't offer much excitement. I'd take off, accelerate time until my flight hit a fighter squadron, watch the computer take care of them (occasionally I'd have to treat a wounded crewman), accelerate time until we reached the bomb site, fail to hit the target, accelerate time until we hit another fighter squadron, sit back and watch again then accelerate time until we reached home.

Here we reached another problem – landing. Granted, setting yourself up for a perfect landing without the aid of computer guided navigational facilities is always going to be tricky, that's why the majority of us are going to want to put the pilot under computer control for the first few missions until we get the idea of it. This would have been ok (he's flown the plane pretty well by himself up till now) except that somebody seems to have forgotten to tell him how to land. The manual assures me that you can just watch the computer land the thing by itself, but would it? Noooo. Instead it circled the airfield until the fuel ran out and one by one the entire squadron would imitate sheep and plummet into the ground.

Another particularly annoying aspect cropped up in the debriefing sections. I'd miss my target, not by much, usually only ▶



Tech spec As is rapidly becoming the norm, installation is no hassle at all and takes less time than it takes an American traffic cop to book you for speeding. There are the occasional moments of 'not enough memory' messages but they are few and far between and anyone with a half decent memory board should have no trouble at all.

Disk requirements					
	High density	✗			
	Hard disk only	✓			
	Space taken on hard disk	8Mb			
Graphic modes					
	CGA ✗	EGA ✗	Tandy ✗		
	VGA ✓	SVGA ✓			
Soundboards					
	Ad Lib ✓	Roland ✓	Sound Blaster ✓		
Control					
	Joystick ✓	Keyboard ✓	Mouse ✓		
Performance					
	Optimum speed	20Mhz			
	Minimum memory	640KB			
	Free RAM required	<550K			

a few yards, but I'd miss my target. I'd return home safely and manage to land ok a naturally I wouldn't be expecting a shi ing reception. What I actually get is n CO (Commanding Officer) chewing n out for 'aborting the mission', telling n that I should currently be over suchaplac not in his office, and that the enginee 'can't find a damned thing wrong wi your aircraft'. I'd never aborted anythir I'd dropped my bombs over the targ (like I say missing only by a few yards) and never once radioed back saying I had a problem with my plane. Would it really have been asking too much to have a different 'getting back alive but failing the mission' screen for different circumstances?

The other section of the game that is somewhat curious is the radio operator and his various functions. To be perfectly frank I found absolutely no use for the man besides telling the squadron to circle the target again and to apply first aid to the others. It's not for a lack of options, since he has plenty of radio messages to send, but none of them seem to do much. Should the plane be crashing the manual suggests radioing a Mayday signal. Logical enough but it doesn't seem to make a blind bit of difference to the outcome of the game.

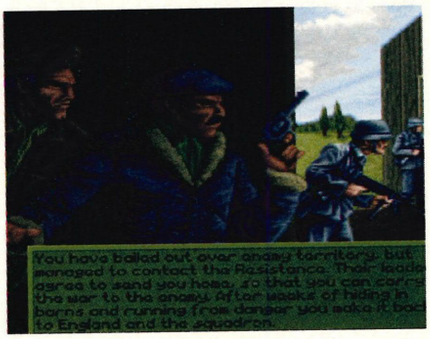
One final niggle, and this is actually quite an important one when you consider what's happening with most simulators these days, there was never any feeling of continuity. Each mission was like a solitary event having no repercussions on the war in general. Alright it's a little tricky to change the events of WWII in any major way, but when you come to the point where your primary target is exactly the same as your last one, it gets a bit dodgy.

B17 does has its moments though and from a technical point of view it's very nicely handled. The graphics, as I said, are very nice to look at and the controls are quite easy to get to grips with. One of the more interesting features on offer is the Film Director Mode, a handy little option that constantly flicks between areas of current interest (attacking fighters, planes on fire, etc). It's a nice enough option if you fancy stepping back from the game for a moment to watch the events rather than stay involved, but in practice it does little more than randomly switch between cameras with no thought for tension, atmosphere or pathos. David Puttnam has nothing to worry about.

Where B17 really scores is in the long-term appeal. There may not be much variety in the missions, but I do keep getting this urge to come back to the game time and time again and turn another plot of European land into rubble. Now I know this is a pretty stark contradiction to what I said earlier about involvement but I just can't deny that overall I did quite enjoy myself up there. It might have been the graphics, it might have been the challenge, it might even have been the simple curiosity factor of it all. But to be honest I really think it was just down to good old fashioned fun.

As with all games, B17 has its ups and downs and to risk mangling a cliche for a moment, when it's good it's very good and when it's bad it's fairly dull. It's very nice to see someone trying something a little different for a change and kudos to Vektor Grafix for originality. The trouble is I don't think that the general gamesplaying populace is either ready or willing to try something different. Hopefully I'm just being a cynical old so and so and I'll be proved wrong. B17 really does deserve to do well simply for trying to do something different with the flight sim concept.

■ ***Paul Presley***



Missions can end in various ways, from landing safely back at base to ditching in the sea. You can be taken prisoner, escape back to blighty with the help of the French resistance or even crashland in an English field where the locals hail you as heroes. Whatever happens though, make sure you hit your target first or you're likely to get a tongue-lashing from your CO.

PC*review* 6



The B-17's instrument panel is accurately represented and split into three parts, in much the same style seen in Vektor Grafix's previous simulation Shuttle. Thankfully not every switch is used in this game.

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MINDSCAPE



Title	**Dungeon Master**
Publisher	**FTL/Psygnosis**
Contact	**(051) 709 5755**
Price	**£34.99**

The problems can always be solved logically. Even if the answer is not immediately apparent, a moment's thought about the resources at hand will reveal it, as this conundrum illustrates.



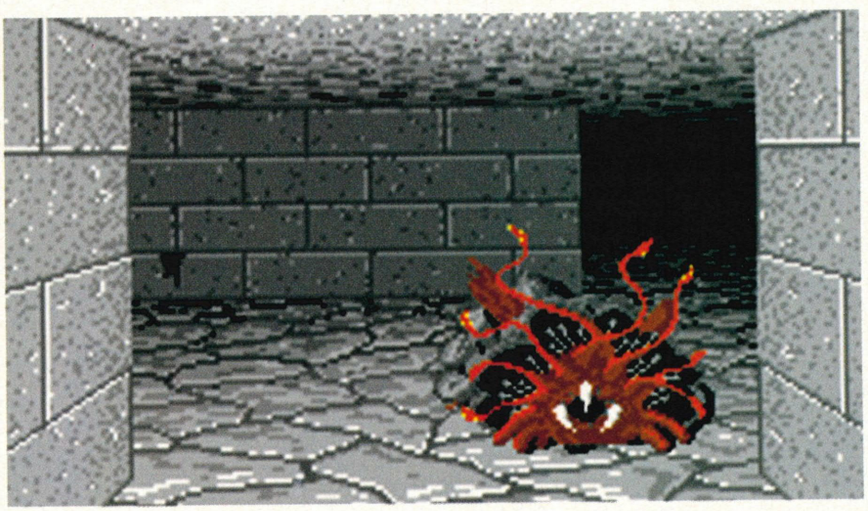
A locked door with no keyhole is the first obstacle that presents itself. How do you get to the other side without using brute force?

Dungeon

The classic 3D role-playing game finally makes it to the PC, and proves that well designed games can stand the test of time, even if their graphics don't make jaws drop in quite the same way that they did in the past

I know it's an over-used platitude, but I'm going to say it anyway: Dungeon Master was a landmark in computer entertainment, as the pioneer of graphically led, first person perspective role-playing games. For that fact alone, I suppose it deserves an airing on the PC, even if technology has moved on since then.

Dungeon Master's main appeal, as Psygnosis and FTL must well be aware, is going to be to all those people who've read or heard about the ST and Amiga versions of the game and are longing to find out what all the fuss is about. Newcomers to the PC who don't remember the cult following of the original versions will be a much harder audience to sell to. These people – spoilt with the likes of Eye of the Beholder and Ultima Underworld – are now less likely to be impressed by Dungeon Master's sterile looking interiors and stilted animation. In a way this is a shame, because Dungeon Master still has a lot to offer, even if it is looking a little sad and tired compared to its competition.

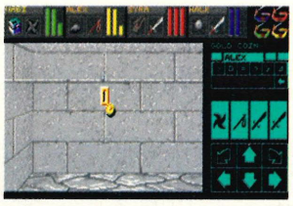


Thrill at the sight of combat between man and beast! Gasp at the two frames of animation! Shrink at the sight of horrific sprites hopping their way five steps at a time across the dungeon floor! Shriek as you discover that games like this are still enjoyable.

Immediate appeal

Dunegon Master's roots are quite firmly in the table-top role-playing tradition of Dungeons and Dragons, but unlike the SSI AD&D computer games, like Pools of Radiance, which appeared at around the same time, Dungeon Master had a more immediate appeal because of its first person perspective. It was an inspired cross between D&D style combat and problem solving and those strangely addictive 3D maze games that you can still find in shareware libraries.

Yes, it's true that the locations all look exactly the same and these particular dungeons would appear to have a cleaner who comes in twice daily and does the rounds with a broom and scrubbing brush. Yes, it's also true that the creatures that inhabit the world of Dungeon Master move so slowly and in such giant steps that they seem less real than a Ray



The slot to one side of the door is the answer. Feed it a couple of gold coins you found in a chest earlier and the door will open.



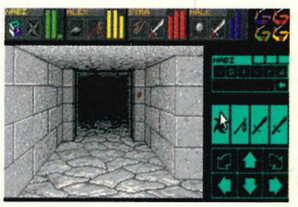
The door just round the corner is a little more difficult. That button will open it, but how are you going to get across that pit to reach it?



You've recently learned a spell for opening doors, so why not try it. Perhaps there's something behind the door that will help.

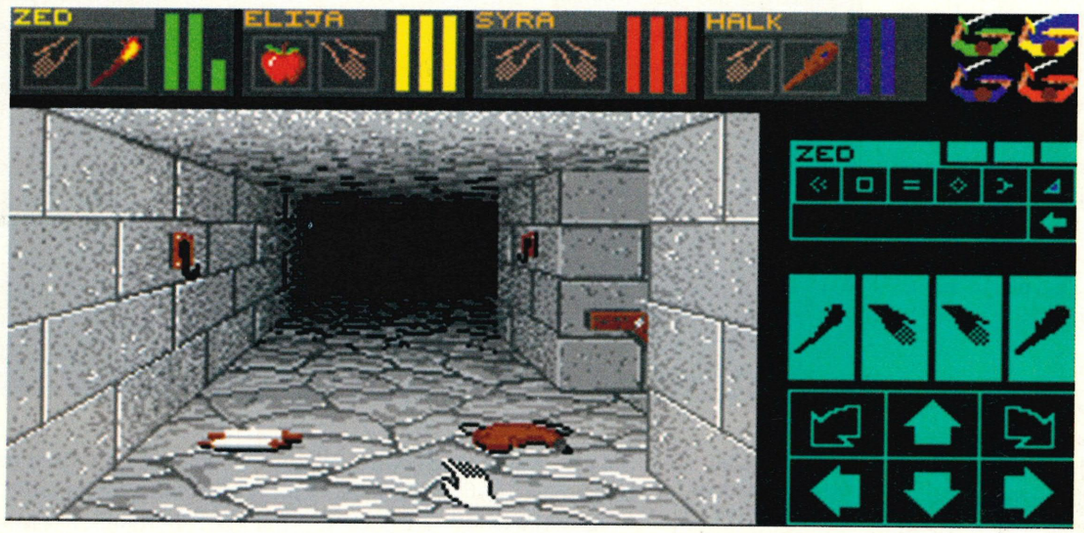


There behind the door is a pressure pad. It probably closes the pit, but you can't reach it because of the pit. Lovely circular problem!



The answer is a well aimed throwing star. It's heavy enough to trigger the pad when it lands, closing the pit as a result.

Master



The objects that litter the dungeon floor can be picked up and placed into characters' hands or backpacks. Using objects is simply a matter of 'holding' them and dragging them on to the area of the main view you wish to interact with.

Harryhausen model. But somehow, this doesn't seem to matter when this is the first time you've seen the interior of a dungeon rendered on your computer's screen.

Nowadays, unless you're a completely closeted PC owner, you've seen detailed and atmospheric dungeon interiors, with stairways and sloping passages, dripping walls and ceilings and doors that swing mysteriously ajar. You've moved smoothly through them and fought equally fluid creatures. There's a lot more of that style of game just around the corner too. Given all this, what can possibly be the attraction of an antiquarian showpiece like Dungeon Master?

That, at least, is what I thought as I rather reluctantly loaded the disk up for the first time. Half an hour later I was beginning to remember that Dungeon Master's appeal extends far beyond the superficial delights of the 3D graphics. It's actually a brilliantly designed game; something that seems to become more of a rarity with each passing year. It's a theme that I keep coming back to: you don't need astounding graphics and sound when the gameplay is this good. In fact Dungeon Master seems to have the balance just right. The graphics and sound effects are good enough to get you interested in the first place, but the game has enough substance to keep your interest after the novelty of the graphic interface has worn off.

Character control

The reason that so many people got hooked on Dungeon Master, and hopefully will get hooked on the PC version, is that there is a genuine sense of the four characters you control actually progressing in their chosen profession, be that Ninja, Magic User, Fighter or Priest. Their skills improve as they use them, and not in the terribly generalised fashion you usually find in AD&D. In the latter, characters gain experience points for most successful actions like defeating monsters and finding treasure, and when the points they have accumulated reach a certain number, a character will advance a level and be automatically better at almost everything he or she does.

The rather less successful tabletop game Runequest employs a more realistic system in which your abilities increase only in skills that you successfully practise. If your preferred style of combat happens to be head-butting people and then belting them around the ears with your fists, you are certain to end up being a master at unarmed combat, but try to use a longbow and you'll probably end up with a broken arrow in your leg. It is this system that FTL has adopted for Dungeon Master. If one of your characters continually engages in sword play he will become a better swordsman. If he practises magic he will become a better magician, but he will be most adept at the spells he uses most frequently.

Because this system is so detailed and depends so much on how you use your characters, it encourages the player to feel that he has genuine control over the destiny of the characters ▶

he manipulates. They still don't possess anything approaching personality, but you have at least moulded them in a way that suits you.

The same attention to detail is evident in the magic system, which still hasn't been surpassed by any role-playing game developed since then. Rather than having a range of ready formulated spells which you just fire off willy-nilly, Dungeon Master's spellcasting works on a system of runes which are combined to form the spells.

Combining the runes consumes the magical substance, Mana, which is then slowly re-absorbed from the air. This puts a limit on the power of the spells each character can cast, but with time, each character will learn how to store more Mana and so be able to cast ever more powerful spells.

The clever thing about the magic system is that, at the beginning of the game, you don't know any spells. You must either find out about them from reading scrolls hidden within the dungeons, or learn them by experimenting with mixtures of symbols. The latter is prevented from becoming a completely tedious process of trial and error because the manual lists the symbols in groups and explains the individual properties of each rune. This gives plenty of clues as to what the symbols might do when combined.

During this experimental phase of your magical career you are likely to find that half the time your spells just fizzle out undramatically. Before you can expect anything approaching 100% efficiency you have to get a lot of practice in. Once again, this means that each character progresses in the way you want them to. You will only become adept at the types of magic, or the individual spells, that you specialise in. This can be rather distressing when a scenario of this nature occurs.

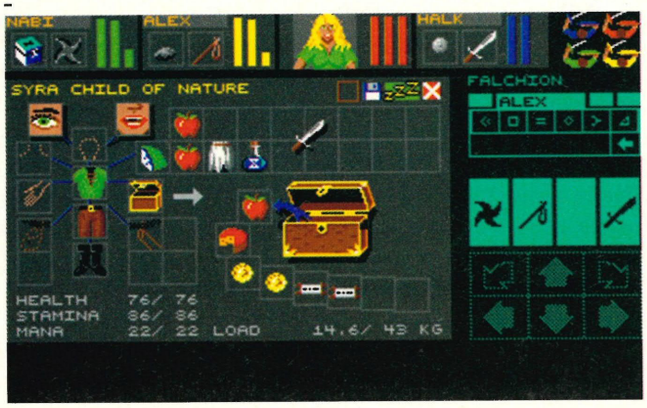
Using magic

You have just learnt a new combat spell, let's say Putrid Face Rot. You round a corner and come face to face with a troll with a bad head, utter the relevant Runic syllables, and instead of an almighty explosion during which your opponent contracts a very bad case of acne, you produce a pathetic puff of smoke and a tiny sulphurous spark describes a neat parabola and lands on the troll's nose making him even more angry and upset than he was to begin with. When that happens it's time to beat a hasty retreat and reflect that it's all character building!

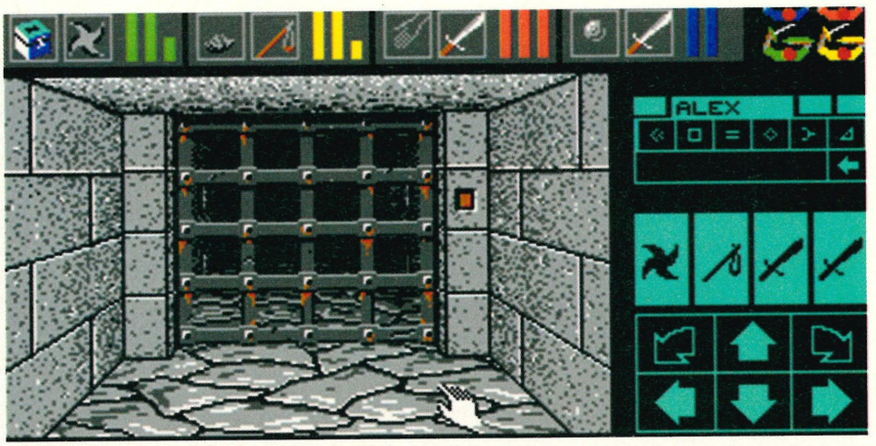
Another factor of the game which is commonplace now, but was ground-breaking at the time, is the point and click interface. This has been designed so that no typing is necessary and all the necessary functions, from picking up objects to casting spells is achieved by using the mouse and on screen pointer which changes shape depending on what action you are currently performing.

The layout of Dungeon Master, which has the main action screen and main character functions for combat and spell-casting grouped on one screen, with character status and minor functions like eating and sleeping on a second screen, is an inspired piece of design which has been imitated many times, often with a good deal less success.

Combat works particularly well if you have prepared your party properly. The correct weapons will be at hand and range weapons like bows or slings will be reloaded automatically. Furthermore, the spell system means that you can have each ▶



Each character has a screen which gives vital statistical information, and allows you to arrange the way they carry things. Note the special areas like the quiver from which projectiles are automatically taken during combat.

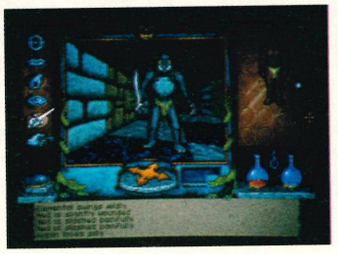


If you own an EGA machine: (a) save up for a VGA or SVGA card; (b) take a look at this screen shot before you rush out and buy Dungeon Master; (c) to save your sanity and sense of colour coordination, do (a) before you do (b).

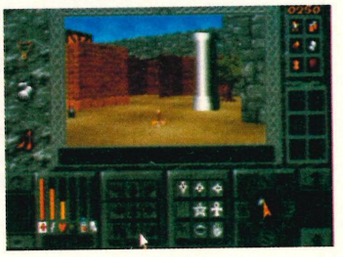
Alternatively...



Eye of the Beholder
SSI\US Gold, £25.99
With Eye of the Beholder, SSI finally shook off the burden of its antiquated 2D AD&D system. The butterfly to emerge from the ugly chrysalis was, despite its obvious debt to Dungeon Master, like a breath of fresh air. There is more animation and it looks more modern than Dungeon Master, but otherwise it doesn't offer any more in the way of game play, or challenge for that matter. You pay for the superior look, but it is £9 cheaper!



Ultima Underworld
Origin, £39.99
This spin-off from Richard Garriot's legendary Ultima sequence has the fastest, smoothest graphics you've yet seen in a game of this type. It's the sort of game that has journalists bandying around misused terms like Virtual Reality. That's a shame, because beneath all the hype there is actually a decent game here too, but if you don't own a really speedy 2Mb 386 with plenty of hard disk space, stick to Dungeon Master.



Legends of Valour
US Gold, £TBA
Already there's news of a game that, technically at least, is going to knock spots off Ultima Underworld. Legends of Valour is the latest work of Kevin Bulmer, the author of Corporation, and is yet another role-playing game. From what we've seen of this so far it looks as if US Gold has opted for a more humorous approach than this game normally receives. Hang on for this if you want something that is really state of the art.

1 WAS WONDERFUL, 2 WAS TERRIFIC, 3 IS THE ULTIMATE CHALLENGE!

FOOTBALL MANAGER 3

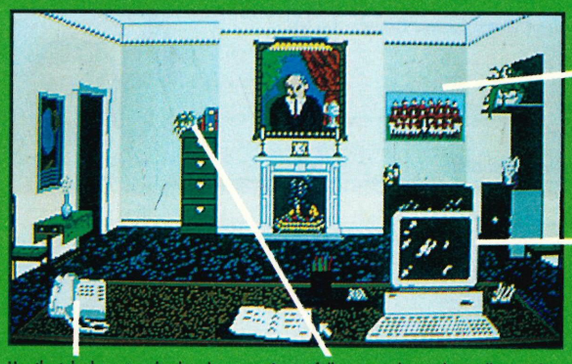


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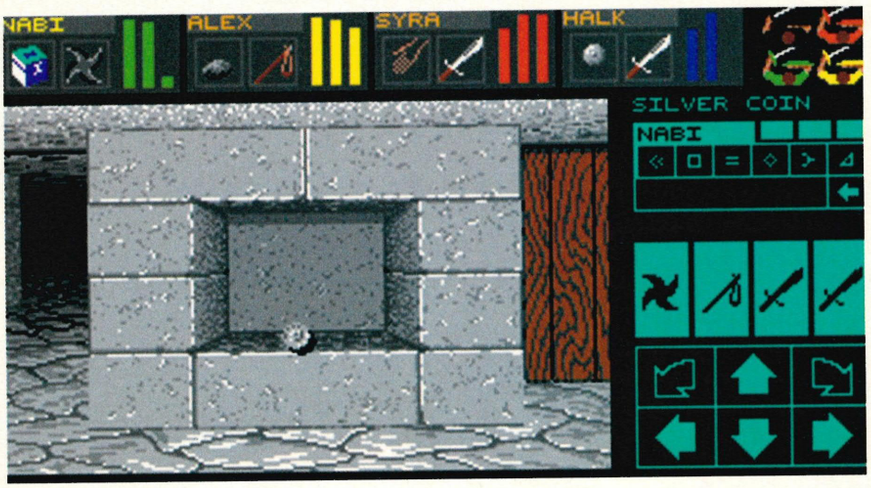
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Addictive
LIVE THAT DREAM

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Here's an example of the type of simple problem that you will enounter from time to time. You need that silver coin that has been sitting in that alcove, but when you lift it, as you have done here, the door to the right closes. How do you get the coin and leave the door open...?

of your spell using characters ready to cast a favourite combat spell at the click of a mouse button.

Combat progresses fairly gently in the first couple of the dungeon's 14 levels. To begin with you'll only have to tackle Screamers, which are little more than overgrown vegetables (and can indeed be eaten), and the cowardly mummies, which you barely have to say boo to before they disappear in a squirt of embalming fluid. When things do finally hot up however, you'll have to have your wits about you. Some of the creatures you encounter in later levels are formidable foes and woe betide any party that isn't up to strength and possessing a good range of combat skills.

You will certainly have to learn quickly in which ways each creature makes its attack. The apparently harmless bite may well have given you a deadly dose of poison. You did prepare that poison antidote earlier didn't you. Perhaps more important is the need to discover what the weak points of each type of creature are. The rock monsters that you first encounter on level two are, for example, fairly invulnerable to normal weapon attacks until the moment that they rear up to attack you. There is no point then in hacking away mindlessly with a sword at their tough exteriors, only to miss your moment when they expose all their vulnerable fleshy bits to attack.

If fortune is not on your side and one or more of your characters kicks the bucket, then there is more than one way of breathing life back into their old bones, but it requires an enormous amount of Mana, or a very long walk, neither of which is a particularly pleasant prospect. Don't forget that you'll have the inconvenience of lugging your erstwhile colleague's dry bones about until you can resurrect him. You'd better take some of his clothing along too if you don't want him to leave the land of the living once more thanks to biting exposure and acute embarrassment.

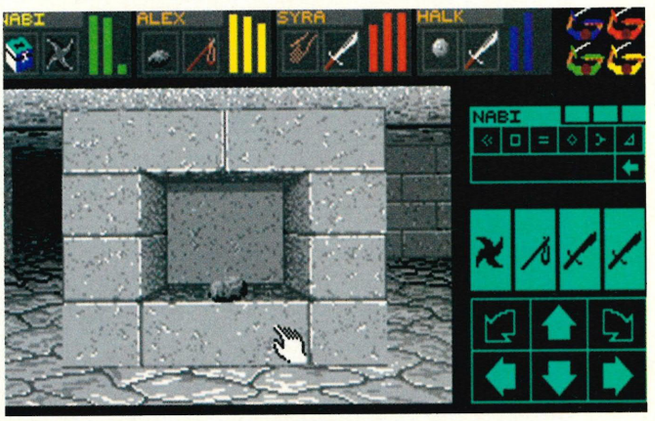
Lateral thinking

Many of the problems are simple to solve once you've got the hang of the way in which the game works. Most minor puzzles involve finding the right switch to open a door or, for example, stepping on the correct combination of pressure pads to get a pair of portcullises to open at once. None of these will pose any real challenge. If you've managed to install and run the program then you're intelligent enough to figure them out.

Players who enjoy a real bit of challenge for the old grey matter will, however find plenty to keep them happy, too. As you progress, the puzzles get more involved and will require quite a bit of lateral thinking as well as just observation. Check out the two minutes panel for an example of one of the least difficult of the challenges you are set.

Considering its age, Dungeon Master would have made a better value package on the PC if the sequel, Chaos Strikes Back, had also been developed and the two released as a double pack. In such a form it would have been more formidable competition for the newer first person role-playing games. As it stands, it still represents first class entertainment as long as you don't mind shelling out for a game that is essentially half a decade old.

■ *Laurence Scotford*



It's simple! Find something heavy to replace it with. That heavy boulder you've been carrying around looks like the perfect thing!

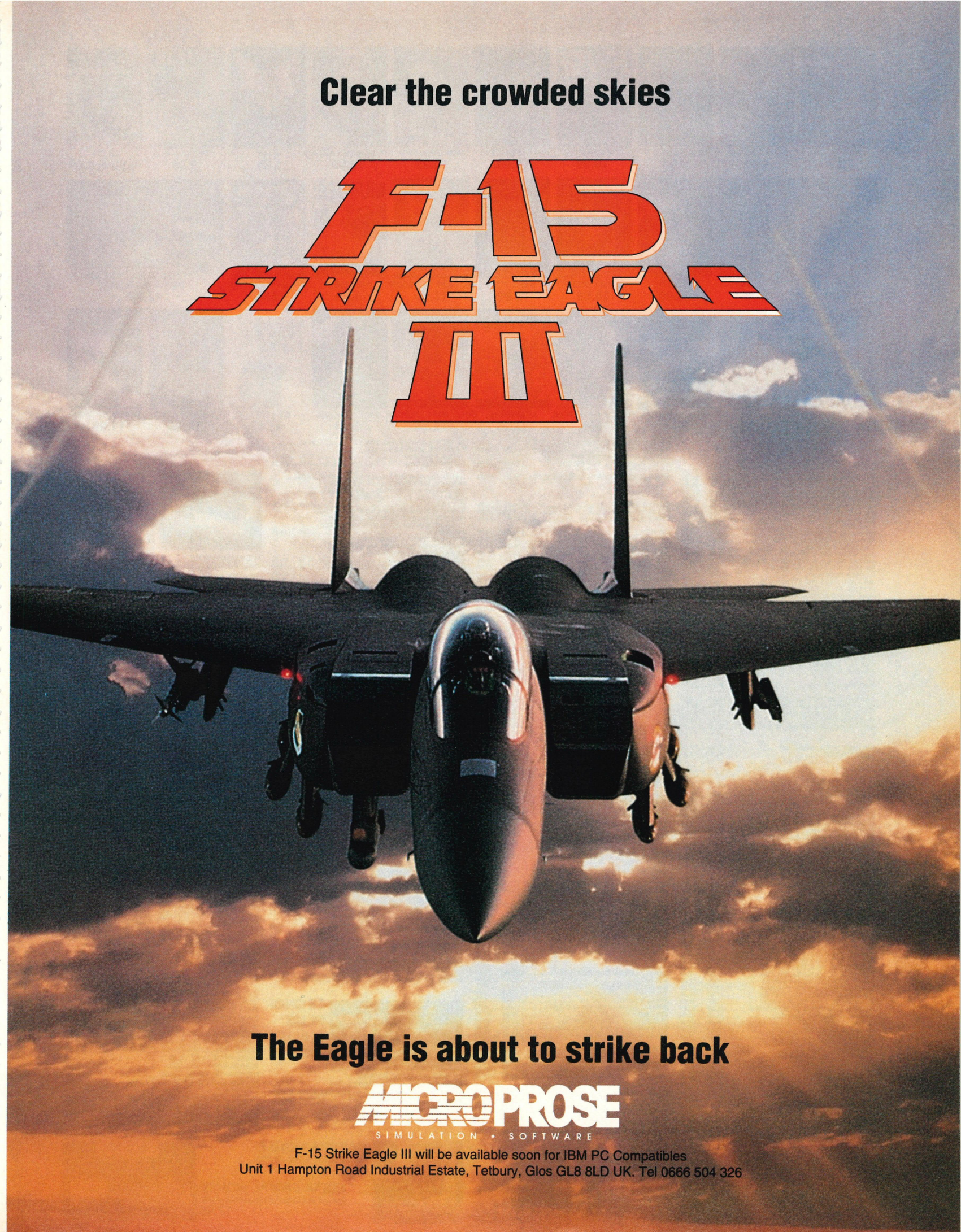


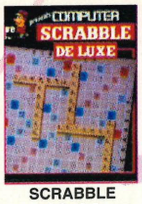
Unlike other role-playing games in which characters are created from scratch, in Dungeon Master you must wander around a hall in which the lost souls of champions are trapped in mirrors. You can free up to four of them to undertake the quest to defeat Chaos.

Techspec Dungeon Master comes on just one floppy disk and will run off that quite happily. VGA graphics are by far the best way to view the game and you really need the keyboard control for combat. It also supports the Disney Sound Source device.

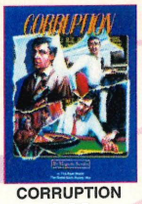
Disk requirements					
	High density	✓			
	Hard disk only	✗			
	Space taken on hard disk	1.2Mb			
Graphic Modes					
	CGA	✓	EGA	✓	Tandy ✓
	VGA	✓	SVGA	✗	
Soundboards					
	Ad Lib	✓	Roland	✓	Sound Blaster ✓
Control					
	Joystick	✓	Keyboard	✓	Mouse ✓
Performance					
	Optimum speed	16Mhz			
	Minimum memory	640Kb			
	Free RAM required	<500K			

PC review 6


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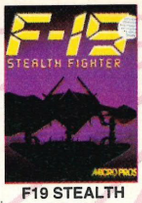
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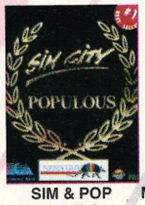
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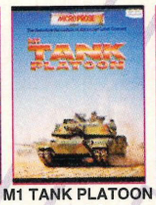
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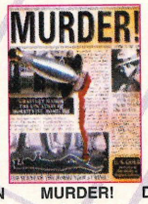
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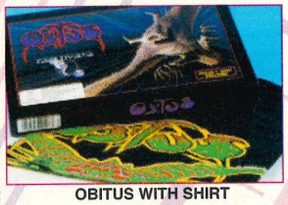
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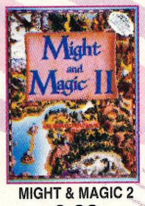
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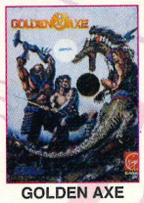
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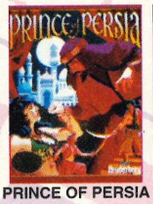
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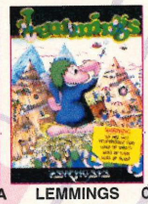
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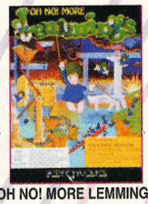
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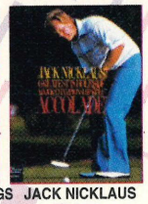
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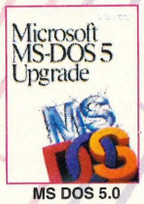
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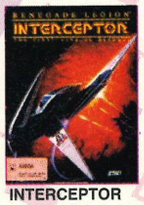
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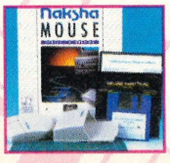
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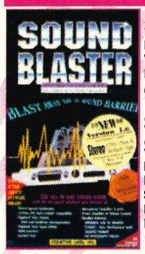


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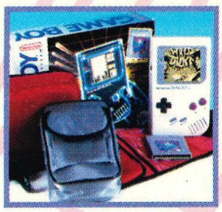
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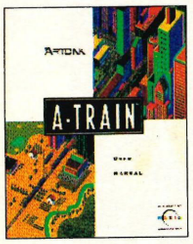
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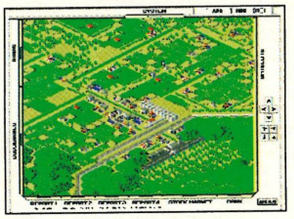
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Title	**A-Train**
Publisher	**Maxis/Ocean**
Contact	**(061) 832 6633**
Price	**£40.99**

The program will construct roads leading from the back of the stations. When two roads meet at a crossroads, land prices soar, and skyscrapers pop up as the city moves downtown.



This is the raw material you're given in map three: some interesting, but empty, terrain. The manual hints that the area's best prospects are in resort development, but golf courses and stadia don't come cheap and at present, I've got no money.

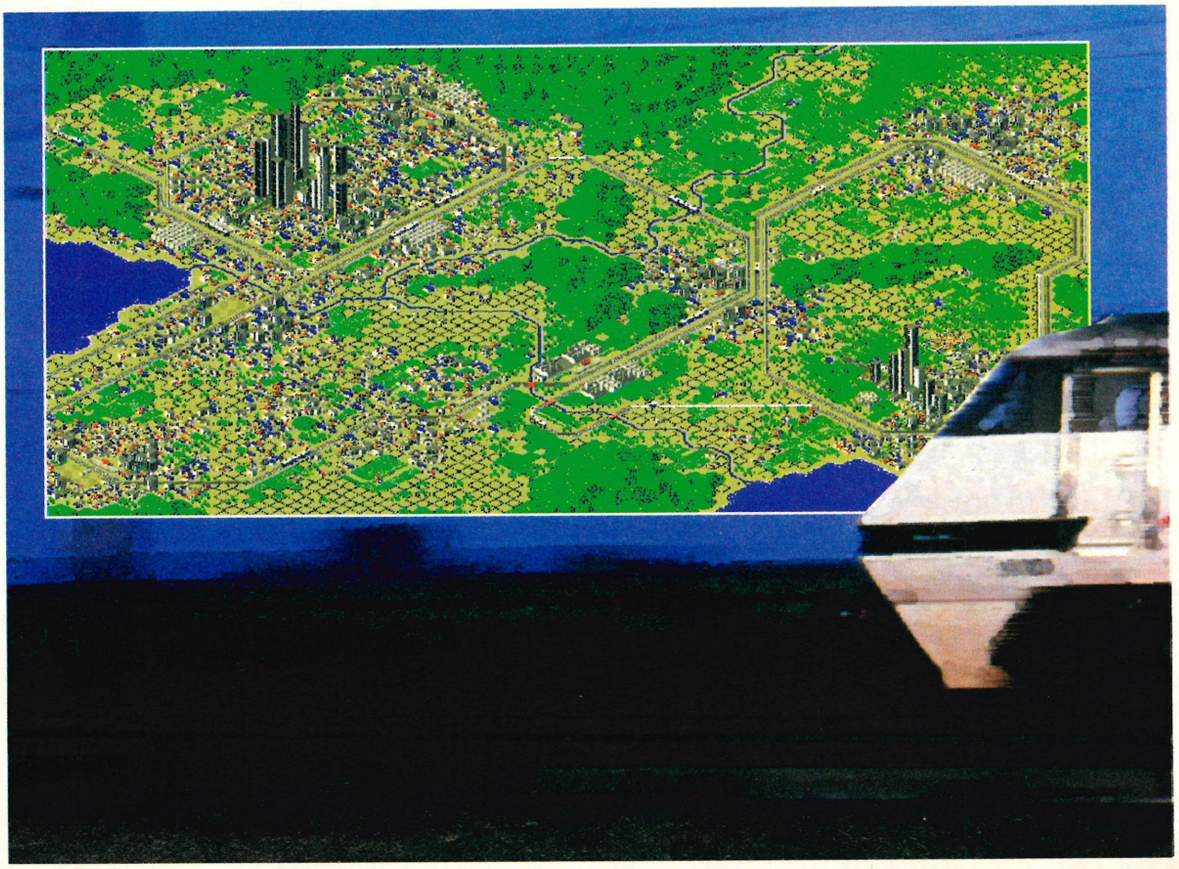
A-Train

Challenging you to become a financial wizard, arch manipulator and engine driver all at the same time, A-Train has been billed as Sim City with train sets

Although published by Maxis, A-Train was developed by Japanese company Artdink, which may explain why this cross between Railroad Tycoon and Sim City isn't actually called SimTrain. You can choose to play with one of six scenarios, which have varying degrees of human habitation, but all with an embryonic railway line running through them. Your task is to develop the railways, build extensions to the existing track, run the trains efficiently, and so build up the community. You can spur on city development by buying and placing apartments, office blocks, department stores, golf courses, ski resorts, and the like; the program itself will generate homes, public buildings, and roads to create a city around your strategically-placed railway tracks.

Central to the gameplay is financial management. You can't just build willy-nilly; there is only a certain amount of money in the kitty, and if you run out of money and go bankrupt, the game is over. Only by making a profit from your rail enterprise, your buildings, borrowing sensibly from the bank and investing prudently in stocks and shares can you keep the money coming in.

It's not *too* difficult to get your railway running at a profit. The trick seems to be to set up reasonably short lengths of dual track line, with a freight train running on one and a passenger train



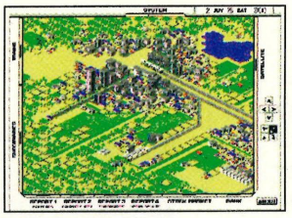
The complete, developed city that provides the basis for map six. The colourful squiggle in the bottom right is an amusement park.



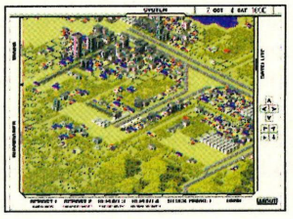
Nine months later, it's the middle of winter (and the night). The community is developing fast (but I've still got no money to develop that resort). The vacant yellow areas show the land I've bought in preparation for the next stretch of railway line.



Spring, and there's some money in the bank — time to put the second line into place and expand the town further to serve as a population centre for my future resort. If I place the new station carefully, I should get that all-important road intersection and a true city centre.



Passenger levels will only be higher, of course, if there are any potential passengers. I'm going to build an apartment block by the new station to stimulate population growth. Apartment are good value for money: comparatively cheap to build, and profitable from day one.



Well, the buildings have gone up, but look how long it's taken to get this far. It's now October (note the autumn colours). The program will generate its own buildings when you transport the construction materials (the white blocks) down to the vicinity by freight train.



One month later, I've achieved that road intersection, and you can see just how much many more buildings there are. I've still got no money, of course, so my own share of this particular economic boom is a spot of real estate and one measly office block.

on the other. The freight train is essential to transport the little white blocks of construction materials from one station to another. Without these, neither you nor the program can build anything at all. Passenger totals increase with the population and you can stimulate growth by building three or four apartment blocks behind each new station as soon as availability of construction materials allows.

Once the trains are running smoothly, you can turn your attention to city development, where in addition to the buildings you buy and build, the program will also generate its own. One of the most satisfying parts of A-Train is watching buildings pop up around the new stations all of their own accord, especially at night, when the street lights and buildings glow. The graphics throughout, though miniaturised, are clear and detailed, and full of appealing touches, such as the red-crowned cranes which fly across the screen on their migratory path — north to south in autumn, south to north in spring, and the way the colours change from verdant spring, to scorched summer to snowy winter. A-Train lacks nothing in presentation, though you lose little by turning off the somewhat incongruous Hammond Organ music.

After apartment blocks, you can get more ambitious. Lease buildings (office blocks) are cost-effective and you can choose from squat blocks to lean skyscrapers (best to start squat and build tall ▶



Finances willing, you should shell out for the large station rather than the smaller one, because they stimulate much more in the way of town development.



PCreview 7

This satellite picture shows the full extent of the terrain. If you lay a track with branches, you'll need to change the switch to suit each train. It's always a good idea to set the departure times for 8.00am, when passenger levels will be highest.

once the population growth can stand it). Factories are also cheap and will add to your precious supply of construction materials, but you must make sure that the materials can be transported by train to somewhere useful or it will be a waste of money. Ski resorts make pots of money in winter and drain your resources in summer, "commercial buildings" (shops) make money only at Christmas time, and hotels just lose money hand over fist all the time, as far as I can make out. My most successful construction has been a stadium, judiciously placed in the centre of town at a well-developed stage of the game — it made an absolute fortune.

However, A-Train has a sophisticated set of demographic rules governing which type of building will work in which type of town at each stage of the game. For instance, building a new station and track away from the centre of town and constructing apartments will generate passenger traffic one way — from the apartments to town. Add an office block and traffic increases both ways, because now people are travelling from the centre to work in the offices. If any of your buildings aren't making money — or if you simply need extra money to fund your next expansion — you can cut your losses by selling them off. Often in the early stages you'll be living hand to mouth, buying up, selling, and moving on, just to get the simulation going.

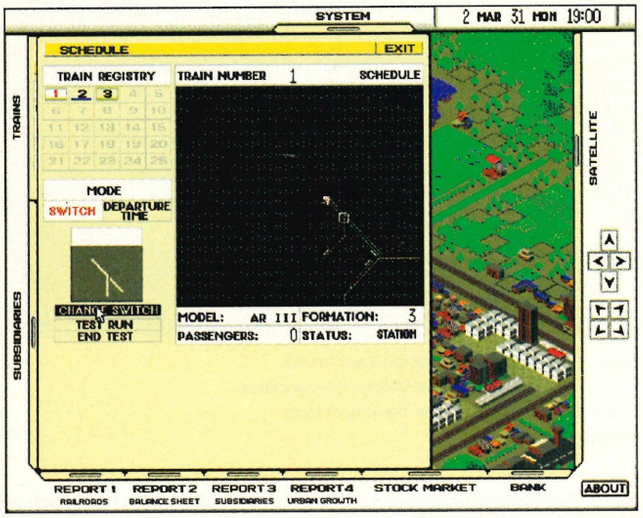
I may be missing a trick here, but given the name of the game and the amount of space in the manual devoted to a history of the American railroads and types of rolling stock (it's a trainspotter's idea of nirvana), I was surprised at how the balance of the game seemed to be geared more to developing townships than running a railway line. Sure, expansion depends on laying the tracks out to hitherto undeveloped terrain, but having done that, it takes several hours (if not days) of real-time game playing to generate the income needed to fund the next stage.

In map one, which is practically virgin terrain apart from an embryonic dorm town for a city off the map, you're helped considerably by the fact that you kick off with $5 million in the kitty. But in the other maps, you are strapped for cash right from the start. Bank loans are the easiest way to top up the coffers, but, of course, they have to be paid back ...

The money at your disposal means that each stage of your empire needs careful planning, because any ill-fated ventures are liable to end in bankruptcy. In a cruel stroke, removing badly thought out railway lines and wrongly positioned buildings costs you money just as building them does. One feature that I was crying out for while playing the game was an Undo command, particularly when using a slower (12MHz) machine.

Another facility I would have liked is a multiple game option, so that you could have a number of A-Train cities 'live' in screen windows at any one time, and switch between them at will. As I write this, I've got about four or five scenarios of varying stages of development set up as separate saved games, which I can dip into every now and again (just to get that golf course set up, or to put in a new spur on the railway), but the thought of starting something new from scratch and building it up over two or three days of playing has become rather daunting.

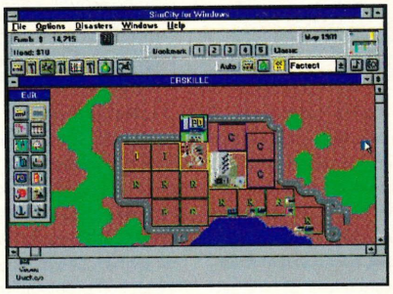
■ *Christina Erskine*



Techspec **A-Train comes on three disks (3.5") and takes around 15 minutes to install to hard drive. In addition to the support listed below, it has a Hercules mono graphics mode, and is compatible with the Covox FM soundboard and Tandy sound. I would strongly recommend a mouse; keyboard control is horribly cumbersome. Note also that although you can adjust the speed of animation in A-Train, movement tends to be a bit jerky below 16MHz, hence the fairly high optimum speed rating.**

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Control						
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Performance						
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	Minimum memory				640K	
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Alternatively...



Sim City
Infogrames, £29.99
Sim City for Windows
Mindscape, £39.99
The railways are more incidental to the game, but Sim City operates, superficially, on a similar level: create the right conditions and the community will develop. You have rather more to worry about in the way of town planning: your reputation, tax levels, crime and pollution, and the game's strategy relies on keeping the balance right, while financial management is the core of A-Train. After A-Train, Sim City's graphics are beginning to look very old-fashioned.



Railroad Tycoon
MicroProse, £35.75
If you think about it any game that simulates the running of a railroad doesn't exactly inspire much excitement in the potential buyer but seeing as how both A-Train and Railroad Tycoon both rate pretty highly, there must be something in there after all. While A-Train has superior graphics to MicroProse's effort (but let's face it, if they were worse they'd have to be bad indeed) and a general better sense of presentation, Railroad Tycoon is still without a doubt the most addictive to play. When it comes to strategy, it seems, you can't beat Sid Meier.

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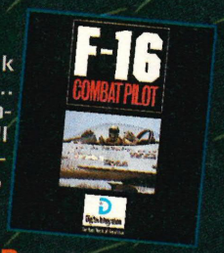
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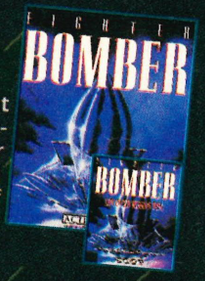
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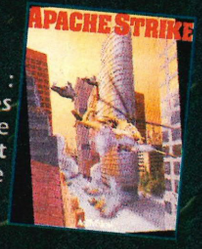
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Title	**Hong Kong Mahjong Pro**
Publisher	**Electronic Arts**
Contact	**(0753) 549442**
Price	**£29.99**

Mahjong is a game not too distantly related to Gin Rummy, but played with its own distinctive tile set. In this PC version, you can select your three opponents from the program's list, or opt for the default mode.

Hong Kong

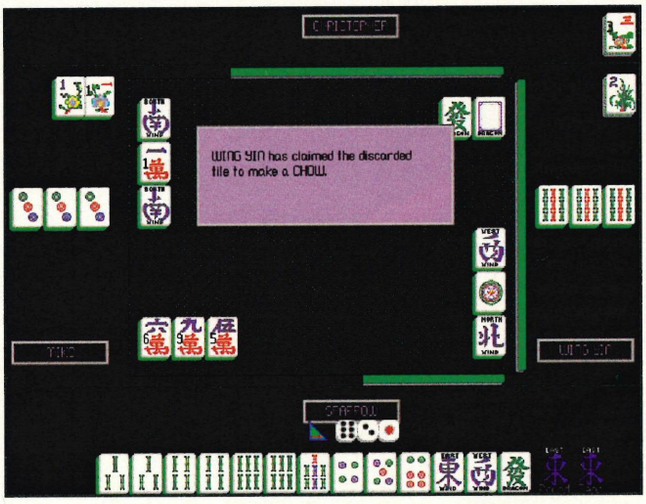
Putting a board game on a computer is often an exercise in futility, but Mahjong is an honourable exception

With board games playing the real thing with family or friends is usually more sociable and almost always cheaper, but with Mahjong, it's rare that you'll be able to find three people who, even if they have heard of the game, will know how to play it with any skill. As a result, a good quality PC version is particularly welcome.

In principle, Mahjong is simple. Four players sit at a table and stack 144 tiles (marked with different suits, like playing cards) into a square wall. There are three major suits numbered one to nine (characters, sticks and balls), four winds, three dragons and two groups of four flowers. Each player is dealt 13 tiles, then, as with Gin Rummy, the players take turns picking up tiles from the wall, discarding tiles they don't want, and occasionally claiming another player's discard. The winner is the player who assembles a hand with four sets of three tiles and one pair.

There are three kinds of set. A chow is a group of tiles of the same suit in numerical order; a pong is a group of three identical tiles of any suit; and a kong is a group of all four identical tiles in any suit. Points are awarded according to the combinations of suits used to win, and on the degree of 'purity' of your hand. For example, a hand which contains sets all from one suit is deemed 'pure', and is worth an extra six points.

Apart from the basic winning set combinations, there are other situations to look out for during a game, for example, the special difficult hands which reward you with extra points, such as seven pairs, the gates of heaven (the complete hand from one to nine in any suit) and the jade dragon (pongs of any sticks and a pong of the green dragon, which is worth at least 10 points).



After each game, the winners celebrate victory with a brief animated sequence.

If this all sounds a little complicated, don't worry. A very thorough tutorial takes you through the game step-by-step, right from the beginning, and even contains an interactive demo mode. In addition, there's a useful in-game help facility which suggests the best tiles to discard.

Hong Kong Mahjong Pro has several advantages over the board game, apart from the tutorial already mentioned, including a dozen different opponents to choose from, who either offer the kind of challenge novices dream of, or take you

PC*review* **8**

Tech*spec* **If you can't find three human opponents for the board game, you'll need a 286AT (or higher), a hard disk with at least 4.8Mb free, 640K RAM, VGA, a mouse, DOS 3.0 or higher and a high density floppy drive. To get the most out of this product you'll need a Sound Blaster to reproduce the speech. These are only spot effects like the groans from other competitors when they lose but they do add some atmosphere. Even in VGA the background graphics look quite pretty and don't distract from the equally attractive tiles.**

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	4.8Mb

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	575K



At the beginning of each game, a wall of tiles is created around the game board. The computer rolls the dice to decide which section of the wall the tiles will be dealt from.



Each player is given 500 chips and 13 tiles. The computer automatically sorts out the best order for examining the tiles, but after that it's really up to you ...



Miko has just got a pong – three of a kind – by claiming a loose tile. You don't necessarily have to be quick to claim tiles: the game speed is easily adjusted from the options menu.



A few rounds later, Uncle Chen has also nipped in to claim a pong. If you're getting a little confused, you can always ask the sparrow for help – he'll recommend your next move.

Mahjong Pro



Should you decide to quit the game altogether, your opponents and the sparrow bid you farewell.

for every penny you've got. After every game your record against them is saved permanently to disk.

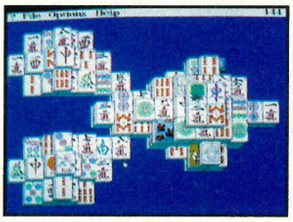
The game's only real fault is if you want the full visual and aural effects, unreasonable demands are made of your hardware. It's fine if you have the full works, Super VGA, disk cache, expanded memory and a voice card, but you feel you're missing out on something if you lack any of these. That said, it's only the presentation that suffers; the game plays just as well with the minimum configuration and, as the screen shots show, the VGA graphics are hardly poor.

Mahjong Pro plays a mean game, in part because of the variable game speed, but mainly because of the opponents. Not only do they increase in skill, but the more expert players also set various game conditions. These can be anything, from determining a minimum number of points to win, to forfeiting chips if you declare in error. As you become more skilful yourself, you realise that it's just as important to prevent others winning as it is to concentrate on completing a hand. This balance is typical of Mahjong Pro's serious attempt at authenticity, reinforced by the comprehensive manual.

Hong Kong Mahjong comes highly recommended. Even if you know nothing about Mahjong, don't be put off by its complexity. With patience, you can let this program transform you from a novice to a competent player. Twelve opponents and a few handy options simply make the learning process more enjoyable.

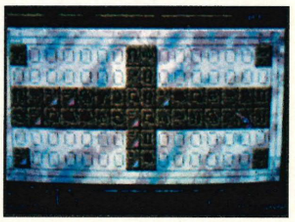
■ ***Gordon Houghton***

Alternatively...



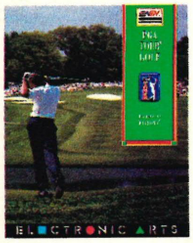
Shanghai II
Activision, £35.99

With several varied tile sets (including the original Mahjong stones, alphabets and animals), 13 different start-up patterns and a construction set to create your own, as well as a bizarre two-player contest dubbed Dragon's Eye, this is an unusual and strangely addictive set of puzzles. You have been warned!

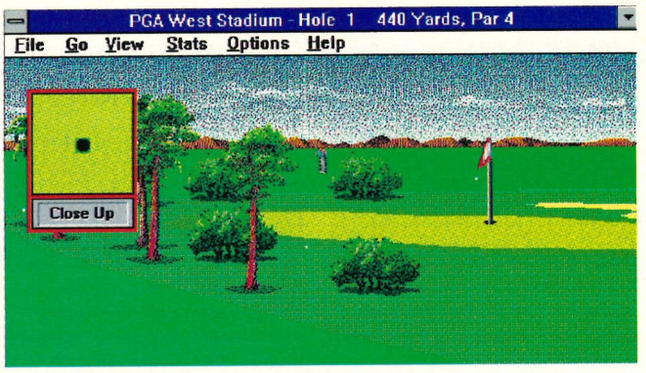


Sarakon
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At the heart of the matter is a series of tiles. The object is to match up similar pairs, though the laws governing exactly what may be removed are rather complex. A good deal of forward planning is required, and 40 tough stages will tax even the most hardened puzzle maniac. There is a novice difficulty level for learners, too.



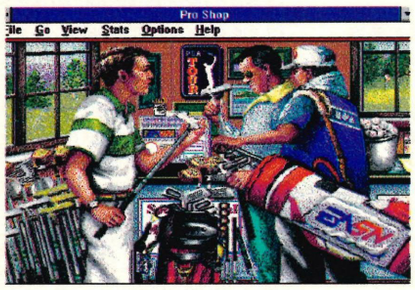
Title	**PGA Tour Golf for Windows**
Publisher	**Electronic Arts**
Contact	**(0753) 549442**
Price	**£39.99** *(£14.99 for the add-on course disk)*



Approaching the Windowed green after a particularly bad tee shot.

PGA Tour Golf *for Windows*





Top: A typical golfing fourball team.

Above: In the Pro Shop at the start of the game.

So it finally happened. What was once considered to be the ultimate in golfing simulations has undergone its logical, final transformation. Now all of you executive types that had to wait until lunchtime before you could load up the original PGA or Links or some such other, can load it up straight through Windows and play it during your working hours too. In truth that's all PGA ever needed, a minimise button to hide it behind your spreadsheet. The game itself needs little doing to it, save updating the graphics, in order to retain its playability.

And that's more or less all that has happened. The game is still the same as it always was, just as playable, just as enjoyable, the only difference now being the pretty Windows border it all comes in. The graphics have been slightly embellished and the presentation is now a little smarter with the EASN logo (Electronic Arts Sports Network - a parody of the American ESPN sports channel) appearing on the title screen and box cover.

It does have a problem, though, not with itself but with its competition. Unless the Windows factor is your main reason for buying this product, practically everything else on the market has equal amounts of playability and a much wider range of options. PGA doesn't offer you the chance to alter your foot set-up. You can't overlay a grid straight on to the green. You don't get a scrolling tour of each hole before you play it.

Hang on. Surely PGA does offer the fly-by preview? It originated the idea, didn't it? Well, PGA for Windows has actually replaced the whole section with a manually controlled 'hole browser', which is nowhere near as friendly as the old fly-by. After two or three holes it's destined to go the same way as all the other useless, time-consuming options: out of the pre-saved game set-up menu. But that's how everyone always played PGA anyway, modifing the options to get a game that suited them, and that's why, thankfully, you are still allowed to save your own setups.

Basically, PGA for Windows is no better, and no worse, than it's ever been. It'll no doubt do extremely well simply because it is PGA and it still has an amazingly strong following. In my own mind though it's beginning to look dated and I would be tempted to wait for Microsoft Golf for Windows to come along before I committed myself to this ageing classic.

■ ***Paul Presley***

Techspec **Well, for a start, you'll need Windows (preferably running in standard or 386 enhanced mode). The graphics are all VGA only and a fairly decent processor (16Mhz or above) is pretty essential to cut out long disk accessing. 7.7Mb of hard disk space is also required.**

Disk requirements						
	High density disks				**✗**	
	Hard disk only				**✓**	
	Space taken on hard disk				**7.7Mb**	
Graphic modes						
	CGA	**✗**	**EGA**	**✗**	**Tandy**	**✗**
	VGA	**✓**	**SVGA**	**✓**		
Soundboards						
	Ad Lib	**✓**	**Roland**	**✓**	**Sound Blaster**	**✓**
Control						
	Joystick	**✓**	**Keyboard**	**✓**	**Mouse**	**✓**
Performance						
	Optimum speed				**25Mhz**	
	Minimum memory				**2Mb**	
	Free RAM required				**640K**	

PCreview 5

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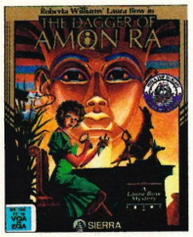
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Title	**The Dagger of Amon Ra – Laura Bow II**
Publisher	**Sierra On-line**
Contact	**(0734) 303322**
Price	**£39.99**



Inside the museum is this magnificent display, along with many people to interview. The graphics are as impressive as this throughout the game. Most have been digitised from hand painted artwork which prevents them from having that 'low res' computer look.

The Dagger of

The intrepid cub reporter is back in Roberta William's sequel to The Colonel's Bequest

Longstanding fans of Sierra games will probably remember Roberta William's first adventure to feature Laura Bow, The Colonel's Bequest. That game introduced Laura as a young reporter, intent on investigating a variety of crimes. It was up to you to guide her through an intricate maze of clues and false leads to solve a murder mystery in true Agatha Christie style.

The sequel takes up the young reporter's story in 1926, when, having graduated from college, she travels to New York to start work as a reporter for The Tribune. This part of the story is related in the superb animated intro sequence which introduces the legendary artefact of the title and some of the game's characters. It also shows Laura being robbed blind on her arrival in the Big Apple. That's the New York experience for you!

Laura has been employed for a trial period by editor Sam Augustini as a favour to her father, a police officer who apparently gave Sam his big break some years earlier. This doesn't exactly please Crodfoller T Rhubarb, a fellow journalist whom Laura has replaced, and his test on egyptology is the copy protection for the game – a novel touch.

Why egyptology? Well, that's where your first assignment comes in. Your job is to cover the stealing of the 'fancy knife' of the title from the Egyptian collection in the Leyendecker Museum. (Sierra thoughtfully provides a booklet about the museum. This is later used as a copy protection device, but it is well worth reading because it contains facts that will help you later in the game.) You have an invitation to a fundraising event at the museum at 7.00pm that evening and you must have a report to write by 3.00pm the following day. This is where Act One starts.

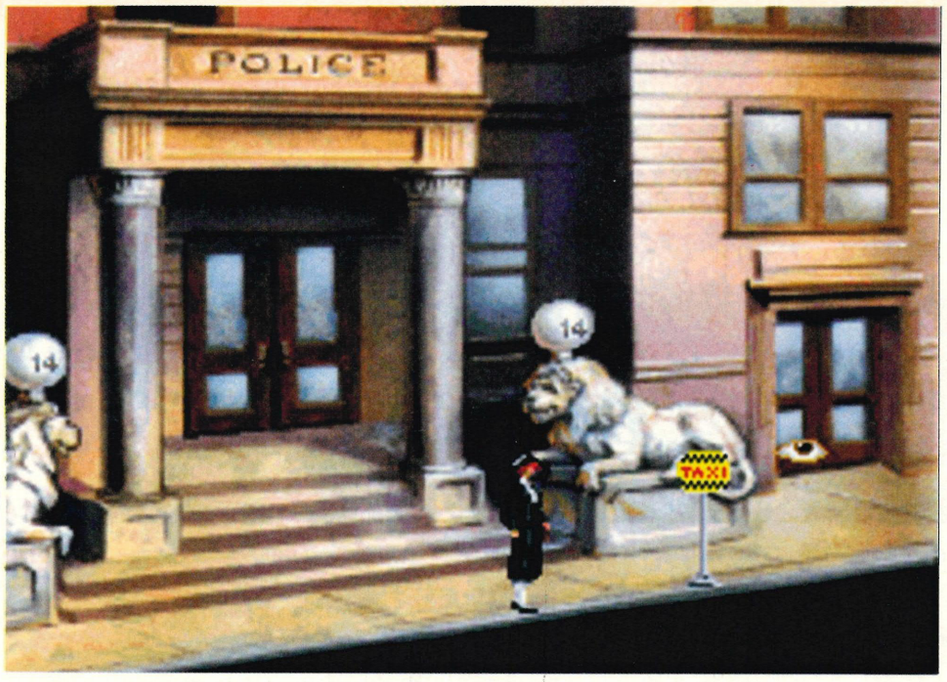
From here on, you are on your own. As with any mystery cum adventure you need to search everywhere, in this case by placing the eye icon over objects of interest, and question everyone, especially Crodfoller who is a big help at the beginning of the game.

Having interrogated your predecessor, you find yourself at your desk and immediately the first problems present themselves. How do you get the press pass in your drawer? What's that in the wastepaper basket? When you leave the newspaper building, you should explore New York for clues. Take it from me that the only way to do this is to hail a taxi: I tried crossing a road but met a sticky end when a car came out of nowhere.

Inside the museum is a very impressive display, along with many people to interview. The graphics are as impressive as this throughout the game.



Getting a job as cub reporter on New York's leading newspaper is just another excuse for Laura to become embroiled in a murder mystery. If only a journalist's lot was really this exciting ...





Amon Ra

Laura Bow II

Throughout the game, the Sierra team's characteristic humour, if not downright sarcasm, is rife. If you have played Sierra games before then you'll know what I mean. If not, just try examining the tree outside your office and you'll get a pretty good idea of the sort of dry, cutting responses you can expect.

Digitised graphics

There are lots of places to visit, and these are all extremely well detailed. The quality of the graphics far exceeds anything that Sierra has done to date. Digitised images have been used in places and are complimented by digitised speech, given that you have a sound card capable of reproducing it. The effect was impressive enough to have people in the office stopping work to gape.

The same detail is evident in the modelling of the personalities in the game. These include the Irish detective, the Chinese laundryman and the Italian sandwich seller, while the American contingent ranges from a small time crook and a couple of taxi drivers to a bunch of children setting fire to ants with a magnifying glass. So much attention has been paid to the period, even down to the flapper in the speakeasy, that it is easy to be engrossed in the atmosphere of the 20s.

As we've come to expect from Sierra, the puzzles are subtle and take a little brainwork, but much of your task involves careful observation. For example, getting information out of the desk sergeant depends on your feeding him. When you enter the police station for the first time, a drunk is sleeping outside. He is still there when you leave, but quit the police station a second time and the drunk has vanished, the only trace of him being a newspaper. Inside the newspaper is a free sandwich coupon from ▶

Two Minutes *of investigation*



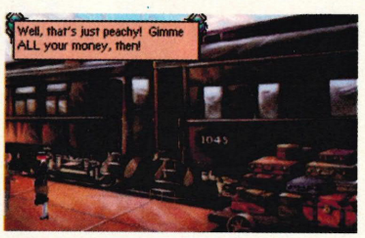
You have just sat down at your desk. This is the big time! But don't get so wrapped up that you forget to look everywhere and examine everything, even in the Gents, and ask plenty of questions.



After leaving the Tribune building, what next? Look carefully and watch that road, pausing only to admire the atmospheric and authentic tree graphics. If you want to get ahead, call a cab.



Look at those lions, and, what's this, a drunk loitering outside the police station? I wonder if he really needs that old newspaper or will he leave it to litter the pavement later?



Inside the police station, you've quizzed the detective working on the case and you're about to have a go at this unhelpful desk sergeant. Maybe something to eat will make him more amenable.

Luigi, the Italian sandwich seller, whom you'll find outside the newspaper building, but not until you have the coupon!

Act Two and all subsequent acts take place in the Leyendecker museum where you meet the main characters of the plot, all manner of people from a French tart to an Egyptian accountant with a lisp. Sierra adventures are seldom short on imagination! As you explore your surroundings, you'll find that certain parts of the museum are out of bounds at various times of the game, and, meanwhile, murders are committed, furtive conversations are held and objects appear and disappear. The scene is set for a budding reporter to solve yet another mystery.

Like all of Sierra's recent games, Laura Bow II uses the Sierra Creative Interface to eliminate typing. All essential actions can be accessed via a series of drop-down icons at the top of the screen, and objects are manipulated simply by clicking on them in the main image. The no-typing theme is even carried through to the mechanical process of your investigations. Unlike other reporters, you won't have to master the art of shorthand in order to scribble down notes on the people and places you encounter as there is a notebook in which objects and people are automatically entered when you find out about them. When you want to ask someone a question, you simply click on them with the relevant icon and then select an entry from the notebook.

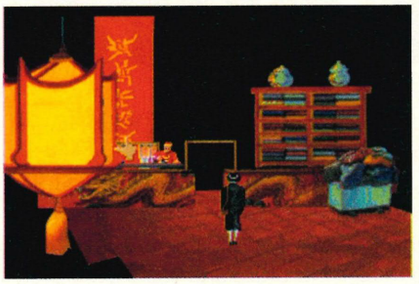
SCI is really a termendous improvement over the hybrid, point and click and typing interface that was used in all of Sierra's earlier adventures. While the graphics in those older games were of a good enough quality to distract the player's attention from the chore of typing, it was still a burden. Eradicating the endless key tapping not only makes the games accessible to all those hunt and peck typists out there, it also means that all players can enjoy Sierra's first-class talent for story telling without having to worry about learning the syntactical complexities of an Sierra's text parser.

Notebook power

The use of the notebook is absolutely inspired. It fulfils two functions. Firstly it's a useful reminder of the facts and clues that you have uncovered during the course of your investigation. Thus, you won't have to type endless phrases to get a simple action done, or write reams of notes on what's going on.



You try to go to other areas of the museum, but the way is blocked by the security guard, try this again later for better results.

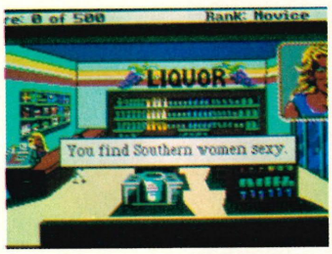


Artefacts galore abound in the Leyendecker museum. Your most immediate task is sorting out the junk from the objets d'art that may actually help you in your quest. Don't forget to search inside objects like chests as well.

Secondly, using the notebook to ask questions is an intriguing way of getting round a non-typing interface. It also saves the user a lot of time trying to guess what the game designers consider to be relevant subjects. For example, if you come across a unusual statue that looks out of place in its setting, you might consider this to be something worth pursuing. With the typing interface you might have spent forever entering phrases like 'Ask news vendor about grotesque statue', and wondering why you got nothing more than the computer equivalent of 'I know nothing'. With the notebook system, if an entry about the statue is not created when you first encounter it, you know that it is not releavnt to the rest of the game and don't have to waste any more time trying to find out about it.

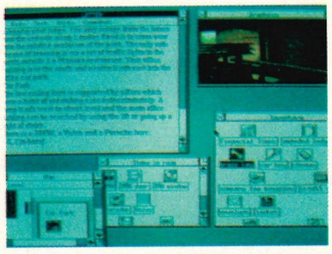
One thing I should point out is the processor power required. I played this game on a 386 desktop and a 286 portable Compaq. The 286 machine was so slow

Alternatively...



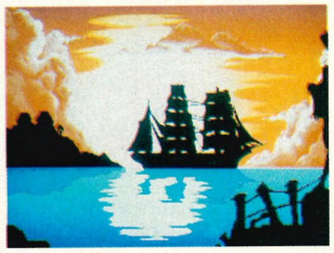
Leisure Suit Larry series
Sierra On-Line,
£39.99 each

Leisure Suit Larry provides a amusing alternative to more po-faced adventures. Each title follows Larry's jaunts in the land of sleaze, where he moves from joint to joint and woman to woman, getting married and divorced along the way. These are not the sort of games to leave out for the kids, nor are the games particularly difficult, but the Carry On style humour appeals for a while.



The Magnetic Scrolls Collection
Virgin Games, £34.99

The Magnetic Scrolls collection caters for all tastes, including The Guild of Thieves, Fish and Corruption. These games have a blend of high quality graphics, excellent gameplay and a terrific atmosphere, although you should note that they are still primarily text-based, showing their age. In The Guild of Thieves you play an apprentice thief trying to prove you're worthy of membership of said guild.



Cruise for a Corpse
Delphine/US Gold, £30.99

An alternative approach for murder mystery fans is provided by the most successful adventure creators in Europe. As the title suggests, Cruise for a Corpse is set aboard a luxury yacht on which a murder has taken place. It's up to you to investigate by exploring the yacht and questioning other passengers. The superb animation and point and click interface make this an easy to play, tough to solve whodunnit.



You have found a replica of the Dagger of Amon Ra. It's amazing what you can do with the help of a magnifying glass. This is a good example of the way that objects must be used inventively to solve your quest.

that I felt like abandoning the game altogether, and is equally painful to play without a mouse. The game is supplied on five high density disks and occupies some 7.5Mb of your hard disk space. There is supposed to be a way to install part of the game on to the hard disk, and then insert the relevant floppies as needed, and the game should default to this minimal installation if you don't have enough disk space, but I had difficulty in getting this to work.

Laura Bow II has plenty to recommend it, such as its truly excellent hand-painted artwork and Sierra's first class interface, but it is the absorbing plot above all that makes this game a real winner. I can confidently guarantee that you'll be on the edge of your keyboard until the mystery is solved and the villain revealed. Even if you haven't played The Colonel's Bequest yet, you'll want to take a look at this one.

■ *Ashley Shepherd*

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Techspec **The Dagger of Amon Ra requires about 8Mb of hard disk space and 560K of memory, I would recommend a 386 processor or better. There is also support for the Disney Sound Source card, the Pro Audio Spectrum and the Sound Blaster card for the digitised speech. You might just about get away wiith a 12Mhz machine if you can bear the crawl ing pace of the animation and screen updates.**

Disk requirements

High density	✓
Hard disk only	✓
Space taken on hard disk	4.8Mb

Graphic modes

CGA	✗	EGA	✗	Tandy	✗
VGA	✓	SVGA	✓		

Soundboards

Ad Lib	✓	Roland	✗	Sound Blaster	✓

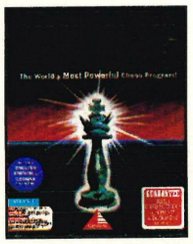
Control

Joystick	✗	Keyboard	✗	Mouse	✓

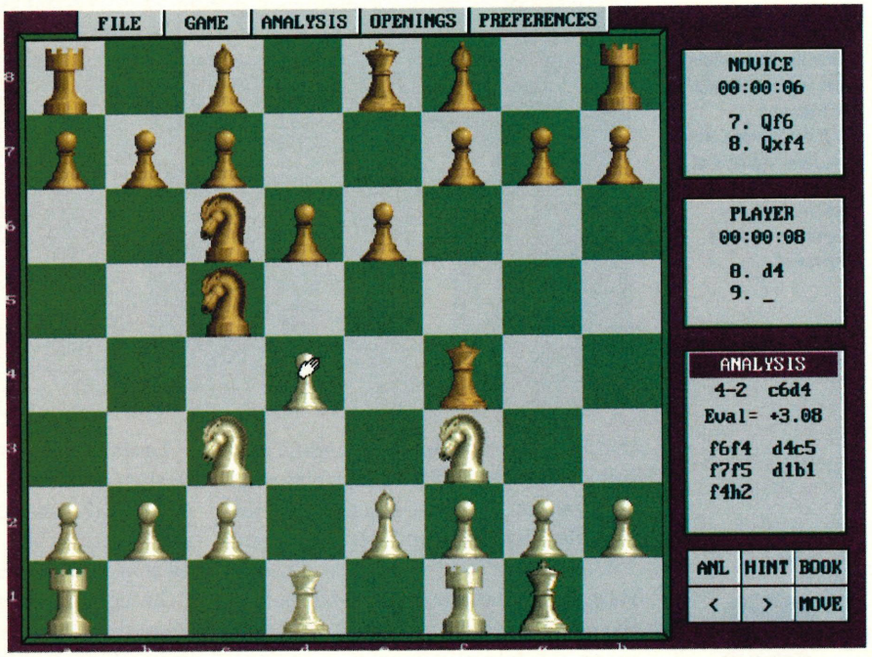
Performance

Optimum speed	16MHz
Minimum memory	640K
Free RAM required	575K

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Title	**Grandmaster Chess**
Publisher	**Capstone/Accolade**
Contact	**(081) 877 0880**
Price	**£34.99**



Grandmaster Chess

Billed as "the world's most powerful chess program", Grandmaster Chess is making some bold claims in this highly sophisticated and competitive corner of the games market

A good chessplayer, according to a chap called Gerald Abrahams, writing in 1948, is '... approaching the attainment of that intellectual integrity which is the contribution of any science to culture.'

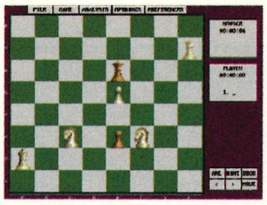
My 386 has been contributing to culture like billy-oh during the last week, thanks to Capstone's Grandmaster Chess. This program claims, in large bold letters on box and manual, to be 'The World's Most Powerful Chess Program!'. Whether this magnificent bluster can or cannot be justified remains to be seen — in a few paragraphs' time, to be exact. But let's explore a few critical openings first.

Chess is a very enjoyable game played by human beings. Part of the experience is a certain Balkan Sobranie sensuality in handling the pieces, even if you're losing horribly. Computer chess, on the other hand, does not offer these simple pleasures. The mouse or keyboard is a poor substitute for ivory, or even plastic, kings and queens, and the nearest you get to social intercourse is a little dalek in the machine saying exciting things like 'Capture' and 'Check'.

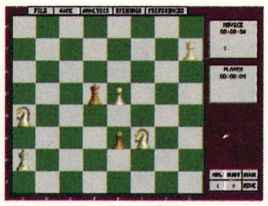
So why buy a chess program? First, for learning the game. There's no better lesson than a series of instructive defeats, tempered with a few encouraging victories. The adjustable playing level of chess programs (most of which also offer some tutorial and 'hint' options) can easily provide this experience.

Then there's the 'gee whizz' syndrome. Chess is generally seen as a very human skill, and it impresses the neighbours to see your PC moving pieces about and winning games. It helps, of course, if the software can win games. Some PC chess programs seem to find this difficult. It also helps if your program has a spectacularly sexy set of display options. You know funny dwarves for pawns and a scrofulous old man as the King ... or is that the Queen? And a marble-effect chess board. And a digitised voice saying something inane,

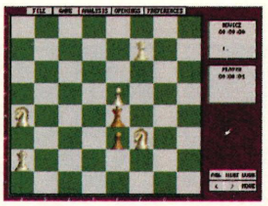
Grandmaster Chess made short work of this particular chess problem: 33 seconds worth of work to be precise. White is to play and mate in three moves against any defence.



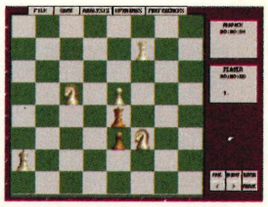
White to move. What would you do? Grandmaster Chess is quick to make a very sound decision and moves Queen's Knight.



c3-a4 e6-d5
Forced move for black: white was threatening to move up the knight again and then bring the Queen across to mate.



h7-f7 d5-e4
No real choice here. If black had moved to c6, the knight could still have put black in checkmate.



a4-c5 mate
At least the program doesn't make too much of a song and dance over victories, even when they are easily won.

The traditional display is easier on the eye and makes for more comfortable play.

along the lines of 'Tremble mortal, for I am Chess God'.

A rather better reason for getting a chess program is for research. If you're a good player, you may want to use the power of a good program to analyse positions and help you win more games against other, less sneaky competitors.

But you're probably not a good player. I'm certainly not. For us ordinary mortals, the best reason to buy a chess program (apart from learning in the first place) is the simple joy of playing the game. Humans remain the most satisfying opponents, but you get some funny responses when you ask your fellow train passenger or hotel lobby passer-by whether they'd like a quick one.

A good chess program can provide some satisfyingly human performances. It should vary its openings, alter its tactics, and pat you on the back when you win. Both Grandmaster Chess and its main competitor, Chessmaster 3000, allow you to 'edit' their playing styles and will award you (rather dubious) chess ratings depending on your performance.

And now that the competition has reared its ugly head, which program ▶

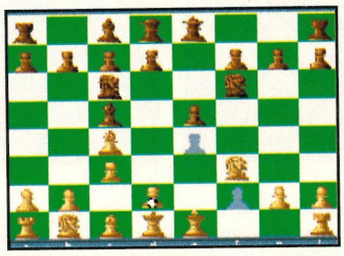


Alternatively...



Sargon 5
Activision, £35.99

Not as many features as Chessmaster 3000, and Capstone claims it will surrender to Grandmaster Chess. We haven't been able to check this claim thoroughly yet. Watch out for our next chess comparison update, which will include the ELO rating of each program and a run down of their relative strengths and weaknesses.



Chessmaster 3000
Mindscape , £35.99

All the bells, all the whistles, but not a very strong performer. Most casual players will find it a worthy enough opponent, however. Also, it has a wealth of options to help beginners to learn and experts to experiment with the game, so it can almost be forgiven for not playing quite as well as it should do compared to the competition.



Fritz
Coutrywide Computers, £37.45

The big advantage of Fritz is that it requires less than 1Mb of disk space and still plays a good game. No bells or flugelhorns, but it has a neat, tidy display that makes it easy to play for long periods. For serious players, its analysis options in conjunction with the chess database ChessBase make it even more attractive.

should you buy? Given that there is such such a wide choice, should it be Grandmaster Chess?

Not if you want to learn the game. Grandmaster gives you fewer tutorial options than Chessmaster 3000. The latter, for example, includes a whole series of little chess 'tutorials', not to mention a massive database of games to play through.

Grandmaster Chess rings few bells, blows few whistles. It doesn't come with a great library of classic games. It doesn't have lots of intriguing documentation. Its analysis modes are not terribly helpful for beginners, unlike Chessmaster's which have a friendly plain-English analysis mode. The latter is not rigorous, but beginners need friendship more than rigour and Chessmaster is so friendly it's almost an offence.

Grandmaster does have one unusual feature. It will 'learn' losing positions and use them in future. It defines these as a position in which the score changed by more than a quarter of a pawn.



The 3D view is, like many computer chess 3D views, pretty but pretty unplayable. It's even worse if you combine it with the monster chess set option, as here. These displays are especially unfriendly when pieces group together at the far end of the board.

You can also add new openings to the opening book (the section of the program that determines the program's moves during the first part of the game) yourself — useful if the variation you want is not in its repertoire. For the novice, Grandmaster, like Chessmaster, includes a 'display legal moves' option for a particular piece and will tell you which pieces are threatening a particular square.

But what if you don't really care about playing the game at all? If you're just looking for something totally radical that pushes pawns and things about in 256 colours and has loads of artificial intelligence?

Grandmaster is not for you. It has a 3D display, but so do almost all of its competitors. It has some digitised voice messages and some reasonable music (soundboard permitting). You get three chess-sets: traditional (nice), human (a bit over-complicated and difficult to play with) and monster. The monster display is one of the best features of the program — hysterically funny, with absurd frogs for pawns and so on. I'm not entirely sure that the joke was intended, however. No, if you're the flashy type, Chessmaster 3000 looks a lot sexier, with many more display options.

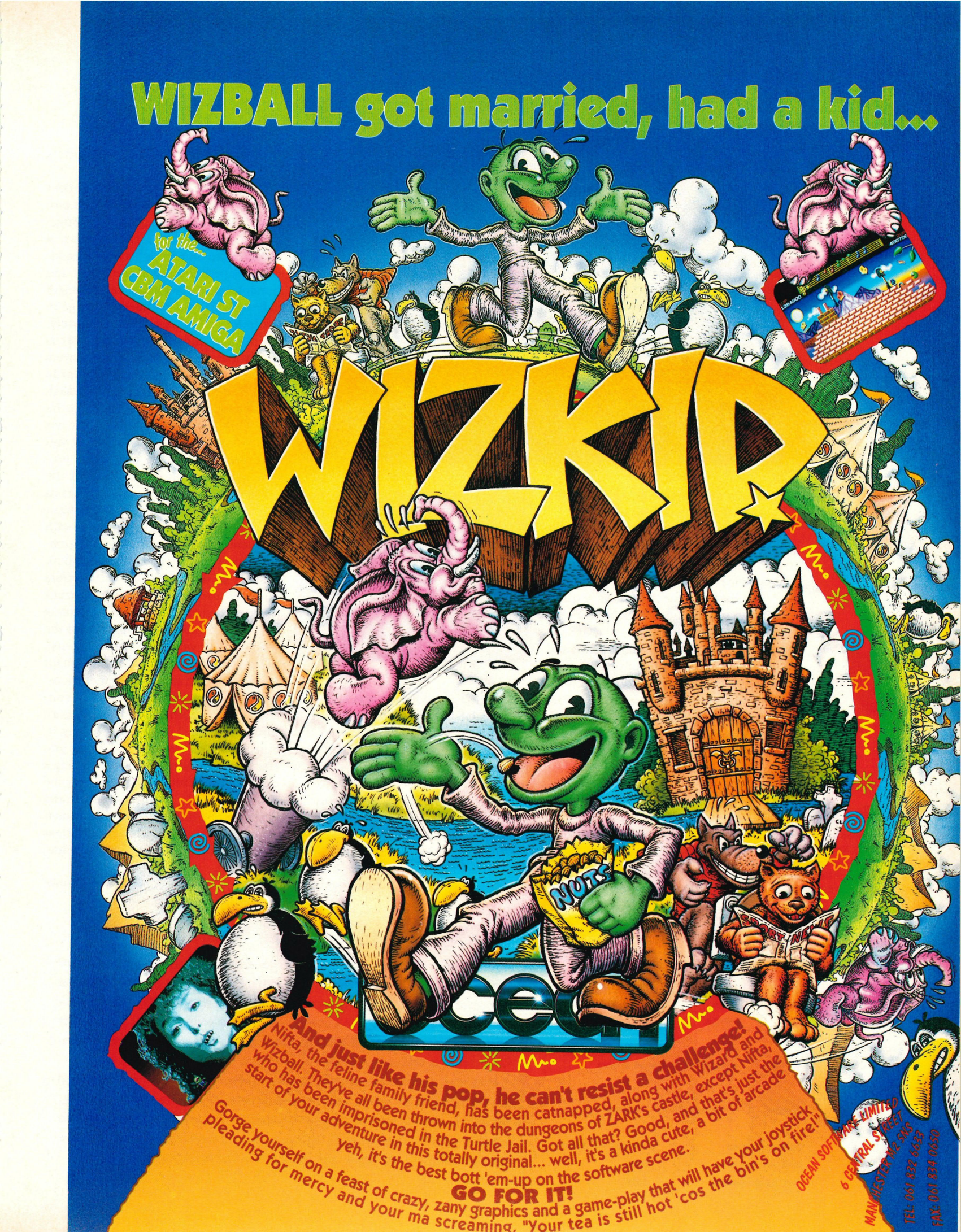
I can't really recommend the program if you want to use it for analysis, either. You'd be far better off with Fritz, which links up to the more professional ChessBase and allows you to analyse literally thousands of games.

Hmmm. The most powerful chess program in the world doesn't seem to be coming off too well, does it? But the most important question is: how does it play?

Quite well, actually. First, it's very easy to control using the keyboard or mouse. Stick to the standard display and it's easy on the eyes. This last point is vital for pleasurable play; there's nothing worse than squinting for hours at something you think is a pawn — until it sweeps across the board and takes your queen.

Capstone's program also has a nice combination of play options. You get five settings: beginner, novice, intermediate, expert, and grandmaster. These effectively determine how many blunders the program decides to make. You combine these settings with the playing style choices. There are three of these: active (or manic mode: it rushes about the board looking for your king); passive (depressive mode: the program glowers at you from behind a closed pawn for- ▶

WIZBALL got married, had a kid...



And just like his pop, he can't resist a challenge!

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The human chess set is the most usable of the two special options ...

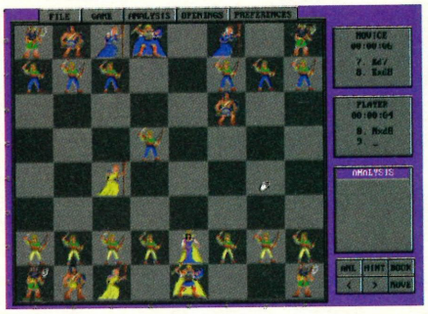
... although it is not always easy to tell which is black and which is white.

mation); and balanced, which means more or less what it says.

You then choose the time controls, which offer the usual options of X moves in X minutes, combined with other user definable choices.

Together, I found that these settings enabled me to find a level of play that exactly suited my abilities, so that each game was a satisfyingly close shave and winning occurred just that right number of times to keep me interested. With Chessmaster, I tended to find that games were either too easy or too difficult. With Fritz (my usual companion), I almost always lose, even at the lowest levels, and this can be very disheartening.

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Grandmaster, however, was soon giving me a US Chess Federation Rating of 2000 ('expert'). I was playing it at the expert level ('...advanced chess club and tournament level') and giving it a very tight game, even when I allowed it to use the longer time settings. Self-esteem is invaluable, no matter how ill-founded it might be. After a couple of days I was practising the Russian for 'Tough luck, Gary', polishing the bathroom mirror and talking tough about the neighbours' dog.

A great therapist, is Capstone's Grandmaster Chess.

Er, but shurely shome mishtake? Isn't this "the world's most powerful chess program"? Well, despite my apparent superiority, it turns out that there's a considerable difference between Grandmaster's performance at the expert and grandmaster levels. On the former, it still makes significant blunders. Change to the latter and it tidies these up nicely.

However, this question of power is largely irrelevant for most casual players (though the Advertising Standards Authority might not think so) — indeed, I was actually pitifully grateful for its weediness at expert level. It might not suit you quite so well, however. If you want playing strength, either this program, Fritz (better for analysis) or the more expensive and rather spartan MChess are recommended. If you want all the bells and whistles, together with excellent tutorial options and a reasonable game, choose Chessmaster 3000. There's no doubt that the latter offers more features than any other current product, including some very amusing ones (like defining a playing style for the computer that values pawns over queens).

There seems to be very little reason for anyone to make a special point of choosing Grandmaster Chess. Yet I'm conscious of something approaching an injustice here. I did enjoy playing it. Surely that's all that matters? Or are programs like Chessmaster 3000 making a cultural contribution that goes beyond the game itself, by offering so many weird, wonderful and irrelevant options?

Gerald Abrahams would doubtless have had something to say about that, but I don't.

■ ***Steve Cooke***

Techspec **Grandmaster Chess comes on two 720KB diskettes. Installation is very straightforward (but slow) and is accompanied by an attractive graphical display. The program also supports the Disney Sound Source, and Covox sound boards. If you want to gaze upon the 3D display in glorious Super VGA, you'll need to have at least 1Mb of Extended or Expanded memory available. System speed is not crucial to operation, but makes a very noticeable difference to strength of play.**

Disk requirements					
	High density	✗			
	Hard disk only	✓			
	Space taken on hard disk	3Mb			
Graphic modes					
	CGA ✗	EGA ✓	Tandy ✗		
	VGA ✓	SVGA ✓			
Soundboards					
	Ad Lib ✓	Roland ✓	Sound Blaster ✓		
Control					
	Joystick ✗	Keyboard ✓	Mouse ✓		
Performance					
	Optimum speed	10Mhz (see above)			
	Minimum memory	640K			
	Free RAM required	540K			

Grandmaster vs the world

There's no doubt that Grandmaster Chess would take most games off Chessmaster 3000 without much difficulty. Which is just as well, because Capstone are offering you your money back if it doesn't. For the purposes of this review, we weren't able to carry out a proper match against our other favourites, Fritz and MChess, because to do so requires two identical machines and many, many hours of play at different levels.

However, a series of play-offs between Grandmaster and Fritz surprised us. Capstone's program took several games off our erstwhile favourite, though it wasn't particularly good at finding mates. We weren't able to pitch it against the stronger MChess, but its performance against the German program stands it in good stead in the ratings game.

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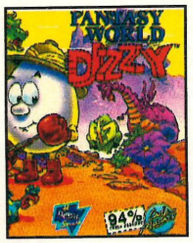
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Price	**£9.99**



Dizzy, Daisy, Denzil and various other family members whose name begin with D are safe at home at last.

Fantasy World Dizzy

Code Masters has finally relented to popular demand and written an original budget game for the PC. The success or otherwise of Fantasy World Dizzy could determine whether the PC budget market blossoms or remains little more than a clearing house for old full price titles.

Initially, in this colourful platform game, you have to guide Dizzy, a rather robust and acrobatic egg with boxing gloves, through a series of locations, in search of his girlfriend Daisy. She has been kidnapped by the evil wizard Zak, and he is keeping her prisoner somewhere on his own personal fantasy world.

The game begins in the castle's dungeon and it's soon clear that a certain amount of lateral logic is required alongside quick reflexes. In true platform style, Dizzy must jump, lunge and land on and over various scenery with pixel perfect precision. You also have to work out a way to overcome certain problems.



Dizzy arrives at the banquet hall with Denzil, as ever, in hot pursuit.

This is essentially the basis of the game. As you explore the world by manipulating Dizzy, the problems become somewhat harder, not to say more obscure. Furthermore, the dexterity required to keep Dizzy alive increases; good hand-to-eye co-ordination is a must.

Dizzy has only three lives, and there are many ways he can lose them. Fire, water and long drops are fatal, as are encounters with various malevolent creatures. To help him survive, Dizzy can pick up and use a variety of implements. Moreover, his friends, ranging from Walkman toting Denzil to seemingly narcoleptic Dozy, all wander around the world and are only too willing to help him.

It is more than likely that you will get Dizzy killed off because the game is designed to do exactly that. Fantasy World is very much a play-and-discover game, which expects you to experiment with various options, until you come up with the one correct solution to a given problem. In the meantime, Dizzy keeps dying, and this is where my biggest criticism of the game lies. After three fatalities, you have to go through all the screens you have previously solved, time and time again, until you can crack the latest problem. This procedure is as infuriating as it is boring.

That said, Dizzy does contain some challenging conundrums and there is a whole multitude of locations waiting to be discovered. These include the evil king's palace, the dragon's lair, the wizard's cloud castle and the magic beanstalk, to name just a few.

Each location sets a different challenge and this helps maintain long-term interest in the game. The graphics used to depict these settings are quite impressive. The music, on the other hand, is nothing more than a continual annoyance and the sound effects are a collection of beeps, pings and twangs. It's a respectable platform game with slight adventure overtones, which will provide many hours of enjoyable fun for either young children or serious platform addicts.

■ **Wayne Legg**

Techspec **You can't expect a budget original to be massively demanding on your PC, so Fantasy World Dizzy is a boon for those with lowly specified machines. Dizzy will run on just about anything, provided, of course, that you have at least an EGA card. Sound effects, processor speed and available memory are all designed to cater for the lowest common denominator. The game will also play from floppy disk quite happily.**

Disk requirements

High density	✗
Hard disks only	✗
Space taken on hard disk	✓

Graphic modes

CGA	✗	EGA	✓	Tandy	✗
VGA	✓	SVGA	✗		

Soundboards

Ad Lib	✗	Roland	✗	Sound Blaster	✗

Control

Joystick	✓	Keyboard	✓	Mouse	✓

Performance

Optimum speed	any
Minimum memory	640K
Free RAM required	<520K

PCreview 5

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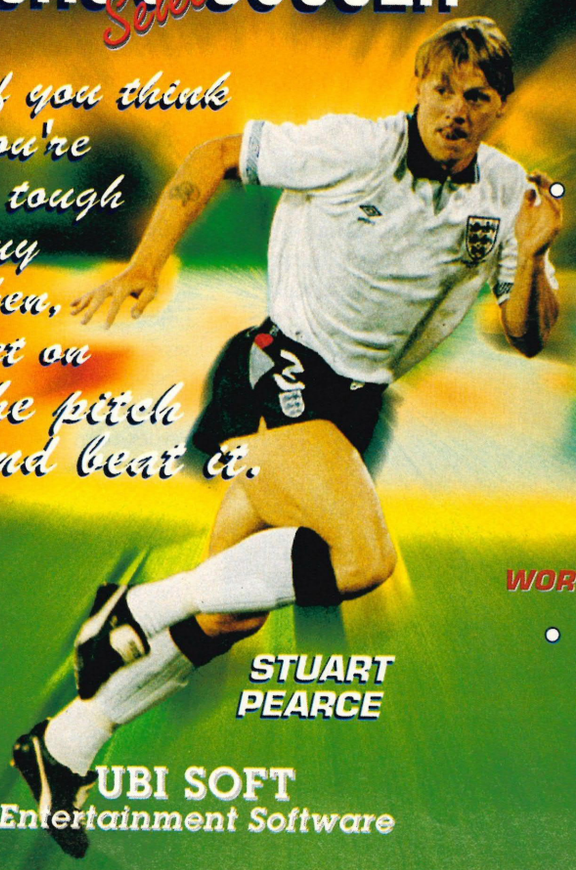
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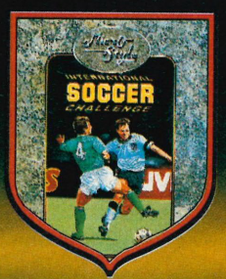
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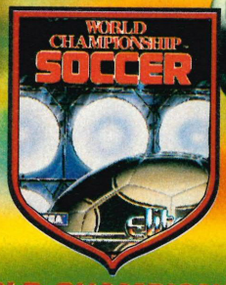
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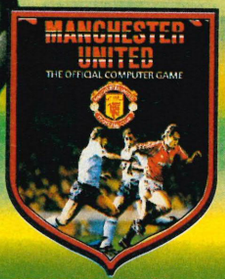
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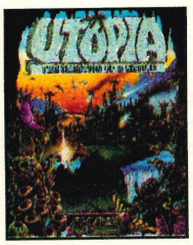
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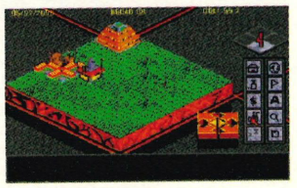
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Title	**Utopia**
Publisher	**Gremlin Graphics**
Contact	**(0742) 753423**
Price	**£29.99**

The mining operation shown here is one of the many activities you will have to master to get the most out of Utopia. Handling them simultaneously and effectively is where it gets difficult.



You begin with a small self-sufficient colony with the bare facilities necessary for continued existence.

Utopia

Sim City in space may be what Utopia is all about, but Paradise it's not. Find out how city building in a vacuum differs

There's no doubting which product has influenced the development of Utopia. Yes, the ubiquitous Sim City rears its head yet again. Unlike its earthbound counterpart, Utopia is set on a selection of other planets which you are supposed to be colonising. Start with a small community and see if you can build it into a successful nation.

This is not actually the first game on the PC to exploit a Sim City in space theme. Wesson International, creator of Tracon and Rapcon, got there first with Moonbase, an unashamed and uninspired rip-off of Maxis' game. Utopia, while it borrows just as heavily from the same source, does, at least, have more than a modicum of appeal and has introduced some new themes too.

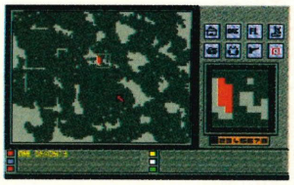
An important feature that Utopia boasts which you won't find in Sim City is the presence, in each scenario, of a hostile alien race. This adds some much needed tension to an otherwise lacklustre plot. Games are like any form of drama in this respect; lack of conflict just doesn't make for an interesting story, and this was one reason why Wesson's game failed to impress.

A more superficial, but nonetheless welcome, enhancement to this form of game is the use of an isometric 3D landscape rather than the birds-eye grid so beloved of strategy game designers. It gives the objects in the game the impression of solidity and makes the player feel as if he is dealing with a genuine cityscape rather than a set of technical drawings. The presentation is actually one of the game's strongest points, and the designers have done well to avoid the rather dry and occasionally amateurish look that seems to be the prevalent mode for strategy game graphics.

Your objective in Utopia is twofold. First and foremost is the need to expand a small community into a thriving nation by building new structures for housing, providing work and fulfilling all the func-



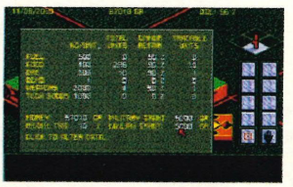
The intro sequence should be avoided by lovers of fine art, and baroque music, and all those who like a little excitement in their lives.



One of the things you'll need is ore for the manufacture of defences. Look for deposits on the map.



Once you've found ore, start building a mine. Building can only take place if there are free colonists.



Ore is one of the commodities you can trade. In the early stages you'll have a surplus of most of these.



While waiting for the mine to be built, check with your science adviser on progres in research.



The mine is now constructed, but not working. You'll have to employ some of the idle colonists first.



tions that a space-based civilisation needs. It's not just a question of building until you're blue in the face though (although that's one of the things that can happen if you don't construct enough oxygen generating life support modules), you have to keep your population happy too

Quality of life

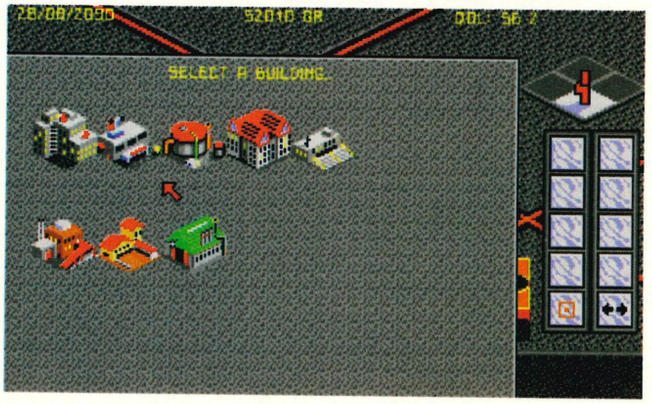
Your QOL (quality of life) rating is represented as a percentage which is constantly visible in the top right corner of the screen. Presumably the design team has discovered that there is such a thing as absolute happiness and therefore that bliss, or lack of it, can be quantified as a percentage of the road to nirvana that your people has managed to travel.

The elusive QOL begins at 55% and, until you've had a good deal of experience with the game, it's more likely to lean downwards than upwards. Success in your early games should be viewed as the ability merely to keep your QOL level buoyant, never mind making it climb towards that magic 100%. Like that pioneering population of the Wild West, this one gets mighty upset when life begins to disintegrate around them. You might be the sheriff 'round here, but if you muss up you'll find yersel' run out o' town, or even worse, get a bullet up your Stetson.

Your second aim is to keep at bay the alien race with which you are competing for the resources of this virgin planet. To begin with, you know absolutely nothing about them, other than that they are 'somewhere out there' and potentially hostile. You must collect intelligence on your opponents by investing some of your monthly budget in spying. The more you shell out the better the information you get back. This ranges from 'huge green things with 10 eyes and innumerable tentacles' type rumours to hard facts about the alien technologies. It is well worth finding out about them so that you have an idea how they will attack. There's no point in building up a fleet of tanks if your enemy attacks you solely with aircraft.

Your advisers aren't the prettiest bunch of intergalactic citizens you've ever seen, but it's well worth consulting them from time to time on the finer points of colony management.

The range of buildings you can construct expands as you inventx new ones. This will only happen if you invest in R&D though.



On the subject of technology, it's something else you have to keep an eye on. You begin at the minimum level of technology and will remain there unless you plough lots more of your hard taxed cash into R&D. You must make scientific advances, not only to make life more bearable for your people, but also for self-defence. Even if you don't plan on invading your neighbours you can be pretty sure that they are going to make an attempt on you, so you don't want to be caught with sticks and stones against their barrage of laser fire.

Attack and defence

The combat aspect of Utopia doesn't really work as well as it might have done. Because everything works in real time, trying to coordinate tanks and aircraft to fend off an attack is well nigh impossible. Tanks and aircraft will fire automatically at any alien forces they come into contact with, but you still have to direct them individually to marker points. Even the defensive ring of rockets you might have placed around your colony has to be fired manually.

A much greater degree of automation would have made this aspect of the game a lot more enjoyable. Being able to set automatic patrol paths for tanks, and firing criteria for rockets, or having aircraft automatically scrambled are all options that, had they been implemented, would ▶



The end of the world! This will be a frequent sight when you tackle the harder scenarios for the first few times.



There are four different landscapes to build on, although each fundamentally has the same features, so this is more a presentational nicety than an element that affects gameplay.

Techspec There are only two disks in this package and you can play the game from them quite easily without too much disk swapping involved. Although you can use a Joystick or keyboard, the game is not particularly playable with either because you can never get to icons and map locations as quickly as you need to. This especially applies in a combat situation. EGA graphics are just about palatable. You can get away with playing the game on a 12Mhz 286 if you are prepared to put up with sluggish scrolling, but a 16Mhz machine will make it easier to get to parts of the map nice and quickly. Play this with a soundcard if you don't want your ears to be severely assaulted.

Disk requirements					
	High density	✘			
	Hard disk only	✘			
	Space taken on hard disk	1Mb			
Graphic Modes					
	CGA ✘	EGA ✓	Tandy ✓		
	VGA ✓	SVGA ✘			
Soundboards					
	Ad Lib ✓	Roland ✓	Sound Blaster ✓		
Control					
	Joystick ✓	Keyboard ✓	Mouse ✓		
Performance					
	Optimum speed	16Mhz			
	Minimum memory	640Kb			
	Base RAM required	640Kb			

have made the combat in Utopia a worthwhile feature. As it stands, it can often be very frustrating. Real-time games do need a degree of automation, which isn't the case for turn-based programs.

Combat actually plays a small part in another of the game's deficiencies. This is the snowball effect that tends to occur when you get a significant dip in your QOL rating. This usually happens just after a heavy attack, when the enemy vehicles have destroyed a few vital buildings. Your population becomes agitated and, more often than not, a terrorist begins blowing up buildings as well. He or she is a very efficient terrorist who, not content with blowing up the odd building as a protest, wants to get into the Guiness Book of Records for blowing up the most buildings in the shortest possible time. This damn terrorist is blowing them up faster than you can rebuild them. Your people might be complaining because of working conditions and living conditions, but the terrorist is quite happy to blow away buildings which are designed to make living and working conditions more tolerable! The result? Your QOL rating starts to plummet, and there's not a lot you can do about it. Once the game gets to this stage you may as well call it a day.

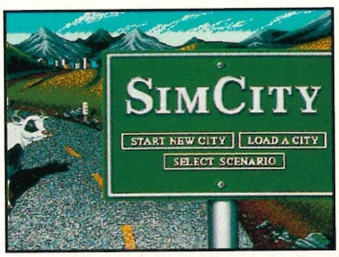
Rather usefully the manual has a troubleshooting guide which gives you reasons why some of the more adverse events in the game may be happening. Unhelpfully, it doesn't mention the remedy for an overzealous terrorist, you'll just have to work that one out for yourself.

Utopia is a very good attempt at revitalising the Sim City theme, inhibited by a couple of poor design decisions. It would be unfair, however, to let the game stand condemned on these points. Although they do stop the game from being head and shoulders above the competition, they don't make it unplayable. In short, this is a fairly pleasant way to while away a few hours if you're strategically minded.

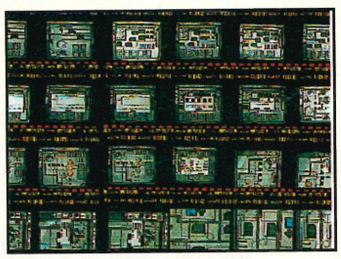
■ ***Laurence Scotford***



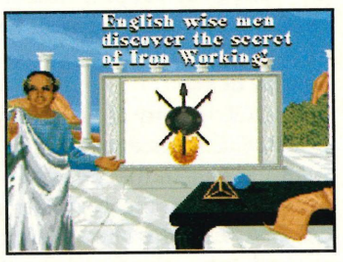
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Sim City
Infogrames, £29.99
Mindscape (Windows version), £44.95
The program that started it all. Sim City has now accumulated a host of add-on kits, enough to have the dedicated city planner building for hours. The program has now been updated and is available in a version for Windows which has done away with the cranky looking menus of the original.



Moonbase
Mindscape, £45.99
This poor rip-off could just as easily have been called Dullsville. The action basically revolves around the process of setting up a colony on the moon Sim City style, but without the fun. The programmers have opted for a very dry and technical approach, which is mirrored in the plain and uninspired graphics and- which makes this one for space buffs only.



Civilization
MicroProse, £39.99
Sid Meier's masterpiece might be the ugliest looking game you've seen in a long while, but that doesn't stop it from being one of the most absorbing strategy games to appear on the PC ever. The scope is much wider and more varied than Utopia, and your units are easier to control. If only it had Utopia's higther standard of presentation...

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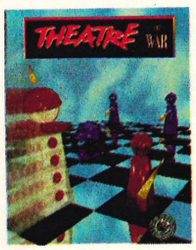
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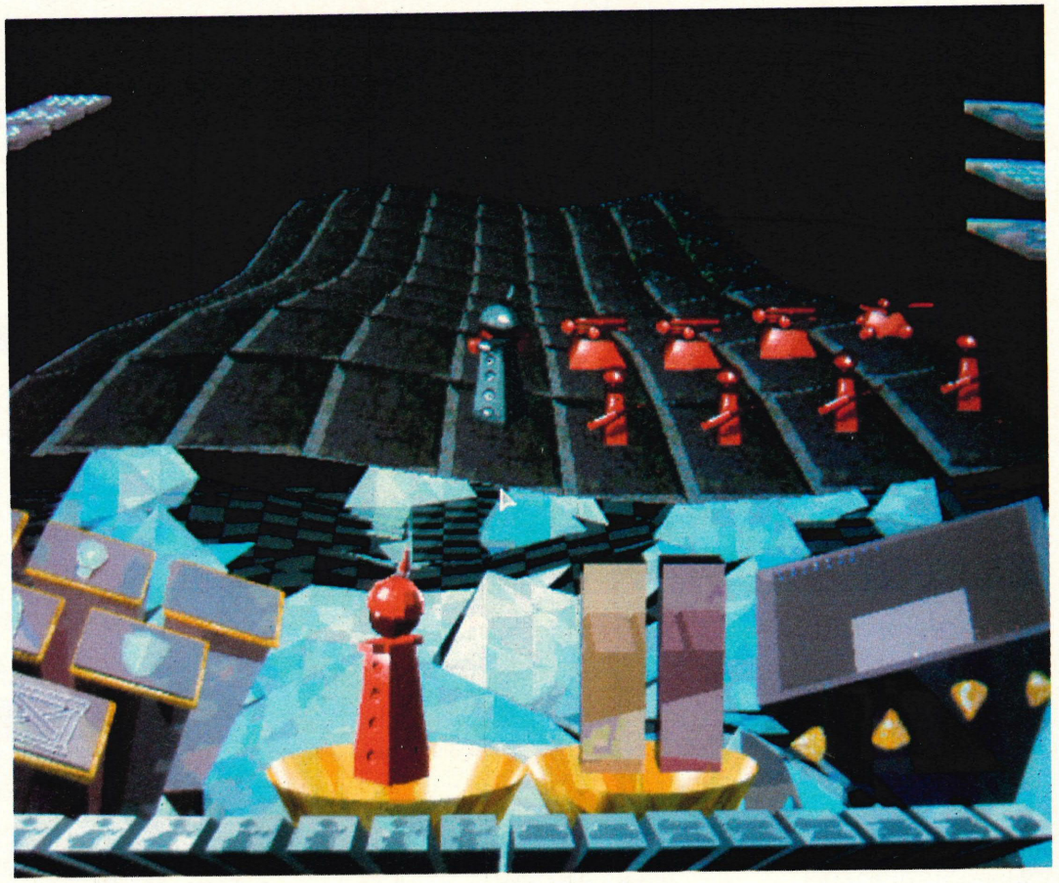
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Title	**Theatre of War**
Publisher	**360/Electronic Arts**
Contact	**(0753) 549442**
Price	**£34.99**



Every once in a while I come across a game that defies description. Geoff Crammond's Sentinel is a brilliant example. It just couldn't be labelled as an action or strategy game. A more recent entry in the 'weird' category is Pete Cooke's Tower of Babel, a puzzle game with action, and even programming elements. Programming also featured in Origin's excellent cult tank simulation, Omega. Now 360 has made its own extremely weird contribution to the sphere of the strange.

The nature of Theatre of War totally belies its title, which conjures images of a dry and detailed simulation of global conflict. It has more in common with the original war game, chess, than its modern hex-based descendants.

Like chess, the game is played by two sides, each with a selection of pieces ranged on opposite sides of a playing area or board. The pieces represent the men and machinery of warfare, again like chess, and each type is capable of different actions. Where Theatre of War substantially departs from the world's most popular board game is in its additional complexity and in that it runs in real-time, so each side moves pieces simultaneously and several pieces can be involved in actions at once.

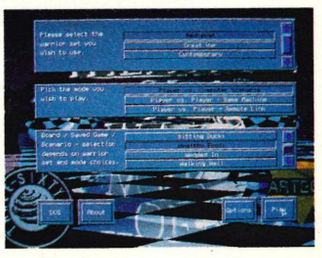
The upshot of this is that, while Theatre of War retains many of the strategic elements of turn-based war games, it also requires quick and decisive thinking. You simply don't have time to sit for several minutes and ponder your next move; by then your opponent will have walked all over you. As such, it is not going to be a popular game with those of you that enjoy the deep mental challenge that chess provides and which is only made possible by its slow pace. Even aficionados of traditional hex-based wargames will find that the quick mental agility required oif them when playing Theatre of War is not something that they are used to.

The central objective is to destroy your opponent's emperor piece, rather than defeating the entire army, so subtlety is preferable to simply belting seven shades of hell out of the enemy pawns.

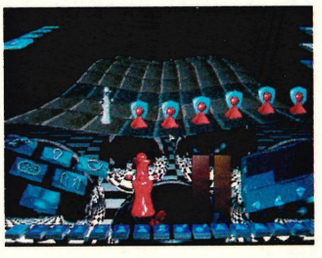
There are three different warrior sets to use: mediaeval, Great War, and contemporary. Each comprises a different collection of pieces with individual capabilities. In the mediaevel set, for example, you have archers and swordsmen, and there is little emphasis on fighting at range. The Great War set, on the other hand, includes cannons and Gatling guns and, when using this, close combat becomes a lot less important. Finally, the

The Great War pieces are based on World War I, and include more range weapons than the mediæval set and greater firepower.

Planning is everything. Once you start playing a scenario like this one, the game proceeds at a frightening pace. In this case a few simultaneous actions saved the day.



In the set up options, I've picked quite an easy scenario, Healthy Fools, for the mediaevel set. Graphic options can also be changed on this screen.



To begin with, my troops are ranged in a single line across the bottom of the board. The opponent's pieces mirror this set-up at the opposite end.

Theatre *of* War

contemporary set, featuring radar, missile launchers fighters and bombers, recreates the stealthy cat and mouse combat of the modern age.

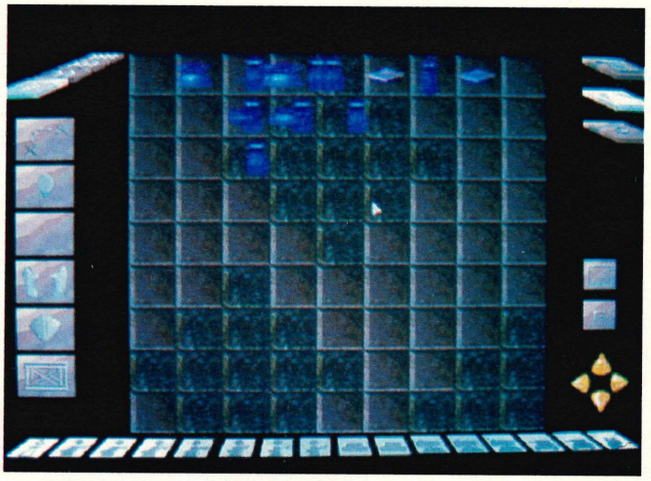
Because the individual pieces of the different sets behave in alternative ways, each set requires a new strategy. Furthermore, each set has a series of boards or scenarios, each with a different layout and, in the case of player versus computer games, a new algorithm for the computer controlled opponent.

The scenarios range from 'sitting ducks', essentially a training scenario in which the opposition waits for you to destroy it, to 'serious hit squad' in which enemy fighters line up to destroy your base.

The 'board' in this game is a lot more like a real battlefield inasmuch as there are areas in which movement is slow, or to which only certain pieces have access. Additionally, some pieces can interact with the board to the extent of laying or sweeping mines, or making the terrain faster or slower. The board defaults to a rolling landscape divided into a grid, but you can, if you prefer, play the game on a flat version. If you don't like the 3D effect, you can elect to play with an overhead view, although there is a scanner on the 3D view which shows all the visible pieces as coloured dots.

There are three ways to play Theatre of War. The most popular will be one player versus the computer, although, for reasons I shall point out shortly, this is the weakest form of the ▶

It's not chess, and it's not a wargame. It's not really an action game, but it's not pure strategy either. Can you define a game like Theatre of War?

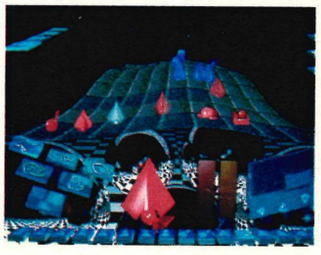


The game can also be played with a traditional top-down view of the action. It's not as visually stimulating, but it's easier to see what's going on.

Two Minutes *of hunt the emperor*



The first thing to do is form a protective cordon of pawns around my emperor. Any potential assassin will have to get through them first.



Next I send a couple of archers off to deal with the enemy's advance party. They won't hold out for long, but should provide a useful diversion.



My archers are quickly surrounded so I send my catapult and chariot off to the safety of the emperor's cordon. They can regain energy once there.



While most of the enemy force is engaging my archers, my swordsmen, catapult and chariot head off to take on the opposing emperor.

Techspec You'll need a fairly high spec machine to get the best out of this one. While the VGA graphics are workable, they really aren't a patch on the SVGA set. You shouldn't have any problems getting the SVGA option to work if you have a card that sticks closely to the VESA standard. If yours doesn't, you will have to have some experience at installing device drivers and have access to the relevant device driver for your card. Don't take too much notice of the keyboard option. While it is possible to play the game without a mouse, you'd be ill advised to try unless you have superior keyboard skills and a lot of patience. I'd say the bottom line performance-wise for this game is 16Mhz.

Disk requirements

High density disks	✗
Hard disk only	✓
Space taken on hard disk	4 Mb

Graphic modes

CGA	✗	EGA	✗
Tandy	✗	VGA	✓
SVGA	✓		

Soundboards

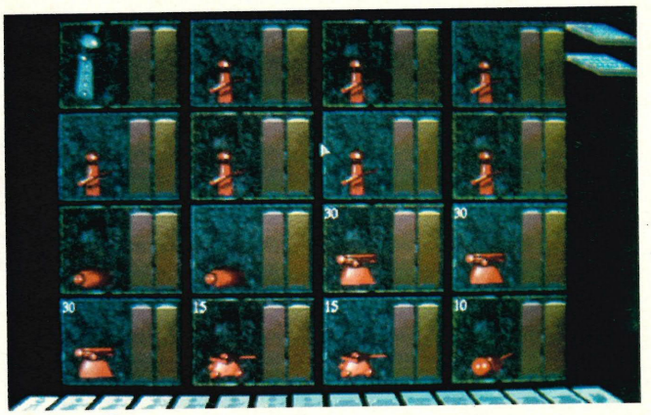
Ad Lib	✓	Roland	✗	Sound Blaster	✓

Control

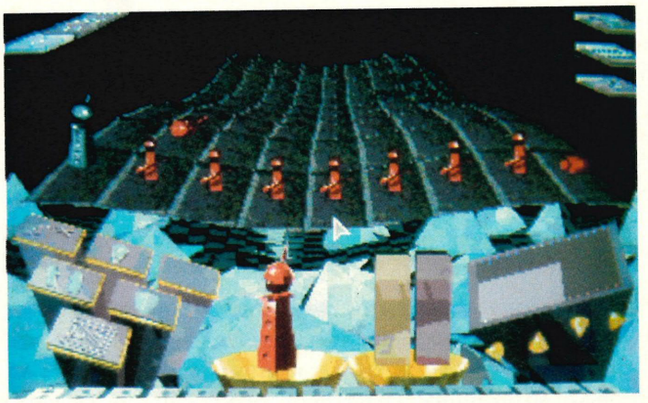
Joystick	✗	Keyboard	✓	Mouse	✓

Performance

Optimum speed	20Mhz
Minimum memory	1Mb
Free RAM required	560K



You can get an idea of how the strengths of your pieces compare to those of your opponent by checking out this status screen. You'll be lucky if you have the luxury of enough time to do it though.



This is how Theatre of War looks if you play it in the standard VGA mode. It's still quite presentable, but doesn't have the gleam or detail of the SVGA version.

game. You can also play a two player game on the same machine or with two machines linked by null modem.

The problem with the single player versus computer games is that the computer has the advantage of being able to handle the simultaneous movement of several pieces very easily – a task which is not so easy for the average human being, so in all but the easiest scenarios, you will need to play them several times to become familiar enough with the potential pitfalls and rewards of each to the extent that you can beat the computer. This is extremely frustrating. The designers would have done well to look at other real-time combat games. Take Populous for example. Playing against the computer in that game is very satisfying because the natural speed and power of the machine has been curbed so that the computer has some of the fallibility you'd expect in a human player. In this instance the computer seems to be nothing if not a machine.

The two-player null modem game doesn't suffer from this problem because both players have the same handicap. The two player game on the same machine has quite a neat solution. The players take turns and each is given 60 seconds to make the moves he wishes to make. This does, at least, give each player a little time to plan ahead. In the latter two games you will find that you have more time to access the status screen which shows the health of each piece on the board.

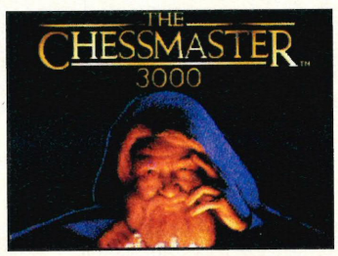
Theatre of War is one of a new generation of games which will make use of SVGA graphics if your machine can reproduce them, although it will quite happily play in VGA if not. Its creators have gone for a very 'designed' look, with ray traced backgrounds, and playing pieces and tiles that look like they've escaped from the window display of a trendy fashion boutique. It's all very pretty, even if it does make it a more than a little difficult to see what's going on.

Theatre of War would have actually made a bloody excellent board game if the designers hadn't opted for the real-time action. It's just too complicated to play well when you don't have time to plan each move. There is a very fine line between challenge and frustration and, unfortunately, Theatre of War tends to cross it a little too often. It's got potential, though, if you want to play it with another person, or are really prepared to persevere with the one player game.

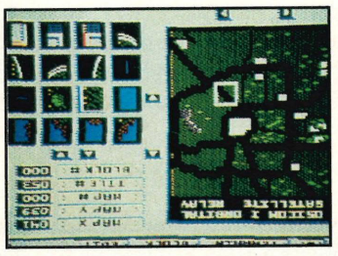
■ *Laurence Scotford*

PCreview 6

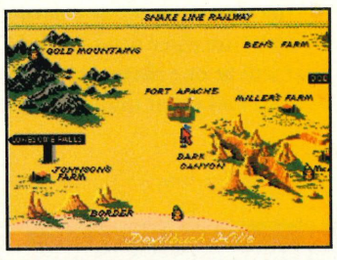
Alternatively...



Chessmaster 3000
Mindscape, £35.99
A very good chess program with a host of features covering graphics options and playing standard. This is a good package for beginners as well as experienced players. If you really prefer traditional chess to 360's modern version then you might also want to consider Sargon 5 from Activision, or Colossus Chess X for CDS.



Omega
Origin, £30.99
This tank simulation is very long in the tooth now, and is just as bizarre as Theatre of War. It will appeal more to the technically inclined games players since it involves programming the tanks you create before they set off and do battle. It looks naff, but it's an interesting and absorbing idea. The game still has a cult following.



Fort Apache
Impressions, £29.99
Another unique approach to real time combat, and again, found in games that hardly qualify as wargames, is Impressions's Miniature system. This is one of the latest examples set in a cavalry outpost in the wild west. Again it is difficult trying to control so many men simultaneously, but it's a little lighter in spirit than Theatre of War.



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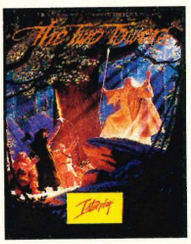
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Title	**Lord of the Rings II : The Two Towers**
Publisher	**Electronic Arts**
Contact	**(0753) 549442**
Price	**£34.99**

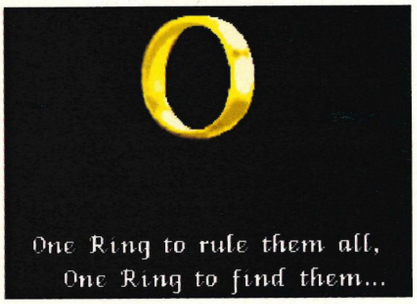
The automatic character switching can be frustrating, especially during th early stages of the game. In this case, just as I'm getting somewhere the games cuts me off!

Lord *of the*

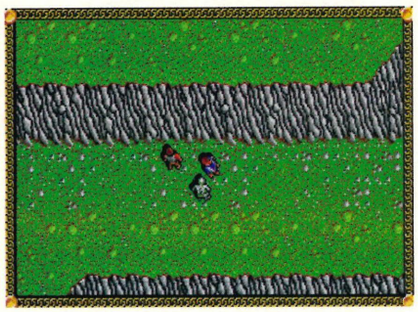
The Fellowship of the Ring continues its quest in the second part of Interplay's Lord of the Rings trilogy the Fellowship of the Ring continues its quest in the its quest in the second part of second

The first instalment of Interplay's Lord of the Rings trilogy, released in December 1990 and reviewed in Issue 6 of PC Leisure, received a lukewarm reception, thanks mainly to a poor combat system, a limited repertoire of actions, and an overwhelming lack of interest in the quests. With 18 months between the original and its sequel, you would expect the worst of the faults, at least, to have been eliminated. Unfortunately, many of the criticisms still remain valid.

The action opens following the death of Boromir. For those who haven't played the first game or read the book, Interplay provides plenty – more than plenty – of explanation in the manual, detailing the story so far, a glossary of the characters and locations, a guide to the terrain, a bestiary, and a history of Middle Earth.



So, with Boromir dead, and the original Fellowship of the Ring (see manual) divided, three warriors, Aragorn, Legolas and Gimli (see manual) are thrown into combat with a band of Orcs (yet again, see manual). It sounds like a promising start, but the combat system nullifies any tension and excitement you might have anticipated.



Just when you thought Sauron was the only one grasping for this ring, along comes the evil wizard Saruman.

Encounters with ambiguous characters are common, although many Tolkien fans will recognise creatures like Gollum on sight.

Killing things

The problem is that the battles use the kind of distressingly sluggish system found in the original Lord of the Rings. There is an irritating amount of intrusive disk access (mainly to load graphics), and players and opponents take it in turns to strike blows. The result is the outdated 'Aragorn hits Orc for 6 points of damage', style of description, a laborious wait as enemies take their turn, frustration as some characters miss completely, and a frantic desire to be somewhere else. On the positive side, the Ad Lib music is an appropriately dramatic accompaniment, and unless you're completely daft you won't get beaten in your first dozen encounters.

Outside combat, there is a good deal of exploration over the huge map, plenty of chance encounters and numerous subquests.

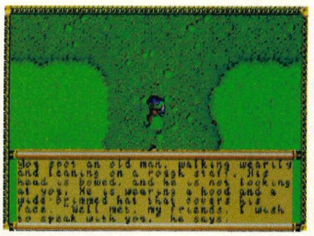
The storyline is a continuation of the first game: Frodo and Sam are making their way to Mordor to destroy the One Ring, Merry and Pippin have been captured by Orcs, and the three remaining



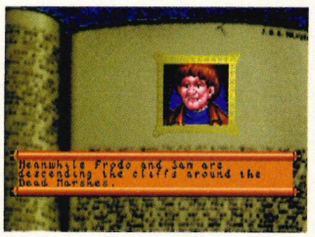
The action opens with Gimli, Legolas and Aragorn surrounded by a marauding band of belligerent Orcs. It's no time for talking: the enemy only understands the language of combat.



Having dispatched the Orcs, the threesome explore the surrounding terrain, picking up clues along the way in their search for Merry and Pippin. There's much walking involved.



Eventually the trio stumble upon an old man dressed in blue. He is not all that he appears to be, but he as plenty to say about life, the universe, and the quest in general.



Meanwhile, just when I thought I was getting somewhere with Aragorn, Legolas and Gimli, the action switches to Frodo and Sam. It happens whether you like it or not.

Rings II

The Two Towers



Lose a life and Sauron will triumph. But didn't he look exactly like this in the first Lord of the Rings?

members of the Fellowship are trying to find them. It's as faithful to the book as it could be without turning the action into an interactive narrative.

Busy doing nothing

Much of the exploration involves wandering over screen after screen of featureless landscape, spurred on by the occasional text message or concealed object. The programmers have thankfully provided an automapper (omitted from the first instalment), which is also useful for highlighting interesting landscape features you might have missed. Like much of the game though, you have to suffer slight, but repetitive, disk accessing if you want to study it.

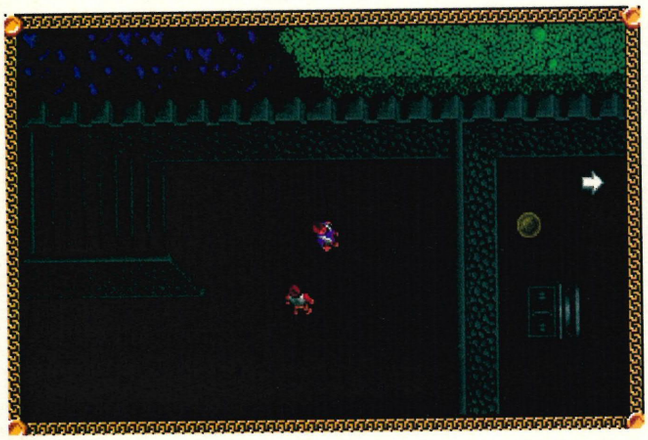
One of the major faults of exploration, aside from the simple tedium of moving from one screen to the next, is the lack of eight-way scrolling. If you're instructed to travel north-west, say, you have to travel north and west repeatedly. This just aggravates an already annoying feature. Fewer screens (perhaps made up of key locations, King's Quest-style) and more action would have given a greater incentive to progress.

A more minor fault is the niggling problem of graphic scale. The fact that it only takes a couple of minutes to wander across the dead marshes, that mountains appear comically small and cliffs look like riverbanks, makes you feel as if your characters are taking an afternoon stroll. Of course it's supposed to be representational, but, along with the minimal character animation and the constant cross-reference to text passages in the manual, it diminishes the atmosphere.

Characters and quests

All the characters are neatly defined, but the members of the Fellowship and their recruits are particularly well designed. Many of the best features of the original game have been retained, such as knowledge of race lore giving some characters keener perception than others, and a small but effective range of spells and words of power. The icon control interface at the foot of the screen has been enhanced so that you don't have to move between menus to use skills or items, and apart from a few drawbacks (you still can't examine objects and the range of actions is quite small), it works well. Characters can access a range of fight options, wield magic, view their statistics, pick up, drop and use items, access a wide range of skills, talk, and switch leadership between team members.

Besides the major aim of helping Frodo ▶



Unlike the external terrain, internal locations are designed to scale.

in his attempt to destroy the One Ring there are numerous sub-plots. These usually occur as a result of encounters with other characters, such as Ents, or the ubiquitous mysterious men in shady garb, and you have the choice of taking on the adventure or not. You might be asked, for example, to help trace an undead lord, or kill Orcs to save an Ent. It's a good idea to take on as many quests as possible, since the more you complete, the stronger your characteristics - dexterity, endurance, life points, strength, luck and willpower - become.

Skills can be acquired or taught at various locations. There are three types of skill a character can possess: active skills (the ability to use boats, sway the opinions of a crowd or an individual, climb cliffs, detect traps, work machines, hide, leap chasms, find hidden objects, read languages, ride horses and move stealthily); combat skills (use axes, swords and bows, brawl or dodge); and lores, which give characters privileged information about certain locations.

Finally, you can recruit new members to your party, up to a maximum of ten for the Fellowship. Some have specific abilities to help you on your way, but not all are easily persuaded, and they always leave when their task is complete. It's also worth noting that you can transfer characters from the original Lord of the Rings to The Two Towers, using a simple conversion command.



Expect to encounter many of the creatures from leaves of the books, including the arboreal Ents. After this meeting, your quest may branch off in a new direction.

Swords and sorcery

The obligatory magic system is admirably simple. It is divided into white and black magic, both of which exact a price from the wielder. White spells drain life points, and include winterchill (a blizzard attack), firefinger (flame), vinecrush (suffocation), countermagic (dispels enchantments), unlock, illuminate, animalspeak, and kingshand (heals wounds). Black magic corrupts the magician, and is usually wielded by humans, though some Orcs have learned the art. Because of the nature of magic in the game – you can only learn from a wizard or higher power it is virtually impossible to learn new spells.

Words of Power, on the other hand, can be used by anyone with the knowledge. Unfortunately, you don't always know when a word should be used, and once it is used successfully, it disappears from your inventory.

The third type of magic lies in objects. There are only half a dozen types: the Ring carried by Frodo (a burden on anyone who uses it), the wizard's staff, Glamdring (Gandalf's magical sword), Narsil (a broken sword which must be reassembled in one of the sub-quests), Sting (a dagger), and lesser Rings. Other items are more numerous. Food and elixirs restore life points, or protect against cold, or heal; and there are seven types of weapon and four armour classes with differing attack and defence capabilities for you to choose from.

In principle, this all sounds fine; in practice, it's held back by the game system. Still retaining many of the worst elements of the first Lord of the Rings, it virtually ignores the exciting advances made by the Ultima series and many other role-playing games in the past two years. Even leaving aside the problems already mentioned, there are many more, unfortunately, including an unwieldy 'talk' option so basic it's a chore to use, and unhelpful 'cliffhangers' where the action frequently shifts between parties just when you are getting somewhere with the situation in hand.

■ ***Gordon Houghton***

PCreview 4

Techspec **Our review copy came on five 3.5-inch disks. The game can't be played from floppy, and it takes about 40 minutes to install over 3Mb of compressed files to a hard disk. A 10MHz 286AT (or faster) is recommended, and you'll need 640K RAM. To appreciate the impressive musical score you require AdLib, Roland, Sound Blaster or ProAudio Spectrum sound cards. Both EGA and VGA graphics modes are clearly defined, but there is no AdLib sound effects option.**

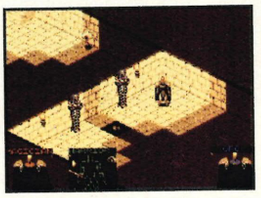
Disk requirements								
	High density	✗						
	Hard disks only	✓						
	Space taken on hard disk	3Mb						
Graphic modes								
	CGA ✗	EGA ✗	Tandy ✗	VGA ✓	SVGA ✓			
Soundboards								
	Ad Lib ✓	Roland ✗	Sound Blaster ✗					
Control								
	Joystick ✗	Keyboard ✓	Mouse ✓					
Performance								
	Optimum speed	16MHz						
	Minimum memory	640K						
	Free RAM required	570K						

Alternatively...



Lord of the Rings
Electronic Arts, £34.99

Tolkien's tomes have inspired many an adventure game, from Melbourne House's The Hobbit onwards, though none had such an ambitious scope as this. Released in early 1991, it promised.



Shadowlands
Domark, £29.99

This is a cheaper and much more playable alternative to The Two Towers. Teque's attempt to convey the realism of a dungeon environment led it to create an independent . This simply means that, as in the real world, torches.



The Worlds of Ultima: Savage Empire
Origin/Mindscape, £35.99

In the first of the Worlds of Ultima series, Origin adapted its classic game design to the land of Eodon, a B-movie world populated by the age of dinosaurs, and bizarre.

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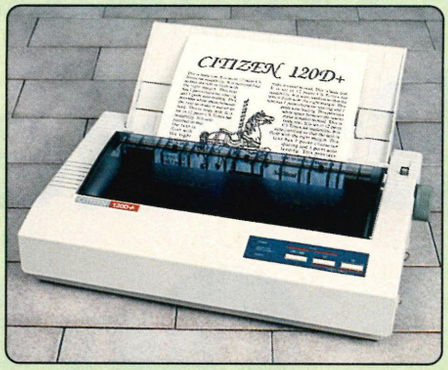
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SILICA PRICE: £259

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24 PIN PRINTERS

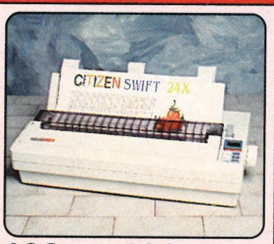


192 CPS **80** COLUMN

- *Citizen 224 - 24 pin - 80 column*
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- *192cps Draft, 64cps NLQ*
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NOTEBOOK PRINTER



64 CPS **80** COLUMN

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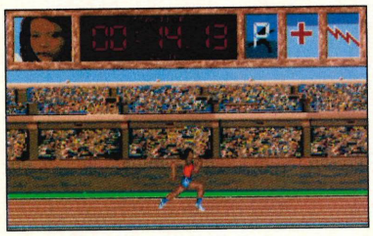
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Reviews round-up

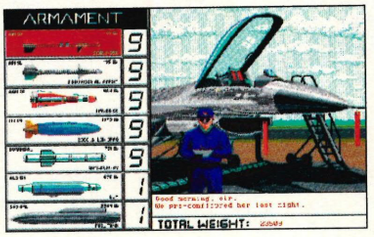
The Games That Got Away



España The Games ...



... and the variety of events on offer



The original Falcon ...



... now available from Action 16

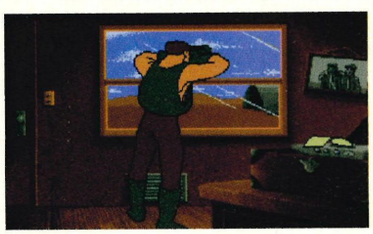
We'd love to review absolutely every game that comes out for the PC, but if we did, PC Review would rapidly turn into an expensive doorstop. To keep everyone happy here's a quick rundown of other games which should be in the shops soon

It's been a very sporting month as we've been inundated by all the products that were inspired by the 1992 Olympics in Barcelona. First off the starting block is **The Carl Lewis Challenge** from Psygnosis (£34.99). It features five events: 100 metre sprint, 100 metre hurdles, javelin, high jump and long jump. Where Psygnosis' licence differs from other multi-sports events is that you are responsible for training a squad of athletes, and up to four players can have squads at one time. The large animated figures give the whole thing a very polished look, and the training slant makes it different from the normal fare in this field.

Also attempting to make new ground in the sporting simulation arena is **International Sports Challenge** from Empire (£34.99). This is another multi-sport title with six sports and 21 different events. Included are diving, shooting, show jumping, cycling, swimming and a marathon. There is an interesting mix of graphics styles, some events being 2D bitmaps and others being 3D vectors. Even more unusual is the way that the marathon has been used to string the events together. You play the other events and between them come back to the marathon and make adjustments to your runners' strategy. You'll also find this one boasts some alternative control methods. The diving, for example, involves following the movements of a ball around a circle. Most bizarre! It doesn't quite come off, but it's a nice attempt.

Espana The Games '92 (£34.99) is Ocean's contribution to the Olympic theme. The game features track and field, along with swimming, diving, judo, wrestling, fencing and boxing. Like the Psygnosis title, training and management aspects are also included.

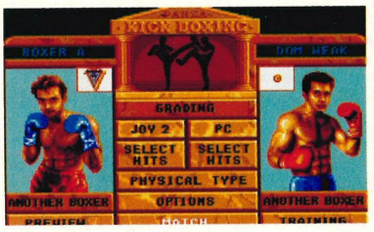
On the subject of sports, Futura's **Panza Kick Boxing** (£7.99) is now out on the budget Kixx label. At the price it's a fairly safe bet for those of you who rank kicking each other's teeth out as entertainment. More mindless violence at a budget price comes from Dinamic's **Narco Police** (£9.99) which has now been released as part of Gremlin's aptly named GBH budget range. The action basically involves blowing



Guy Spy



Carl Lewis in full flow



Panza Kick Boxing ...



... ringside action

Reviewed this issue

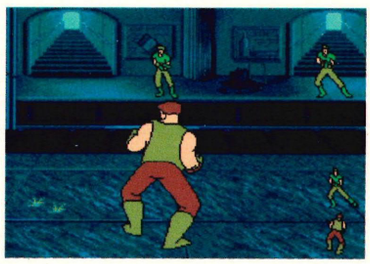
Laura Bow II: The Dagger of Amon Ra	**8**
Hong Kong Mahjong Pro	**8**
B-17	**7**
A-Train	**7**
Utopia	**7**
Grandmaster Chess	**7**
Dungeon Master	**6**
Theatre of War	**6**
PGA Tour Golf for Windows	**5**
Fantasy World Dizzy	**5**
Lord of the Rings II: The Two Towers	**4**

away narcotic dealing hoodlums on an island and, erm ... well, that appears to be it really.

Combat of a different kind is to be found in **Operation Combat Battle Simulator** (£9.99) which is seeing the light of day thanks to Action 16. Dull, boring, tedious, and uninspiring are a few of the adjectives that might spring to your mind when you think of very old war games. Keep them all in mind for this one too.

The only decent budget release this month is Spectrum Holobyte's **Falcon** (£14.99) on Digital Integration's Action 16 Supreme label. If you haven't already sampled this excellent flight simulation, now really is a perfect time to do so. Rather ironically, when it was first released, it was this F-16 simulator that put Digital Integration's own **F-16 Combat Pilot** into the shade, so I suppose it's some kind of justice that DI will be making money out of it now.

Right, hands up if you've previously been suckered into paying a fortune for one of Readysoft's so-called games and ended up with something you could have bought on video for a tenner? I know, it's depressing, isn't it? Guy Spy and the **Crystals of Armageddon**



Guy Spy aims to be the first really playable interactive cartoon, but opening the box is about as exciting as the interaction gets.

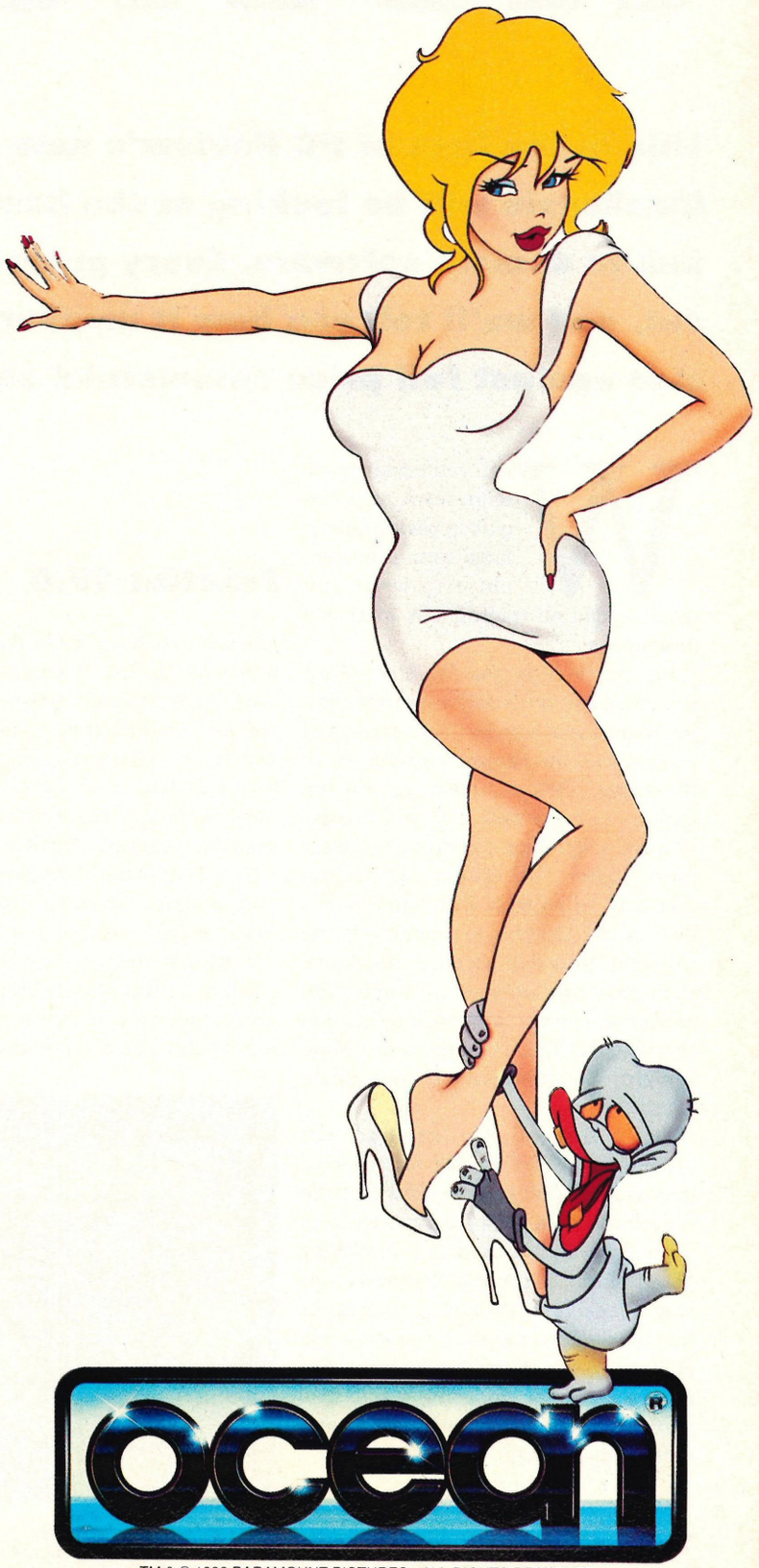
(£34.99) is Readysoft's latest attempt at creating an interactive cartoon, only this time it has managed to inject it with some playability by constructing it as a sequence of set-pieces in which you have a range of possible actions. It's an improvement, but it still doesn't rank as great value for money.

And last, but not least, we come to Ocean's tie-in with Quaver's crisps, namely **Push-Over** (£29.99). I'm quite pleased to be able to report that, for a licence of this nature, this is actually a very good game.

It's in the Lemmings mould of action puzzle game only this time you control an ant who has to stack dominoes in the right order so that when they topple they end up knocking over a trigger block to open the door to the next level. Pretty compulsive stuff!

HOLLI WOULD IF SHE COULD

... AND SHE WILL



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Shareware Reviews

This is the first of PC Review's new shareware series. Each month, Sam Mackenzie will be looking at the best of what's new in shareware and public domain software. Every program that is covered will be checked out, and we'll tell you how it measures up, not just to other shareware, but also against full price commercial software.

When you register your shareware, you can end up paying quite a large sum of money, close to what you would spend on traditionally marketed programs.

One increasingly popular practice for shareware authors is to give you one complete episode of a series of adventures. If you register, you can then get the rest of the series. This is a good way for the authors to make sure that you register — if you enjoy the game, then you'll want more, right? This type of registration seems to be popular with some of the best of the shareware authors at the moment, probably because they know their programs are good, so you'll want to register. In these cases, we'll try our best to get hold of the rest of the series so we can give you an idea of what you might expect.

This month we also introduce the Shareware Finder Service, where we'll endeavour to find you the software to do the job you need. This might range from something like, "I used to love playing Hammurabi; is there a shareware version available?", through to questions like the one this month about the availability of a shareware typing tutor. See over the page for details of how to take part if you have a software requirement that needs fulfilling.

Fractint 15.0

Fractals have been one of the hot topics of the 90s. It seems that everyone is intrigued by these fascinating mathematical patterns, with books, posters, television programs, and so on, all showing the intricate images. There are a lot of shareware programs that draw fractals, and one of the best is Fractint, and the latest version of this — Fractint 15.0 – is now available.

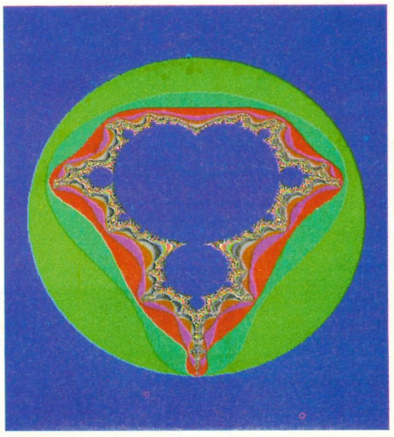
Fractint includes the best known fractals — the Mandelbrot set, and the Julia set, as well as many other less well known fractals — 31 in total. Some of the ones you might not have heard of include Popcorn, Newton, Barnsley, and Spider.

Because of the intricate nature of the graphics, this program runs best on machines with at least VGA graphics, or even better with SVGA. A wide range of graphics adapters of these resolutions has been covered, and lower resolution EGA or CGA resolutions are supported, though you will not get the same effects as you would with the more powerful options.

Fractint includes a set of 3D functions so that you can produce stereoscopic pairs of images which you then look at using 3D glasses where one lens is red and one blue.

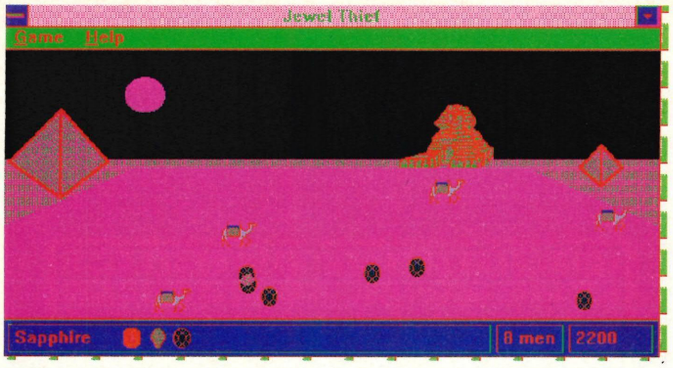
As fractal programs go, Fractint is pretty fast, though you will have to wait for quite some time to see the more complex images. Once drawn, you can print the image, or save it in a format that can be imported by many DTP and graphics packages.

If fractals interest you, Fractint is fascinating. Because you can alter the settings in the calculations, there is also the thought that the image you see might not have ever been seen by anyone else.



shareware 1992 tech spec

Product:	**Fractint 15.0**
Supplier:	**Shareware Marketing**
Tel:	**(0297) 24088**
Product code:	**ma46**
Price:	**£2.50**
Registration price:	**Free - in the words of the authors: Don't want money. Got money. Want admiration.**
What you get for registering:	**n/a**
Specification:	**8088 or better**
Disk space:	**700K**
Graphic modes:	**CGA, EGA, VGA, SVGA, Hercules**
Soundboards:	**n/a**
Control:	**mouse, keyboard**



Windows Games 8

This disk contains a set of four games, none of which is completely outstanding in its own right, but put together as a set, is probably worth getting. The four games are Battleships, a maze runner, Jewel Thief and Hyperoids. All are well implemented, polished products.

Battleships is a machine version of the game played using paper and pencil; two players each place their fleet of battleships and submarines on a grid, then take it in turns to try to hit the other player's hidden navy. You use the mouse to place your navy and to make guesses where your opponents' ships are.

Playing like this is far preferable to playing with paper and pencil, but the game has nothing other than this to recommend it over the manual version.

In the maze game, you try to guide your mouse — shown as a computer variety rather than a furry rodent — around a maze on the screen. What raises the interest level is that you can change the appearance and behaviour of the maze. To begin with, you can choose how much of the maze you see at once. This makes it much more like going around a real maze, as you have to remember where you've been. In addition, you can chose to see all the walls, some of the walls, none of the walls unless you are going to hit one, or even walls that might or might not be real! A final fiendish option allows you to have random walls. In this the maze changes as you move around it, so you might be working your way across the maze only to discover that the route has changed and you are stuck up a dead end.

Hyperoids is a version of a game that has been around now for nearly 20 years. You are in charge of a spaceship, and have to shoot the encircling asteroids. You control your 'rocket' by applying thrust, which moves it more quickly in the current direction; reverse thrust to slow it down; or sideways thrust to rotate the rocket.

This is not a particularly spectacular version of the classic, but if you've never played Hyperoids, you should at least give it a go — your game playing education is missing a section if you don't!

The final game of the four, Jewel Thief, is a fun action game, although I'm not too sure about the morals of learning to be a good jewel thief! To be fair, the story is that baddies have stolen the jewels and you are simply stealing them back.

This is a fun game to play, although there isn't a great deal of strategy, and due to its simplicity, it is doubtful how long it would keep the interest of a regular player.

Product:	**Windows Games 8**
Supplier:	**Shareware Marketing**
Tel:	**(0297) 24088**
Product code:	**qb28**
Price:	**£2.50**
Registration price:	**$10 each, Hyperoid is free**
What you get for registering:	**Avoid the opening screen in Jewel Thief**
Specification:	**as for Windows**
Disk space:	**0.5Mb**
Graphic modes:	**as for Windows**
Soundboards:	**as for Windows**
Control:	**as for Windows**



Wolfenstein 3-D

This was definitely the 'star' of the shareware programs that I looked at this month: excellent graphics, lots of support for sound cards and a good feel to the game. This was well up to the standard of full price games. Having said that, the package can best be described as 'gory', and should be avoided if you're squeamish about a lot of blood and guts!

You take the role of Captain William J "BJ" Blazkowicz, a Rambo-like character who is shooting his way out of a German prison camp 'deep in the belly of a Nazi dungeon' as the game puts it, the dungeon being under the castle Wolfenstein. To move between levels you have to shoot the guards, take the treasure that is lying around and retrieve the secrets. The voluntary coding on the game is PC 13 — Profound Carnage, and I would judge that to be about right (it certainly isn't Politically Correct).

The game is fun to play for a number of reasons. The writers have implemented the character control very well, and the way the scene changes is very realistic — such as when you move your head, or spin round quickly to see what's behind you.

As you move around the castle, you pass through what seem endless doors. As you open doors, you might find a group of guards, or guard dogs (which you have to shoot!); you might find food or a first aid kit to help you back to 100% health; you might find one of the missing secrets, or treasure, or you might find a key that will open a locked door.

As you complete each level, you move to the next one in the lift. At this point you will be told what percentage of guards you have killed, what percentage of secrets you have collected, and what percentage of treasure you have collected.

You start the game with a pistol and a knife as your weapons, and acquire more powerful weapons such as a machine gun as you progress by taking them from the guards you kill. You can swap between the different weapons to choose the best one at any point.

I enjoyed playing Wolfenstein 3-D a lot, though the plot and the blood and gore did put me off to begin with. My only other negative comment is that despite the wonderful graphics, the game can get a trifle boring after a few hours, particularly if you are stuck on one level and unable to move on because you have missed something vital that you need before you can enter the lift.

Product:	**Wolfenstein 3-D**
Supplier:	**Transend**
Tel:	**(0274) 622228**
Product code:	**3080**
Price:	**£5.00**
Registration price:	**£24**
What you get for registering:	**All digitised sounds, new graphics and enemies, manual, secret 'cheat' password, new bonus game, next two episodes. For £44 you get five more episodes.**
Machine:	**286 or better**
Disk space:	**0.5Mb**
Graphic modes:	**EGA, VGA, SVGA**
Soundboards:	**Ad Lib, Sound Blaster, Disney Sound Source**
Control:	**Mouse, joystick, Gravis gamespad, keyboard**



Home Finance Companion

This package is designed to help you plan your personal finances. It allows you to keep track of up to 20 accounts such as your bank or building society accounts, with password protection so that you can keep your information confidential.

There are two main parts to the package — keeping track of what is happening in your accounts, and budget planning. The package also includes a calculator, a notepad, and an event reminder.

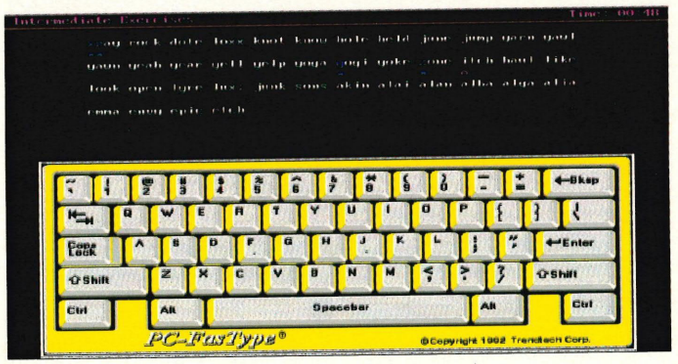
The accounting side has facilities for entering standing orders, which are then debited or credited automatically from the balance; you can carry out balance enquiries, including cross-account enquiries so that you can see your overall balance.

On the balance side, you can enter information about the amount of money coming in each month. This produces an overall figure of money in. You can then enter things that you either spend money on, or are thinking about spending money on, and see how this would alter the amount you have left to spend.

Sometimes it is easier to see an overall picture if information is presented graphically. The Home Finance Companion allows you to see your accounts side using a bar chart, while the budget side can be viewed using a pie chart.

You could argue with some justification that you could do everything in this package using a spreadsheet. However, this is a competently designed package that provides more structure than you would usually place into a self-written alternative, and actually producing something this finished would take quite a lot of effort, so you might find the registration fee worthwhile.

Product:	**Home Finance Companion**
Supplier:	**Transend**
Tel:	**(0274) 622228**
Product code:	**5000**
Price:	**£2.50**
Registration price:	**£30**
What you get for registering:	**technical help, discount on upgrades**
Machine:	**8088 or better**
Disk space:	**200K**
Graphic modes:	**CGA, EGA, VGA**
Soundboards:	**n/a**
Control:	**keyboard**



Shareware Finder Service

"My typing is very bad — two fingers is probably boasting rather too much, to be honest! I would really like to learn to type more efficiently. Are there any shareware products that I could use that will teach me to type?"

Andrew Bowden – Stamford, Lincs

There are in fact several, one of the best being PC Fasttype. This is available from several shareware companies, and comes in two versions, one for EGA screen and one for VGA screens.

The package has three levels — beginners, intermediate, and advanced. Beginners concentrates on single key presses, and shows the keys that you should be pressing begin depressed on the keyboard while the letter or symbol is shown above the keyboard. If you press the correct key, then the next key in the sequence is displayed. If you mistype, the key you pressed is shown with a red line drawn through it and you try again.

Once you move on to the next level — intermediate — the rules change slightly. You still see the keyboard and the letters that you should be typing, but the key is not depressed on the screen keyboard unless you take a long time pressing it, in which case it is depressed to give you a hint about where it is.

The final level, advanced, is more of the same with longer, more complex exercises. You can even choose to copy one of your own text files, or try 'free typing', where you type without the program knowing what you should be typing. In this case, of course, accuracy is only measured by noting how many corrections you make.

Product:	**Fasttype**
Supplier:	**Softcell**
Tel:	**(0443) 238630**
Product code:	**4324 (mono), 404 (CGA), 2149 (VGA)**
Price:	**£1.95 (5.25"), £2.50 (3.5")**
Registration price:	**$25**
What you get for registering:	**latest version, technical support, manual**
Machine:	**8088 or better**
Disk space:	**800K**
Graphic modes:	**mono, CGA, VGA**
Soundboards:	**n/a**
Control:	**keyboard**

This month's first Shareware Finder problem was 'lifted' from a plea sent to Q&A, but from now on, we want to tackle your software finding problems specifically.

If you would like to take advantage of the Shareware Finder Service, fill in the form below, or reproduce it in letter form, and send it to PC Review, Shareware Finder Service, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. You can also fax your request to (071) 972 6710, or e-mail it to pcreview@CIX.compulink.co.uk.

Please note that PC Review doesn't undertake to *supply* you with the software we find, but we will identify the product we believe will suit your purpose and make our own, necessarily subjective, evaluation of its efficacy.

Name .....

Address .....

.....

.....

Daytime tel no (in case we need more details) .....

PC system specifications

Processor .....RAM .....Hard/floppy disk .....

Graphics .....DOS. .....Windows.....

I am looking for software which will perform the following task.....

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Quality Shareware (PC only) with easy to use menus or on disc help to get you started. Shareware programs require separate payment to the author if found useful. Number of discs is in brackets after the name. HD=requires hard disc. Please remember to state disc size and to total up the number of discs.

FAX: 0423 889728

NEW RELEASES

Here are a few of the new titles we have received recently. We have hundreds more, so if you don't see something listed, 'phone us to see if we have it.

New Windows Releases

CHANGE CURSOR (1) Alter the arrow and hourglass icons.
WARHEADS FOR WINDOWS (1) Missile Command game.
BOW AND ARROW (1) Fun archery game.
LANDER (1) Lunar Module landing program.
CHOMP (1) PacMan for Windows.
WINDOWS ROULETTE (1) Good roulette game
BATTLE GRID (1) Battleships game
BACKGAMMON (1) Great Backgammon for Windows.
BATTLE ON DISTANT PLANETS (1) Detailed combat game.
CASTLE OF THE WINDS (1) Fantasy role playing game.
OBLITERATE (1) One player strategy/logic game.
BACKROOM BOY (2 discs) Great UK Personal Organiser.
SMART ACCOUNTS (1) UK personal finance manager.

New DOS Releases

JILL OF THE JUNGLE(1)(HD) Great game with girl heroine!
WHERE'S THAT MOUSE? (1)(HD)(EGA)(286) Age 3 to 8.
GEOCLOCK UK (1) Time/sun position display of the world.
GALACTIX (2)(HD) Fantastic Space Invader game!

WORD PROCESSING

GALAXY LITE (1) Wordstar compatible/drop down menus.
THESAUR PLUS (1) (HD) Good pop-up, use with your w/p.
STYLE CHECKERS (1) Checks the readability of text.
SIGNSMITH (1) Create letterheads/posters/logos/pics.
READABILITY PLUS (1) Analyses your writing style.
MR LABEL (1) Flexible label making program.
LQ (1) Dot Matrix print enhancer, fonts, print-spooler etc.

DATABASE MANAGEMENT

PC FILE 5 (3 discs) (HD) Powerful D/Base III compatible.
FILE EXPRESS v5(4) Powerful, but easy to use.
FREEFILE (1) Easy to learn menu-driven database.
ZEPHYR (2) (HD) Easy to use fully relational D/Base.
WAMPUM (1) Fast, fully relational. Great Value!
CLUB (1) UK club membership program.

PAINTING/DRAWING

FRACTAL GRAFICS (1 disc) PCX drawing using Fractals.
VGA PAINT (1) Excellent VGA graphics/drawing program.
DESKTOP PAINT (1) (HD) (EGA or Hercules) Superb B/W.

DESIGN

CHARTS UNLIMITED (1 disc)Flowcharts/electrical/Gantt etc
EASYDRAW (1) Technical drawing, flowcharts, diagrams.
DRAFT CHOICE (1) Accurate, easy to use CAD program.
PC-DRAFT II (1) Full A4 150 dots per inch drawings.

GRAPHICS UTILITIES

GRAPHIC WORKSHOP (2 discs) (HD) Converts/scales/views/dithers and prints many picture formats.
ICONVERT (1) Coverts between many graphic formats
PCX-SUPERSHOW (2)(HD) Professional presentations.

SPREADSHEETS

AS-EASY-AS (1 disc) Famous 123-style spreadsheet.
TUTOR 1-2-3 (1) Interactive tutorial for 123 beginners.

TOP FIFTY NEW ADDITIONS TO OUR LIBRARY

(Based on sales in the last three months)

MONKEY BUSINESS II (1)(EGA)(HD)(286)
Interactive colour story (7-10 years)
COSMOS'S COSMIC ADVENTURES (1)(EGA)(HD)(286)
Help loveable alien save parents!
WOLFENSTEIN 3D (1)(VGA)(HD(286)(3.5" ONLY)
VGA Virtual Reality game
PCX-SUPERSHOW (2)(HD)
Professional screen presentations
COPYMASTER (1) Super disc copying utilities
TOUCH TYPING TUTOR (1) Easy to use typing tutor
WORD RESCUE (1)(HD)(EGA)(286)(3.5" ONLY)
Word game from Apogee (age 4+)
SUPERSCAPE REALITY (1)(HD)(VGA)
Virtual Reality demo
COMPLETE CROSSWORD (2) Solver 100,000 word dict.
ARJ (1) Powerful file compression program
EXPLOSIVE (1) Screen blanker with firework display
HUGO III JUNGLE OF DOOM (2)(HD)(EGA)
Third and biggest Hugo game
FUNNY FACE II (3)(HD) Create crazy faces, great fun!
ANIMATED MATHS (1)(HD)(EGA) Basic sums, good graphics
ABC TALK (1)(CGA) Talking educational program (age 1 to 7)
AVARICIUS (1)(HD)(EGA) Amusing game set in Pompeii
DOMINATION (1)(VGA) Strategy board game
GEOCLOCK UK (1) World map with moving sunlight
AUTO CONFIG (1) Edit Autoexec.Bat/Config.Sys
VGA DISPLAYS II (1) More dazzling VGA graphics!
TRIVIA QUIZ (1)New Trivia game
BANANOID (1)(VGA)(286)(Mouse) Colourful bat & ball game
FACING THE EMPIRE (1) Solo player, interstellar conflict
PRO-CR(1)(HD)(CGA)(Scanner) Optical character recognition
CROSSWORD FINDER (3)(HD) For writing crosswords
HUGO II WHODUNNIT (1)(HD)(EGA) 3D graphics/text game
KEYSHARE (1) UK Stock Market analysis program
EGA COLOURING BOOK (1)(HD)(EGA)(mouse)
500+ colours (age 3+)
ANAGRAM MAKER (1) Words stored in ASCII format
FORMGEN FILL (1) Form filling system for use with Formgen
MICROCAD (1)(VGA)(Mouse) 2D/3D diagram and CAD prog.
SHARK ATTACK (1)(CGA) Good CGA arcade game
THREE-BALL-JUGLER (1)(EGA) Teaches you to juggle!
DINO'S BUCKET DROP (1)(CGA) Maths game, several levels
MEGAMENUS (1) Novell compatible front-end system
ROBOMAZE II (1)(CGA/EGA) "The Lobby" - great game!
WINEDIT (1) Text Editor for Windows
WINGIF (1) GIF and PCX file viewer for Windows
DOSEA 5 (1)(HD) MS-DOS 5 tutorial
PAINTSHOP PRO (1)(Windows) Graphic conversion program
TIME LORD (2) Diary, contacts, reminders and appointments
THE BANK MANAGER (1) Complete home finance manager
24 POINTS (1) Pools prediction program
FRENCH HANGMAN (1) French/English clues and answers
STICKY WICKET (1)(EGA) Great cricket game!
C++ TUTOR (2) Very good tutorial for C++
GRAPHIC WORKSHOP FOR WINDOWS (1)
Famous graphic file utility, now for Windows
BIBLE COMPANION (1) Study aid with dictionary and maps
F-117A TRIAL (3)(286)(VGA)
MicroProse Stealth Fighter simulation
RESUMES (1) For creating CVs

EGA/VGA GAMES

BOLO ADVENTURES (1)Forty levels, superb graphics.
GLOBAL WARFARE (1) Conquer the world!
DUKE NUKEM (1)(HD)Stop Dr Proton from ruling the world.
CRYSTAL CAVES (1)(HD) Cave after cave of adventure!
DOMINATION (1) (VGA) Strategy board game
AVARICIUS (1) Amusing game set in Pompeii
HUGO'S HOUSE OF HORRORS (1) (HD) Text/graphics game
HUGO II WHODUNNIT (1) (HD) Second game in the series.
HUGO III JUNGLE OF DOOM (1)(HD) Third & biggest game
VGA SHOOTING GALLERY (1 disc) 7 shooting competitions.
JUMPMAN LIVES (1) Up to four player arcade game.
DARK AGES (1)(286) Supports AdLib/Sound Blaster cards.
COMMANDER KEEN I (1) One of the best ever PC games!
COMMANDER KEEN II (2) (HD) "Goodbye Galaxy."
COMMANDER KEEN III (1) (HD) "Aliens Ate My Baby Sitter."
KUNG FU LOUIE (3) Excellent Martial Arts game.
COSMO'S COSMIC ADVENTURE (1)(HD)(286) The best yet?
WOLFENSTEIN 3D (1)(HD) (286)VGA Virtual Reality game
JILL OF THE JUNGLE(1)(HD) Great game with girl heroine!
GALACTIX (2)(HD) Fantastic Space Invader game!

EARLY LEARNING

HOORAY FOR HENRIETTA (1 disc) Maths for 5-12 year olds.
HENRIETTA'S BOOK OF SPELLS (1) Spelling for age 7-14.
AMY'S FIRST PRIMER (1) Pre-school educational games.
PC LEARNING GAMES (4)(EGA) Maths, Words etc (2-8yrs)
ANDY'S WORD GAMES (1) Improve spelling & grammar.
FUNNELS & BUCKETS (1) Games for age 2 to 10.
FUNNY FACE II(3 discs)(HD) create crazy faces, great fun!
WORD RESCUE(1)(HD) Word game from Apogee (age 4 +)
MONKEY BUSINESS II (1)(EGA)(HD) Colour story (7-10yrs)
WHERE'S THAT MOUSE? (1(HD)(EGA)(286) Age 3 to 8

MS WINDOWS PROGRAMS

WINDOWS GAMES (1 disc) 12 games, Poker, Yacht etc.
SCREEN PEACE (1) Set of screen saver programs.
ICON TOOLS (2) Let you edit, draw, view Icons.
ORGANISE (1) Filofax style information manager.
WINSPELL (1) Spell Checker for Windows.
WINCHESS (1) Very good chess game.
ATM FONTS Vol 1 (4 discs) 30 fonts for Adobe Type Mgr.
PARENTS (1) Genealogy program for Windows.
SNAPSHOT (1) Capture screens for use in other programs.
WINDOWS TOOLS #5 (1) Including WINZIP file manager.

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are offering the following no nonsense guarantee:

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2. We will provide telephone help, to get you started with any disc we supply to you.

3. Detailed technical help on running the program cannot be provided by TESTWARE, any detailed help is provided by the author, but we will help you to load the program and get started.

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PROGRAM OF THE MONTH: GALACTIX (2)(HD)(VGA)(286)

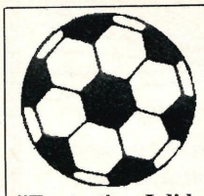
Superb new Space Invaders type of game! Amazing optional Soundblaster support.

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DIVISION ONE 92 REV 1

"Fantastic. I didn't think it possible. I can SEE the results of my decisions on the field." -Jari Samppala, Helsinki

THE GAME Everyone has their own ideas on what makes a soccer team "tick". Here is the opportunity to put into practice your own ideas. Operating from the English 1st division you must build a squad to challenge for the league title, the FA and League Cups and the 3 European trophies. And as players age, rebuild the team while holding off relegation.

SQUADS/TRANSFER MARKET In a 3 squad system (1st team squad, reserve squad and youth squad), use the continuous intake of youth players and training program to create a squad whose skills reflect your ideas. Supplement these skills with carefully selected transfer market acquisitions. As they age, veterans fade and youngsters develop, keep an eye on the changing skills of your team

SKILLS All players have a balance of 5 skills (no "skill levels") which you must develop by experimenting with your team. Even more important will be your judgement about the effect of the particular team balance or skill combination on the outcome of the match, and subsequently a season of football. Suitable training can develop/enhance skills.

MATCH/STATS Your judgement will be put to the test in this unique 4 minute match/stats simulation against accurately simulated opposition. This is the measure of your team and your most reliable source of information. There are displays of: match flow, two teams, player-with-the-ball, injuries, discipline, substitutions, in-match tactics, goal scorers, possession breakdown and performance assessment.

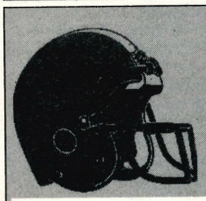
REVISION ONE
The best just got better! All updates that have been made to Division One 92 over the last six months. In addition the match screen has improved, opposition team info expanded, a European transfer market added and a few more minor changes. An edit program and a customisation program have also been added. The manual has been expanded and the packaging improved.

EDIT PROGRAM. Edit the team and players that make up Division One. Produce **your own** Division One, or Scottish League, British League, European League, German/Spanish/French/Italian...etc...etc. Or even make up a league of all the best teams you've ever seen.

CUSTOMISATION PROGRAM Customise the 45 man starting squad. Use your own favourite players, or your local side. How about as squad with Pele, Beckenbauer, Best, Cruyff, Maradonna ....?

WHAT IS DIFFERENT ABOUT THIS GAME?

Division One 92 transforms the soccer management game. You can concentrate on the football. Experiment with players, formations, team styles. Build your dream squad and check it out in accurately simulated league/cup football. Match results are from a unique soccer match. Every pass, tackle, shot etc. is determined by the players involved. Your choice of skills thus influences match results. Mental arithmetic has been dumped. Football knowledge is the name of the game.



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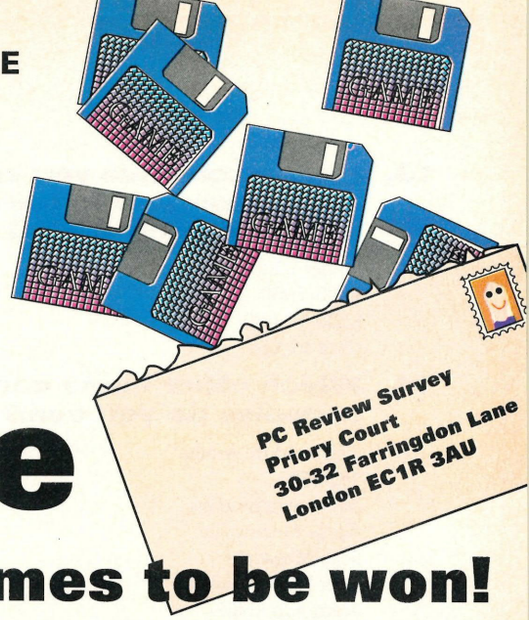
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PC Review questionnaire

50 PC games to be won!

It seems like only yesterday that we did our last survey, but in fact it was a year ago, and 12 months on, we'd like to hear your views and comments afresh. With just a few minutes of your time, you can help us put together a magazine which caters for your tastes and PC needs by answering the questions below and mailing them to PC Review Survey, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. You could earn yourself a piece of software for your time and trouble.

About you

1. Age .....

2. Profession:

- At school ☐
- At college/university ☐
- In full-time work ☐
- In part-time work ☐
- Unemployed/resting ☐
- Retired ☐
- Other (please specify) .....

3. Sex

- Male ☐
- Female ☐

In all the following questions, tick more than one box if appropriate, unless the question specifically states otherwise.

4. Is the PC you play games on at

- home? ☐
- at work? ☐

5. What is the specification of the PC you play games on? (Please specify rather than ticking.)

- Processor .....
- RAM .....
- Hard disk size (if owned) .....
- Number of 5.25" disk drives .....
- Number of 3.5" disk drives .....
- Graphics .....

6 Do you have, or intend to buy, any of the following in the next 12 months?

	Have	Intend to buy
Mouse?	☐	☐
Soundboard?	☐	☐
Game card & joystick?	☐	☐
CD-ROM drive?	☐	☐

Other add-ons/peripherals? (Please specify)
.....

7. Do you intend to buy a new PC in the next 12 months?

- Yes ☐
- No ☐

8. Where do you buy PC games from?

- Major chain store ☐
- Specialist local shop ☐
- Mail order ☐
- Other (please specify).....

9. For how long have you been playing games on the PC?

- Less than six months ☐
- Between six months and a year ☐
- 1-3 years ☐
- Over 3 years ☐

10. What type of PC games are you interested in? (Tick all that apply):

- Arcade-style games ☐
- Board games (chess, draughts, etc) ☐
- Flight sims ☐
- Graphic adventures ☐
- Platform games ☐
- Puzzle games ☐
- Role-playing games ☐
- Sports simulations ☐
- Strategy games ☐
- War games ☐
- Other (please specify) .....

11. Do you buy shareware or public domain software?

- Yes, I rely on it ☐
- Often ☐
- Sometimes ☐
- Never ☐

12. How much do you spend on average on software per month?

- £0-£30 ☐
- £30-£60 ☐
- £60 or more ☐

13. How much have you spent on add-ons and peripherals in the last year? (Don't include buying the PC itself)

- Under £200 ☐
- £200-£500 ☐
- £500-£1,000 ☐
- Over £1,000 ☐

14. Which other home computers or consoles do you own?

- Commodore Amiga ☐
- Atari ST ☐
- Acorn Archimedes ☐
- Apple Macintosh ☐
- Sega Megadrive ☐
- Sega Master System ☐
- Nintendo SNES ☐
- Nintendo NES ☐
- Nintendo Gameboy ☐
- Commodore CD-TV ☐
- Philips CD-I ☐
- Other (please specify) .....

15. What else do you use your PC for, besides games?

- Word processing ☐
- Database ☐
- Accounts ☐
- DTP ☐
- Music ☐
- Graphics ☐
- Programming ☐
- Comms ☐
- General admin ☐
- Other (please specify) .....

16. Which other computer magazines do you buy?

- Computer Buyer ☐
- Computer Shopper ☐
- PC Direct ☐
- PC Format ☐
- PC Magazine ☐
- PC Plus ☐
- PC Today ☐
- PC User ☐
- Personal Computer World ☐
- Practical PC ☐
- What Micro? ☐
- What PC ☐
- Which Computer? ☐
- Other (please specify) .....

17. If you could only buy ONE PC magazine a month, which one would it be?

.....

About PC Review

18. How often do you buy PC Review?

- Subscribe ☐
- Every month ☐
- Usually ☐
- Occasionally ☐
- This is the first issue I've bought ☐

19. Where do you buy your copy of PC Review?

- Subscribe (please tick again) ☐
- Multiple outlet (eg, Smiths, Menzies) ☐
- Supermarket ☐
- Local newsagent on regular order ☐
- Local newsagent ☐
- Other (please specify) .....

20. How does this edition of PC Review compare to previous issues?

- Better ☐
- Much the same ☐
- Not as good ☐
- Haven't read any others ☐

21. What is the ONE most important thing that influences you when buying PC Review? (Tick ONE box only)

- Always buy it anyway ☐
- Cover disk contents ☐
- Having two cover disks ☐
- The cover ☐
- Reviews coverage ☐
- Other (please specify) .....

22. What do you think of the amount of coverage of the following subjects in PC Review?

I'd like to see	More	Same	Less
Cover disks	☐	☐	☐
News	☐	☐	☐
Reviews	☐	☐	☐
Previews	☐	☐	☐
Hints and tips	☐	☐	☐
Shareware	☐	☐	☐
Hardware features	☐	☐	☐
Hardware tutorials	☐	☐	☐
Non-games software (eg, utilities, graphics, music, etc)	☐	☐	☐

23. Do you think PC Review is:

- Too expensive? ☐
- Value for money? ☐
- Ridiculously cheap — you'd happily pay double for it? ☐

24. How many other people read your copy of PC Review?

- None ☐
- One other ☐
- 2 others ☐
- 3 others ☐
- 4-5 others ☐
- More than 5 others ☐
- Hard to say, I pass it around school/college/work, etc ☐

Thank you very much for ploughing through all that for us. If you'd like to be considered for the grand software draw, please add your name and address here. Individual survey results are confidential and your name and address will be used only in the event of you winning a prize in the draw.

Name.....

Address .....

.....

Filled-in questonnaires should be sent to PC Review Survey, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, by October 20, please.

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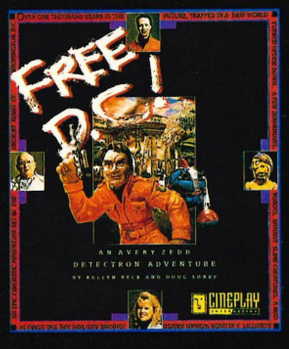
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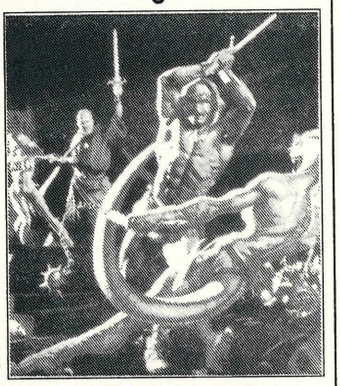
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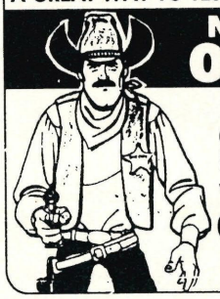
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Lord *of the* Rings

Special centenary prizes to be won!

With the release of Lord of the Rings 2 from Interplay, and the centenary of J R R Tolkien's birth, we thought it was time to hold a celebratory competition.

Accordingly, we've teamed up with Interplay, publisher of the extremely fine Lord of the Rings PC games, to offer you some very special prizes to mark the occasion.

We've got three limited edition Lord of the Rings prints by West Country artist Alan Lee to give away to three first prize winners. Alan Lee is a noted illustrator, with Faeries, Merlin Dreams and Erik the Viking to his name. His watercolours evoke images of fantasy and early English romance, with fortresses, solitary knights and dragons depicted in desolate moorland landscapes. He has been working on the illustrated edition of Lord of the Rings to coincide with its centenary since 1988.

Then there are 10 copies of that lavishly illustrated, centenary edition of Lord of the Rings, published by HarperCollins and normally £30.00 each, for the 10 next winners. This contains the three tales that make up The Lord of the Rings — The Fellowship of the Ring, The Two Towers, and The Return of the King and 50 of Alan Lee's illustrations.

Finally, 15 copies of Lord of the Rings Vol 1 from Interplay are also up for grabs for the next 15 people out of the hat.

How to enter

Below there are three questions about Tolkien and Lord of the Rings. Answer these correctly on the form provided (or a photocopy if you don't want to cut up the magazine), stick this to the back of an envelope or postcard, and send it off to

Lord of the Rings competition
PC Review
Priory Court
30-32 Farringdon Lane
London EC1R 3AU

The closing date is October 17, 1992, and no entries received after that date will be considered. The results will be announced in the January 1993 edition of PC Review.

Questions

1 What does the J R R in J R R Tolkien stand for?

2 What name did Tolkien give to his invented language?

3 How old was Bilbo Baggins at the beginning of The Lord of the Rings (The Fellowship of the Ring)?

Answers

1 .....

2. .....

3. .....

Name .....

Address.....

.....

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

Closing date: October 17, 1992.....*PC Review October 1992*

Rules

The winners of the Lord of the Rings prints will be the first three correct entries drawn at ..... random after the closing date. The winners of the Lord of the Rings books will be the next 10 . correct entries drawn at random. The winners of Lord of the Rings Vol 1 for the PC will be the next 15 entries drawn at random.
No entries received after the closing date will be considered. Only *one* entry per person, please. No employees, or their relatives, or associates of Interplay, Electronic Arts, HarperCollins, or . EMAP Images are eligible to enter the competition.
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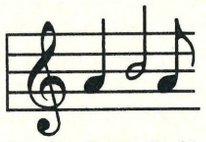
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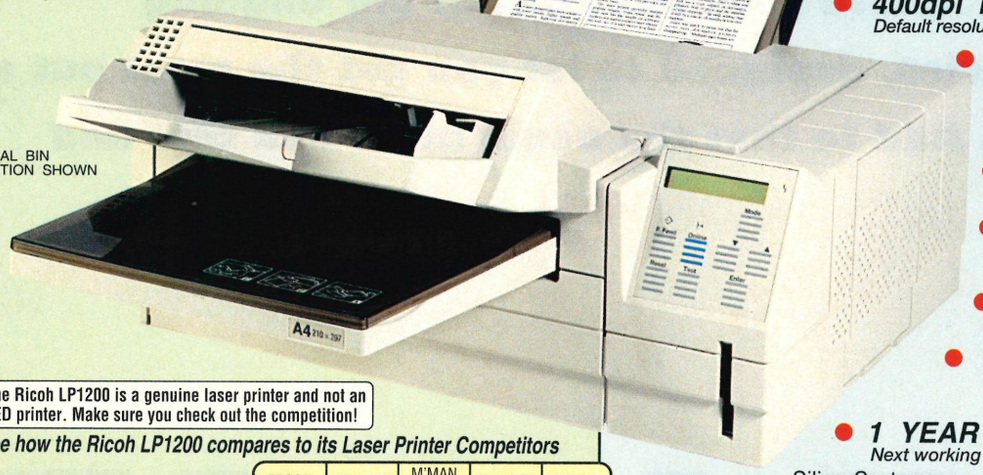
RICOH PCL5 LASER PRINTER

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

Fully HP LaserJet III™ compatible, the new LP1200 employs industry proven laser technology. Unlike LED page printers, which use light emitting diodes, the LP1200's laser lightsource, focussed by high quality lenses, is able to produce the most accurate and intense printed images. It has 2Mb of RAM built-in and requires no additional RAM to print a full A4 page of graphics at 300dpi. Its fast, efficient processor and engine, together with a straight paper path design, allows printing at a full 6 pages per minute. Unlike its competitors, this advanced laser engine enables the LP1200 to address a range of print resolutions up to 400dpi. A new driver will soon enable the Ricoh LP1200 to print at 400dpi from Windows 3 (2Mb RAM upgrade required).

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





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- **LAYOUT** — *Document Description Language*
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The Ricoh LP1200 is a genuine laser printer and not an LED printer. Make sure you check out 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 Driver @ 400 dpi (August)	-	-	-	-	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

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Silica Systems are pleased to introduce the revolutionary, new Ricoh LP1200. It has all of the specifications that you would expect to see in today's most technically advanced laser printers, plus a unique additional feature which places it far ahead of the competition - FLASH ROM. This 'Future Proof' technology protects the investment you make when you buy a Ricoh LP1200, as it enables you to keep up to date with new laser firmware developments. FLASH ROM is an area of memory inside the LP1200 which holds the printer's controller instruction firmware. If new firmware is developed, updated printer command languages etc, can be downloaded into this memory. Other manufacturers would require you to buy a new printer! Fonts, macros, graphics and additional emulations can also be stored in FLASH ROM, or on removable, industry standard FLASH ROM IC cards. The new Ricoh LP1200 is the only laser printer to offer this FLASH ROM facility.

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QED

It seems we just can't stay away from Origin here at QED. Only last month did we manage to polish off Ultima Underworld and now we're back with Ultima VII. Also, this month sees the start of our ongoing Simulation School series, designed to let you get the most out all types of simulations. Add to that the usual hints and tips and you're laughing.

Ultima VII

Veteran gamer Robin Matthews was one of the first people in the UK to complete Ultima VII and has replayed it several times since. We asked him to provide a 'getting started' guide to this huge release from Origin

As you enter the world of Britannia, you arrive in the town of Trinsic, just as a ghastly murder is discovered. To leave Trinsic you will need to investigate the murder and find enough clues to persuade the mayor, Finnigan, to tell you the password. Examine everything in Trinsic – Spark is particularly important.

In the previous Ultimas, 'stealing' has had different effects, but in Ultima VII, it seems that with a couple of exceptions, as long as you steal 'well' you are OK – ie, don't do it right under someone's nose and don't get caught! The tactic almost seems to be to do it at night and do it on your own! This even applies at a later stage in the town of Britain, at the Treasury, where if you wait for the guards to change shifts, you can find a door allowing you access to the mint and lots of gold. This 'feature' of the game is very open to abuse, but does make life a lot easier.

Travelling forms a large element of the Ultima series, and The Black Gate is no exception. There are a series of short cuts, including the hilarious horse and cart, boats, the moongates, the recall spell and a magic carpet.

To use a boat you need a ship's deed, the cheapest of which are:

- The Dragon's Breath – see Jehanne in Serpent's Hold
- The Nymphet – see Russell in New Magincia
- The Scaly Eel – see Gargan in Trinsic.

All these liners will cost 600 gold.

The real 'flyer' is the magic carpet which allows you to travel over mountains and the sea. You are pointed to it later in the game, but it is available immediately and reduces travelling time by a massive amount. To find the carpet leave Britain via the northwest pass – through the mountains – as though you were travelling up to Yew. If you follow the inlets back inland, you will approach the western entrance to dungeon Despise and that's where you'll find the mean machine.

Magic

Magic is the other travel saver, the 'mark and recall' spell allowing you to set up a series of locations you can travel to in an instant. Be careful here. Unfortunately, there were two sets of game manuals printed, the earlier version being completely different with regard to spells without any explanation of how to use these spells. This version of the 'Fellowship' book does not have illustrations of the phases of the moon on its last page (Page 47). If you have the earlier documentation, the spells and their circles will make no sense, so contact Origin's UK distributors, Mindscape, to obtain the correct documentation.

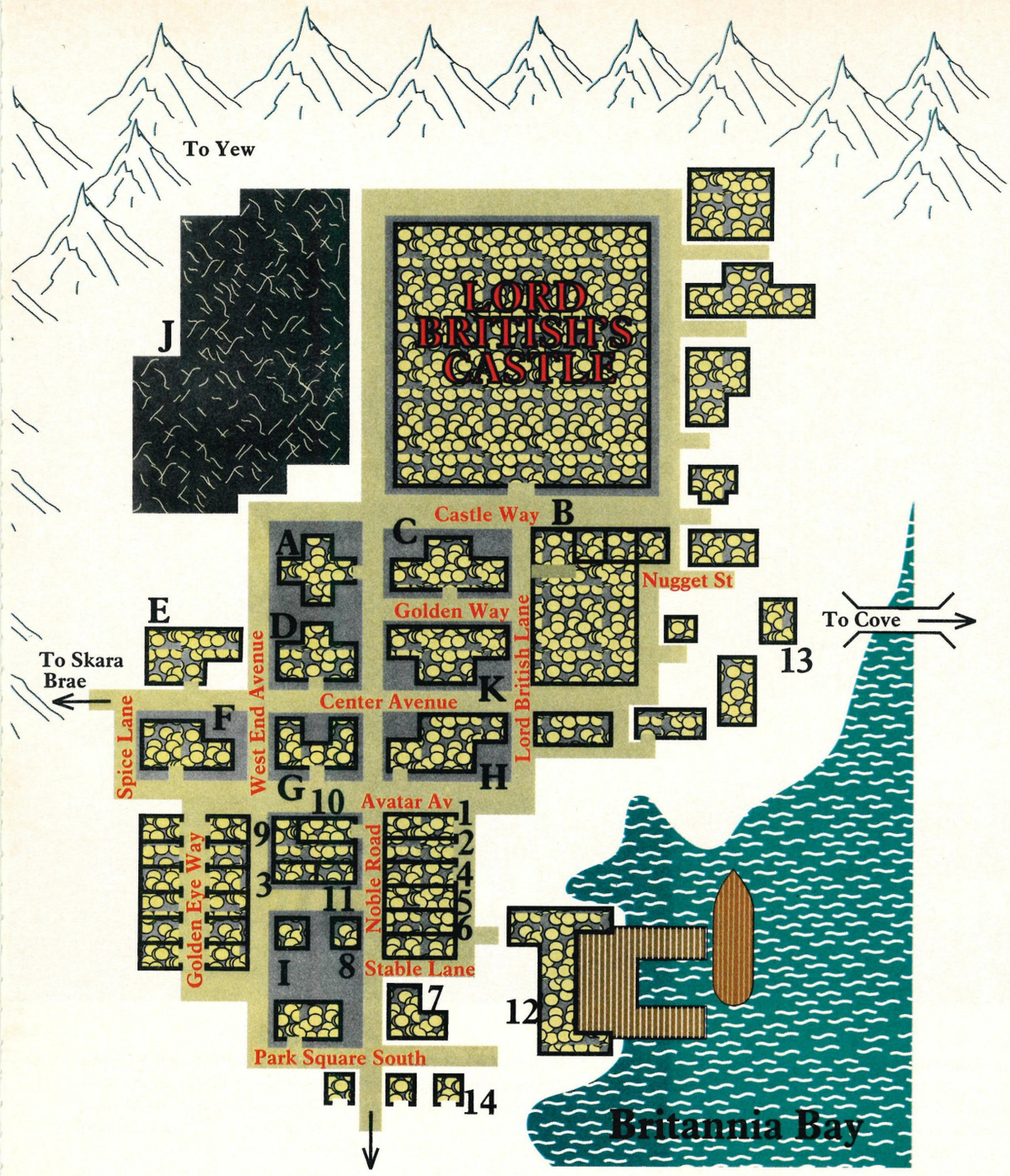
In the meantime, for those struggling to cast these spells, the 'mark' spell (KAL POR YLEM) requires mandrake root, black pearl and blood moss – it creates an invisible 'mark' on any of the eight specific coloured stones (found in the museum). The spell must be cast on the actual stone that is in your inventory. If you subsequently cast the 'recall' spell (KAL ORT POR), on that stone it will take you to the location at which you cast the mark spell.

If you use the eight stones wisely you can 'teleport' back and forth with ease, especially from some of the more inaccessible places like Yew, Terfin and the various island locations. A useful tip is to 'mark' one stone at Lord British's throne room, so you can return to be healed whenever necessary. This area of the castle can also be a good spot to 'leave' spare members of the party until you need them. The other important feature of these stones, is that they are totally reliable, as opposed to the other magic in the game, especially the Orb of the Moons (see below).

Black	Invisibility
Purple	Protection
Green	Poison
Blue	Sleep
White	Light
Red	Cure poison
Orange	Awaken
Yellow	Heal

In Britain Lord British will give you the Orb of Moons, which is a teleport device, sending you to different locations, depending on which 'point of the compass' you place it – the disruption of the magical ether means destinations may be randomised, but on the whole one destination leads to the next, etc.

You as the Avatar are the only person who can cast magic, so when members of your party are ready for 'promotion', do not train up other members



KEY

A ~ *Royal Theatre*
B ~ *The Mint*
C ~ *Music Hall*
D ~ *Fellowship*
E ~ *Trainer (Zella)*
F ~ *Trainer (Senti)*
G ~ *Wayfarers Inn*
H ~ *The Blue Boar*
I ~ *Farmers Market*
J ~ *Amusements*
K ~ *The Museum*

1 ~ *Bakers (Willy)*
2 ~ *Provisions (Gaye)*
3 ~ *Provisions (Greg)*
4 ~ *Iolo's Bows*
5 ~ *Armourer (Grayson)*
6 ~ *Jeweller (Sean)*
7 ~ *Carts (Diane)*
8 ~ *Fish'n'Chips (Gordon)*
9 ~ *Healer (Csil)*
10 ~ *Trainer (Denby)*
11 ~ *Apothecary (Kessler)*
12 ~ *Shipwright (Clint)*
13 ~ *Brownie*
14 ~ *Carriage*

WHO'S WHO IN BRITAIN
A guide to some of the most important people in the town and surrounding area of Britain.
BATLIN – The originator of the Fellowship – handle with care!
CANDICE – The curator of the museum – lots of goodies, including the runestones.
CLINT – A shipwright who will sell you an expensive sextant and ship.
COOP – Manager of Iolo's Bows in Britain (Iolo's South is in Serpent's Hold).
CSIL – The healer.
CYNTHIA – The teller at the mint. She will exchange coins for gold and gold bars.
DENBY – A trainer.
DIANE – Oversees the stable. Will sell you a horse and cart and is a good gossip.
GAYE – Runs a clothier's shop. Will sell you an Avatar costume.
GORDON – Runs a fish 'n' chip shop.
GRAYSON – Armourer. Sells two-handed swords and axes.
GREG – Runs a provisioner's shop. Useful items to buy (and steal).
KESSLER – Runs the apothecary and will always pay well for snake venom.
PATTERSON – The mayor of Britain with lots of information.
RAYMUNDO – The director of the Royal Theatre.
SEAN – A jeweller who is always ready to buy gems.
SENTRI – A trainer who will join your party.
WILHELM – 'Willy the Baker' sells bread and rolls and will pay well to have his bread baked.
ZELLA – A trainer in hand-to-hand combat.

of your party in magic skills. To increase pure combat skills, the best tutor is probably De Snel in Jhelom. His classes cost four gold and two experience points, and generally add at least four points to combat skills. Inforlem, the gargoyle teacher on Terfin, is the best all-round teacher, adding to strength, dexterity, combat, intelligence and magic. In character development, note that 30 is the maximum for skills and attributes – don't waste gold or experience trying to increase past this level!

Weapons

As far as weapons are concerned, the ones that deliver the most damage are the two-handed axe, crossbow bolts, the two-handed hammer and the two-handed sword. The latter is the most powerful of the non-magic items, but there are some very interesting magical odds and ends. Glass swords are the usual one hit wonders and be careful here – Ultima VII has an in-built system that means if a character in combat does not hold a weapon, he will automatically use the most powerful weapon in his inventory – if you are holding three or four glass swords, you will use them all in the first four rounds of combat! Glass swords are a rare commodity, and if you've accidentally used them to blow away some paltry monsters you won't be very happy!

In one or two locations you will find Vetron's Guide to Weapons and Armour, which gives a breakdown of the abilities of both, and the Apothecary's Desk Reference does the same for potions.

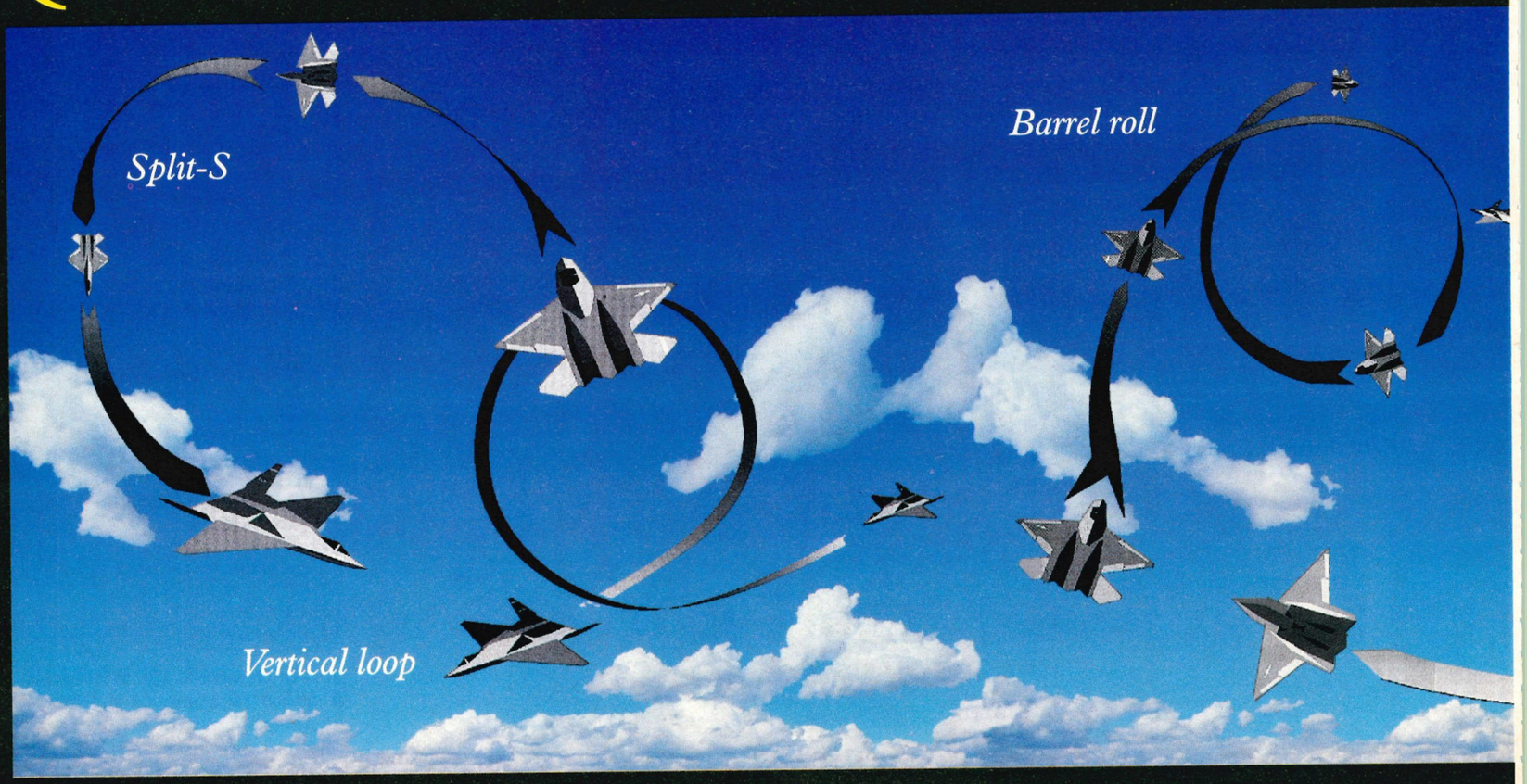
The other very useful weapon is the bizarre Hoe of Destruction – this causes very heavy damage and does not have a limited life. You will be pointed to the hoe during a minor conversation with the nutty farmer Mack and its creation is a wonderful little ditty. It is in fact in a building near Mack's house, but the key/fish-hook is lost up near Lock Lake. During the game this remained elusive, but there is a terrible cheat available.

Any door (other than the metal doors of the mint) can be blown open. It is possible to return to Britain, strip down a character's inventory and steal one of the main cannons! The cannon, some cannon balls and gunpowder can be taken to the troublesome door and it will be blown off its hinges. The technique takes some mastering but is effective.

Finally on weapons, there is a locked armoury on Serpent's Hold replete with some very heavy metal – the key to this is within Serpent's Hold hidden in one of the bedrooms.

Money can be a problem early on, but by using the earlier mentioned 'stealing' techniques, or by getting more involved in local life, you will survive – snake venom (for research) is always required by Britain's apothecary, Kessler.

QED



Simulation School – Lesson 1

Welcome to the first of a new series taking you through the ins and outs of the wide, wide world of simulators. Simulation School is a different form of players' guide in that it's not geared towards one specific game, rather a whole genre. Each month we'll pick a topic and cover it in as much detail as possible.

Don't worry if you feel you already know certain areas or have different ways of doing things. SimSchool will take you back to the basics and gradually ease you through to the end of the course. At the end of each lesson will be a summary of what you should have learnt and a couple of exercises to put theory into practice. Don't worry if you mess up, just go back over the areas that you need to brush up on and keep practising until you get it.

If you feel like sharing your own wisdom with us – maybe you have a particularly nice manoeuvre for shooting down MiGs or you know everything there is to know about piloting a space shuttle – then send them to us and we'll implement them into the course as we go along. So, let us begin with lesson number one.

Lesson one is designed for use with all modern fighter aircraft and details a series of fast and easy flight manoeuvres, designed to get you in and out of trouble without too much difficulty.

Several of the manoeuvres will be applicable to older aircraft but you may find that the speed recommendations will be wrong and so prove more trouble than they're worth. We will be covering older aircraft in later lessons, but for now we will concentrate on:

- Vertical loops
- Barrel rolls
- The split-S
- Immelmanns
- High and low yo-yos

To start with, follow your simulator's manual for getting your plane into the air and climb to around 10,000ft. This will be our hard deck (see glossary) for the lesson. You may find it wise to go up clean, ie, without weapons, and in a practice or training mode if you have one. Some simulators apply weight restrictions to their planes so flying empty will allow you to perform better. Fly straight and level at the cruising speed that is most suitable for the aircraft you are piloting.

Vertical loops

The vertical loop is one of the oldest and most common manoeuvres a pilot can perform. It's particularly effective when your opponent is on your six, at a fairly close range:

1. Increase your power to maximum (full afterburners if you have such luxury). The faster your speed, the tighter the loop. Pull right back on the stick.
2. Continue to pull back on the stick until you near the end of the loop. As the horizon comes back into view ease the stick slowly forward until you're level again.

It's an easy manoeuvre but it can be an effective one. As you get more experienced, try looking around while you're performing the loop. In combat this will allow you to keep track of where the enemy is.

Related manoeuvres

Inverted loop – similar style but pushing forward on the stick instead of back. Make sure you have enough altitude before attempting this one.

Half-loop – as you reach the (inverted) top of the loop level off, reduce speed and roll over until you're upright.

Inverted half-loop – as above, only reversed. Again, you must remember to watch your height.

Barrel rolls

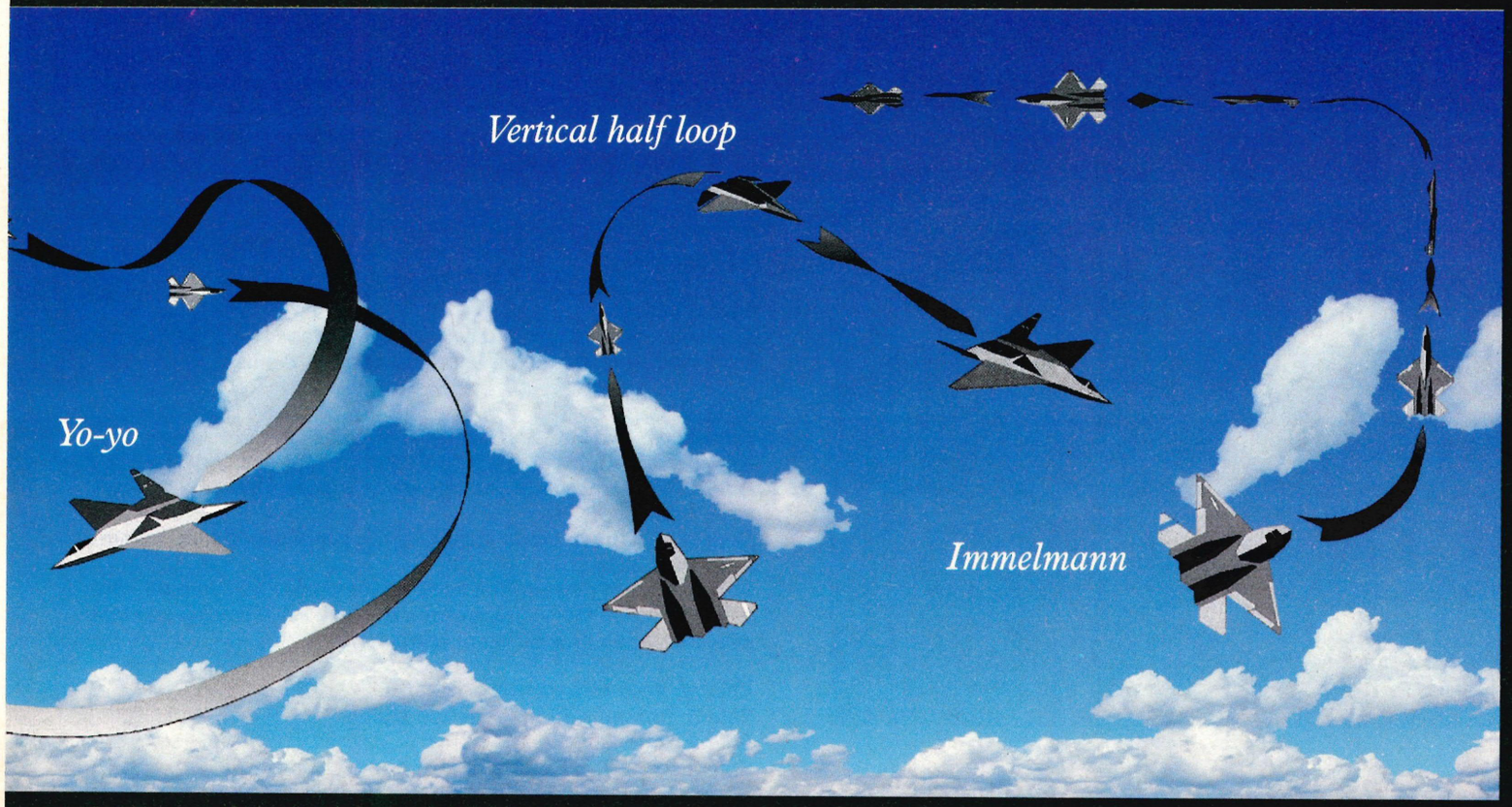
The barrel roll is designed to throw your pursuers aim off target by rapidly jinking while constantly altering your altitude. From a straight and level flight at a cruising speed:

1. Pull back on the stick until you are in roughly a 30 degree climb.
2. Increase speed to maximum, push the stick all the way to the left or right and all the way back or forward.
3. Continue to roll until it's safe to pull out of the manoeuvre. This can be done at any stage of the roll, so use your discretion.

Remember to monitor your height as it will change rapidly. Also keep an eye on your opponent to see when it might be safe to pull out. Experiment with different speed settings at different points of the roll and changing the direction at the drop of a hat. It's a confusing manoeuvre to follow at the best of times, even more so if you keep changing the parameters.

Related manoeuvres:

Scissors – similar to the barrel roll but both planes constantly roll from left to right, without inverting, crossing over each other's noses attempting to get a target. A faster and more agile plane has the biggest advantage.



Basic aerial combat manoeuvres

The split-S

This tricky little manoeuvre is designed to fool your attacker into thinking you're attempting a standard break turn but then switching back to the opposite direction:

1. Increase speed to maximum, roll 90 degrees and start your turn.
2. After turning through approximately 90 degrees, flip right over and pull right back on the stick.
3. Complete the inverted half-loop and straighten out as the horizon appears.

Once the manoeuvre is completed, it's usually best to find your opponent quick before he realises what has happened and comes after you. More often than not, a vertical half-loop would do the trick if performed immediately after finishing the split-S.

Immelmann

If you find yourself needing to change altitude and direction in a hurry, the Immelmann is one of the most convenient manoeuvres, performing both actions at the same time:

1. Increase power to maximum and pull back on the stick until you are in a vertical climb.
2. Before reaching the desired altitude, roll left or right until your undercarriage is facing the required direction.
3. As the desired altitude is reached, push forward on the stick and level off.

The Immelmann demonstrates the most valuable lesson a fighter pilot can learn: always think in three dimensions. Make full advantage of the Z-axis, not just the X and Y-axes.

Related manoeuvres:
Inverted immelmann – same as above, only heading down instead of up.

High and low yo-yos

There are two variations of the yo-yo, normal and banked. We'll cover the banked versions in a later lesson as it is important to know why you are performing these attacking manoeuvres before you put them into practice. The high yo-yo is designed to prevent you from overshooting a target in front:

1. As you close in on the target, pull up into a 20-30 degree climb.
2. Keep an eye on your target as he pulls away and return to his six once you have a suitable range.

As you pull up you bleed off airspeed, slowing you down and allowing the distance to increase. This is useful for when you feel you are about to overshoot the target or if you get too close for a missile lock and firing a cannon is not a viable option.

The low yo-yo allows you to gain on a rapidly fleeing target:

1. Go to maximum speed and push forward on the stick to go into a shallow dive (10-15 degrees).
2. As the distance decreases, pull up to attack from below.

The low yo-yo squeezes the necessary extra speed out of your aircraft when you enter the dive and allows you to attack from your opponent's blind spot when you pull up, ie, beneath him where his view is restricted.

Summary

The best way to learn these tactics is to start by switching to an outside view (if you have one) and watching the movements of the aircraft as you perform each manoeuvre. As you become proficient in each one, switch back to the cockpit view and go through the paces again until you can perform each move smoothly and without referring to the instructions.

One of the best ways to learn a manoeuvre is with another aircraft in the air. If you can link two PCs together and fly with a friend even better. Have one of you adopt the attacker's role and the other use the defender's moves.

Review

Okay, now that you've got the moves down pat, it's time to put them to the test. Load up a dogfighting mission (start with just one opponent if possible) and take to the skies. Examine the way the computer flies his plane and try to recognise the manoeuvres you've just learnt. Don't worry if you don't recognise half of them, remember he's not just limiting himself to the basic moves shown here. For a final test, let him get on your six and use these moves to lose him, then to acquire him and finally to toast him.

Well, that's it for lesson one. Hopefully you will now have a slightly better sense of combat flying and the tactics employed. It's not all just random moves on the joystick. We'll be looking into more advanced combat tactics later, but next month we'll be looking at the whys and wherefores of attack helicopters.

Glossary

Break turn – a 90 degree roll to the left or right followed by pulling back on the stick for a fast, tight turn.
Hard deck – minimum altitude to fly at for training missions. Always try to keep above this height.
Jinking – rapidly switching position from left to right.
Six – your six o'clock. Directly behind you.

QED TIPS

Out with the old and in with the new. As with the rest of the magazine, QED has undergone a spot of cosmetic surgery and is now twice as user-friendly as before. You may have spotted the rather spiffy new logo on this page, indicating our Star Tip this month. Whoever sends in each month's Star Tip will get themselves a free game. How's that for service? Details of how to send us your tips are at the bottom of the page.

STAR TIP

Windows

Windows??? Yup, a certain Nick Kelly of Newport Pagnell has found a couple of the hidden modes in Windows 3.0, 3.1, Word for Windows 1.x and Word for Windows 2.0. They may not be particularly useful but they are certainly novel.
In Windows 3.0, select 'file' and then 'run' from the Program manager menu.
Hold down F3.
Type WIN3.
Release F3.
Press backspace.
Select cancel.
The Windows background will now be replaced by a list of credits. Close or Iconise your windows to view the list.

Windows 3.1

Hold down Ctrl and Shift while doing all of the following:
In the Program Manager menu select 'help' and then 'about'.
Double click on one of the left window panes of the Windows icon, then click OK.
Repeat the above steps selecting the same window as before.
A flag will appear.
Select OK and perform the same steps again (still with ctrl and shift held down) for a cartoon character and a list of credits. Different window panes give different characters.

Word for Windows 1.x

Select 'format' and then 'define styles'.
Select options >>.
Select 'based on' and select 'normal' from the list of styles.
An error message is produced – "Style cannot be based on itself".
Select 'OK'.
Select 'cancel' to cancel the 'define styles' window.
Select 'help' and then 'about'.
Hold down shift and the O, P, U and S keys.
The help screen disappears and you get a fireworks display and a list of credits.

Word for Windows 2.0

Record a global macro called 'spiff'.
Stop the macro.
Edit the macro and delete all the text from it.
Save the empty macro.
Return to the word processor by closing the macro.
Select 'help' and then 'about'.
Click on the word icon.
You will see an excellent animation and a credit list.

Police Quest III

Fed up of being a flatfoot? So was Matthew Binnington of Wareham in Dorset until he found a way to skip days in Sierra's law-enforcing adventure. If you use a file editing program to mark all of the files in the PQ3 directory as read-only files, when you load the game up it will ask you which day you want to start on. Unfortunately you'll only get the score that you've managed to amass thus far, but at least you can skip over tricky sections.

Global Effect

Power corrupts and absolute power corrupts absolutely. However, in Millennium's global simulation you can't even get enough power to corrupt a text file. To help you out Christopher Eaton from Glasgow has a nifty little routine.

Wait until you have used up all of your power. Save your game. Quit to DOS. Re-load the game. Load your saved position and you should now have more power. You can continue to do this as many times as you like.

Pacific Islands

More PC Tools cheats, this time from Ghufran Beg of Wembley. To get a sizeable amount of cash to fund the war effort, employ the following procedure: First make a backup copy of the game, then start it and enter your name in the registration menu before exiting again.

Using PC Tools (or another file editing program) select the 'playfile.dat file and check its contents using the Hex Edit command. Locate the line with your name on the ASCII side and match them with the digits on the Hex side. After the Hex digits which make up your name there will be a gap of zeros before the next set of numbers begin. Where this set of numbers begin, enter the following set of numbers over them using the edit command:
86 86 86 86 01

Save and exit. Load the game in the usual way and you will find that your cash has jumped from over $55,000 to just over $300,000. However, we warn you: you undertake this kind of cheat at your own risk!

Secret Weapons of the Luftwaffe

A couple of tips from Ben Thomas of Aberystwyth in Wales:
1. To modify any of the historical missions copy the appropriate file from the SWOTL sub-directory – MIS – to the SWOTL root directory – SWOTL. Load the program as normal and go to the custom missions screen. Select 'load' and a list of your custom missions will come up. Simply find the one which you copied across and customise it.
2. If you have a favourite pilot and would like to have another just like him or her, simply copy the pilot to another part of your hard disk, renaming the file but keeping the same extension (.USA).
3. To alter the status of the pilot use any hexadecimal editor and select your pilot's file. Back it up, just in case, then enter your Hex editor. The first screen you'll see (sector 00000) is the one you need to alter. On the first line of the sector, count three numbers from the left and change it to 00 (thus bringing the pilot back to life if he/she died in combat).

Carrier Command

If your weapons are running a bit low in this classic battle of yesteryear, try this tactic from James A Frost of Coventry. Send out all of your Walruses and Mantas armed to the hilt then launch a resupply drone (this works best if you're very close to a supply point). When the drone comes back with a full load of, say lasers, bring back your Walruses and Mantas and add their stocks to the total amount, exceeding the usual maximum limit.

Ultima VI

Travelling around Britannia used to be a long and laborious task, but now thanks to regular tips contributor Marcus Fong of London it's never been easier. If you want to return to a place fast hold down the Alt key and type 2, 1 and 3 on the numeric keypad, in that order. A map of the area will appear, just as if you'd used a gem. A long list of numbers will also appear on the command line. Copy down the last seven numbers. The first three are X-coordinates, the next three are Y-coordinates and the final one is a level number (0 being the surface of Britannia and 5 being the Gargoyle land). When you want to return to this position press Alt 214 on the keypad and when the strange language appears, type in the seven numbers.

If you have a tip, cheat, or any other method of gaining unfair advantage in a game then send it to us at the usual address, marking your envelope QED Tips. Whoever sends us the best tip of the month will receive a free game from our stocks, so include your machine details as well.

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QED HELP WANTED

Seems to be a bit of a King's Quest V special this month and help is supplied for Monkey Island 2 and Eye of the Beholder 2. So let us commence...

QED HELP SUPPLIED

Finally we get the answer to A. Ranade's plea for help on Eye of the Beholder II. Plus the lucky winner of our Send an Answer to Brent Phillips competition...

King's Quest V

David Henderson of Huddersfield has managed to plug the hole in the boat but can't get it to move (he's up a creek without a paddle, so to speak). David also needs to find a conch shell on the beach to speak to the deaf man (as does Ben Coter of Stockport).

Meanwhile Lee Coleman and Daniel Sherwood, both of Scunthorpe, can't get hold of the rope at the Swarny Hog Inn (needed to get past the frozen waterfall) and can't find the leg of lamb. Tried the local deli, boys?

Stuck in the windswept plains of the never-ending desert are intrepid explorers Gavin Rouse of Coventry, Matthew Warren of Ashurstwood (who also wants to find a way to kill the witch), Richard Anderson of London, Trond A Engen of Norway (who must be particularly lost to be stuck in a desert in Norway!) and M Crowther of Kidlington. Nobody on this glorious expedition can find the bandit's camp and would give their right legs for a guide. Perhaps a deal could be struck with the Scunthorpe boys, hmm?

M Crowther is also having trouble finding the coins to buy the pie and locating a silver needle (last seen being used to knit a sweater for a werewolf). Also having financial trouble is Tristan Mackay of Devon. Knowing Sierra logic like he does he just can't seem to find the golden coin.

William Longbottom is stuck in the dark forest. He's already got the amulet, the needle and the honeycomb and has managed to squeeze it. What he can't do is find the pouch.

Finally, Martin Vickers of Sheffield is finding it impossible to get past the yeti guarding the crystal cave. Abominable! Is there a particular object needed? If so, what is it and where can he get one (apart from the Serenian Yellow Pages)?

Police Quest 1

Okay, just to try something a little bit different, In Pursuit of the Dark Angel is giving Officer Peter Matthews of the Basingstoke local constabulary a bit of bovva'. To quote: "You see m'lud, hI was happroaching the local public house, known in the harea has Wino Willy's, responding to ha call habout harrassment. Hupon harriving hat the scene hI hobserved the cause hof the trouble to be a gang of bikers. However, when hI hasked them to remove their vehicles from the vicinity, they politely refused and hemphasised their position by killing me. Dead. Has ha dodo." Can you help?

Monkey Island 2

For Brent Phillips

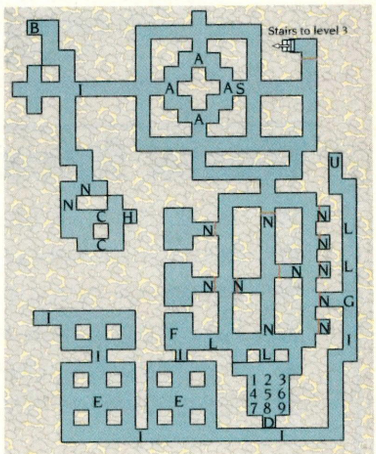
To win the spitting contest, buy the ship's horn from the antique dealer, then go to the contest and blow it. When the spitmaster leaves, you can move the flags but still can't win. Go to Scabb Island and buy a blue whale and a Yellowbeard's baby from the bartender. Return to the contest and take a drink before you start spitting. After a few attempts, it's easy to win the competition.

Jeffrey Bryant, Hemel Hempstead

Eye of the Beholder 2

For A Ranade of St Albans and Paul Ovey of Tewkesbury

The map shown is an extension of the one printed in Issue 8, showing the various areas not found by Mr Ranade. To open the door in the pressure pad room, place an object on each of the plates marked X (on the map) and stand on the centre plate, dropping another object, keeping the door open.



Key

A – These squares turn your party 90 degrees clockwise.
B – These steps lead down to Giant Ant level.
C – When you pick up one of the objects on the floor, the walls disappear. You are attacked by Margoyles and the door will shut.
D – To open the door, weigh down pressure plates 1, 3, 5, 7, 8 and 9.
E – Lots of Margoyles.
F – Use the spider key on this door first. Another key is inside. Insert the stone dagger or stone gem to teleport to level 2.
G – A Margoyle generator so shut the door on your way out.
H – This switch will open the door.
I – 'Walk-through' walls that have switches.
L – Locked doors.
N – Normal doors with switches.
S – Switch to turn off 'spinners' at A.
U – These stairs take you to the spider level.

Zahid F Howladar, Essex

If you have a particularly thorny problem with a particularly thorny game, then fret no longer. Send us a transcript of your situation (marking your envelope quite clearly as QED Help Wanted) and we'll do our best to get it printed in the first available issue. Sorry, but we can't deal with requests ourselves so don't enclose SAEs. If you see a problem on this page that you can help with, send us the answer ASAP and again we'll do our best to get it in. Anyone's help that is printed receives a free game so send us your machine specifications too (mark your envelopes QED Help Supplied).

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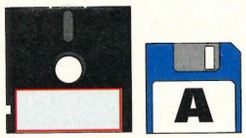
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Cover disk

This month sees some important changes to our cover disks. Firstly, you'll see that we've introduced a new installation program which we hope you will find easier to use. Secondly, if you've bought the 3.5" version of the magazine you'll notice a bonus in the form of a second disk. Each disk this month contains a playable demo of a superb game. We hope you enjoy them. For full instructions on how to use the disks, turn over to page 130.

World Tennis Championships



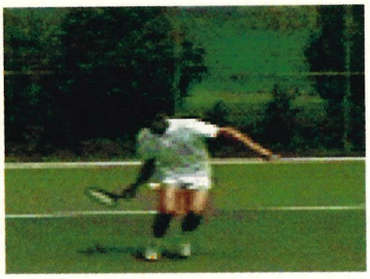
3.5" and 5.25"

Summer may be long gone and Wimbledon little more than a glint in the bank accounts of ticket touts and strawberry vendors, but weep not.

This accurate tennis simulation from Mindscape doesn't have a special McEnroe icon for simulating tantrums, nor a setting for the inaccuracy of the Cyclops machine, but in all other respects its 3D action is just like the real thing.

From the main menu you can only select Quit, to exit to DOS, Config to change the graphics or sound set-up, or 'exhibition', to play an exhibition match.

You can change the sound option by clicking on the speaker in the config screen. Possible settings are PC Sound, Sound Blaster, Ad Lib, and MT32. Don't try to select the EGA option, this demo is VGA only. Selecting the EGA option will cause the machine to crash.



In many of the menus you can confirm or cancel an action by selecting the thumbs up or thumbs down icons respectively.

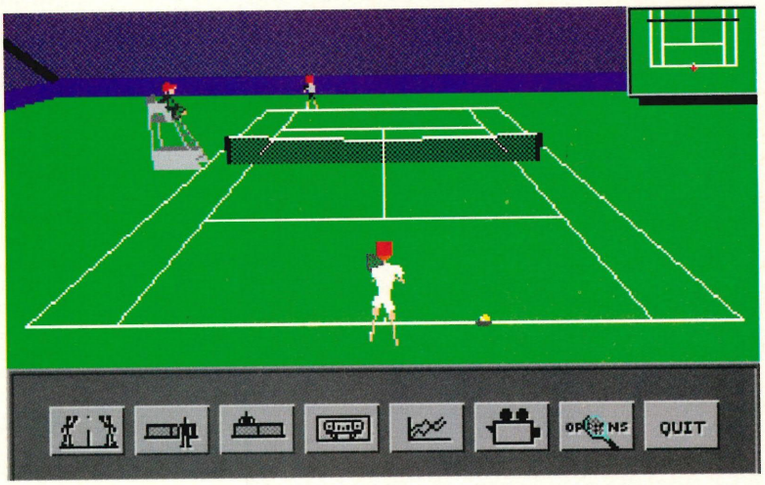
In the Exhibition menu, click on the court icon to change the playing surface. Click on Mode to change between normal and demo (self-play) modes. Click on "# of Sets" to switch between a one, three or five set match. Click on Play to begin.

You play Don Champion versus Ace Adler in a single match.

Each player has an energy bar which is used up as you move around and takes shots. It slowly regenerates but you should watch that it never reaches zero or your player will be exhausted. Use the mouse, joystick or cursor keys to move your player about the court.

The player to serve is indicated by a yellow dot next to the player's name. The plan view shows your position when you are ready to serve. Press fire (space bar) once to start the service. To play the ball press fire once and hold it down to build up power, then release it to hit the ball. The speed of your serve is shown in the box to the right.

During the game your player will move towards the ball. Make fine adjustments in your position and then play the ball by holding down the fire button to build up power and then releasing it to hit the ball. At the end of each game the match statistics are shown.



To access the various options press Esc at any time during play. Click on icon one (the leftmost icon) to resume play.

Icons two and three show the profiles of each player.

Icon four brings up the replay screen. The number shows the current frame and the bar indicates the position within the current recording. Use the video controls to move back and forth within the recording and replay the bits of it you want to see. Click on the camera icon to change between the player view, the camera on court view and the stadium view. Press Esc to return to the main options menu.

Icon five displays the match statistics.

Icon six brings up the camera control screen. Click on the player icon to change to the stadium view, then use the first three icons to reposition the camera. Click on the fourth icon to revert to the player view. Click on OK when the camera is in the right position.

The Options icon calls up the options screen. This enables you to change the playing speed, the keys and the movement control. You can also toggle sounds, calibrate the joystick and change the court graphic settings. Have fun, and watch out for those foot faults.

How to load

After installation (see page 130), log on to the Tennis directory, and type:

VGA (Enter)





The Lost Files of Sherlock Holmes

B

3.5" only

You've read about the exploits of Conan Doyle's famous detective. You've seen him recreated in countless film and television adaptations. Now you can fulfil your lifelong ambition and be Sherlock Holmes. Our interactive demo features one location from the first case in Electronic Arts forthcoming extravaganza. How many clues can you discover?

You move Holmes around the location by moving the cursor to the required destination and clicking once. To interact you must first select a verb from the list at the foot of the screen and then an object or person to apply it to. For instance, if you want to look at a hat, click on Look and then on the hat.

When you move the pointer over an object of interest a suitable verb will be suggested. If you want to carry out this action just click on the object. To carry out a different action, select an alternative verb first and then click.

To manipulate objects in your inventory simply click on the picture of the object.

Your journal keeps track of everything that has happened so far. You can scan through this to remind yourself of clues.

In this demo you have been summoned to the backstage door of a London theatre where the mutilated body of a girl has been discovered. Inspector LeStrade of Scotland Yard is already on the scene. It is up to you to gather as much evidence as you possible can do before leaving the scene.

How to load

After installation (see page 130), log on to the Holmes directory, and type:

HOLMES (Enter)

Faulty disk?

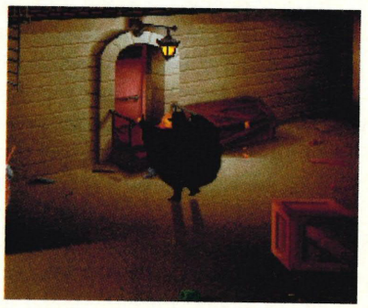
PC Review's cover disks are checked and validated, but if you have reason to believe yours is faulty, pop the disk(s) in a jiffy bag with a self-addressed envelope and postage to the value of 28p (55p from overseas) for return of the new disk, and the form below (filled in) and send the package to the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







How to use the cover disk

World Tennis Championships

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

To start World Tennis Championships, you must log on to the drive and directory where the program was installed. This is probably C:\TENNIS, unless you chose another drive or directory during installation. Type **CD C:\TENNIS (Enter)**, to log on to the Tennis directory. To start the program type

VGA (Enter)

The Lost Files of Sherlock Holmes

1. This has Electronic Arts' own installation program. To use this you should log on to the drive which contains the disk and type:
   INSTALL [Enter]
2. The program will ask you to specify a disk to install the program to, and a directory in to place it. If you wish to install the program to an alternative disk and directory to those suggested, backspace over the pathname and enter a new one.
3. The program files will then be decompressed to the selected location.

To start Sherlock Holmes, you must log on to the drive and directory where the program was installed. This is probably C:\HOLMES, unless you chose another drive or directory during installation. Type `CD C:\HOLMES (Enter)` to log on to the Holmes directory. To start the program type

HOLMES (Enter)

Important note for users of the 5.25" version

The compressed files for the program, World Tennis Championships, are split across both disks. This means that you must install both disks before the program will work. When you install the second disk the program may warn you that the directory already exists and ask if you really want to install the program there. If this happens, you should simply press the Y key for yes.

Important notes 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 followed the instructions on these pages and are still having difficulty in getting your disk to operate, please telephone our helpline number below before returning the disk.

Disk helpline: (0685) 350505

Note this is a new number! The helpline operates between 10.30 am and 13.30 pm weekdays. If at all possible, please have your computer up and running and your cover disk ready when you ring the helpline.

If your telephone is not near the computer, then please note down as much information about the fault as you can and have pen and paper handy before you call.

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 readers 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 possible effort to ensure that the contents of the cover disk 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.

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Upgrading your PC

Fitting a hard disk

Last year, PC Review began its series of articles explaining how the PC works and how to add a soundboard, graphics card, joystick, and so on, to your basic machine. For the benefit of new readers, or anyone who'd simply like a refresher course, we are revisiting the subjects dealt with in the First Steps features in this series of articles about upgrading your PC. Each topic will also be accompanied by a table of relevant products, prices and suppliers, so that you can see what's available and how much you should pay.
This month, we return to the first upgrade that anyone who's short of data storage space should be contemplating — fitting a hard disk.

More and more PC games these days are designed to run only from a hard disk. Although the package contains floppy disks, the data on them is compressed, and must be expanded and stored on another disk, so that all the relevant files are in the subdirectories required by the program. Although the decompression process is handled by the installation program and shouldn't be complicated to operate, it does often mean that files needing to be in the same subdirectory simply won't fit on a floppy disk.

Even games which will run from floppy do so noticeably more slowly than from a hard disk. The time spent waiting for the next screen, or a piece of dialogue, or even music, to load in from floppy disk can ruin the atmosphere or the flow of the game.

A hard disk will speed things up considerably and give you a whole new perspective on computing. You will be able to keep all your games and programs on the hard disk (though you may need to keep any 'key' disks handy) and play without having to frantically swap floppies.

Buying a hard disk is easy in theory — you simply decide what amount of storage you need and buy one. In practice there are a bewildering range of different types of drive to choose between.

Firstly, however, let's consider capacity. The base hard disk size offered as standard by many manufacturers is 40Mb. Surprising though it may seem, this is not a great deal if you plan to store games on the hard disk. With increasing numbers of titles taking up between 5Mb and 10Mb on the hard disk, you can see that you might be limited to five or six stored games (your operating system and other programs will obviously take up space as well). While you can usually install, de-install and re-install games as needed, this hardly makes PC gaming a spontaneous activity if you take into account the fact that some games take around an hour to install from floppy disk. If you can possibly afford it, we'd recommend starting at 60Mb, if not 80Mb. The good news is that unless your PC has a very small footprint, you can usually add a second hard drive, so that you have two hard drives in the machine, rather than being force to throw away the original and all its stored data.

The speed of data transfer, ie, how fast the drive will read and write files, depends on its exact type and its access time. Traditional SCSI and ESDI drives are usually the fastest but IDE is usually very close. The slowest type of drive is MFM with RLL being a bit faster. If you are not trying to replace an existing MFM, or RLL drive, the best type to buy is IDE — because it is fast, cheap and easy to fit. ESDI and SCSI are best avoided unless you know enough to know why you want one!

After you have chosen the general type of drive the only other factor that affects its performance is its access time — how quickly the read/write heads can be moved. In today's modern drive 28ms (milliseconds) is the norm and anything less is fast. Some disk drives confuse the issue slightly by incorporating cache memory — fast memory used to speed up the performance by acting as a buffer. This is worth having although not essential.

Then there is the range of physical sizes — 5.25" or 3.5" in full, half, one third or even less height. Which size you need will depend on the case in which you are going to fit it. Check to see what mounting bays are free. At the moment 3.5" half height seems to offer the best price all round.

A good way to compare drives is to work out the price per megabyte of storage. If you do this you should find that the best buy at the moment is around the 100Mb mark. Much above this storage capacity and the price per megabyte makes a big jump — so much so that it

is cheaper (but not a good idea unless your machine has a tower case) to buy two 100Mb drives than one 200Mb drive.

Of course most drives will need a drive controller card to connect them to your machine and you should include this in the total price unless you already have one. Many modern machines have an IDE drive connector built in. If you don't fancy the work of installing your own drive then an alternative is to buy a hard card. This is a disk controller card and drive put together to form an interface card that can simply be plugged into a free expansion slot, just as a soundboard or joystick card would be.

Check the space available in your casing before you buy a hard card, because some take up the space of one and a half or even two expansion slots. However, the card itself plugs into one ordinary slot and promptly announces itself to the system as the new hard disk. You can make it the boot disk if you wish and treat it as an integral disk without any further concern.

In practice, however, a hard-card is only marginally easier to fit and more expensive than the separate items.

When it comes to manufacturers Seagate is the market leader with a very wide range of drives on sale — including some that should be obsolete by now! Other manufacturers are working hard to catch up though and all of those listed below are well know suppliers of drives. Phone round and compare current prices and consider package deals for drive plus controller if you need one.

How it works

The hard disk itself is a small metal plate spinning at about 3,600rpm, over the top of which the read/write heads sit — about 10 millionths of an inch above the surface of the disk. The disk therefore has to be a sealed unit, which means if you open it up, expect it to be the end of your hard disk. Not only will it invalidate the unit's warranty, but you will almost certainly get enough dirt in to it to cause a major disk crash when you next try to run it.

The heads follow magnetic tracks on the disk surface and read and write information to and from the disk's surface in exactly the same way a tape recorder's head writes to tape. These tracks are cut up in to slices called sectors (a common number of sectors is 17) and so, you'll have a single disk with, say, 500 circular tracks each cut up into 17 sectors.

Data is then written to each sector separately, and the address of the information is written to the FAT (File Allocation Table), which is where DOS will look up where to find a file on disk.

There are different aspects of the disk drive that can change its performance in one way or another such as encoding, interleave and interface.

Encoding is the way the data is written on to the hard disk. There are two main types of data encoding RLL (run length limited) and MFM (modified frequency modulation). MFM is the cheapest, most common, and least efficient of the two methods. RLL can store nearly twice the information than MFM method.

Interleave describes how many times the disk must spin before data in consecutive sectors is read. As the data in, say, sector one, comes under the disk head it is picked up, but then, when sector two is under the head the data from the previous sector is still being dealt with. So, sector two goes by and nothing is done, sector three comes by and still the information is being digested by the computer so that information is ignored too, but by the time sector four comes by all the data is filed away, so the head takes the information on sector four.

This is known as a 2:1 interleave, because the head has to let the information from two sectors go by before it can pick any more up. This means it writes the information in the same pattern too and, obviously, the higher the interleave number the slower the data comes off the disk.

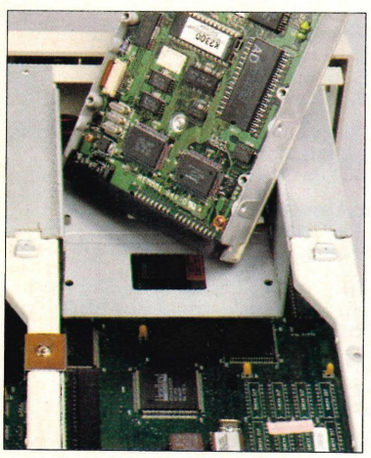
The hard disk is set up usually with the interleave information at the factory, if it is matched with a controller card, but you may have to do this as part of the set-up operation (if software and instructions on how to use it aren't supplied, get on to your dealer). Also, there are a number of software packages that will test your computer system for the optimum interleave and change the setting on the disk for you.

The interface usually sits on the controller card and passes the data between the PC and the hard disk. As we have just seen with interleave because of the limitations of the PC the disk drive is some times the subject of a bottle neck. If the controller is powerful enough it can compensate, it can allow the disk an interleave of 1:1 and store the data on the card until the PC is ready to use it.

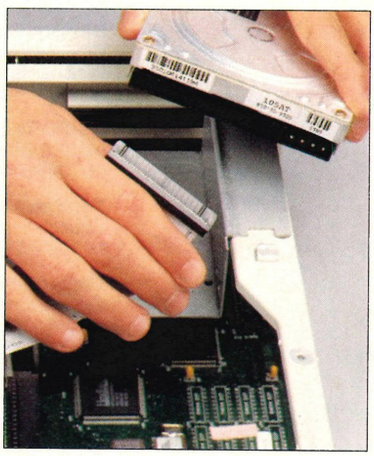
The most basic of disk controllers is the ST506, which was found on the XT and is still in use. The ESDI is faster and is the general choice for mid to high performance hard disks.

SCSI (pronounced 'scuzzy') is the logical progression, since it enables several devices to be connected to the PC at once and you don't have to bother about compatibility: if it is a SCSI device it will work. SCSI is becoming more and more popular these days and is now installed as standard on powerful PCs.

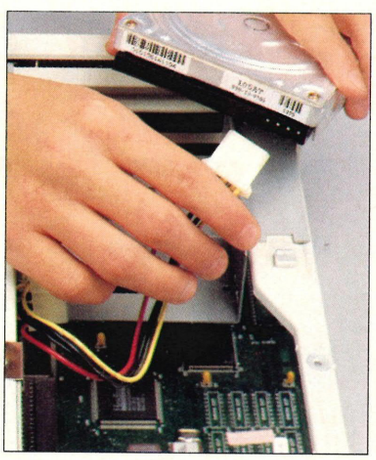
Installing the drive



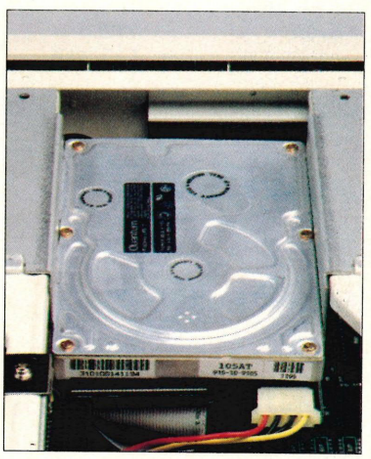
1. Your new hard disk should fit snugly into a spare drive bay inside the PC. Remove any plastic bezel used to protect the disk drive bay and check the size of the bay (full height or half height).



2. Connecting the internal cables to the drive before you screw it securely into place is often easier. This wide ribbon cable is the data cable, and plugging it in can be quite fiddly — be firm, but don't force it.



3. Fitting the power cable. Once both this and the data cable are in place, check that both cables are secure and aren't snagged elsewhere in the machine before you screw down the hard disk unit.



4. Screw in the hard disk so that it is securely fixed in its cradle. Then replace the lid of the PC carefully, without catching any cables and dragging them on the way. Finally, secure the lid.

Hard disks — a buyers' guide

This list is a selection of currently available drives up to medium capacity — not all of them are best buys at the guide price shown. There are even bigger drives on the market, but these are considerably more expensive. The guide price is based on dealers' advertised prices during August 1992.

Manufacturer	Model	Interface	Capacity	speed	Guide Price
2.5" low profile					
Seagate	ST9051A	IDE-AT	42Mb	6ms	£249
3.5" one inch high					
Seagate	ST325N	SCSI	21Mb	28ms	£169
	ST351A/X	IDE-AT/XT	42Mb	28ms	£119/£145
	ST3096A	IDE-AT	89Mb	15ms	£179/£239
	ST3120A/X	IDE-AT/XT	107Mb	16ms	£199/£235
	ST3144A	IDE-AT	130Mb	15ms	£239/£250
Fujitsu	M2616ET	IDE	105Mb	19ms	£245
Connor	CP30104	IDE	120Mb		£337
	CP3000	IDE	21Mb	27ms	£145
	CP30084	IDE	42Mb	25ms	£179
3.5" half height					
Seagate	ST1111E	ESDI	98Mb	15ms	£399
	ST100	MFM	82Mb	15ms	£389
	ST157R-1	RLL	49Mb	28ms	£199
	ST157N-1	SCSI	49Mb	28ms	£169/£179
	ST1133N	SCSI	113Mb	15ms	£389
	ST1100	MFM	82Mb	15ms	£360/£489
	ST157A	IDE	44Mb	28ms	£135
Fujitsu	M2612ET	IDE	105Mb	19ms	£225
	M2613ET	IDE	135Mb	19ms	£299
Connor	CP3000	IDE-AT	42Mb	28ms	£159
	CP30084	IDE-AT	84Mb	25ms	£229
	CP3104	IDE	104Mb	25ms	£279/£285
	CP30104	IDE	120Mb	19ms	£335
Maxtor	7120A	IDE	130MB	15ms	£259
	LXT213A	IDE	213Mb	15ms	£429
Western Digital	WDAC280-00M	IDE	85Mb	16ms	£190
	IMP52-AT	IDE-AT	52Mb	17ms	£149
(With cache effective 9ms)					
Quantum	IMP120-AT	IDE-AT	105Mb	17ms	£245
5.25" half height					
Seagate	ST2274A	IDE-AT	240Mb	16ms	£759/£919
	ST2383A	IDE-AT	338Mb	16ms	£769/£999
Hard cards					
Quantum	PLUS 52	Card	52Mb	9ms	£219
	PLUS 105	Card	105Mb	9ms	£339
			52Mb	9ms	£275
			105Mb	9ms	£375

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D S Computers, Unit 206, Belgravia Workshops, 157 Marlborough Road, London N19 4NF
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Dataplex, 129 Bath Road, Slough, Berks, SL1 3VW
tel (0753) 535557, fax (0753) 511122

Dataplex, 19, High Street, Old Town, Swindon, Wilts, SN1 4EG
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Diamond Computers — eight branches nationwide including 232 Tottenham Court Road, London W1, and 84 Lodge Road Southampton
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Netcom Systems, High Hall Farm, Nettlestead, Ispwich, Suffolk, IP8 4QT
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20 MHz	25 MHz	31 MHz	47 MHz	51 MHz	66 MHz	54 MHz	67 MHz	78 MHz

Note: For 25MHz and below, landmarks are quoted with no secondary cache. For 33MHz and above, landmarks are quoted with secondary cache.



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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

Caching problems

Q I have recently bought a new 386 computer from Tiny Computers, but I have run into a problem concerning the computer's cache. The machine is a 33MHz 386 with a meagre but seemingly important 64K cache. When I run games with the cache on, the error, "No ROM BASIC system halted" occurs. I have a CMOS set-up program which allows me to disable the cache but this makes the CPU power chips run right down. Is there anyway I can rectify this problem without losing valuable MHZ?

Tim Tueleaven
Kingsbridge
South Devon

A *You might, or rather your machine might, have some sort of cache memory error. The 64K cache is an entirely separate chunk of memory that is used as an intermediary between the slow but large main memory and the fast processor. When you first switch your machine on, it does a memory test but this doesn't do much to test the cache. What this means is that it is quite possible for the memory to check out OK, but for the cache still to have a subtle fault. Such faults can produce a very complicated set of symptoms that might seem to have nothing at all to do with the cache. For example, a machine I looked at recently reported a "disk not ready" error, but the fault was finally tracked down to an dud SRAM chip in the cache.*

The key test for a cache error is whether the machine behaves at all differently with the cache disabled. The only difference that you should see is a loss in speed, about 20% or so for a 64K cache (the performance tests that you enclosed support this 20% loss of power).

What I can't make out from your letter is whether the game worked perfectly when the cache was disabled. If it does, and doesn't work with it enabled, then you certainly need some new cache RAM chips. If this doesn't cure the problem then the fault might be in the cache controller chip or in the printed circuit board itself. Personally I would ask Tiny Computers to solve the problem for you.

SIMMple question

Q Help I'm stuck! I've finally saved enough to build a PC to replace my Amstrad PC1640. I have set my mind on a 386DX 33MHZ motherboard, but when I'm buying all the other hardware, ie, I/O card, SIMMs and video cards I do not want gear that will cause a bottleneck and slow the PC down. I want a 1Mb SVGA card, but there are so many at different prices and makes. Are they all basically the same? I intend to use Windows 3.1 and some cards, in particular the Western Digital 1Mb SVGA card, offer a 700% increase in speed when using Windows. Do all the other 1Mb cards do the same? Regarding SIMMs, do I have to fill all the sockets on the motherboard or can I start off with, say, one 4Mb SIMM and build up, by mixing different SIMMs, for example, 1Mb and 4Mb? Most pre-built computers have a turbo switch offering two different speeds — will I be able to have one?

James Metcalf
Shipley
West Yorkshire

A *It doesn't matter what you buy — you are certain to find something better only a few weeks later! It's a law of nature. The important thing is to end up with a machine that does the job well enough not to irritate you, and reading between the lines you seem to be looking for a machine that will run Windows well. In this case a 33MHz 386DX seems a reasonable choice as long as you add a 100Mb IDE drive to finish it off*

When it comes to SVGA cards — yes, there is a lot of difference in how fast they work with Windows, but if you are using a 33MHz 386 these differences become less, because the processor is fast enough to move the video data around.

If possible, find an SVGA card that will support 768 x 1024 non-interlaced. These can be found for around

the £100 mark and I can recommend the DFI 5000, although others are probably just as good. If you can afford a Windows accelerator card then go ahead.

When it comes to SIMMs you have to fit them to a 386DX in blocks of four. This means that you couldn't fit a single 4Mb SIMM to leave plenty of space for more in the future. The only way to reach 4Mb is to use four 1Mb SIMMs. This makes it important to check which empty SIMM sockets are left after you have reached the initial memory allocation.

Finally, whether or not your machine has a turbo switch depends on the motherboard and the case in which you install it. Personally, I have never found a turbo switch of much use because there is usually a key combination that you can press to slow the machine down if you find a game is running too fast, ie, a software turbo switch.

Xen and the art of PC maintenance

Q I have an Amstrad 2286/40 and have recently been given an old Apricot XEN 386i. There are a number of questions I would like answers to:

1. The XEN 386i runs at 16 MHZ. Is there any way to increase this clock speed?
2. The XEN 386i has a spare space for a further hard disk including controller cable and power lead. Can I take the hard disk out of the Amstrad and plug it into the XEN?
3. My Sound Blaster card is about 10mm too long to fit into the XEN. Any suggestions?
4. Will the XEN running at 16MHZ be fast enough to run the likes of Ultima Underworld?

A R Newman
Alton
Hants

A *1. No, not without changing the mainboard, which would be expensive.*

2. *This would be possible if the two machines used the same type of drive and in this case I think it's unlikely. The Amstrad would almost certainly be using an IDE drive and the Xen an ST-506.*
3. *Try removing any card supports at the far end. Apart from this I can't think of anything that isn't facetious!*
4. *As far as games and indeed most programs are concerned the 2286 and the Xen will run them at around the same speed. They are both working at the same clock speed and the only difference between the 286 and the SX is the ability to handle memory in clever ways.*

In practice, this difference only becomes apparent when you run Windows 3.

What problem?

Q I have an Amstrad PC2386 running MS-DOS 5 and I own Windows 3.1. The Amstrad manual describes the computer as having 4Mb RAM and 64K cache.

The problem is that I have the computer set up for 640K RAM and would like to increase this considerably to 1Mb or 2Mb, as some newer games require this much. I also need the system set up for enough memory to run Windows 3.1. I enclose a printout of my Config.sys file, my Autoexec.bat file, what comes on screen when I type Mem, and also a print out of the Amstrad set-up program. For some reason, the Amstrad set-up program will only let me configure RAM for 256K, 512K or 640K.

Could you please print a listing of a suitable Config.sys file on your letters page, for getting as much free RAM as possible, but still configuring enough memory to run Windows without any problems.

Andrew K Self
Solihull
West Midlands

A *You needn't panic! All the memory that the manual promises you is there, intact and working for you. The trouble is that although all memory is the same basic sort of stuff it is used by your machine in three different ways.*

The first 640K is used as conventional memory and while there are ways of making this a bit bigger most people don't bother. Any remaining memory that your system may have (ie, roughly 3Mb plus) can be used either as expanded memory or as extended memory. From your printouts I can see that you have around 3Mb of extended (XMS) memory. This is fine because it is just the sort of memory that Windows likes to use. So just install Windows and get on with using it. MS-DOS programs that can make use of more than the 640K conventional memory usually need old-fashioned expanded memory. On a 386 machine you can convert the extended memory to expanded using Emm386.exe. Add, or edit, the line in the Config.sys file to read

DEVICE=C:\WINDOWS\EMM386.EXE RAM

Finally, it isn't really sensible to print a 'typical' Config.sys file, because going into all of the variations possible would take pages. All I can say is that the listings you enclose are reasonably sophisticated and do make the maximum amount of conventional memory available to programs. Put simply, you are trying to solve a problem you don't have!

386 second class?

Q I was surprised at your reply to M Koldes of Aaltorg, Denmark, regarding his dilemma over the decision to buy a 386DX/40 as opposed to a 486SX. The 486SX does indeed contain a maths co-processor. Intel has just disabled it. This was done in order to compete in terms of a price/performance ratio with AMD's 386DX/40, since Intel does not produce a 386 with a clock speed higher than 33MHz.

You should not choose between the two on a basis of price as was suggested, but on the grounds of upgrading. A 486SX should cost very little more than a high-powered 386, but it offers an easy upgrade path. Since the pin arrangement of the two chips are different, you cannot simply plug in a 486 chip into a 386 socket.

I know some manufacturers offer 386s with the processor mounted on a daughterboard, whereby you upgrade by putting the manufacturer's 486 daughterboard in its place. However, if the manufacturer were to run into financial trouble, then such daughterboards will be unavailable and you'll be left with a machine you cannot upgrade.

A 486 is easily upgradable and can take advantage of Intel's new development, the Overdrive chip. Finally, why, with the exception of a few good software titles which offer Roland sound support, does the quality/variety of Sound Blaster/Ad Lib sound came nowhere near that of the standard of the Amiga?

Mark Sear
Dunstable
Beds

A *You are being much too hard on the 386 processor. To be absolutely clear, the only difference between the 386 and the 486 is speed. The 486 runs programs faster than a 386 working at the same clock speed. Any program that will run on a 386 will work on a 486 and vice versa.*

The 486DX has a built-in numeric co-processor but you can add a numeric co-processor to a 386DX or 386SX as a separate chip. By the way, prices of co-processors are now falling rapidly. The early 486SX did have internal numeric co-processors that were just disabled, but the latest models don't. You're right about it being a marketing ploy, but you still can't make any use of the disabled co-processor and therefore it might as well not have one!

When it comes to upgrading you are correct in saying that a 486SX can be converted to a 486DX, but this only adds a numeric co-processor and this is the equivalent upgrade to adding a 387 to a 386. At the moment, the 486 has the upgrade edge in that it can make use of Intel's Overdrive chip to increase its speed by around 30%, but Intel will be releasing 'speed-up' chipsets for the 386 in the near future. It already has produced the RapidCad set that speeds up CAD programs on the 386.

Other manufacturers have already announced their 'go faster' products for the 386 and it is only a matter of waiting for the price to come down.

For example, Cyrix has a replacement chip for the 386SX that is 486-like in its speed. Intel would like us all to believe that the 386 is dead, because it is currently the only manufacturer of the 486, ie, another marketing ploy! The 386 is slower than the 486, but it isn't a dead end. You still need to weigh up price and performance in terms of their current value.

Finally I have to say that I don't know why sound cards seem to be underused on the PC. Perhaps it has

something to do with programmers not being able to rely on a sound card being fitted – it is an option, after all – and so they have to write down to the level of the internal speaker, adding the fancy effects as an afterthought.

Tough Tandy

Q Some time back I was given a Tandy 1000 PC. After checking, it turns out to have only 256K RAM. I wanted to extend the RAM to 640K minimum and install a hard drive, but the sales people in my local Tandy shop were not interested in upgrading my PC, but wanted to sell me a nice new shiny one.

I would be grateful for any help you can give me as to what alternative there is to Tandy parts for increasing the RAM and also what kind of hard drive to fit, or whether a hard card will do instead. It has a 256K memory expansion fitted with about 18 spare places for extra chips.

Richard Zieba
Stockport

A *Tandy's attitude is only to be expected after all, it wants to make a sale, and that's why it is in business. Upgrading your machine isn't going to be much fun, as at the end of the day you will end up with a machine with a specification that you could buy for around £199 phone the Morgan Computer Company on (071) 636 1138 and ask for the price of an XT with a hard disk if you don't believe me! The difficult part is not spending close to the £199 to perform the upgrade.*

I can't find a manual for the Tandy 1000 but as there are 18 chip sockets, plugging in 18 256K chips should bring you up to the standard 640K. My best guess would be to use the same type of chips as already installed to give you the 256K. There might be some jumpers or links on the board to configure the memory and without a manual this would be a matter of trial and error until the memory worked — or you give up.

The biggest problem is that fitting a new hard drive or hard card is going to cost more than the price of a replacement machine. But if you still want to, just buy an XT hard card and plug it into one of the free expansion slots.

Send your queries to Q&A, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, or, if you have access to CIX, the Compulink Information Exchange, you can e-mail us at: pcreview@cix.compulink.co.uk. Mike James can only reply to your problems on this page, so please don't enclose SAEs or requests for personal replies.

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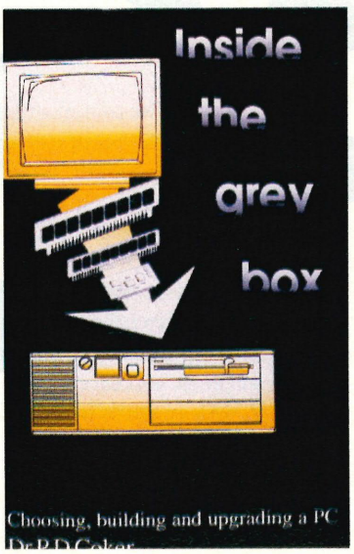
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Q&A update

Go faster chips

One of the most common questions I'm asked by readers concerns the use of a co-processor chip to 'speed things up'. Many users seem to think that plugging in a co-processor is a way of speeding up their machine, but this is only a half-truth. To be accurate, a co-processor is an additional processor that helps the main processor out with some specialised task.

In principle, you could get co-processors to help with disks, video and sound generation but the co-processor that we all love to talk about is the 'numeric co-processor'. This is a number-crunching processor designed to do nothing but difficult sums. When the main processor encounters instructions to do some arithmetic it simply passes them over to the numeric co-processor where they are executed in roughly a tenth or less of the time.

That's all there is to it. Now you need to be quite clear about what a numeric co-processor speeds up — arithmetic. If a program doesn't do any arithmetic then fitting a numeric co-processor doesn't make any difference to its speed. The tricky part is in working out which programs do perform a lot of arithemetic and this isn't always obvious. A graphics program may not look as if it is a demanding number cruncher but think about the calculations necesary to work out screen positions. Even once you have decided that a program does a lot of number crunching you still cannot be sure that a numeric co-processor will speed it up. A program has to be written to take advantage of the additional processor. In other words you can have a numeric co-processor fitted and the software will happily ignore it, prefering to do its sums the hard way!

In short, the only way that you can be sure that a numeric co-processor will speed up a program is if it mentions in its documentation or specification that it either needs or can make use of one. Most games and leisure software doesn't at the moment, although Falcon 3.0 is a notable exception and there are others in development.

At this point you may have lost interest in fitting a numeric co-processor but for the record:

Each of the processors in the Intel family has its corresponding co-processor. The number of the co-processor is obtained by changing the six in the processor's number to a seven. So the 386DX has the 387DX to help it out with arithmetic. The only exception to this rule is the 486DX which has its own co-processor built in as standard.

Fitting a co-processor chip is easy. You just buy the appropriate chip and plug it into a socket next to the main processor. Although they aren't the universal 'go-faster' add-on that many people think or hope they are, if you do have a program that can make use of it, then now is a good time to think of fitting one because co-processor prices are down and coming down.

■ ***Mike James***

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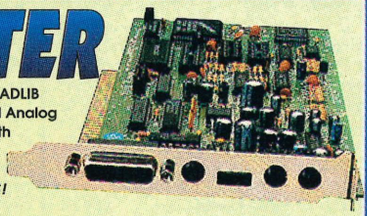
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Which soundboard?

We've plundered all the manufacturers we can think of to gather together an impressive roster of soundboards on the market today. Find out which soundboards give you the best value for money in our guide to the aurally spectacular.

Anyone for tee?

Forget the expensive clubs, special shoes and all that walking ... there are a surprisingly large number of golf games which mean you need never leave your PC to play a round. We compare and contrast golf programs and name the scratch players.

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A new series begins on creating graphics, using special effects and animating your images. Plus, we'll be talking to top graphics programmers to find out the secrets of their trade.

Reviews

MicroProse's ATAC is a flight sim with a mission, as you strive to wipe out the Colombian drug barons; also from MicroProse, the company's first foray into the world of role-playing games. Plus Championship Manager, the latest football management game, and many, many more.

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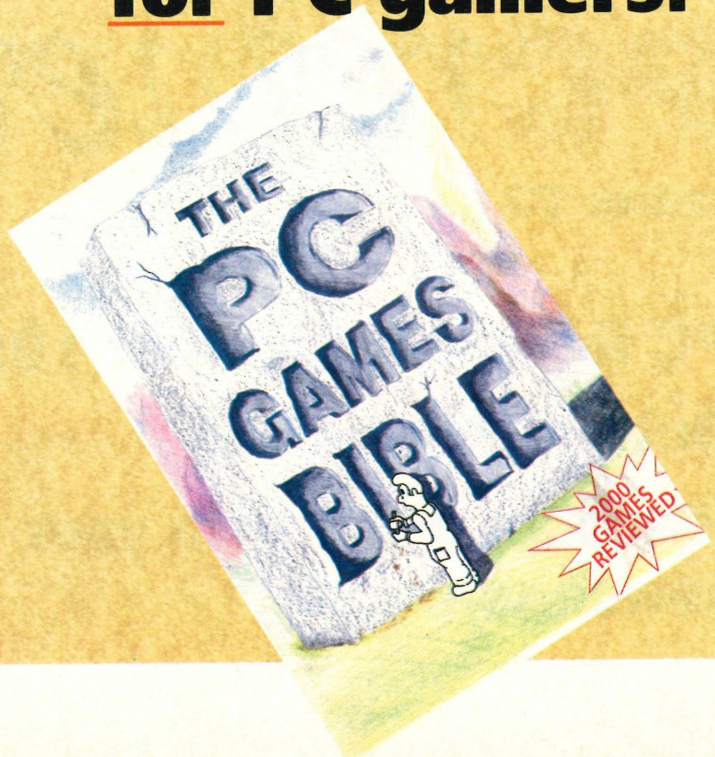
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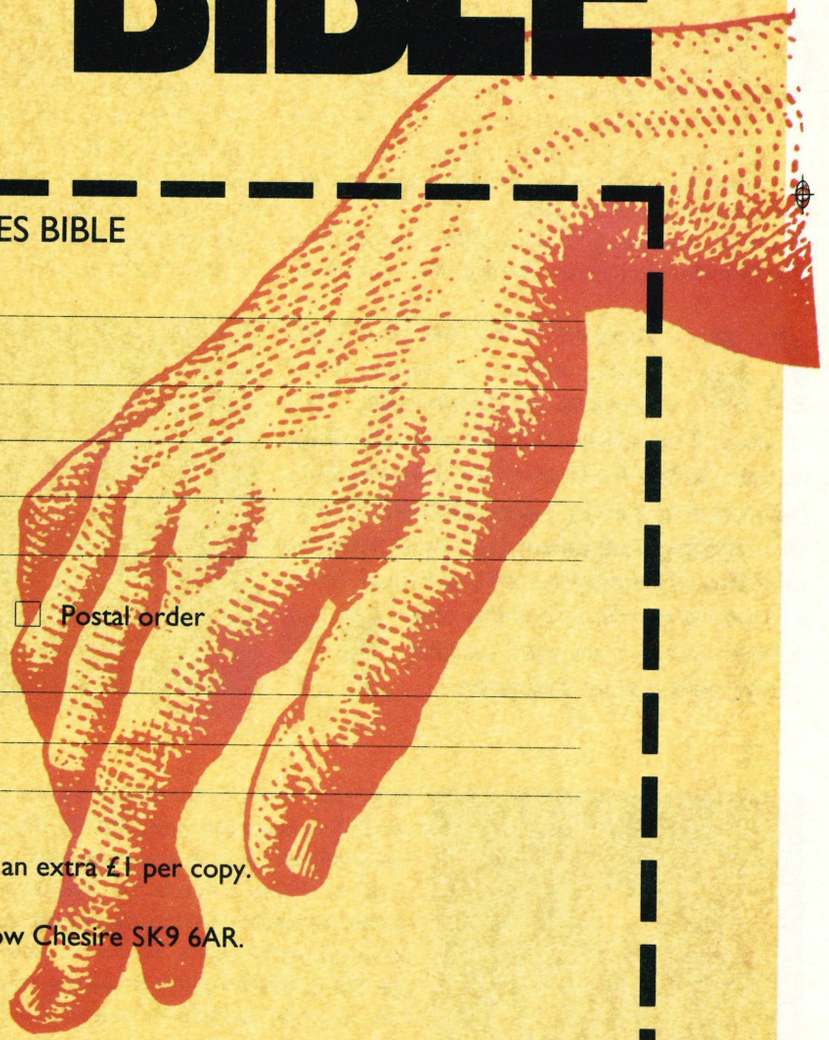
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Chris Roberts' Classic Game of the Month

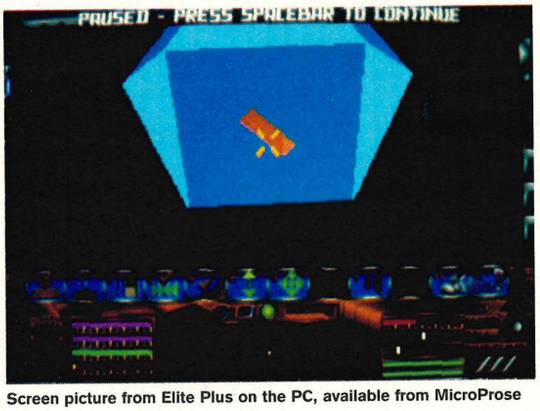
This is a new series in which PC Review asks prominent PC personalities to select their all-time favourite game. Let us know if there is anyone you would like to see featured in the series.

Elite

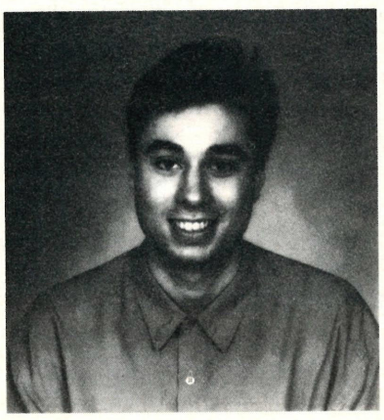
Often remembered as the game which sold the BBC micro (as opposed to all those 'educational' programs), Elite first appeared in 1984 to unanimous acclaim. A strategy/trading game in space, your objective was to enhance your standing from 'harmless', where you began, through to the pinnacle of 'elite' status.

Further versions of Elite included a rendering of Blue Danube as your spaceship docked on each planet (Commodore 64) and Elite Plus on the PC, which added enhanced graphics. The original was designed and programmed by Cambridge-based Ian Bell and David Braben, and the latter has since been working hard on Elite II (for more details on this, see page 28 of this issue). Incidentally, PC Review would like to point out that Chris Roberts' choice of Classic Game is a happy coincidence, and wasn't — honest! — 'fixed' to tie in with our Elite 2 feature.

"I played Elite on the BBC micro when it was first released by Acornsoft. The reason I've chosen it as my all-time classic is for its real-time 3D graphics (which were very rare back in 1984), the trading and adventuring elements, and the high degree of personal freedom and choices inside the game system, as well as the great gameplay 'balance'"



Screen picture from Elite Plus on the PC, available from MicroProse



Chris Roberts was born in California in 1968, but grew up in Manchester. He started programming on a ZX-80, before learning BBC Basic, but his first published game was Wizardore for Imagine Software in 1985, followed by Stryker's Run for the Spectrum, published by Ocean. While visiting his parents in Texas, he showed elements of an unfinished game to a local graphic artist, who in turn showed Roberts' embryonic program to Richard Garriott at Origin. The game was published as Times of Lore by Origin, and Roberts stayed on in Texas. He also designed Bad Blood for the company before going on to develop the seminal Wing Commander and its sequel — games in which a genealogical line can be drawn from the original Elite, perhaps. Chris Roberts is currently putting the finishing touches to Strike Commander, the next program in the Wing Commander series.

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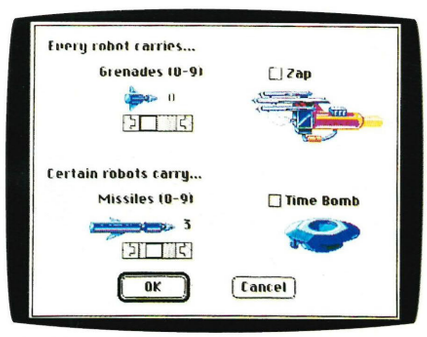
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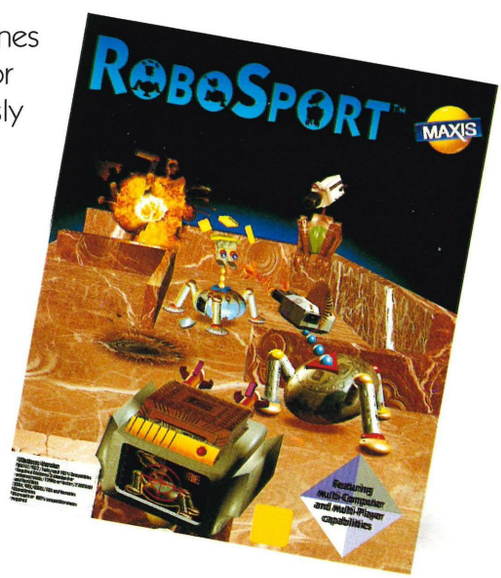
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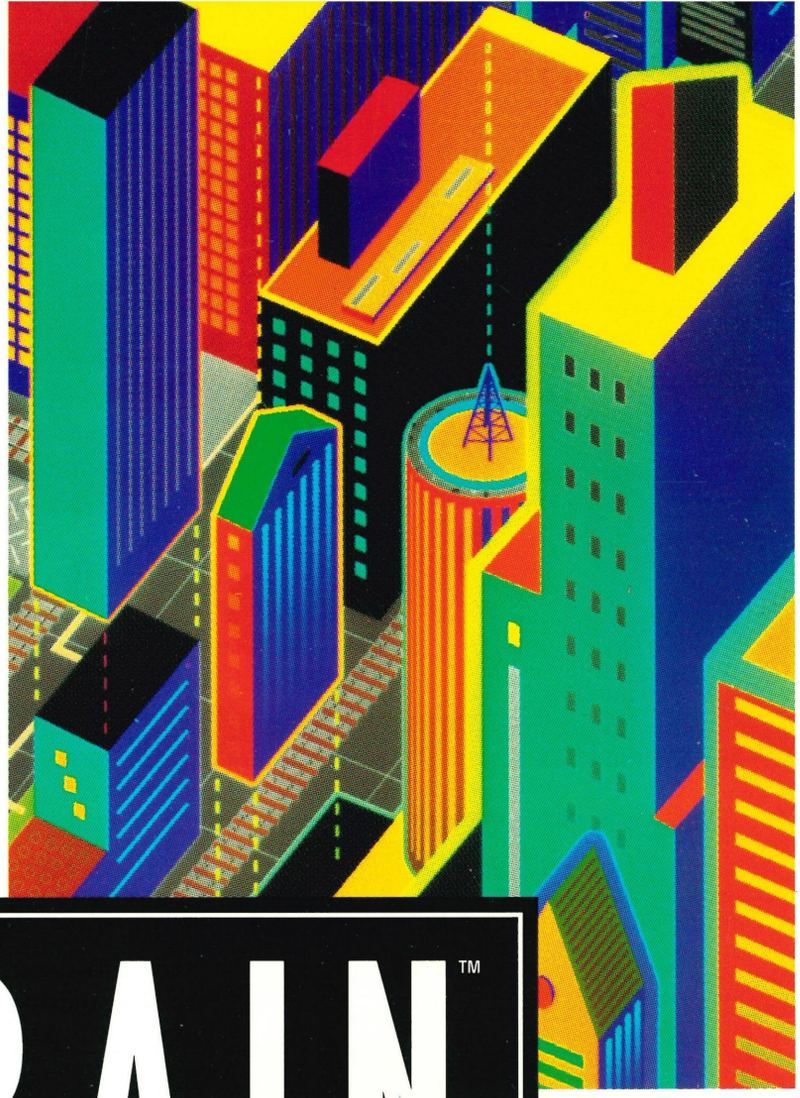
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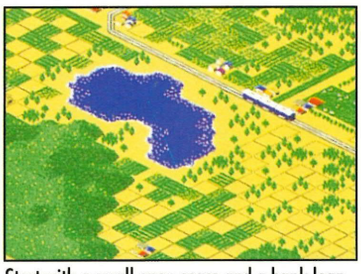
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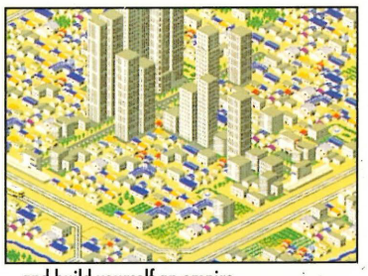


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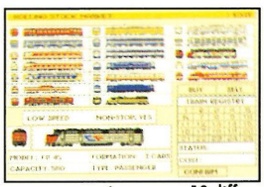
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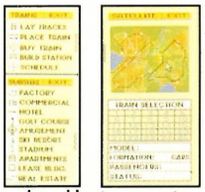
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Dear Sir/Madam,

Enclosed is your complimentary issue of the new ***PC Review***, October issue.

As you can see the redesigned ***PC Review*** is a stunning departure from the previous issues. We trust you will agree that it is a huge step in the right direction and will be of massive benefit to all companies involved in the PC leisure marketplace.

The November issue (street date 14th October) will of course match this standard and to keep you updated here is a rundown of what we will be working on over the next few weeks.

The November issue will have the most comprehensive guide to sound add-ons ever published, covering every sound device from The Disney Sound Source to Roland's top-of-the-range SCC-1 card. Readers who are more graphically inclined will find the part two of our in-depth Graphics series essential reading, and will certainly want to study our second graphics feature in which we rigorously put Cineplay's amazing Playmation ray tracing animation package through its paces.

Now that the rains and winds are upon us, golf enthusiasts will want to know how they can indulge in their favourite sport without getting soaked to the skin, and that's why all armchair sportsmen want to sit back with our ultimate guide to PC golf simulations. Alternatively they can take to the skies as we take the lid off F-15 Strike Eagle III in a preview of the latest flight simulation from MicroProse.

Our fifty-five page review section is jam-packed with the very best evaluations of the most recent PC games. In this issue alone we compare Argonaut's flight simulations, Birds of Prey and ATAC, investigate Electronic Arts' The Lost Files of Sherlock Holmes, explore the future with Ubi Soft's BAT 2, and much more. There's a playing guide for Lucasilm's latest Indy adventure too!

Of course, all the the regular features will be making an appearance too: letters, news, shareware reviews, tips, a chance to win one of two Miracle piano teaching systems and our very popular full-colour reference section, including Mike James' phenomenally successful Q&A pages.

How could we possibly improve on an issue with so much inside it? Well we have done: on the cover is an exclusive playable demo of KGB from Virgin (also reviewed inside), and, on the 3.5" version of the magazine, a second bonus disk with a playable demo of US Gold's forthcoming role-playing extravaganza, Legends of Valour. All in all we believe there won't be a better read for any PC owner next month.

If you have any questions or need further updates please do not hestitate to call us on 071+972+6700 Extension 2476/2493. Don't miss it!

Yours faithfully,

The PC Review Team.

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