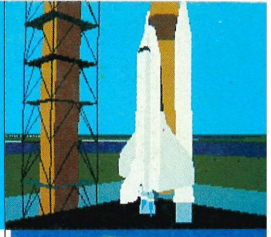


Darkseed:
From the man who brought you Alien

Lift-off with Shuttle



PC review

ISSUE 5
MARCH 1992

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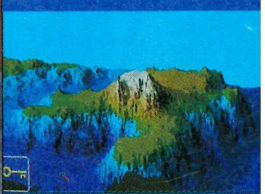
CD-ROM: the future for games?



AdLib Gold board must be won



EOTB 2: tips and tactics



Midwinter II: the full review



Plan 9 from Outer Space



Fitting a soundboard

Missing disk? Ask the newsagent where it's gone!

The COMPLETE guide to PC entertainment

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She's

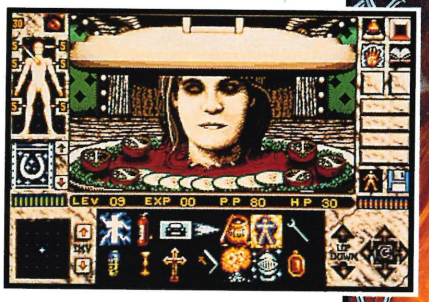
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He's

THE MASTER O

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THE JAWS OF CERBERUS™









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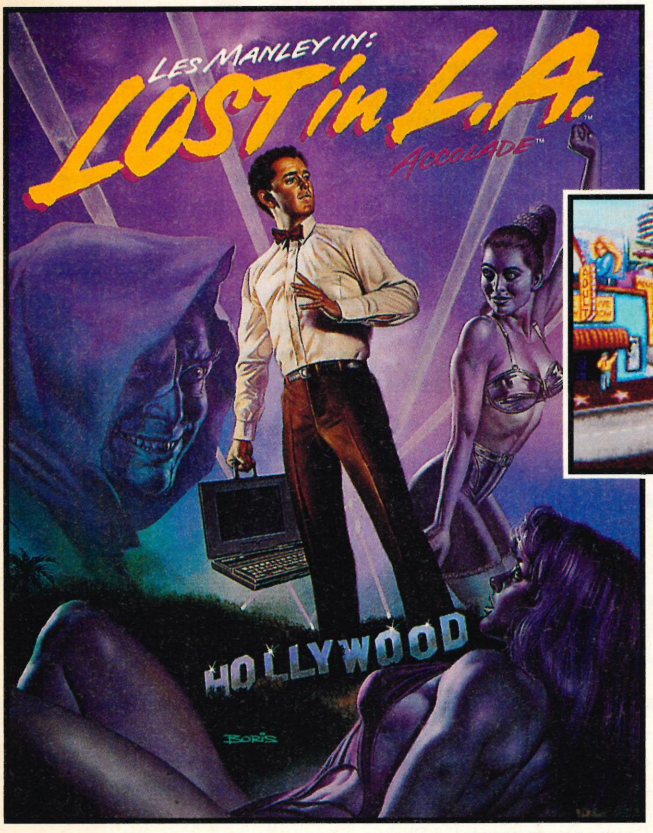
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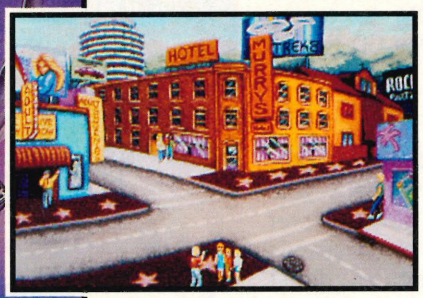
OF DARKNESS

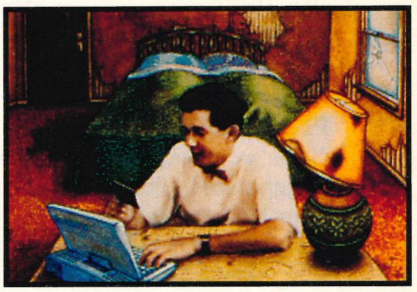
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F MEDIOCRITY



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Contents



HELP FOR BUYERS
This issue sees the start of our PC Review Recommended buying scheme, which is taking place in 100 independent computer stores up and down the country. In each participating store, you'll find a separate display comprising games with PC Review Recommended and PC Review Classics accolades (and copies of the magazine for sale as well). PC Review Recommended games are those which we've reviewed and which in our opinion are worthy of the award. Normally, these will be those games getting the highest marks, although if we review a game ahead of its release into the shops, confirmation of its award will have to wait until release day. PC Review Classic games are taken – a different selection each month – from our Top 100 Classics, from our Readers' Top 50 and from the games section of our Buyers' Guide. With this stamp of approval on titles, you can choose your games with even greater confidence – we hope it makes the decision-making process a little easier.

Buying decisions are easy enough when it comes to the PCs that Steve Cooke is talking about on page 26 – none of us could possibly afford any of them. But the way PC prices continue to fall the impossible dream now will be commonplace in five years time. In the same way, it's good to see CD-ROM becoming affordable – see page 22 for three CD PCs at just over £1,000.

PLANE SAILING
Never work with children, animals, or computer-generated pictures of aircraft. Thank you, John Hodges, Roger Peacey, M R Hurt, Peter Morwood and the rest of cast of thousands who pointed out that our pictures didn't match the possible names. Yes, we are re-running the competition, the closing date has been extended to March 20, and we've also come up with a convoluted scheme whereby you may not need to re-enter to be in with a chance of winning See page 94 for details.

Christina Erskine

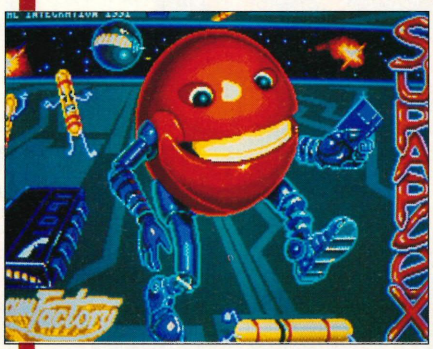
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26 DREAM MACHINE

Forget about pathetic 386s with 100 meg hard drives – this is the ultimate PC set-up which your bank manager won't let you buy. But Steve 'money no object' Cooke wants and gets only the best.



COVER DISK



18 DISK 5

All you need to know to get your cover disk up and running. You'll find full instructions for the addictive Supaplex and Hugo's House of Horrors and the Gallery preview screens.

SHAREWARE 121

PC Review is the only magazine dedicated to PC leisure in which you'll find such a comprehensive catalogue of shareware bargains. You'll find a new selection of recommended titles and an exclusive order form in these pages.

PC review

PC Review Issue Five March 1992
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COVER STORY

22 CD-ROM

What role will CD-ROM play in the future of PC games and entertainment? Chris Long gets to grips with multimedia and examines three of the latest CD-ROM machines on the market. Is now the right time to buy and at what cost to your pocket?



30 DARKSEED

Swiss artist H.R. Giger was responsible for the look of the film Alien. Now he is turning his talents to computer games. Ciarán Brennan contemplates the seeds of a dark but entertaining future.

35 FITTING A SOUNDBOARD

Make your PC sound amazing. Chris Long shows how easy it is to fit a soundboard.

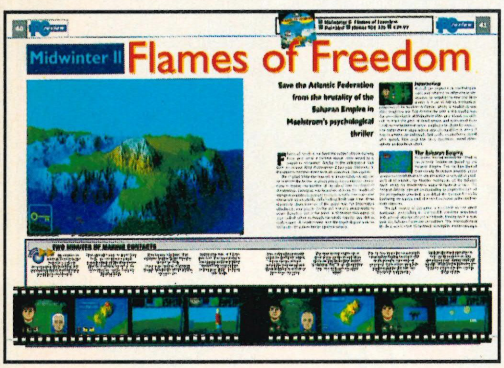
94 GO GOLD WITH AD LIB

Here is your chance to win a new AD Lib Gold soundboard. It's fabulous, it's amazing and it could be all yours.

BUYERS' GUIDE 99

About to upgrade your PC or expand your software collection? Then check out our comprehensive guide to PC hardware, software and peripherals before you part with your hard earned cash.

REGULARS





39 Reviews

Rainbird's long-awaited **Midwinter II: Flames of Freedom** is finally here. Check it out along with **Shuttle, Thunderhawk, Golden Eagle, Hare Raising Havoc** and **Twilight 2000**. All this plus 10 other reviews.

89 Tips

Delve deeper into **Eye of the Beholder 2** and **Conquests of the Longbow,** plus a whole host of help and hints on many other top games .

140 Letters

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7 News

Keep in touch with the fast moving world of PC entertainment, including games, add-ons and hardware developments.

14 Coming soon

Get a first look at US Gold's **Cybercon III, Heroes of 357th** from Electronic Arts and Gremlin's **Plan 9 From Outer Space.**

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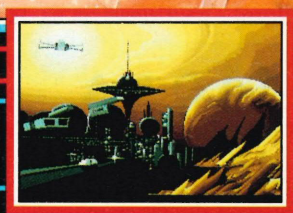
PC Review does its best to ensure that information carried in the magazine is accurate, but cannot be held responsible for any errors which may occur.

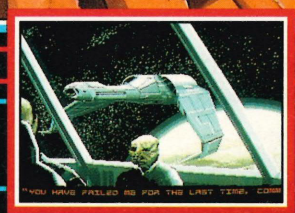
Finally, we've promised to credit Philip Trelford, author of Issue 2's Powermonger demo, for his sterling work. Thanks, Philip.

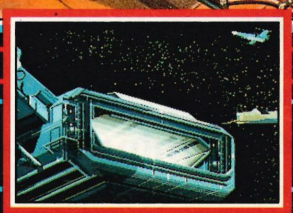
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A 3D 'epic' that reaches a milestone in polygon technology in terms of speed, graphical detail and pure out-and-out playability. A multitude of missions, ranging from devious to manic, take you deep into the heart of this sci-fi conquest of outer space. **EPIC** - a masterpiece of software engineering.

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News

PC PRICES SLASHED

Thinking of buying a new computer? There's never been a better time to do it. Eminent hardware manufacturers such as Amstrad, Philips and Elonex have entered into a price war with plenty of attractive bargains waiting to be snapped up.

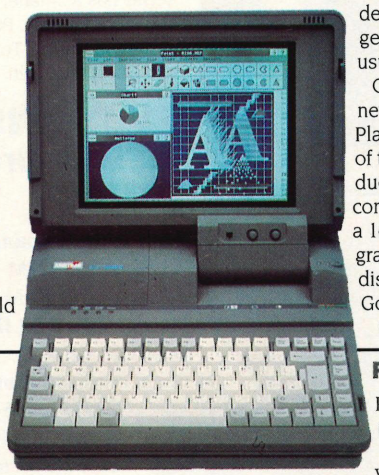
"Although Amstrad has consistently maintained its dominance in the 8086, 286 and laptop sectors, the 386 market is sluggish," confirms Amstrad's Group Sales and Marketing Director Malcolm Miller. "When added to the £5.3 million spring advertising campaign in the national media, I believe that these price changes could kick-start computer sales."

A complete rundown of the most irresistible figures can be seen in the tables supplied below. Prices exclude VAT, of course.

If any other computer maker or dealer has a sale of the century, get in touch with PC Review at the usual address.

One word of warning for any newcomers with cash to burn. Players wishing to get the most out of the next generation of PC games due in 1992 and beyond shouldn't consider getting anything less than a 16MHz 386SX with Super VGA graphics, 2Mb RAM, 40Mb hard disk and Soundblaster or AdLib Gold soundboard.

Go grab yourself a giveaway!



AMSTRAD (0277 228888)

PC3386SX/PC4386SX £999 (Reduced by £500)
20MHz, VGA mono monitor, 4Mb RAM, 80Mb hard disk, Windows 3.0, Mouse

PC3386SX £749 (Reduced by £350)
20MHz, VGA mono monitor, 1Mb RAM, 40Mb hard disk, Windows 3.0, Mouse

PC5286/PC3286 £549 (Reduced by £250)
16MHz, VGA mono monitor, 1Mb RAM, 40Mb hard disk, Lotus 1-2-3 version 2.2

PC5086 £399 (Reduced by £150)
8MHz, VGA mono monitor, 640K RAM, 40Mb hard disk, Microsoft Works II

PC5286 Family Pack £799 including VAT (Reduced by £219)
16MHz, VGA colour monitor, 1Mb RAM, 40Mb hard disk, Microsoft Works II, AdLib-compatible sound card and speakers, 3 games

ALT286 Portable £999 (Reduced by £600)
16MHz, 1Mb RAM, 40Mb hard disk, Canon BJ 10e printer

ALT386SX Portable £1,399 (Reduced by £400)
16MHz, 2Mb RAM, 80Mb hard disk

PHILIPS (081 689 4444)

PCL 304/II Notebook £1,599 (Reduced by £400)
20MHz 386SX, backlit LCD VGA display, 2Mb RAM, 40Mb hard disk, MS-DOS 5.0

ELONEX (081 452 4444)

PC-450 £1,995 (Reduced by £150)
50MHz 486, Super VGA, 2Mb RAM, 40Mb hard disk

PC-433 £1,495 (Reduced by £100)
33MHz 386, Super VGA, 2Mb RAM, 40Mb hard disk

PC-320X £895 (Reduced by £50)
20MHz 386SX, Super VGA, 1Mb RAM, 40Mb hard disk

All Elonex machines are supplied with MS-DOS 5.0, Windows 3.0 and a Microsoft-compatible mouse.

RIDERS ON THE STORM

Out in space, a deadly laser satellite is orbiting Earth deterring anyone from enjoying life on the surface of this wonderful planet. Your job is to assemble an equally nasty bomb and destroy the power-lines that feed this massive beam weapon.

So begins the next release from Psygnosis which should be ready in April. This Liverpool games firm previously brought us Lemmings, Shadow of the Beast and, most recently, Oh No! More Lemmings.



In Armour-Geddon (£34.99), players command six different types of vehicle, from hovercraft to stealth bombers, in a blend of futuristic shoot'em-up and simulation. If you liked Carrier Command by Realtime Games/Rainbird, you'll love this one.

The machines under your control are perfect for some tasks and totally unsuitable for others. Tanks, for instance, find air attack particularly distressing. Luckily, storage bays on every one can hold a neat variety of weapons and gadgets created by the boffins back at HQ. By the way, you're in charge of these guys, too!

A tremendous success on the Commodore Amiga home computer, Armour-Geddon features fast 3D graphics and lots more strategy than meets the eye. Two players can play and help one another using a serial datalink between their computers.

TRY A LITTLE TENDERNESS

Travelling across the fantasy realm of Britannia has never been easy, that's why Origin and Prima have decided to give frustrated adventurers a few neat tips in their gorgeous guidebook. Ultima – The Avatar Adventures walks you through the complete trilogy and includes a bonus section on Ultima VII. A strategy manual for the Wing Commander saga is also available from any good dealer.

MAKING THE HEADLINES

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TALE OF TWO TOWNS

Over in Japan, Fujitsu has a tasty 386-based personal computer range called the FM Towns. Originally introduced over three years ago, this revolutionary system includes a built-in CD-ROM drive and dedicated graphics processor for moving sprites and scrolling the screen.

Unsurprisingly, the FM Towns has become a respected games machine. Any worthy production, ranging from Wing Commander and New Zealand Story to Dungeon Master and Manhole, has been converted. There are plenty of goofy Japanese games available as well. Mirrors is one the strangest. This graphic adventure incorporates digitised images from the music concerts of Depeche Mode and Duran Duran. The thing is, the game has nothing to do with these two early '80s British pop groups!



The new FM Towns II UX Model, unveiled last month, looks very much like the Macintosh Classic from Apple. The cheapest UX with single floppy disk drive is priced at ¥263,000 (£1,153).

"The popularity of Towns has been constantly increasing," says Masashi Hirabayashi of LOGiN magazine in Tokyo, "mainly because of the CD-ROM drive and quick conversion of Western games. Fujitsu wants to define this machine as a multimedia station which will be used mainly in the audio visual (AV) field."

Fujitsu is planning big things for the FM Towns II. This series has a smaller size and better performance than the older models. PC Review just wishes Fujitsu had launched the FM Towns in the United States of America and Europe back in 1989.

FM TOWNS II Model UX i386SX processor (16MHz)

2Mb RAM (expandable to 10Mb)
512K Video RAM
128K Sprite RAM
One or Two 3.5" floppy disk drives
CD-ROM drive
10-inch Trinitron monitor
Graphics: 640x480 (256 colours), 640x480 (16 colours), 640x400 (16 colours), 360x240 (32,768 colours), 320x240 (32,768 colours), 320x240 (32,768 colours)
Sound: Stereo PCM (8 channels), Stereo FM (6 channels), CD Digital Audio
Usual range of expansion slots and ports

WE ARE THE CHAMPIONS

Ever busy games publisher Domark is preparing two doses of football fun for the scorching soccer season ahead of us.

The first, Championship Manager, is the result of seven years study of the noble game. Taking the role of manager, it's your job to get the boys through the Barclays League championship while competing in the FA Cup and Domark League Cup tournaments.

If you're a success, Europe could be the next step. Can you build a balanced squad and keep the backroom staff happy? How many defeats are the fans and board of directors going to take before you get the sack? Will you fall victim to a bribe or spate of injuries? All these obstacles have to be overcome if you want to win.

For players who relish pure arcade action, Euro Football Champ is a conversion of the accomplished Taito coin-op. After selecting your favourite international team, this one or two player game is played from a grandstand viewpoint of the pitch.

"The action is fast, realistic and calls for skilful assertive play," says a spokesperson at Domark. "You can even kick or elbow another player and you'll get away with it if the ref doesn't spot the foul!"

Championship Manager and Euro Football Champ will be released in the spring. Prices have yet to be announced.

Living Books

Cyan Software's Cosmic Osmo joined the likes of PacMan, Donkey Kong, and Populous by creating a new game genre when it was released in 1989. The game consisted of a series of static high resolution graphic screens depicting the world of cutesy alien Osmo. Various graphic elements had been configured as 'buttons' which took the player to another location or revealed a humorous animation or audio sequence.

Dubbed 'hypergames' by the press because of their parallels with traditional hypertext database systems which use buttons to move between layers of related information, these titles were hailed as non-competitive and more imaginative than many current game types, ideally suited to CD-ROM. However, due to the vast amount of graphics data required, hypergames have been rather thin on the shelves.

US software house Broderbund is about to change all that by releasing a series of highly imaginative hypergames aimed at young children. The titles are very impressive, suggesting the genre could be successful when applied to more adult scenarios.

Living Books improve on earlier hypergames in several ways. First, Broderbund has employed well-known US writers to develop the storylines. Second, there are more buttons on each screen (nearly 20 on some) than with earlier titles. Finally, the CD medium enables high quality sound bites to be incorporated.

The books are designed for the MPC standard, so you need a 10Mhz 286 or higher, with VGA, CD-ROM, 2Mb RAM, Windows 3.0 with Multimedia extensions, a mouse, an AdLib soundboard or compatible. US retail price is $49.95 but UK distribution details are still unclear.

Meanwhile, we're waiting for the hypergame version of The Shining, designed by Stephen King with sound effects by Tangerine Dream and artwork by HR Giger.

A GUIDING HANDBOOK

When the going gets tough, the tough get one of Letts' cheque-book sized guides. Check them out if you're having any difficulty remembering the keyboard shortcuts or screen formatting commands in complicated software like MS-DOS, Microsoft Word, Lotus 1-2-3, Wordperfect or WordStar. These Usable Portable Publications are available from Charles Letts (071 407 8891). Prices range from £3.99 to £9.99 for a complete rundown of the most popular word processing packages.



FULL CD-ROM UPGRADE FOR YOUR PC

With all these luscious CD-ROM products coming out every month, how can you get a slice of this multimedia action? It's easy. Thanks to Technomatic (081 205 9558) and Creative Labs, anybody can join the exclusive Multimedia PC club.

The Technomatic MPC upgrade kit consists of a CD-ROM drive with 64K cache, Soundblaster Pro audio card, Microsoft's Windows Multimedia Extensions and other useful software. Prices range from £510 to £576 depending on whether you choose the internal or external version.

"We think that £510 is a very reasonable price for such a powerful system," insists a spokesperson for Technomatic. "Multimedia blends publishing, entertainment and computers into a medium for information exchange that expands the potential of all three areas."

Why should you bother? A single CD-ROM disc can hold up to 150,000 printed pages or about 250 large books. Further to this huge storage capability, a typical Multimedia PC product boasts high quality graphics and stereo sounds.

It's not a bed of roses, though. Please note the minimum hardware specification for use with this Upgrade Kit is a 286 running at 10MHz, 2Mb RAM, VGA graphics card, 30Mb hard drive, Microsoft Windows 3.0 and mouse.

Technomatic strongly believes in the MPC standard and is constantly increasing its range of CD-ROM software. Forthcoming MPC titles from the London firm include Beethoven (Microsoft), Desert Storm (Time Warner), SimCity (Maxis), Mavis Beacon Teaches Typing (Software Toolworks) and Learn to Speak Spanish.

ULTIMATE TEST

Over the past 13 years, Gordon Vince has been carefully crafting The Ultimate Computer Cricket Simulation. Every nitty gritty detail of the game can be scrutinised and tweaked, including the condition of the pitch and age of the ball!

Already used by the Daily Express (and other national publications) to forecast match results, the program is now available to any cricket supporter with £25 to spend.

"The simulation provides a realistic ball-by-ball account of a cricket match between any chosen teams of real or imaginary players and incorporates all the features of an actual five or three-day match," Vince reveals. "Once the computer has been given the details, it takes over and controls the playing of the entire match."

Before you rush out and order your copy, take note, the software will appeal to a cricket enthusiast with a computer rather than a games player who is interested in the sport.

More information can be obtained directly from Gordon Vince, 8 Birchwood Drive, Lightwater, Surrey GU18 5RX.

CP SIGNS UP OMAR SHARIF FOR BRIDGE PROGRAM

Omar Sharif on Bridge, a rather out of the ordinary co-production by CP Software and Interplay, is a comprehensive introduction to this classic card game.

Novice modes within the game, thankfully allow you to slow down the game, review bidding, reveal hands, take back moves and offer hints when you're totally stuck. The easy to use interface allows up to four players to participate.



Omar Sharif (left) and CP's Chris Whittington

For experienced players, Sharif on Bridge offers several types of card decks and playing surfaces for the ultimate in designer bridge.

"Sharif on Bridge speaks as it plays and teaches bridge," recounts spokeswoman Jackie Chapman at Interplay in the States. "Players will hear Omar Sharif congratulate them on a bold finesse or suggest another lead if the game needs some fine tuning."

CP Software is currently putting together a multi-language version of the product. The standard 'All-American' copy is already on sale.

Interplay is best known for the Battle Chess, Castles and the Bard's Tale series of fantasy role-playing games, published in the UK by Electronic Arts, while CP Software originally published chess packages for the Sinclair Spectrum.

Give the company a call on (0993) 823463 for further information.

BACK TO THE SAVAGE FRONTIER

Will the prolific partnership of TSR, SSI and US Gold ever come to an end? Treasures of the Savage Frontier is the latest in a very long line of fantasy role-playing yarns from these three busy companies.

Sequel to last year's hit, Gateway to the Savage Frontier, this is another full blown Advanced Dungeons & Dragons affair. This time, bloodthirsty raiders are preying upon the northern coast of some magical land in the distant past. Can the Heroes of Ascore, that means you, regain the lost treasure of the ancients and prevent outright war?

These AD&D games appear to be both loved and hated by the gameplaying fraternity. Perhaps the graphics in these titles could be a little better and the scenarios a little more original. Eye of the Beholder is perhaps the most commercial application of TSR's money-spinning concept thus far. However, they continue to be enjoyed by plenty of punters on both sides of the Atlantic. It's a funny old game, 'innit!





COME FLY WITH ME

The first Wing Commander series is now available on a single CD-ROM disc. Origin has repackaged this award-winning 3D space combat simulator in the hope of renewing demand after the release of Wing Commander 2 last year. This 'Deluxe Edition' of Wing Commander, sold through Software Toolworks (0444 246333) in the UK, comprises the original game plus the two Secret Mission scenarios. Obviously you'll require a CD-ROM drive, appropriate controller software and MS-DOS CD-ROM Extensions (Version 2.10 or higher).

CUTENESS AND FLIGHT

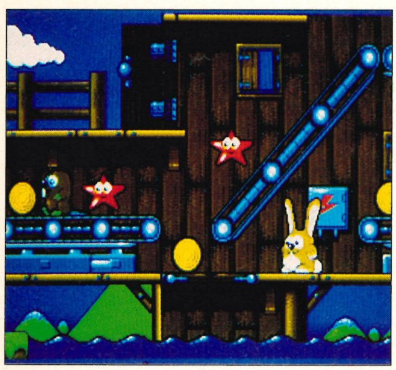
After the surprise success of The Hunt for Red October, Grandslam Video is now embarking on something completely different for your playing pleasure.

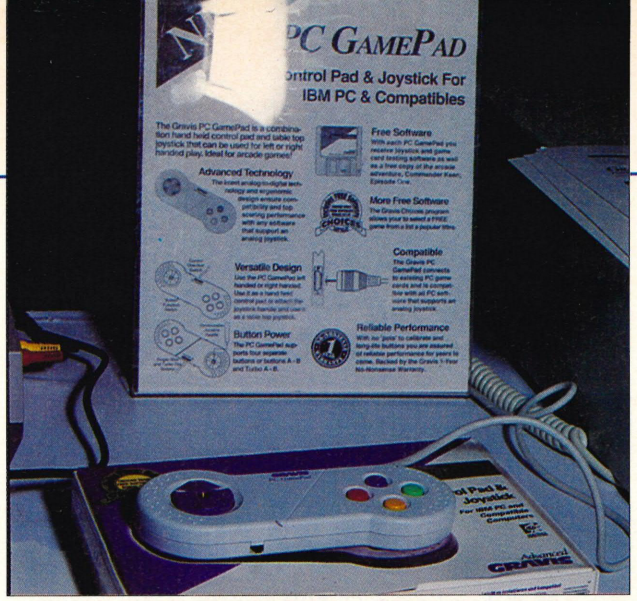
Beavers closely follows the tradition of those crazy cutie platform games that have swarmed over the arcades in recent years. Japanese games designers have a lot to answer for having inspired their British counterparts.

Not only must our hero, Jethro Beaver, rescue his girlfriend from the evil fox gang, he must also avoid hungry alligators, killer turtles and deadly piranhas on the way. Expect to see plenty of sickly evergreen forests and valleys as you violently dispel the opposition.

Arc Developments is in charge of bringing this arcade adventure on to the PC, the team previously attracted considerable acclaim for their work on Forgotten Worlds (US Gold) and R-Type 2 (Activision).

On a more sporty note, Grandslam Video has a soccer game in production which should keep every Liverpool fan blissful for the rest of the season.





SOUNDCARD AND EXTRAS FROM GRAVIS

Advanced Gravis is bringing out a new PC soundboard that offers some powerful features at an economcial price. The company yet to confirm the exact cost but it should be under £115.

The UltraSound card is a 16-bit, 32-voice unit that is compatible with both AdLib and Soundblaster and provides In, Out, and Thru MIDI ports. It will work with most PC compatibles, from humble 8086 machines through XT and AT models to the latest 486 heavyweights.

It also offers digital recording and sampling features at rates of 1KHz to 44.1KHz – equal or superior to many conventional CD units. It will sample in mono or stereo (up to 16 channels) and comes with 64K of on-board memory, expandable to 1Mb.

Even better, it comes with a programmable speed compensating game port that supports two joysticks with the addition of a Y cable.

The speed compensation is nothing to do with the rate you waggle your joystick at. It's a useful feature which enables you to tune the speed of gameplay to ensure smooth action on machines with widely differing processor speeds.

Contact Gravis in Switzerland on 010 41 21 869 9656.

THROUGH THE LOOKING GLASS

Another Maxis game has undergone cosmetic surgery for use with the immensely popular Windows 3.0 operating system from Microsoft. RoboSport is set in a future where robots do battle for the amusement of humans.

"This battle simulation combines the tactical challenge of chess with the intensity of urban guerrilla warfare," states spokeswoman Sally Vandershaf. "After each battle you can replay the carnage with VCR-type controls to analyse your strategies."

RoboSport is a multi-user game which can be played on a single computer, two via a direct or modem link, or on up to four over any network that supports NetBios in a Windows environment. Windows users can also compete against Amiga or Macintosh versions of RoboSport over a direct or modem link.

Maxis also is offering Windows adaptations of the award-winning SimCity and SimEarth. In SimCity, players assume the task of organising a city and making sure the computer-simulated population grows to love their decisions as Mayor.

Among the first games to be released for Windows, it plays like SimCity for DOS, but takes advantage of the Windows 3.0 interface by supporting hi-res VGA graphics and multitasking. Players are able to run other programs while the game continues to work in the background. SimCity for Windows will also read maps designed with the SimCity Terrain Editor.

PC sales soar in US

After the doom and gloom of 1991 when most know-it-alls predicted the death of the PC and the triumph of Nintendo, the PC seems to be staging something of a comeback.

In the US market, which traditionally drives PC software and hardware sales around the world, the PC is going from strength to strength.

The release last year of Windows 5.0, the popularity of the 386SX chip, the increasing take-up of AdLib and Soundblaster cards, and falling prices have led to increased sales for state-of-the-art gaming systems in the US, with some pundits predicting that as many as one in three of existing PC gamesters will upgrade to a more powerful set-up during 1992.

Here in the UK we're still struggling with higher prices, but it's becoming clear this is partly because of the hang-over from the old days when the only people who sold PCs were business dealers who were offering expensive ancillary services. In Britain there still is not a decent network of retailers who see PCs as low cost, rapid turnover home computers.

That explains why you can buy a 386 VGA notebook PC in London's High Holborn for nearly £3,000 and a functionally similar machine about 500 yards along the road for only £900. In the US, the price is even lower, around £700, and the available outlets on the high street are far more numerous.

As for Nintendo, it is not doing too well these days. The company has even had to downgrade its sales projections.

FUN, FUN, FUNEX!

Computer games are no longer bad for your health. Thanks to the Funex Motion Converter, you can now build heart muscle and high scores at the same time. Funex (0101 717 394 7102) will supply you with a widget which fits on to most exercise bikes and translates your sweating and swearing into serial data that can control compatible software. The latter is currently restricted to Funex's Final Quest Challenge, though expect soon to be wooed with Renaissance Man, which apparently requires you be 'strong, smart, quick, lucky and have have great eye-hand coordination'. Perhaps rather more useful is the Fitness Tracking System, which records the distance you've 'travelled', average speed, time expended, calories burned, and points scored.

SEEK TIME FOR CD

The much-predicted advent of PC CD-ROM games is unlikely to happen in the UK for at least three years, according to US analyst Bill Ablondi.

Ablondi bases his pessimism on price. In the UK we still have to spend around £300 for a drive and there are a lot of other devices that could take precedence. CD ROM comes pretty low down the list.after a high speed modem for on-line gaming, a soundcard, or a VGA upgrade.

CD fans, however, foresee a very different scenario, claiming that by the end of next year CD-ROM PCs will account for 75% of home PCs, with internal drives costing around £150.

This is by no means academic for gamesters. Several US publishers are already offering CD products which offer stunning utility value as well as cost savings.

Origin, for example, sell Ultima's I to VI for only £79.99 inc VAT (contact Mindscape on 0444 831761) and then there's the dedicated CD product such Broderbund's Living Books and Virgin's stunning Guest, previewed last month. For the discerning and well-heeled, a £300 CD drive could be a good investment right now – but stand by for lower prices this autumn as grey importers begin to ship in Far East boxes at rock bottom prices.

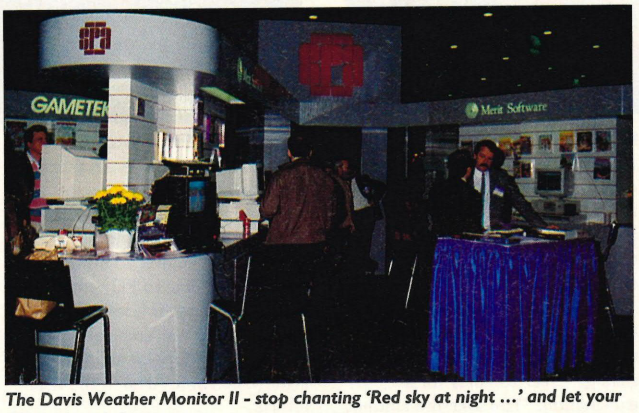
If you can't wait that long, Leisuresoft's Tecnoplus Professional CD ROM package has just been cut from £399.99 down to £299.99. The Philips CM50 player comes with bundled utility software including Software Toolworks' World Atlas.

COMPOSER QUEST

CD-ROM databases are making ever more strenuous attempts to become more interesting. Composer Quest really pulls out the stops.

The disk features over 60 CD-quality musical performances ranging from the Early Baroque period through to Moderns, together with a number of digitised representations of paintings by famous historical figures. You get dozens of 'near photographic quality' 256 colour screens, biographies of composers, major news events from 1600AD through to the present day, and data on the more important visual artists and their styles of working.

In order to help you navigate through this colossal amount of information, publisher Dr T has included a special time-line screen and, even more intriguing, a time travelling Adventure Game Section, not to mention Music Trivia sections and on-line help. "It's like a crash course in the arts and history!" they trumpet. And it does look like one of the more entertaining CD-ROMs around. You'll need DOS 3.1 or later, Windows with Multimedia Extensions 1.0, MS DOS CD ROM extensions 2.2 or later, and at least a 10Mhz 286 with 2 Megs and VGA. It's.distributed in the UK by Britannica Software, price to be announced.



The Davis Weather Monitor II - stop chanting 'Red sky at night ...' and let your PC do the job for you ...

PC WEATHER FORECAST

Now you can really crush the neighbours with small talk about the weather. The Davis Weather System will turn you and your PC into a professional weather monitoring station.

The core of the system is the Weatherlink interface and software package, which allows you to connect your PC up to any of Davis' weather monitoring hardware modules. All you need is a standard PC with CGA, Hercules or better and DOS 2.1 or later. And £149.95 worth of negotiable currency (which includes VAT).

Once you've got Weatherlink up and running, you need to attach either one or more sensor modules. There are three main options here: Perception II, Weather Wizard II, and Weather Monitor II, costing £169.95, £229.95, and £319.95 respectively.

Perception II monitors indoor climate, showing temperature, humidity, and barometric pressure. As with all the modules, you can always use it on its own, but adding Weatherlink gives you graphing and storage options to boot.

Weather Wizard II goes a lot further, monitoring inside and outside temperatures, highs and lows, wind chill factors, and can be programmed to trigger alarms under certain conditions. Adding the optional rain collector allows you to monitor rainfall as well.

Weather Monitor II basically combines the functions of the two preceding units into one state-of-the-art weather station, monitoring barometric pressure, wind speeds and direction, chill factors, and rainfall (with collector).

All this sounds like a lot of fun, until you realise that the maximum outlay is almost £470. In the US it would cost you only £260. Contact ICS Electronics on 0903 731101.

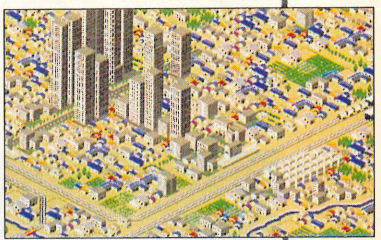
A-TRAIN HITS THE RAILS

The latest game from Maxis, the company that brought you Sim City, is something of a cross between its previous hit and Microprose's Railroad Tycoon. A-Train combines railroad network design with urban development and financial management in a very pretty graphic environment. The standard PC version will be released in the spring with a Windows update appearing later in the year.

A-Train is actually a conversion of a popular Japanese product and it shows in the quality of the graphics, which use a more subtle colour palette on the VGA versions than conventional European products. The result is a very attractive, almost water-colour-like effect as you negotiate menu screens and maps to build your empire.

The game comes with six environments of varying complexity. You can edit the maps using the mouse, adding and removing urban features, stretches of track, stations and so on. As the game progresses, it becomes more biased towards financial management as you use the revenue from your rail networks to invest in various businesses from manufacturing to ski resorts .

A-Train will cost $59.95 in the US with a probable UK price of around £35.00. And there will be a terrain editor released about two months after the product draws out of the station ...



A-Train's environments pose entirely different challenges, offering a variety of urban and natural environments that dictate different commercial policies.

KEEPING THE KIDS AMUSED

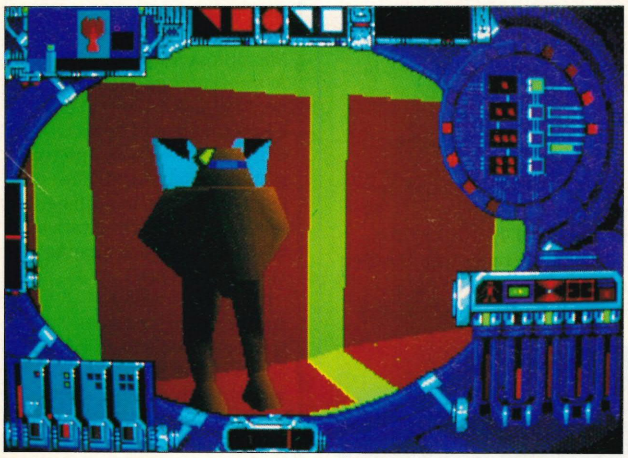
Capstone is launching two 'computerised colouring books' that will give kids the chance to make Home Alone star Macaulay Culkin green with envy: literally.

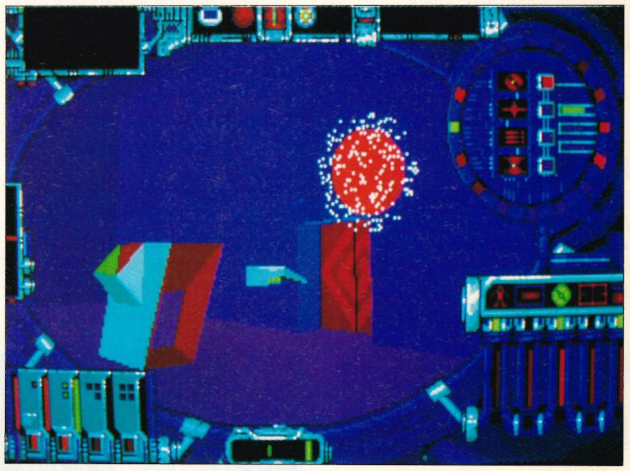
The two titles are both based on movie licences. In Home Alone you get dozens of scenes direct from the movie which can be recoloured using an easy-to-use paint program. You can also print out the scenes for colouring by crayon.

The second title, Fern Gully...The Last Rain Forest, is based on the 20th Century Fox feature cartoon of the same name and offers the same facilities as Home Alone, but with the additional option of mixing and matching backgrounds and characters from the film in different scenes.

Fern Gully will be out at the same time as the movie, but a UK price isn't clear yet. Home Alone should be out by the time you read this. The titles are priced $29.95 in the States and you can get more information from Capstone on 0101 305 252 9040.\

CYBERCON III





The reason these objects look so impressive is that they use Gouraud shading. This gives them a greater solidity than they would otherwise appear to have.

Cybercon III, don't ask us what happened to the first two, sets you the task of blasting through a series of futuristic-looking locations before the defence system catches up with you and does something nasty.

The Assembly Line, a small but dedicated development outfit from Bristol, has an undeniable flair for the abstract and Cybercon III is no exception. Games such as Emotion, Vaxine and Pipemania are evidence enough of the Assembly Line's talent. Instead of funnelling its highly regarded programming expertise into yet another flight simulation, the team has decided to convert a superb 3D shoot 'em-up from the Commodore Amiga. Aimed at 286 VGA machines upwards, the enhanced PC adaption of Cybercon III runs twice as fast on a 16MHz 386SX than either an Amiga or Atari ST.

"Faster action makes this game much more playable," confesses Andy Beveridge. Cybercon III is the first PC game for this self-confessed hardware junkie. "The other big difference, between this and other versions, is in the appearance. "We've used 256-colour mode to get some great effects."

Such shapely and colourful images are further enhanced by a technique known as Gouraud shading. Over to Andy for an explanation: "You take the amount of light falling on different sides of the polygon that you're drawing, and use that to linearly interpolate the colours across the polygon. Thus, you get a nice gradient of shades and a smoother appearance. This technique is most commonly used in commercial rendering for TV adverts. It gives a realistic look, like ray-traced objects, but only takes a fraction of the time to compute."

Every games designer on the edge of software technology is trying to be the first to bring Gouraud shading to PC games. Who will succeed? Look out for Eye of the Storm (Empire), Strike Commander (Origin) and Cyber Fight (Electronic Arts) in the near future.

According to Beveridge, the design of Cybercon III has been heavily influenced by sci-fi movies such as Aliens and Terminator 2. Beveridge used to be confined to fiddling around with bits of code for other games programmers. No wonder he was so keen to get stuck into Cybercon III and prove himself capable of bigger and better things. For his next product, he would obviously prefer to tackle something original.

If you're still saving up for a VGA card, Cybercon III is also compatible with the inferior EGA graphics display mode. It just won't look as good. Apparently, Beveridge has fixed a few bugs which should have a minor effect on the gameplay. For the better we hope!

US Gold is taking care of the sound for Cybercon III. AdLib, Roland and PC-speaker will be supported but, sadly, there isn't enough free memory for sampled speech and sound effects from a Soundblaster board. Beveridge adds: "The big problem with the Roland card is that it's basically just a MIDI device that sits inside the PC slot. We've still got to do something like 72 sound effects for the Roland so I don't know how they're going turn out."

Even though a hard drive is recommended, Beveridge thinks you can get away without one. "I've run it off floppy disk and it's surprisingly playable," he insists.

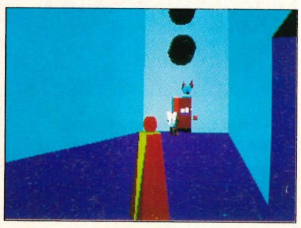
Are you getting tired of waiting for games to be converted over to your machine? Good news. It seems developers would rather write a game on the PC first. That's going to be the policy for teams like the Assembly Line and Bullfrog from now on. "Converting an Amiga game over to the PC is very awkward and time-consuming," reckons Beveridge, "It's far easier to go the other way. That's why we'll lead with PC versions in future."

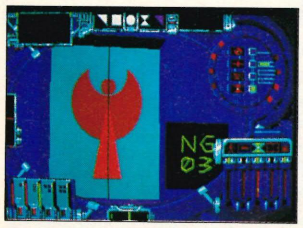
Cybercon III and Stunt Pilot, another game for Walt Disney Software, should restate the Assembly Line's mastery of advanced 3D graphics. PC

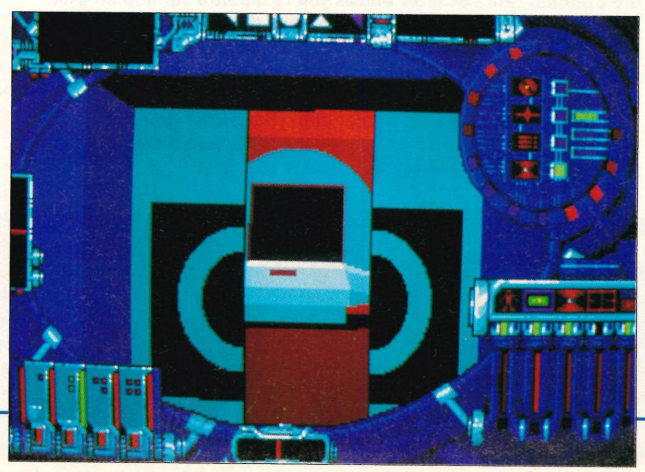
Cybercon III on the PC promises to be the best version of the game to date.

Title: Cybercon III
Development Team: The Assembly Line
Softography: E-Motion, Vaxine, Pipemania
Genre: 3D action adventure
USP: Uses Goraud shading
Publisher: US Gold
Release date: March
Price: £30.99

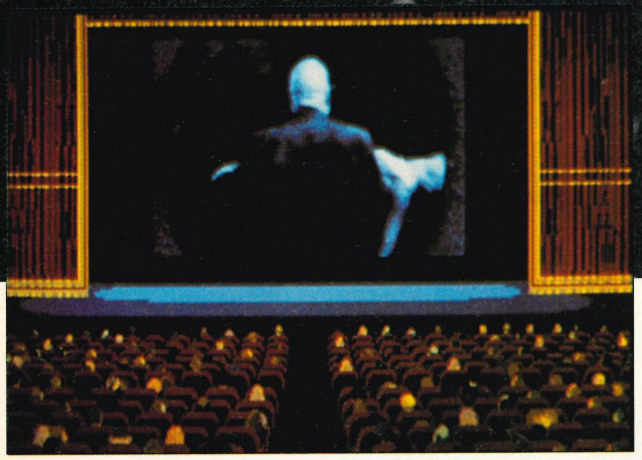
PC review On a Screen Near YOU







PLAN 9 FROM OUTER SPACE



Title: **Plan 9 From Outer Space**
Developer: **Gremlin Ireland**
Genre: **Graphic Adventure**
USP: **Game of the worst film ever.**
Publisher: **Gremlin**
Release date: **April**
Price: **£34.99**

PC review On a Screen Near YOU

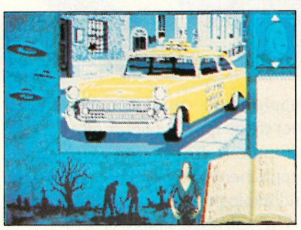


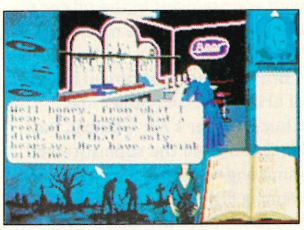
All the in-game characters are based on the Plan 9's 'stars', Tor Johnson and Vampira. By interacting via the icons on the right of the screen, questions can be asked and clues noted down before you head off to your next destination.

Of all the films to be branded 'turkeys', only one has awards to show for its rank acting, plot and general misdemeanours. Plan 9 From Outer Space was in trouble from the start: its minute budget meant that its sets were the size of your average kitchen, rather than the massive studios that director, Edward D. Wood, would have preferred; and Bela Lugosi, by then a drug-ravaged hasbeen, died several scenes into the shoot, with the tight schedule necessitating Tor Johnson taking over the role – with Lugosi's scenes patched in regardless. So, with such horrors making the film's content pale into insignificance beside its non - existent plot, why would anyone want to base a game around it?

On securing the unusual licence, Gremlin promptly farmed it out to their Irish 'arm', where work began on the plot of the game. According to Project Manager, John McGloughlin, finding the basis for the game and a suitable scenario was easy, as the film's storyline is a mishmash of unrelated ideas, rendering any use extremely unwise. In addition, the team were anxious to avoid the platform-style genre that Ocean had popularised in their film licences, leaving the icon-controlled adventure idea, from which the plot grew. Cast as the film's new producer, you have been assigned to locate six missing reels of film which will make up the

As the reels are collected, they can be viewed by taking them to the editing room of your studio. Reward then comes in the form of a short digitised moment from the film.





film. The game is an extension on the Sierra-style control system, with the centre of the screen depicting what's in front of you – and all the many in-game characters bearing a strange resemblance to Vampira and Tor Johnson (Plan 9's stars) – and the surrounding area given over to the icons you'll need to complete your task. In addition, these icons will take you all over the world in your search, from the obligatory graveyard to the sunny climes of a bimbo-filled beach.

Graphically, the game is in true Cinemaware style, with the 50s style of the film recreated perfectly in the cars and buildings. Using the aforementioned icons, the would-be producer must search the 90 screen play area, and interact with the many Tor and Vampira lookalikes for clues to the reels' whereabouts. A notepad is supplied to jot down any clues, and for every reel which is found, on taking it to your handy editing room, you are treated to a 30 second extract taken from the film.

Currently, Plan 9 is 85% complete, with the PC incarnation leading the way. With the basics up and running, and the characters all working as they should, all that remains is to make sure that the game flows properly and that the puzzles lead into each other logically. Gremlin Ireland is particularly pleased with what they have achieved, and it must be said that Plan 9 is a very pleasant diversion from the normal movie licences – somehow, a platform game just wouldn't have worked. It's scheduled for an April release, and it is hoped that Gremlin can gain permission to bundle a compilation video of the film's worst moments as a 'treat'. Expect a review in the following issue. PC

Roll 'Em...

If Plan 9 is a success, it is rumoured that Gremlin is currently scouring a wealth of film books for what could be described as 'Plan 10'. A number of films are currently under consideration, and the potential is certainly there, with the likes of Oliver Reed and dear old Joanie Collins gracing many a bad B-movie. So, coming soon to a screen near you could be 'I Was A Teenage Zombie' or 'Stuff Stephanie Into The Incinerator' – I can see Troma rubbing their hands together right now.

Heroes of the 357th

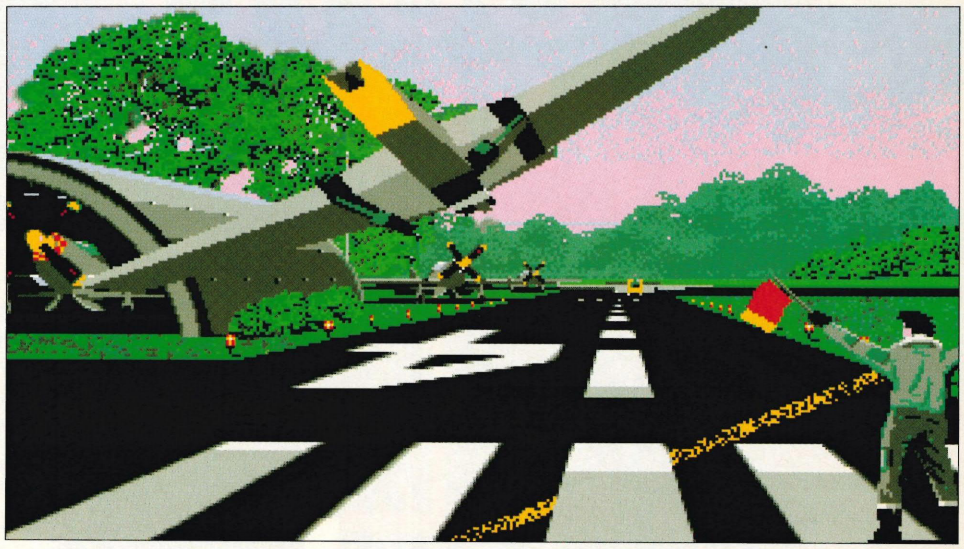
Nostalgia sometimes get the better of most of us. So, after the success of Lucasfilm's Secret Weapons of the Luftwaffe and the looming B-17 game from Microprose, Electronic Arts has also decided to step back in time for inspiration. After all, who could resist the chance to fly one of the most successful fighters ever made?

The American P-51 Mustang first entered service in late 1943 and eventually saw action in the Korean War. This long-range bomber escort was perhaps the major single contributing factor towards Allied success over the skies of Germany during World War II. Despite its ingenuity, the Luftwaffe, with its limited resources, just couldn't cope.

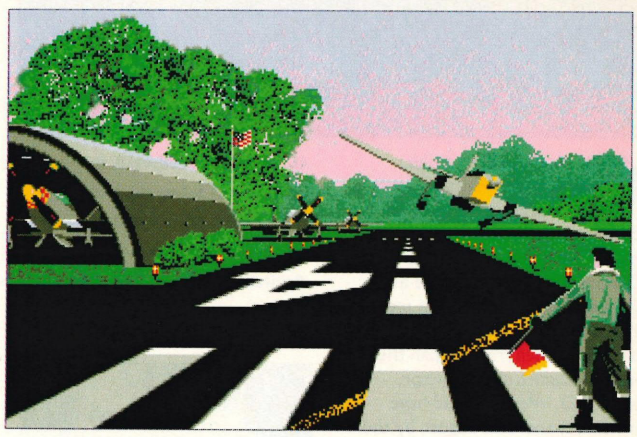
In Heroes of the 357th, from Electronic Arts and Midnight Software, players are offered the opportunity to join one of the top Mustang squadrons in history. Nicknamed 'Yoxford Boys', the 357th shot down almost 700 German aircraft and had a staggering 52 aces on the roster. Have you got what it takes to be the 53rd?

Each of the missions in Heroes is historically accurate – they range from escorting B-17 bombers to their targets in occupied Europe to strafing enemy airfields and ships. Do you think you could intercept a jet-engined V-1 Flying Bomb before it reaches England? This is probably the most exhilarating mission on offer.

Don't expect the opposition to be a pushover. The bandits come thick, fast and with deadly enthusiasm. They're not your only problem either. One eye must be kept on the skies for attacking Messerschmitts while the other one scans your fuel gauge. The Mustang's limited supply is constantly drained on these long-range interceptions so it's very easy to run low on the precious liquid before you realise things are getting serious. Nobody gets a medal for smashing up a P-51 because of their reckless flying techniques.



The exact number of missions incorporated into the Tour of Duty option in Heroes has yet to be decided. "We want to keep it pretty open-ended," confirms a spokesperson.



Luckily, two famous pilots of the 357th act as wingmen to help you out of tight spots. These guys throw their extra firepower into the battle when needed and keep the Luftwaffe busy while you bomb the designated targets. Once a sortie is over, you can chew the fat with your buddies in the officer's club, provided you've made it back in one piece!

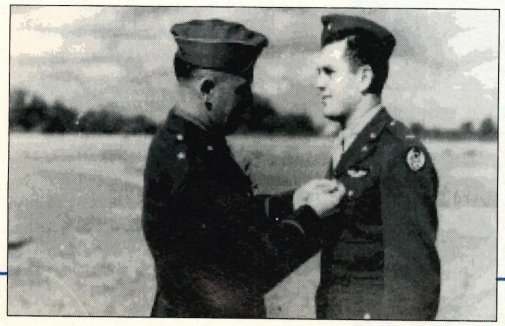
Brent Iverson, acclaimed author of LHX Attack Chopper and Chuck Yeager's Air Combat, has kindly donated the sophisticated game engine found in all his award-winning flight simulations. As Iverson is busy working on yet another Chuck Yeager epic for EA, developer Midnight Software is supplying the rest. Heroes therefore sports oodles of sumptuous 3D polygon graphics supplemented by bitmapped smoke and explosions for added realism.

The software supports 256-colour VGA graphics along with 16-colour VGA and EGA display modes. Roland and AdLib cards are both supported, and sampled speech can be heard during the game if you've got a Soundblaster card. Other important features implemented in this action flight simulation include a replay camera to instantly relive the best bits, multiple view angles of your P-51 Mustang and digitised pictures of the real thing at key points within the game (when you crash, for instance).

Heroes of the 357th is showing signs of being an absolute winner. In the era of radar-evading stealth fighters it's great having the chance to fly by the seat of your pants once again.

PC review On a Screen Near YOU

Title: Heroes of the 357th
Developer: Midnight Software
Genre: Flight Simulation
USP: The first Mustang simulation
Publisher: Electronic Arts
Release date: May
Price: £29.99



Your P-51 fighter can be equipped with extra fuel tanks, 20mm cannon, rockets or bombs depending on the mission ahead.

News stories keep you informed on general war events after each mission



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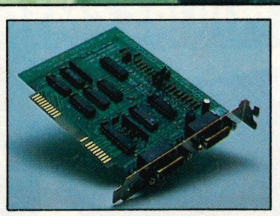


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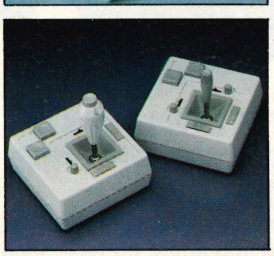
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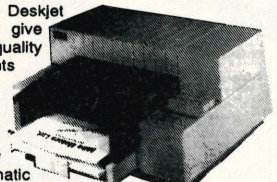
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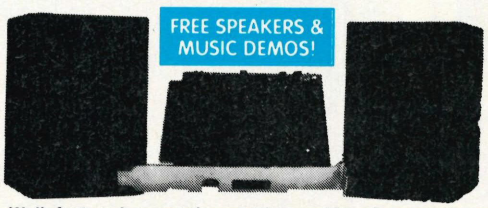
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MEDIA MUSIC PC SOUND CARD

Media Music Sound Card features an 11-voice synthesizer and is fully ADLIB compatible - so PC Games can sound fantastic!

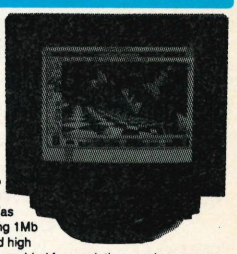


Well featured expansion card, capable of generating great music and sound effects, the Sound Card incorporates an 11-voice FM synthesizer for realistic, good quality output. Its full ADLIB compatibility gives PC games and entertainment software a new dimension, because lots of titles are directly ADLIB compatible. The card also features an on-board amplifier with volume control, which outputs to speakers or headphones directly. Software includes 'Karaoke' and 'CD Studio'.

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SVGA MONITOR & CARD

High Precision 14" Colour Display System



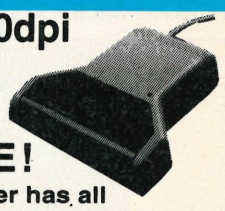
Our 14" Colour monitor with Super VGA card has to be the most attractive Colour Display kit available for the PC. It includes a SUPERB quality dark screen, low radiation 14" SVGA Colour monitor, which is non-interlaced in all modes except 1024x768. The clarity and pin point precision of this monitor, manufactured for us by Tatung, really are at the top of its class. It betters EN55022 radiation standards, and has a dot pitch of 0.28mm, so your eyes won't suffer. The system also includes an SVGA card which features the highly rated **Tseng Labs ET4000** chipset (as used with Orchid Pro Designer II) containing 1Mb RAM. It offers beyond SVGA capability and high operational speed. A variety of drivers are provided for resolutions such as 1024x768 with up to 256 colours and 800x600 with up to 32,768 colours available.

Monitor & Card (£299.00+VAT=) £351.33

SVGA 14" Colour Monitor on its own, inc. cable	£219.00+VAT=	£257.33
Super VGA Card on its own, including software	£ 89.00+VAT=	£104.58

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QUALITY 400dpi SCANNING - AT THE RIGHT PRICE!



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ONLY £299.99 includes Software, VAT and delivery

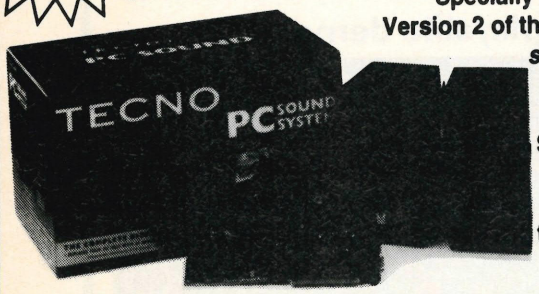
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COMPLETE PC SOUND SYSTEM

TOP SPECIFICATION DIGITAL STEREO HI-FI SYSTEM FOR PC'S

WITH LATEST VERSION 2 OF

SOUNDBLASTER

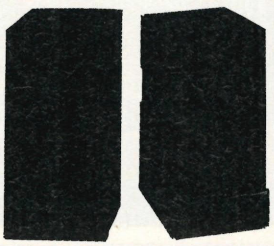


Specially compiled package featuring the latest Version 2 of the popular 'Soundblaster' - a *very high specification* expansion card. Features Digital Sampling capabilities, Digital Sound Output, 11 Voice FM Synthesizer (fully ADLIB compatible!), Analog Joystick I/O port and Stereo Power Amplifier. Software includes the amazing 'Kings Quest 5', Powerful FM organ, Text to Speech & much more. *Works with lots of games!*

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NEW! FLIGHT YOKE
by WINNER

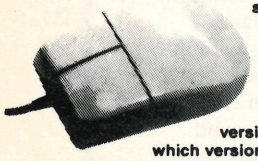
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Golden Image OPTICAL MOUSE

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Joystick or Games Controller card available separately for only £17.99

ANALOG XTRA Joystick



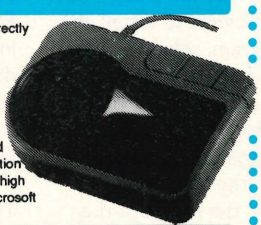
Featuring the same *Injected Resistor Technology* that gives the *Edge* uncommon durability and capability, the *Xtra* is possibly the most advanced flight sim. joystick on the market! With variable autofire, throttle control, 4 switchable fire buttons and Aircraft-style grip. Accuracy and flexibility like nothing you've experienced before! Supplied with 'Gameport 2+' variable speed dual input gameboard halfcard.

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Excellent high performance trackball, directly compatible to any PC, operating via the serial port. Super-smooth, accurate and versatile - perfect for WIMP environment and graphics intensive operations, as well as games! With its featured locking drag button and line hold facilities, accurate total one-handed control is a doddle. Top quality construction and opto-mechanical design, delivering high speed and accuracy every time. Full Microsoft compatible driver software supplied.



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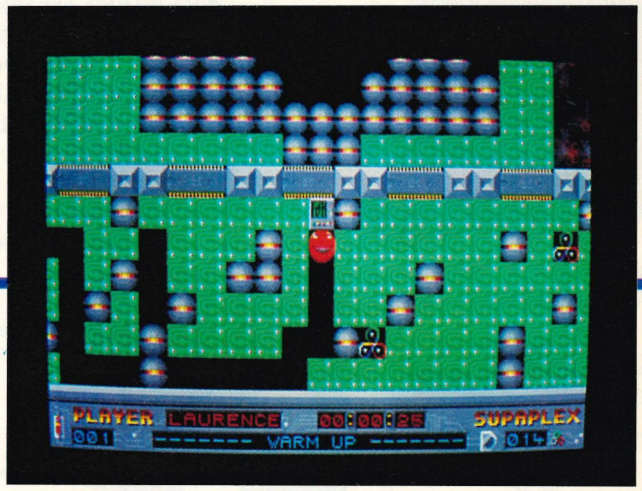
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NEW TELESALES OPENING TIMES : 9AM - 7PM (MONDAY-FRIDAY) • 9AM - 5.30PM (SATURDAY)

Cover Disk

After the great response to our arcade double-duo, Gods and Lemmings, we've surmised that PC Review readers are being starved of decent action games. How could we let such an appalling situation continue? We couldn't! On this month's disk you'll find a superb three level playable demo of the puzzle game, Supaplex.

Of course, we would never forget our adventure fans either, and we've managed to squeeze a complete graphic adventure on to the disk too.



SUPAPLEX

Murphy The Bughunter is trapped in the circuits of a computer. His only hope of escape is to collect all the Infotrons on each level and then head for the exit. Beware of falling Zonks! If these, or Infotrons, hit Murphy he'll explode.

On the cover disk are three great demo levels from the complete 111 level game. Select NEW PLAYER with the mouse or cursor keys when you first play, and set your control and sound preferences.

Controls:
Up ***Move Up***
Left ***Move Left***
Down ***Move Down***
Right ***Move Right***
Fire (held down) ***Drop Red Disc***
Fire (with direction) ***Remove Base-X or collect Infotron.***

Keyboard uses cursor keys for movement and space for fire.

Check out the review of Supaplex on page 83.

TECH SPEC

3½ ✓	5¼ ✓	AD Lib ✓	Roland ✓
CGA ✗	EGA ✓	VGA ✓	Tandy ✗
Hercules ✗	✓	✓	✓

THE CAST OF CHARACTERS

(Check out the Graphics Tutor in the demo for a visual ID)

Zonk! – Falls down when its support is removed. Will kill Murphy if it hits him.
Base-X – Piece of circuit board that will disappear when Murphy moves over it.
Bugged Base-X – Will destroy Murphy when active.
Ports – Only allow travel in certain directions.
Snik-Snaks – Will try to catch and destroy Murphy when released. Drop a Zonk! on them to kill them.
Electrons – Like Snik-Snaks only they carry Infotrons which they only release when destroyed.
Orange Discs – Explode when they hit something or something else hits them.
Yellow Discs – Can be moved around and then exploded when the computer terminal is accessed.
Red Discs – Can be collected and then primed to explode at a later time.

EVERYTHING YOU EVER WANTED TO KNOW ABOUT COVER DISKS BUT WERE AFRAID TO ASK ...

This month we've decided to run a complete 'How To ...' guide for cover disks. If you've been having problems getting yours up and running then you may find the solution here.

Loading Your Cover Disk
Insert your PC Review cover disk into drive A: (or drive B:, it doesn't matter which)
Make that drive current by typing:

A: [and hitting the Return Key] or B:, if your cover disk is in drive B:. Now type:

FRONT [Return]
to load the cover disk menu.

The items on the menu can be selected using a mouse or the cursor keys. If you have a mouse, it should be automatically detected by the program. To select a program for installing, simply move the cursor to the button next to the program's name and click once with the left mouse button or press the Return key. (If you don't wish to install any of the program, select QUIT.)
Assuming that you have selected a program to install, a disk and directory to install to will be suggested. If you are happy with the suggested location for the program then type:

Y [Return]

If you wish to change the directory or disk then type:

N [Return]

You will then be given an opportunity to enter an alternative location. Simply backspace over the existing pathname and enter a new one. For example, if you wish to install the Gallery on a disk in drive B: in the directory GALL, you would enter:

B:\GALL [Return]

You will have to do this if you do not possess a hard drive.
Make sure that you have placed a blank, formatted disk in the specified drive before you press the Return key.
The specified directory will now be created on whichever disk was selected and the chosen program will be copied there and then decompressed. You should see a series of messages while this is happening, ending with the message 'All Done!'. The menu program will then end. If you wish to install a second program, follow the steps outlined above once more.
If the installation has been successful, you should now be able to start the programs as indicated on page 19.

HOW TO LOAD THE PROGRAMS

SUPAPLEX

Make the drive and directory where your program has been installed the current one, after inserting the disk in the relevant drive. For example, if you have installed Supaplex on your hard drive in the directory SUPA, you would type:

```
C: [Return]

CD \SUPA [Return]
```

To start the program type:

```
SUPAPLEX [Return]
```

HUGO'S HOUSE OF HORRORS

Make the drive and directory where your program has been installed the current one, after inserting the disk in the relevant drive. For example, if you have installed Hugo's House of Horrors in the directory HUGO on a disk which is in drive B:, you would type:

```
B: [Return]

CD \HUGO [Return]
```

To start the program type:

```
HHH [Return]
```

GALLERY

Make the drive and directory where your program has been installed the current one, after inserting the disk in the relevant drive. For example, if you have installed Gallery in the directory SHOW, on a disk in drive A:, you would type:

```
A: [Return]

CD \SHOW [Return]
```

To start the program type:

```
SHOW [Return]
```

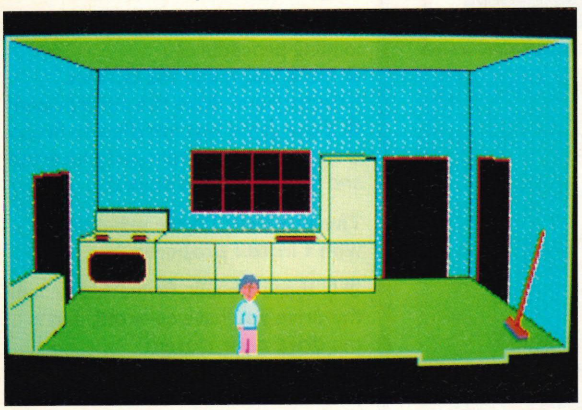
HUGO'S HOUSE OF HORRORS

Hugo's girlfriend, Penelope, has been kidnapped and is hidden away somewhere in the haunted house. It's up to Hugo to explore and find a way of rescuing his sweetheart.

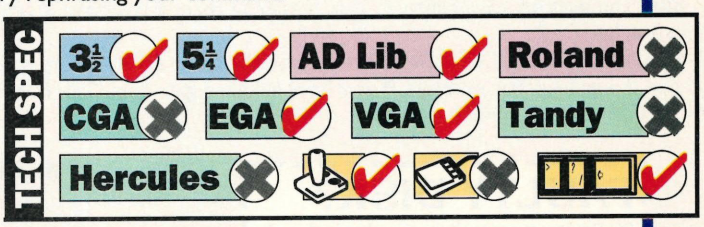
Hugo's House Of Horrors is a superb graphic adventure game. Use the cursor keys to move Hugo around each screen. When you wish Hugo to do something else type in a simple command in English. You do not need to use punctuation when you do this. Some examples of the sort of phrases you can use are:

EXAMINE PUMPKIN GET PUMPKIN DROP PUMPKIN OPEN DOOR

If Hugo doesn't understand you, try rephrasing your command.



FUNCTION KEYS
F2 Toggles sound on/off
F3 Repeat Last Command
F4 Save Game
F5 Restore Game
F6 Inventory
F9 Boss Key (Takes you to DOS. Type EXIT to continue game)



INSTALLING THE PROGRAMS MANUALLY

If you have problems with the disk menu or you prefer not to use it, you can install the programs manually.

Create a new directory for the program on the disk on which you wish to install it. For example, if you wish to install Supaplex on Drive A: in a directory called SUPAGAME, insert a blank, formatted disk in drive A: and type:

```
A: [Return]

MD SUPAGAME [Return]
```

Depending on which program you wish to install, copy these files to the directory you have just created:

SUPAPLEX

```
SUPAPLEX.ZIP
PKUNZIP.EXE
```

HUGO'S HOUSE OF HORRORS

```
HUGO.ZIP
PKUNZIP.EXE
```

GALLERY

```
SHOW.ZIP
PKUNZIP.EXE
```

For example, if you were installing Gallery from drive A: to the directory SHOW on drive C: you would type:

```
COPY A:SHOW.ZIP C:\SHOW
COPY A:PKUNZIP.EXE C:\SHOW
```

Once you have copied the relevant files, make the drive and directory in which they are located current, with, for example:

```
C:
CD \HUGO
```

Now type one of the following, depending on which program you are installing:

SUPAPLEX

```
PKUNZIP -d SUPAPLEX
```

HUGO'S HOUSE OF HORRORS

```
PKUNZIP -d HUGO
```

GALLERY

```
PKUNZIP SHOW
```

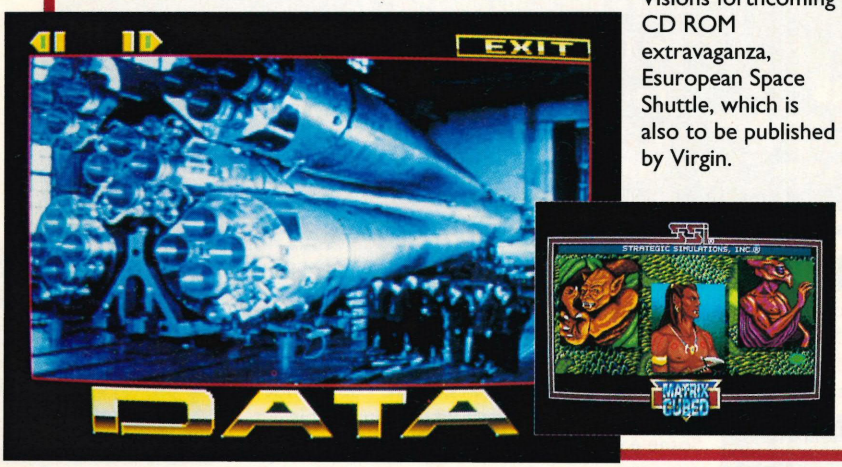
You will see a series of messages as the program is decompressed. Installation is now finished. Assuming that the installation has been successful you can delete PKUNZIP.EXE and the ZIP file if you wish, with, for example:

```
DEL PKUNZIP.EXE
DEL HUGO.ZIP
```

GALLERY

To view the pictures on the Gallery select the picture you wish to view by moving the pointer with either mouse or cursor keys to the corresponding circle icon and click the left mouse button or press the Return key.The picture will be displayed. Click again to see the accompanying text, and once more to return to the menu. Select QUIT to return to DOS.

This month you're treated to stunning pics from Dune from Virgin Games, Buck Rogers II: Matrix Cubed from SSI, published by US Gold, and Coktel Visions forthcoming CD ROM extravaganza, Esuropean Space Shuttle, which is also to be published by Virgin.



GALLERY GRIEF

If you are one of the people who had problems with the Gallery on the February disk then fear not – the remedy is simple and painless. Just follow the steps below:

1. Blow the dust off your February disk (either of them if you have 5 1/4" disks), and insert it into a drive.

2. Copy the file PCR_DEC.LBM from the cover disk to the directory in which you installed the gallery. For example, if you have installed gallery in C:\SHOW and your cover disk is in drive A: you would type:

```
COPY A:PCR_DEC.LBM
C:\SHOW\
```

3. If you now try to run the gallery you will find it works perfectly.

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 an self-Aadressed 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:

PC Wise
Unit 3, Merthyr Industrial Estate
Pentrebach
Merthyr Tydfil
Mid Glamorgan
CF48 4DR

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

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

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 from overseas) and the original disk.

PC Review's cover disks are checked at each stage of production for all known viruses and duplicated under strict quality control. However, we can accept no responsibility for damage to either data or hardware caused by use of our cover disks.

We make every effort to ensure that cover disk contents are as advertised. If circumstances should dictate that we are unable to supply the stated programs, we will endeavour to provide alternative software. However, PC Review, its distributors and retailers will not be held responsible for any unnotified change to the contents of the disk.

TROUBLE-SHOOTING

If you're having problems, check our trouble-shooting guide below:

I get the message 'Cannot run in Mono'.

- The menu program will not run on mono machines. If there are mono compatible programs on the disk, you will have to install them manually as outlined above.

When I try to start the menu program I get no response or the message 'Bad Command'.

- Have you made the drive containing the cover disk the current one?
- Is the disk properly inserted with the drive door closed?

I have correctly installed the program, but it won't work.

- Have you followed the correct loading procedure?
- Have you made the correct directory and drive the current one?
- If the game was installed to floppy, is the correct disk properly inserted and the drive door closed?

The program I have selected won't install properly.

- Is there a blank, formatted disk in the drive you have selected, and is the drive door closed?
- Is there enough room on the disk you have selected. You should only install programs to blank disks (one for each program you install). If installing to a hard drive, as a general rule, you should have at least two megabytes of free space for each month's cover disk. Sometimes the programs will not fit on to a 360K disk, even if it is completely blank.

HELPLINE

If you still have problems then please phone our helpline number below before returning your disks:

DISK HELPLINE: (0443) 693233

The helpline operates between 10.30 am and 12.30 pm weekdays. If possible, please have your computer operating and your cover disk ready when you phone the helpline. If your phone 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.

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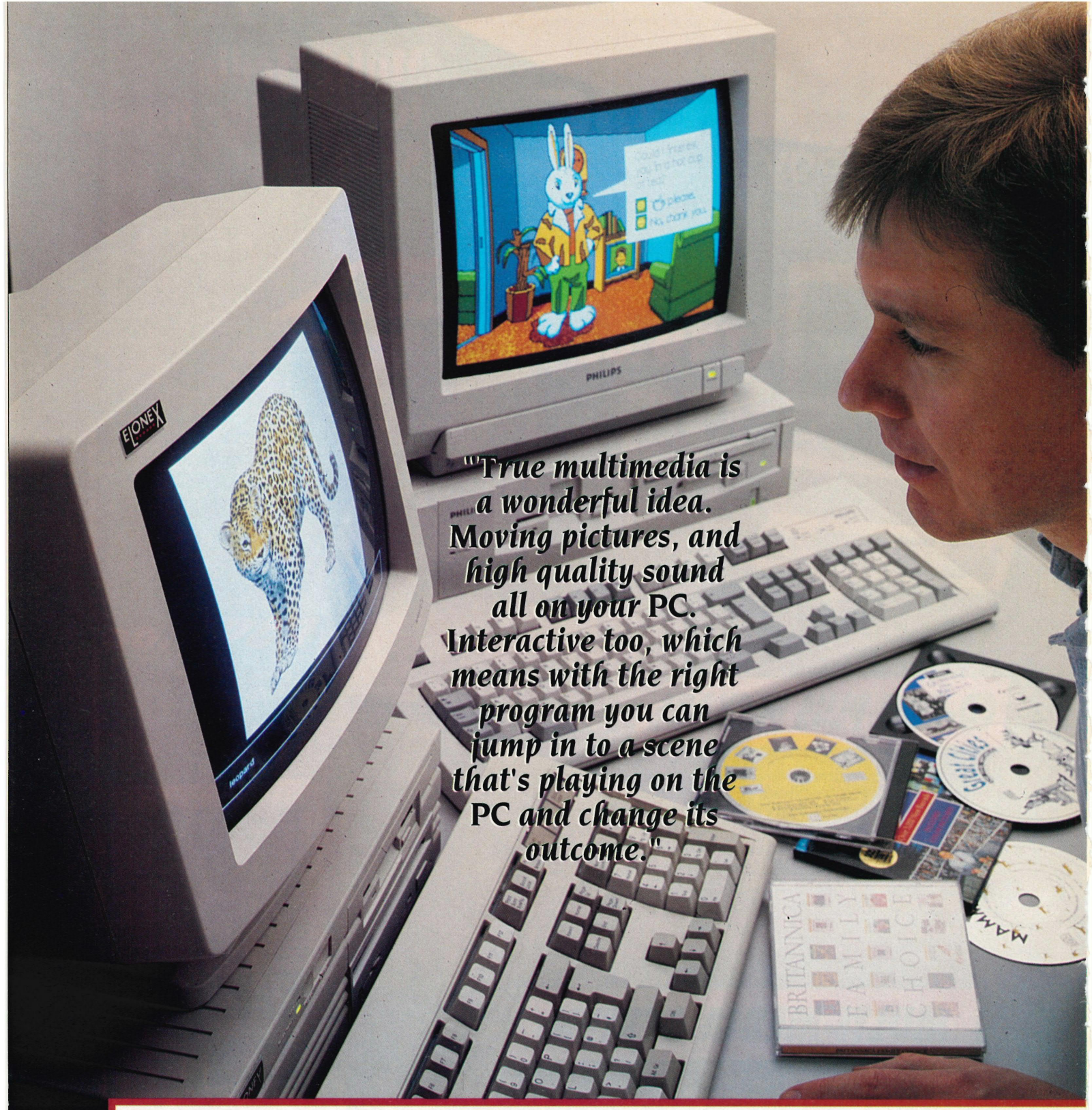
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The Multimedia PC standard

Microsoft has a growing stake in the multimedia market. Windows3.1 (the next version up from the one currently available) has a full multimedia implementation built into it, and Microsoft needs to make sure the world is ready for it. This means getting together a group of (mostly) manufacturers to define the minimum specification needed for a multimedia PC.

As if to prove that it is a new area, Microsoft and its cohorts have been quietly improving the specification. It started off with a minimum of a 286-based PC running at greater than 10MHz,or any 386 or 486 machine. This has changed slightly, so, according to Microsoft), the current minimum processor is a now a 386SX which seems quite sensible.

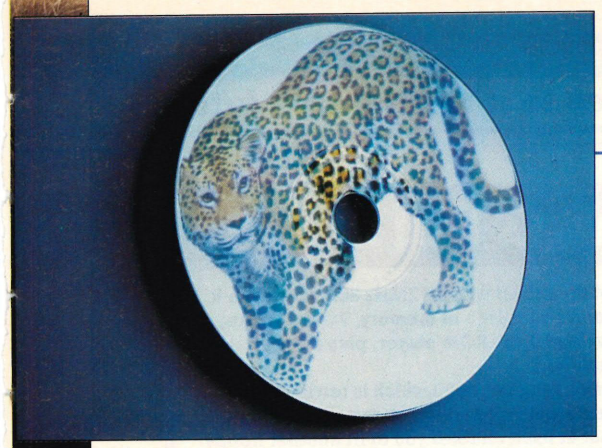
The rest of the standard is as follows, a minimum of 2Mb memory, at least VGA graphics and a digital audio "sub-system" (which effectively means sound card). 30Mb hard disk or bigger, a 3.5" 1.44Mb floppy drive, a CD-ROM drive, a joystick and a MIDI port. Other specs include a serial and parallel port, a two button mouse and a 101 key keyboard – all of which is a fairly common standard these days.

The PC should come preloaded with Windows 3.0 with multimedia extensions or, when it is released, Windows 3.1 which has the extensions built in. At the same time multimedia kits should also be available, these will enable you to upgrade your current PC to the MPC standard.

You can, of course, make up your own multimedia system by adding to your own equipment or specifying the equipment when you buy your computer.

The original minimum configuration was, the manufacturers claim,"most appropriate for home and educational use". This is really rather silly, and looked just like a marketing ploy to allow manufacturers to shift any excess 286 PCs they might have hanging around their warehouses.

Windows runs *much* better on a 386SX or above. The 286 chip works, but is certainly not the platform to build a Windows world on. Even if you don't



CD-ROM – the key to a multimedia future

COVER STORY

Chris Long looks at current developments in the world of CD-ROM and multimedia technology, and reviews three new CD-ROM PCs which give you affordable multimedia capabilities today

The term 'multimedia' must be one of the most persistently misunderstood terms in today's computer market. Put simply, it's a logical extension of audio-visual techniques, but with a computer controlling the pictures and sound. The full-blown multimedia specification isn't really yet available in affordable form, but the three PCs we've looked at here do represent a starting point for people interested in this field.

True multimedia is a wonderful idea. Moving pictures, and high quality sound all on your PC. Interactive too, which means with the right program you can jump in to a scene that's playing on the PC and change its outcome or, at least, select a different one.. Of course the catch here is the technology, since to achieve all this you need quite a lot of computing power.

In order to be a true mixing of media using the computer as central control, the video system for the moving pictures has to be capable of producing 30 frames a second with what is called 'photo realism',and that means a lot of colours and very high definition – in the region of 17 million colours and a minimum definition of 1,024 by 768 dots on the screen.

The sound equipment needed is also serious stuff; since the PC's basic sound capacity is more or less nil, you need a sound card with stereo capability, and CD quality.

And, perhaps, the most difficult and less obvious of the lot is the data handling. We often underestimate the sheer amount of information we receive on a day to day basis. Our senses are tuned to the environment, we see, hear, feel and smell what is around us but it doesn't all register. It is a phenomenal task to represent that in a computer. If we walk past a building site we will start to filter out the sounds we hear (except maybe the odd, "look out below") because they are of no use to us, but the computer can't do that. It has to register everything and in high quality sound and vision *and* then digitise it.

This takes an awful lot of work. A music CD stores information in a 16-bit format, in which each 16-bit slice is a tiny cross-section of music. In musical terms this adds up to 74 minutes, but in digital data terms a standard CD can store about 660Mb.

Video is an order of magnitude bigger. The amount of data that has to be encoded is massive: colour, light (luminance) and picture information all have to be squashed in to the 660Mb or so of a CD, and that gives in the region of a minute and a half of animated video on one CD.

Therefore to qualify as a multimedia machine it has to have a CD-ROM drive (don't forget, the largest capacity you can get on a floppy disk is 1.44Mb, so something like 472 of these floppy disks equals one CD-ROM).

Therefore the PC has to be able to shunt around and process masses of data in 'real time'. A picture that has 17 million colours reproduced at a definition of 1,024 by 768 takes something like 2.5Mb to store and is

want to build a multimedia system, if you can afford it buy a minimum of a 386SX and one running at 20MHz at that. There is very little difference in price between the 286 and 386SX and you would be even better off looking for a straightforward 386. (Incidentally, those of you interested in Windows will find a full-blown introductory guide to Windows in the next issue of PC Review. Reserve a copy now.)

The 2Mb of memory is just about OK, but it would be much better to get 4Mb or even 8Mb. Similarly the hard disk: if you want to record your own sounds you will be running out of space with 30Mb pretty soon so try to 'buy up' to about 60Mb or even 80Mb.

Obviously the VGA standard is an absolute, absolute minimum; VGA is 640 by 480 with 16 colours, the different levels of video standard (or non-standard) start there. There is a sort of standard which is called either VGA+ or Super VGA that gives 640 by 480 with 256 colours which you should consider as an option, but make sure your software will work with it.

Similarly, Super VGA at 800 by 600 with 16 colours is good but the pictures won't be as good as a 256-colour picture and you have to check if your software supports it.

Of course if money is no object you should be seriously considering one of the new rash of 24-bit colour boards. These new boards produce almost photo realistic pictures – but cost upwards of £2,000.

The CD-ROM is fairly standard and will come with its own set-up software. The drive will probably need a SCSI interface card to run and they are usually supplied with the unit. As ever, when buying, CHECK.

The sound card should be fairly straightforward too (see page 34 for more on sound boards and upgrading your PC's sound capability). It is worth noting that some sound boards come with a SCSI interface built in, so watch out for the specifications of anything you buy.

The only thing with the sound card is that it needs to have both a games port and MIDI to achieve the MPC standard. Both the AdLib Gold and Sound Master Pro have these facilities and also have multimedia system upgrades.

16 times the size of the same VGA image shown in 16 colours.

This will invariably put a strain on the processor and data bus (the route that the data flows along when moving inside the PC) hence 386 and 486 PCs are the best option here, although the less powerful 286 can do it at an absolute push.

Data compression is fast becoming a fundamental part of this technology, where the all the data is squeezed right down in order to handle great chunks of it more easily but without losing any of the picture information.

Currently though, multimedia is based around the sort of equipment you can buy today, which means the result is less impressive, but at least you can have a go. PC manufacturers have been busy recently and have come up with a Multimedia PC (MPC) standard. Driven by Microsoft, this attempts to tie down all the manufacturers to a basic hardware standard that ensures a minimum of multimedia functionality. See The Multimedia PC Standard.

We looked at three PCs that come near but don't actually claim to be multimedia machines. They all have CD-ROM drives which gives you access to the growing market of CD-ROM software. The three machines were the Elonex PC-320X, the Philips PCD 315 and the GoldStar GT 212.

GoldStar GT212

The is the slowest and least powerful of the crowd with a 12MHz 80286, though it does have one or two plus points. It comes with 1Mb of memory, VGA graphics, a 40Mb hard drive, a 3.5" 1.4Mb floppy drive and a CD-ROM player, plus a SoundBlaster card, and a pair of mini speakers.

This is very much at the low end of the price range at £800,which is terrific value even for a 286. The CD-ROM player is an external unit and sits on top of the system box, which may not looks quite so good, but at least enables you to fit another floppy drive if you wanted. Alas, the CD-ROM unit is a caddy device so expect to drop the odd CD when using it.

The construction is metal, like the Philips, but it takes seven screws to get at the innards. Inside the unit is well laid out, there was only one slot left out of the three available after the sound card and CD-ROM controller card had been fitted. The keyboard was the best of the lot; sturdily built and a responsive feel.

Around the back there is only one serial port and one parallel port, although there is a dedicated mouse port. It would have been nice if there were two serial ports, but one will suffice. Also at the back are the video out and the keyboard socket.

When testing this machine we had a CMOS memory failure (the CMOS memory is driven by a small battery inside the unit and carries details of the system set up, like which type of hard disk, which graphics card is installed and the memory size). After a bit of fiddling and a phone call to GoldStar all was fixed, but it underlines the problems when buying a PC. Make sure the company can support you in times of need.

There were fewer manuals too and the overall design was a bit shoddy. That said, the GT212 is excellent value if you are on a tight budget.



Philips PCD 315

By far and away the best looking of the trio is the Philips PCD-315, with its stylish grey box. It comes with a 16MHz 386SX, 1Mb of memory, a 40Mb hard disk, a 3.5" 1.4Mb floppy drive a CD-ROM and Super VGA graphics. It was a pleasure to use the Philips. Here it was obvious that someone had thought about the design before releasing it on an expectant public. The floppy drive sits on the left hand side of the unit and the CD-ROM unit on the right hand. Where the CD-ROM scores over both the Elonex and the GoldStar is in the CD disk transport department.

Instead of the fiddly caddy system where the CD is placed inside a plastic casing and then put in the drive (like the Elonex), the Philips machine loads exactly like a music CD player, where the tray whirrs quietly out towards you and you place the disk on the tray and it whirrs back in. A minor complaint is that the mechanism felt slightly sticky, though this could have been a problem with the machine we had.

Again the performance was quite good well up to 16MHZ 386SX standard. The keyboard was good and responsive and the mouse was brilliant. Very well designed, the mouse was a joy to use, even coming with a little holder that sticks on to the side of the machine for storage when not in use. For some reason the designer must have lost concentration when placing the keyboard socket, because it's on the side of the machine, which is daft, because if you wanted to put the PC on its side or store something by its side – you can't.

There was the (almost) standard two serial, one parallel, and graphics ports on the back panel with easy enough access.

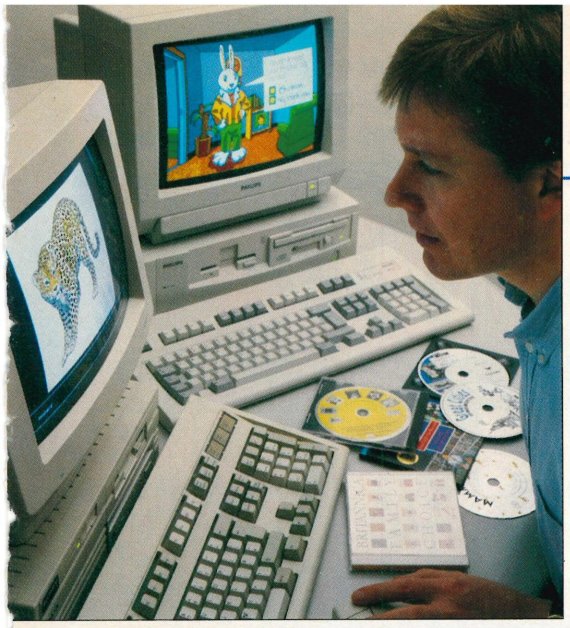
And talking of easy access, the Philips designers excelled themselves putting the case together. Just one thumbscrew at the back of the unit allows you inside with a minimum of fuss. The case is metal and seems quite sturdy.

Inside there are three 16-bit slots, one of which is taken up with the CD-ROM controller card. Still no games port, so, like the Elonex, if you want to connect a joystick, you'll need to buy a games adaptor.

The system comes preloaded with a software program called GeoWorks which looks a little like Windows and allows you to 'do' word processing, a bit of databasing and spreadsheeting (should you feel so inclined.)

Not quite so many manuals as the Elonex but plenty of support. At a price of £1,199 (including one year's free maintenance – at home) this represents excellent value and comes well recommended.





"You can make your own multimedia system by adding to your equipment or specifying the equipment when you buy."

Elonex PC-320X

The Elonex is a 20MHz 386SX and comes with 2Mb of memory and a Super VGA graphics adaptor and monitor. In the mass storage department it has a 3.5" 1.44Mb floppy drive, a CD-ROM unit installed below the floppy drive and a 40Mb hard disk.

The most confusing thing about the Elonex is its power-on arrangements. There is a switch on the back which turns the power on to the PC (this includes the monitor which is driven via a mains outlet at the back of the unit) but to actually power up the PC you need to press the button on the front of the box.

All this led to hours of mindless fun pressing the button on the front of the machine (the one labelled on/off) waiting for the it to come alive, when the only noticeable movement is the clock in the PC Review office.

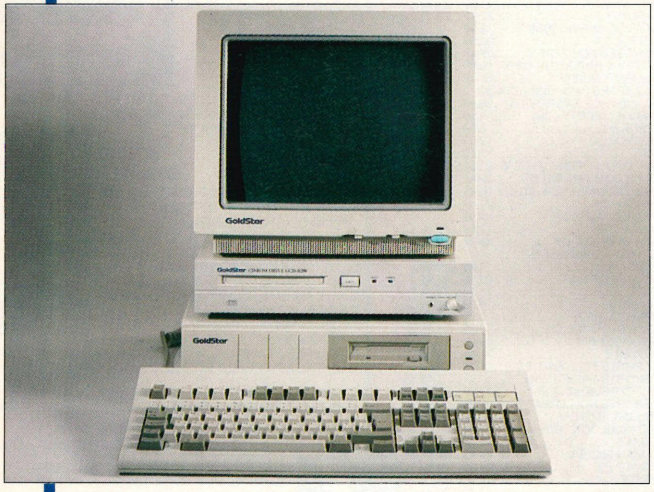
An enterprising soul stopped this entertainment by spotting the switch at the back. Once switched on, the PC turned out to be really quite speedy.

Casings are quite important, since they are the only defence between the PC and the outside world, the Elonex was a bit disappointing here because it only had a plastic casing (with the obligatory bake-o-foil like screening material on the inside),which although sturdy, would have been more confidence-building if it had been metal.

It takes the removal of five screws to take the cover off and inside it's quite well laid out, though it's apparent that if you want to upgrade the memory by adding extra chips to the motherboard you will have to remove the hard disk first, which could be a trifle fiddly. It has three 16-bit (AT) slots of which one is used for the CD-ROM controller card.

Around the back of the unit live the two serial and one parallel ports, also the video out. There isn't a dedicated mouse port but there is a very comfortable serial mouse (ie, it plugs in to a serial port) supplied.

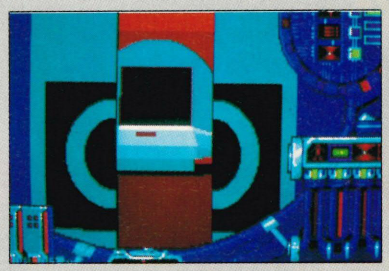
The keyboard, however, is a bit naff, with a very soggy lightweight action, and no reassuring 'click' as you press a key.



A bit of a minus is the lack of a game port, which is a little daft. So, once again, if you want to connect a joystick you will need to buy a games adaptor.

The manuals are multifarious. If you're ever stuck for some heavy reading you could wade through these for a week. They all have the same design which makes them a trifle harder to lose, and having manuals, albeit a lot of them, is far and away better than having no manuals at all. The CD-ROM unit is installed into one of the floppy drive bays. Unfortunately, the colour of the unit does not match the 3.5" drive sitting above it, which makes it look a little cheap. However, the performance isn't bad at all, as you would expect from a 20MHz 386SX and with the Super VGA graphics it looks great too. Our review unit would you cost £1,220 which makes it the most expensive of the lot. Still, the Elonex is not bad value, but with its looks and that fiddly on-switch, it's not brilliant.

FIVE OF THE BEST CD-ROM PRODUCTS



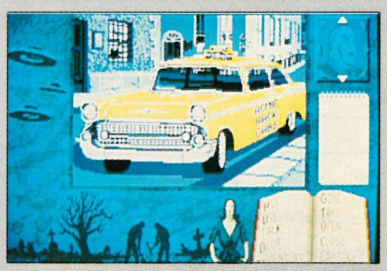
Mammals, Software Toolworks, £116. Features include live action video clips.



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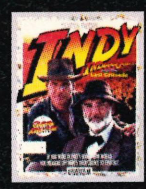
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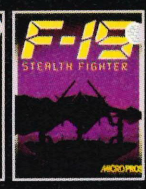
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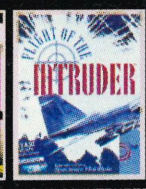
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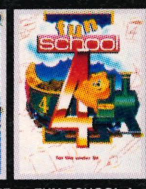
NRG colour magazine bi-monthly to all members. Don't miss it!


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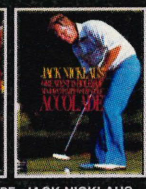

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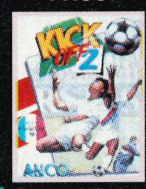

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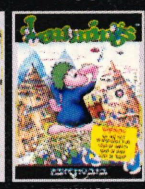

FLIGHT OF INTRUDER **14.49**

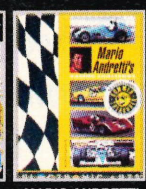

FUN SCHOOL 4 **17.99**

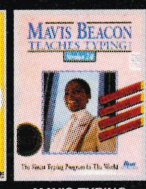

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JACK NICKLAUS **6.99**

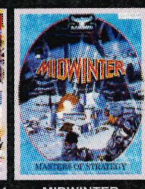

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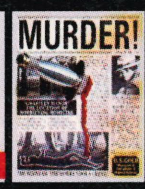

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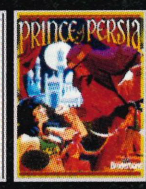

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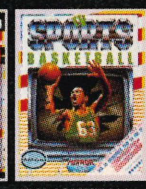

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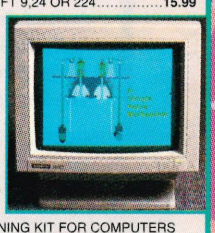


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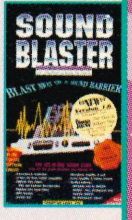
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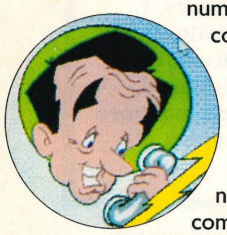
On a quiet Sunday afternoon, Steve Cooke recommends you sit back in your armchair, light a fat cigar and, to the haunting strains of that familiar melody, plot revenge on the Joneses.

DREAM MACHINE



It's one of those days. Larry doesn't sprint across the screen, he doesn't even limp across the screen, he jerks across it in agonising slow motion. And something's gone wrong with the internal PC speaker. It doesn't even beep any more, it burps.

The fascination of those glorious purpley CGA colours seems to have diminished over the years, as does the number of new games that condescend to offer a CGA option in the first place. Your disk box is full – 740K just doesn't seem such a big deal nowadays and Jonesy next door is already complaining about his 1.44Mb floppies and 40Mb hard disk, the insensitive swine.



At least he's GOT a hard disk, the beast.

You haven't.

On a day like this, what can you do? You light the proverbial cigar, put your feet up on the desk, snuggle down into the old armchair and dream of The Ultimate Games Machine. Not just any old 386 rubbish, guv. But something that will make Jonesy froth at the mouth with envy, something BIG, something FAST ...

Something truly AWESOME ...

Here it is ...

Putting on the power

First, you muse, puffing on the cigar, we need something nippy to liven up Larry. You could always go for one of the faster 386 models – there are dozens around these days at prices from around £800 upwards, depending on configuration. But why pinch pennies. Throw caution to the winds and go for a 486.

Like its pathetic 386 sibling, the 486 is currently available in two configurations: the chunkier DX and the cheaper SX. Forget the latter, it just doesn't have the cachet of its bigger brother. So, we're looking for a 486DX system. Price is still no problem – there are bags of these around for £1,500. A mere bagatelle, Jonesy.

But what about the nitty gritty? The SPEED. Well, yer average 486 tootles along at 33Mhz, which will get Larry on the road to love pretty sharpish, even if he's looking in all the wrong places.

But somehow (you ponder, puffing a little more urgently on the cigar now) 33Mhz seems a little on the cheap and shoddy side, and besides the 486DX can manage a reasonably decent 50Mhz.

Suddenly it's all clear to you. Frankly, 50Mhz is de rigeur for any self respecting gamester these days, so let's plump for one of those. Of course this may plonk the price up a bit – to around the cost of a small car, actually, but ... well ... my ... isn't this cigar good!

Memories are made of this

As the February shadows lengthen across the lawn, you pensively flick a spot of ash on to the cat and decide that even 50Mhz may not deliver really EFFECTIVE speed. It needs a bit of assistance.

Why not ... Oh yes, this is good, this is ... Why not speed up the effective rate of operation by adding a memory cache?

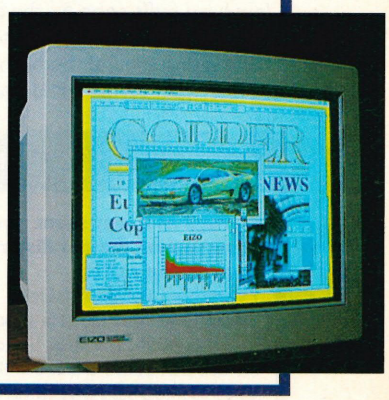
Pricey Pixels

Along with processing speed, the quality of your display is the most important part of your system. Let's not cut corners here. First, you absolutely MUST have an SVGA card with at least 1Meg of RAM on board and it simply HAS to be able to generate a 1024 by 768 display – we don't want any of that cheap and nasty flicker, do we?

256 colours on screen isn't too hot either, so we might as well go for one of the newer models that use a digital to analogue converter to generate the more acceptable 32,000 colours on-screen at once. After your dealer has finished having a cardiac arrest due to Cash Prospects, he will be delighted to supply you with any of the current models.

For the monitor, frankly anything less than 20 inches simply won't do. Go for the Eizo Flexscan T660i, for example, with a 1280*1024 70Hz display. £2399 exclusive – don't niggle about the price – you know perfectly well that Ultima VIII will probably require AT LEAST that level of hardware support.

The conventional choice would be the Flexscan T660i (above) but you might want to show a bit of flair and splash out on a VPL headmounted display. Unfortunately the resolution isn't quite as hot as the Flexscan, but it will accumulate considerable street cred. Later this year we would recommend a Sharp colour LCD flat screen - a mere 1 inch thick and the brightest picture this side of a colour slide.



Wot? No Mouse?

Mice, joysticks and action chairs are all very well, but why not go for a quality Marconi RB2-300 trackball. Retailing at £99.00, this little baby means you no longer have to shift the external 1.4 Gigabyte drive across the desk to make space for your infra-red mouse. Precise positional control, zero drift, and no regular cleaning required: **contact Marconi on 0522 510500.**

For the non-technical, this is a little memory area that is used to hold frequently accessed areas of disk data so that the processor can retrieve it direct, without having to spin the disk first. A clever bit of software monitors which areas of the disk you use most often and adjusts the contents of the cache accordingly.

You're on to something here. The rate of puff increases noticeably.

A 32K cache can noticeably speed things up on some games. A 64K is a lot better. Really annoying techie heads have 256 RAM caches which can often hold an entire application's code in memory. Of course, you need a decent amount of on-board memory so that you can spare some for the caching process – most systems come with 1 meg on the motherboard.

Let's go for ... oh ... 16. 16Mb of on-board RAM should do the trick nicely. In fact you can get 64 on there, but DOS probably won't make much use of it. For the time being, we'll settle for 16Mb. A reasonable compromise, eh?

This will allow us (software permitting) to set up a truly awesome disk cache. You permit yourself the ghost of a smile as you picture Jonesy reacting to the news that you're playing Ultima VII – with the ENTIRE PROGRAM held in RAM! And of course you still have room for all those boring things like Windows 3.0, any number of pop-up programs, and of course the sound data buffer to the DAC – but more of that later.

"I find it quite incomprehensible," you tell Jonesy (correction, you IMAGINE telling Jonesy – this is all fantasy, isn't it?) "that Psygnosis don't produce a pop-up version of Lemmings." Of course, you chuckle to yourself, you could probably handle a pop-up version of Wing Commander II with this set-up – but let's not rub it in, eh?

Amazing how long these cigars last!

Going for the max

Jonesy has a hard disk. For a moment, the quiet pleasure of the Sunday afternoon strikes a slightly sour note but a few hard puffs soon fix the problem. Jonesy's hard disk (giggle) is only 40Mb.

No beating around the bush. Nothing less than 400Mbytes will do here.

And that (the cigar is fizzing like a firework now – the cat looks a little nervous) And that 400Mbytes ...

... is just the INTERNAL drive. Yes! It'll fit perfectly beside the three soundcards – Roland, Soundblaster and Gravis Ultrasound blasting in glorious unison. And how about a spot of additional storage. Say a slimline 1.4 Gigabyte hard disk! Perfect!

That (your feverish excitement fuels a sudden and unnatural ability for mental arithmetic) is enough to swallow up over 35 of Jonesy's pathetic little platters.

But what – a moment of panic here – would I actually DO with all that storage??

Suddenly, the glorious truth hits you. Get an internal CD ROM, with an additional 600Mb of storage (so obvious ... so ... so NECESSARY) then spool the entire CD to the hard disk and get RED HOT...

...Ouch! Careful with that cigar!..

...get red hot audio, constantly spooling from the hard disk through the digital-to-analogue converter ("A DAC, Jonesy – a little device that converts digital data into analogue data, suitable for reproduction through my Bang and Olufson..."). Wing Commander, Wagner, oh, the vision...!

What a cigar! PC

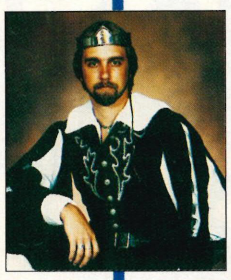
What the REAL power users use!

Sid 'Civilisation' Meier, Microprose

The man who brought you the legendary Microprose flight sims, Railroad Tycoon and Civilisation dreams of: "... a PORTABLE IBM compatible, at least 20Mhz with a colour VGA display, a real big hard disk (at least 200Mb) and a good sound card – Roland or better.

"The portability would let me work while travelling. I need a big disk because I often work on a couple of projects at the same time. I think that sounds adds a lot to the quality of games.

"At home I have a PC compatible, 20Mhz with a 200Mbyte hard drive, Soundblaster, mouse, VGA, 4Mb RAM. I use it mostly for game development but also to play games."



Richard 'Lord British' Garriott, Origin Systems

The creator of the Ultima series lusts after "... a 486/33, it would have a 200Mb hard drive, with a caching controller. It would have a Roland LAPC-1 as well as a Soundblaster. It would have at least 8Mb of RAM. It would have DOS 5.0 and Hyperdisk. A mouse, of course. A joystick, of course, and a 17-inch flat screen monitor. And guess what – that's exactly the machine I have!"

"For the first ten years or so of my career in computer gaming, I used to work with my principal development machine in my house and do development at home. For the last five years, since I built my new house, I have never brought a machine home for either work of play. My house is pleasantly void of even a single computer. My home is my place of escape so that work stays in the office and home is a retreat away from even the option of working."

Peter 'PC User' Gloster

The man who's probably seen more hardware than anyone else we know (he works for one of our associated magazines, PC User) has simple tastes. "I have a fondness for Dell machines, so I'd go for their Powerline 450SE, running at a healthy 50Mhz – although I suppose that, having unlimited funds, it's a bit galling that they offer such good value for money. I'd also go for a 1.2 gigabyte internal drive. As for monitors, I have a liking for the Eizo Flexscan range (see our recommendations), but in general I'd recommend any good monitor with a Sony Trinitron tube: these are only curved in one direction so you don't get that 'fishbowl' distortion effect at the edges that you do with some other large monitors.

"On my desk, I've got a more modest Epson PCAX3 386 running at 20Mhz with VGA."

Splashing Out

Strange as it may seem, your cigar session did not distort your view of reality. Everything you fantasised about is available, at a price.

You could lay your hands on the awesome Dell (0800 414535) 450SE Powerline, which packs an astonishing 128 megs of RAM inside, together with non-interlaced display and a satisfying internal 640Mbyte hard disk for £12,849 ... plus the VAT, of course. Elonex (081 452 4444) will be delighted to supply you with a snappy 50Mhz 486, 1.4 gigabyte drive and all the trimmings for a 'highly competitive price'. Ring them. Ring your bank manager first.

Club's 50Mhz 486 is just about to hit the shelves: with built-in CD ROM, 400Mbyte hard disk, 16Mbytes of RAM and SVGA it will set you back a very reasonable £6,499 exclusive. More information from them on 081 451 7984.

They plan to release a 60Mhz version soon – make sure Jonesy doesn't get his hands on one of those!

Of course, all these suppliers also provide normal PC's for people without cigars.

SHUTTLE

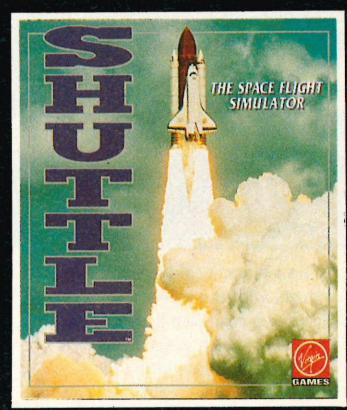


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Based on official government documents, SHUTTLE is the most accurate and comprehensive simulation of NASA's Space Shuttle ever produced for any home computer.

With the aid of Mission Control, you will master such challenges as deploying and repairing satellites, launching spy satellites, manoeuvring your craft in zero gravity, attaining the correct re-entry trajectory, and pulling of complicated landings.

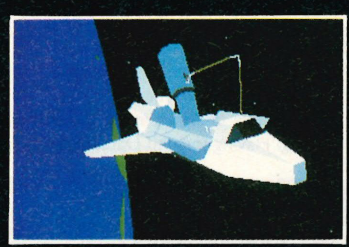
Advance polygon and elliptical graphics along with actual land and star maps were used to create the breathtaking 3D panoramas of the Orbiter and its environment, which can be viewed from any angle at any time.



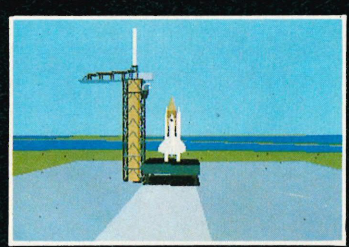
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SPECIAL

Is the man who "changed the look of science fiction" about to do the same for computer games? Ciarán Brennan looks at the PC's latest Hollywood connection ...

SOWING THE SEEDS OF DARKNESS

The link between computer games and movies is nothing new – films as diverse as Die Hard, Willow and Flight of the Intruder have all been the subject of 'interpretation' into games although usually the only similarity between game and film is the title and box artwork.

However, over the past few years, movie-makers have shown some interest in getting involved in producing games. George Lucas has his own software division, Lucasfilm Games, whose chief producer Hal Barwood is also a screenwriter and director.



This situation could be changing though, with the arrival of Darkseed, a science fiction fantasy adventure which in terms of style and gameplay leans in the direction of Sierra's classics, while adding the dark, menacing atmosphere of the cinema classic, Alien.

The reason for the Alien connection becomes clear when you find that the game's artwork is, for the most part, based on the work of, and executed in collaboration with, H.R. Giger (see page 32), the legendary Swiss artist who earned an Oscar for the design of Ridley Scott's classic science fiction shocker.

The company behind Darkseed is Cyberdreams, a newly-formed team which is headed by Patrick Ketchum, a man with a considerable pedigree in computer gaming. Having formed Datasoft in 1980, Ketchum went on to produce such early classics as Bruce Lee, Zaxxon and Pole Position before moving on to co-found Sullivan Bluth Interactive Media, a collaboration with a famous Disney offshoot animated movie production company which brought you Dragon's Lair and Space Ace, among others.

It was the SB connection which gave Ketchum his first insight into how a major movie studio operates, and which opened his eyes to the possibilities offered by teaming up with the creative forces behind the big screen blockbusters to develop deeper and more sophisticated games.

However, it wasn't until the company's design team of Ketchum, Mike Dawson, John Krause and Mike Cranford (who designed and programmed Bard's Tale) had fine-tuned the specification for the first game that they realised that they had hit upon a story which would be ideal material for the designer of Alien to bring to life.

Ketchum takes up the story: "I approached Giger's publisher in Los Angeles to see if the artist would be interested in working with us. He didn't say yes at first, but did say that he would look at it and then decide. I think that he felt it would be a Nintendo-style game for little kids. The thing is, Giger considers himself to be a fine artist, not a commercial artist – most of his paintings are not created to be sold and many are hanging in museums throughout Europe."

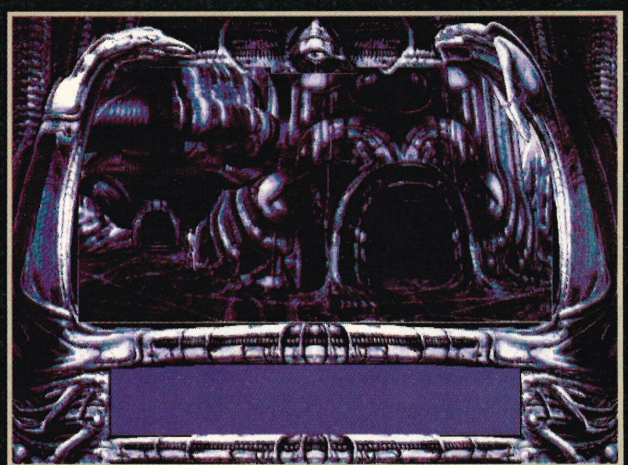
Still hesitant about becoming involved, Giger explained that he was unfamiliar with the computer as an artistic medium and asked if he could see some game graphics. So Ketchum packed up some of the 300x200 resolution IBM screens which the team had put together and travelled to Zurich



H.R. Giger, seated in a chair of his own creation, fashioned from replica human bones, with (top) his sleeve design for Debbie Harry's Koo Koo album (when asked what his inspiration was in producing this design, Giger once replied "table football"). Below, 'Li', a 1974 portrait of his lover, Li Tobler.

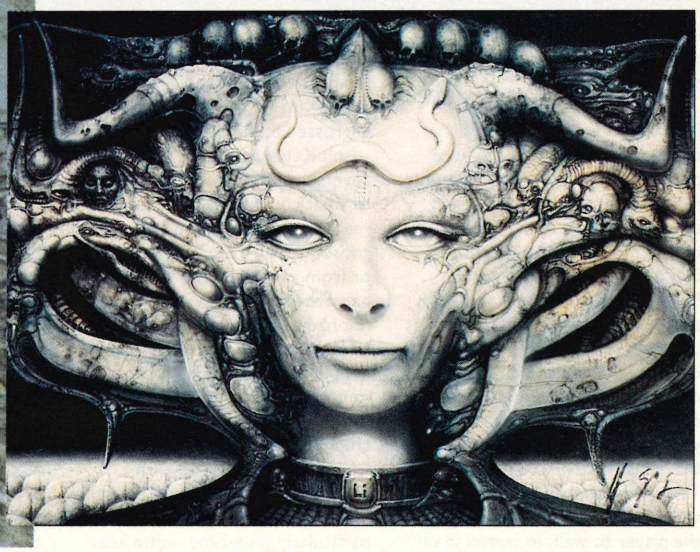
Although the two sides of Darkseed's world are as different as they could possibly be – from the use of colour and graphic style, right down to the play area's frame – they actually mirror each other exactly. However, this doesn't mean that solving a puzzle on one side will get you through to the other. Instead, success depends on the player working out a route through both worlds.











with a German-speaking friend, Ilona Seibert, to act as a translator.

"Giger was very nice to us," says Ketchum, recalling this first meeting. "We spent about three or four hours talking about computers and when we left he loaded us down with posters and books. However when we got back to the US, I received a fax from him saying that he was sorry, but he didn't want to get involved with developing the game."

Ketchum couldn't figure out what the problem was, Giger had seemed interested, but there was obviously something which bothered him about the project. Having pondered the problem for a while, Ketchum decided that it could have had something to do with the crude nature of the graphics which they had presented to the artist first time around – maybe he was worried that his work couldn't be reproduced accurately in pixel form?

Working on the principle that 'if at first you don't succeed …' Ketchum had some screens of a higher resolution (640 x 400) drawn up and once again crossed the Atlantic. This time around, Giger was suitably impressed and agreed to become involved.

So now work could begin on the game itself. Using the animated adventure style made famous by Sierra's King's Quest series (and later adopted with notable success by Lucasfilm), the Cyberdreams team wanted to combine some new digitising and animation techniques with a strong storyline which would have held up no matter what medium was used to convey it.

Darkseed is the story of Mike Dawson (one of the game designers, who 'stars' as himself in digitised form), a writer who buys and moves into an old and mysterious house only to become troubled by strange nightmares and dreadful headaches.

Slowly but surely, he begins to unearth clues as to what's happening around him – and quickly finds himself involved in a nightmarish fight to save the world from creatures from another dimension.

And this is where Giger comes in. The game environment is split into two worlds: the normal earth environment (which includes Dawson's house, the surrounding area and the local town) and an horrific biomechanical hell, the locations in which mirror the real world exactly: precisely the same route will take you to, say, the police station in both the real world and the Giger world.



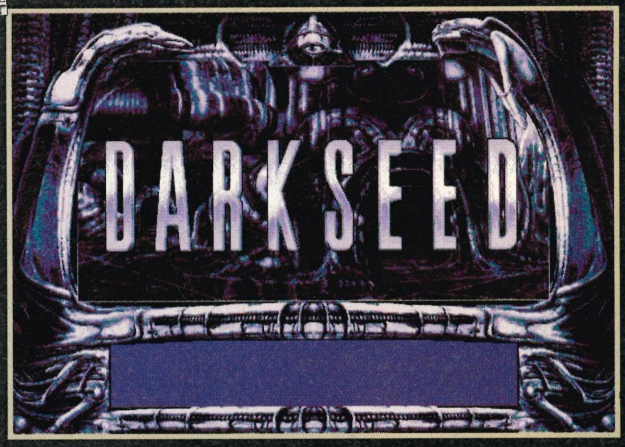
"When an artist first begins to work with Giger's pictures, something strange definitely happens"

As the story unfolds, it becomes clear that, apart from being a bizarre mystery, this game is also a race against the clock as Dawson has only three days in which to save himself and, therefore, the rest of humanity. It is dark touches such as this which help to set the game apart from the usually humorous animated adventures which have come before it.

Ketchum is particularly keen to point out the differences between Darkseed and, for example, Sierra's King's Quest V. "The differences are almost endless," he says. "Our game is far more adult-orientated and uses much more dramatic imagery. Not only that, but in technical terms we have the lead in such areas as digitised speech and characters and make







(Above left) Just like Alice in Lewis Carroll's famous tale, the way through to the Giger world seems to involve that mirror ... but where's the missing key?

use of multiple cinema-style close-ups and numerous mini-movie sequences."

One of the most notable innovations is the use of a fully digitised main character. Where previous games have filmed actors in various poses and actions and used the footage as a 'skeleton' to draw a new character over, Darkseed features the real-life Mike Dawson moving gracefully in and out of the scenery in perspective. And while the results of this technique couldn't yet be described as completely lifelike, it does produce an effect which is way ahead of anything in this line that's been attempted before.

Another innovation is the 'three-way' cursor system, which allows the player to walk to, examine or pick up just about any object on screen by a simple manipulation of both mouse buttons. This, along with a clever icon system, cuts out the need for any typed entries and lets the player get more deeply engrossed in the adventure itself.

Isn't Ketchum worried about any adverse reaction he might receive to what could be called the first real horror game? "We expect to get some mail from the bible belt or from a few religious fanatics," he concedes, "but as yet we have not had any trouble."

He must be hoping that the people who eventually buy the game will have an easier time than the artists who've worked on its graphics. Many of the people who've worked closely with Giger's artwork have suffered from lack of sleep or have had particularly gruesome nightmares as a result of prolonged exposure to the Swiss artist's creations.

"This doesn't happen so much anymore," Ketchum explains, "but when an artist first begins to work with Giger's pictures, something strange definitely happens. Some of the nightmares we've heard about have included the artists tearing flesh from his and exposing 'Giger flesh', others have suffered blistering of every inch of the body's surface and one dreamed that he was pulling his eyes out! We even had one request for psycho-trauma compensation."

This could be part of the reason why Darkseed has been delayed from its original proposed release date of October 1991, although Ketchum claims that perfectionism is the most important factor. However, the game is now at what the developers call its 'beta test' stage where the final remaining bugs are being ironed out and any necessary tweaks to the gameplay can be added.

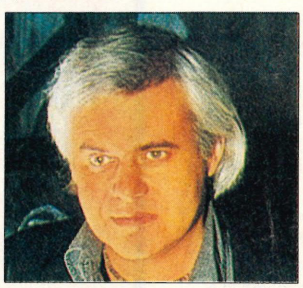
Cyberdreams' involvement with the movies is not scheduled to end with Darkseed and Giger though: its next game will be Cyber Race, a futuristic racing simulation which Ketchum describes as being "on the level of Wing Commander, but better" and which is being designed in collaboration with Syd Mead, the man who designed Blade Runner and was also heavily involved in Tron, 2010 and the Star Trek movie.

● *Darkseed will be published in April, and will be handled in Europe by Mirage, a new Manchester-based label. Watch out for a full review in a forthcoming issue of PC Review.*

THE GIGER ENCOUNTER

'Gigeresque' is an expression that's long been used in the worlds of science fiction and fantasy illustration, usually to describe horrific works of biomechanic construction (men or machines which appear to be half organic and half mechanical). However, it wasn't until H.R. Giger created the alien for Ridley Scott's film of the same name that the Swiss artist's work began to become publicly recognisable.

Born in Chur in Switzerland on February 5th 1940, Giger grew up above his father's pharmacy (which may have had some effect on his more bizarre creations) before moving to Zurich, where he studied for four years at the School of Applied Arts. Giger's move may have been influenced by his home town's attitude to artists. As he puts it: "In Chur the word 'artist' is a term of abuse, combining drunkard, whoremonger, layabout and simpleton in one."



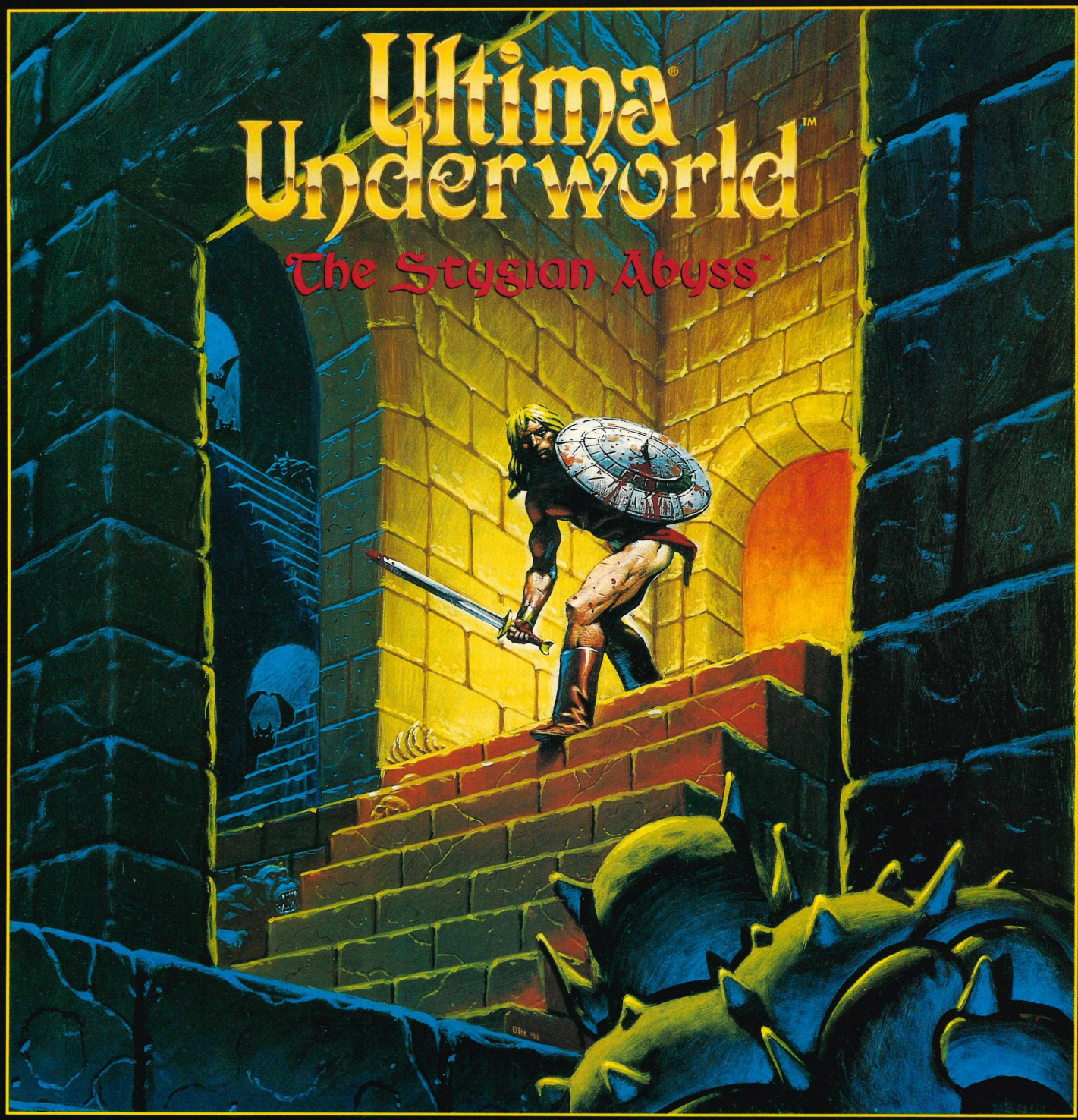
It was during his years in Zurich that Giger became interested in the work of Sigmund Freud and began to keep a diary of his dreams – many of which he was to use as inspiration for his works.

Having graduated from college, Giger took up employment as a commercial designer while continuing to work on his own paintings and sculptures in his spare time. Working initially with ink (applied using such unusual tools as sponges, razor blades and even a toothbrush!), Giger eventually began to experiment with the airbrushing technique for which he has now become best known.

His first involvement with film came in 1968 when he was commissioned to produce a pair of alien costumes for a 30-minute short called Swiss-Made. He then returned to static art until 1976, when he was asked to collaborate on the design of a cinema version of Frank Herbert's Dune. Although Giger's initial drawings for this project have been published many times since, the film never generated enough financial backing and was shelved. It was during this period that Giger first travelled to the US and met Dan O'Bannon, who commissioned him to create a monster for a trailer he was putting together to generate finance for a science fiction film he was hoping to produce. This turned out to be none other than Alien, which earned Giger an Oscar for the innovative design. When the Cyberdreams team first came up with the concept of Darkseed, Giger's artwork was the obvious choice to illustrate its darker side. Although the artist still has no experience whatsoever of computer art, he has become greatly involved in the game's creation. Not only is his original artwork scanned and used as backgrounds, but he also works closely with artist Paul Drzewiecki, directing his hand through the creation of new monsters and even suggesting a change of the game's graphic surround. The arrangement has worked so well that Cyberdreams has signed Giger up to work on at least one more game, where he will actually become involved in the game design itself as well as contributing the artwork.

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BEGINNERS GUIDE

In this series of articles about the PC, hardware and software, we'll be taking you step-by-step, through the ins and outs of using, controlling and upgrading your machine.

You will find out what the PC's components are, how to use them, and how to use PC software to get the best out of the computer.

Playing games on a basic PC is like watching television without the sound on – you're missing out on a lot of fun. This month Chris Long explains how to make your machine come alive to the sound of music by fitting extra sound capabilities

Imagine your PC could talk or make beautiful music. An impossible dream? But dreams can come true with a little time, skill and, of course, money.

Sadly the PC wasn't built with any serious sound capability included in the basic design. It only has a mini loudspeaker driven by a very basic sound chip and that is basically about it.

But this isn't, necessarily, a bad thing. Instead of PC users being restricted to any inbuilt sound capability, third party manufacturers have built add-in boards to cater for different requirements. If you want good sound on your PC you'll have to add the proper equipment to it, but you can buy a soundboard tailored to what you want to achieve.

In this article I am going to examine how you achieve high quality sound on a PC and some of the application areas that are growing around the use of sound.

Multimedia is going great guns at the moment and it will be a lot of fun when it finally happens and prices come down to the level our pockets are satisfied with (see pages 22-25 for more on multimedia and its possibilities). Simply put, multimedia is a computerised version of what older readers will remember as audio visual technology. The elements of video and sound recording are mixed with the computer and this enables you to produce your own 'films'.

The major thing that the emergence of mulitmedia has done for the market is to concentrate manufacturers' minds on a handful of fairly disparate technologies such as sound, video and data handling (moving great wodges of data about the innards of the computer), improving them and then combining them. You connect your video recorder, tape recorder, and record player to your computer and actually manipulate the images and sounds which come from the video recorder and the playback equipment from the computer console itself..

Controlling sounds

Multimedia will certainly influence the way soundboards will go, and to a certain extent is influencing them now. Manufacturers need to be able to control the bread and butter peripheral equipment of multimedia such as video players, tape recorders and the like. And what better way than MIDI?

MIDI, or to give it its full name, Musical Instrument Digital Interface, is simply a way of controlling an audio device to produce a sound or a series of sounds from a simple note on a synthesiser right up to a whole musical performance. And when it comes to controlling a load of equipment the computer is, of course, an ideal device to turn to.

The PC, because of its multiplicity, has its own little industry supporting it in the MIDI world. Roland, whose MPU-401 has set a standard of sorts, has been at the forefront of the professional computer based sound card/MIDI arena for since the mid-eighties.

The advantage of MIDI over the more traditional approach of shouting "Now" across a studio floor is simply the ease and accuracy of communication between different devices. Originally designed to allow synthesisers to link up and use each other's sound units, it quickly developed into a full blown industry as manufacturers and musicians saw its potential.

The computer sits at the front, as might a conductor, and, literally, cues different instruments or machines to play or not play at given times. And the beauty of it is that once the computer has done the performance, it can do it over and over again. Unless, of course, you unfortunatel forget to save your work.

For example, if you have a synthesiser

Sounds amazing

It is useful to understand how sound gets on to (and ultimately out of) the PC. It works on exactly the same principle as a compact disc player; where the analogue sound, whether it be music or sound effects, is converted to digital information which the computer can start and replay at will through an analogue to digital convert.

Once in replay mode the digital data is converted back in to analogue sound, through a digital to analogue converter. Very logical, isn't it?

The conversion isn't as complicated as you would imagine. If you visualise the sound as a squiggly line which goes up and down according to its volume you'll end up with a line looking not unlike a mountain range (unless it's Deep Purple in which case it is just a very high plateau). Now, imagine dots equally spaced along the top of the line following the ups and downs.

If you draw a line down from each dot you have a 'slice' of the music, which, not unlike a piece of Brighton rock, is just a snippet, but has all the personality of the music in it.

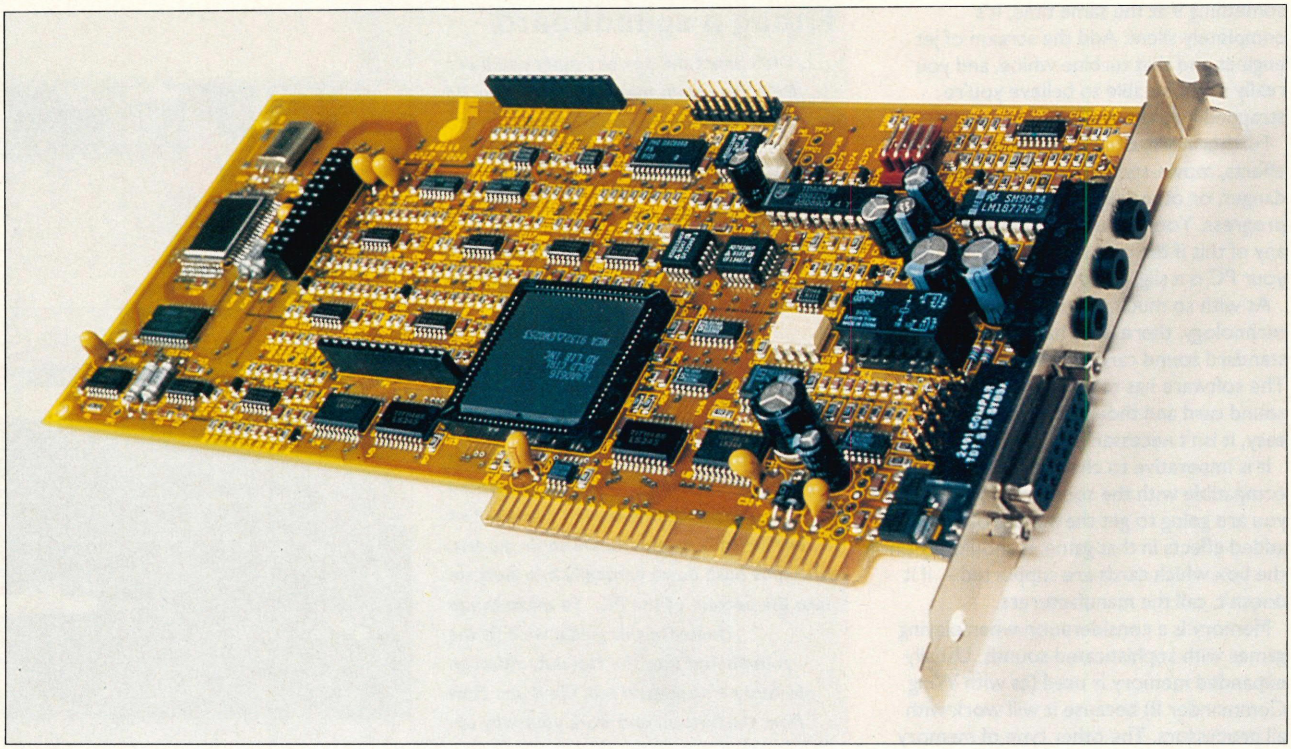
The computer examines this snippet for loudness and the type of sound, then this information is put into a 16-bit computer word. The word includes all information about the sound, such as the harmonics and volume at that particular instant.

So, you now have a 16-bit word that is a slice of the music. Taking each of these slices in turn, you will soon have enough slices to put together and make a piece of music. If you play them in quick succession you end up with the 'appearance' of music, exactly as you get the appearance of motion when you watch a film which is just a collection of stills.

The problem here is, what happens to the music between the dots? The only way around that is to put the dots close together, very close together. Music on a compact disc is sampled (ie, the information is taken from each 'slice' of music) at 44.1KHz, which is 44,100 times a second.

With 44,100 slices a second, and each slice with a minute bit of the sound, it doesn't take a genius to work out that before long you are going to need a fairly hefty storage device to keep all these slices.

You can, if you want, reduce the number of bits that represent the sound. This reduces the quality but makes it easier for you to store the information (and in some cases cuts down on the electronics, and therefore the price).



"Anyone who has used a soundboard will tell you that the difference it makes to a game's atmosphere is marked"

and tape recorder with, say, a guitar solo on it and a drum machine, you can control them from just one source: the PC. The MIDI system will send the set-up details for the synthesiser so you can get certain sounds and a particular tune. When it's done this it will set up the drum machine to play a certain rhythm and pattern. It will then set them all off together and, when the guitar solo is due, will switch the tape recorder on to play it.

The only down side to this is that setting the system can be rather time-consuming at the start.

Sounds on board

The last devices in the line of sound on your PC are soundboards. These are cards which will enable some sort of background effects, music, or speech on your computer, though the range is rather wide.

Most games software uses sound one way or another, and it is certainly not imperative to have a soundboard to play them, but anyone who has used one will tell you that the difference it makes to a game's atmosphere is marked. A flight simulation may have the most authentic graphics in the world, and beautifully smooth flowing landscape, but it does lack a certain

Naming names

Here is an outline of the more well established sound cards on the market:

● First up is the AdLib card. It costs around £90 (from UK distributor Mindscape on 0444 831545). The basic AdLib Music Synthesizer Card doesn't come with a games port for your joystick, which strikes me as a little dim, nor a MIDI connection and is mono, but it does come with a headphone port. Not great, you might imagine, but the biggest plus has to be the amount of software written for it. Obviously you need to check with each particular purchase, but the AdLib is supported by most games.

● The lack of extra on the basic MSC has prompted the Canadian manufacturers, AdLib Inc, to produce a new card, the AbLib Gold. It will cost around £220 and be in the shops by the end of February, says Mindscape. It will be stereo and offer sampling rates up to 44.1KHz which is equivalent to CDs. Much attention has also been paid to expansion potential: the AdLib Gold Card includes a game port, SCSI CD-ROM adapter, a 'piggyback' slot for an extra sound card, and a slot to take AdLib's PC Telephone Answering System. All in all, if you can afford it, it looks very interesting – and it will be compatible with all the current software. Also, turn to page 94 of this issue to see how you can win an AdLib Gold Card in othis month's competition.

● The SoundBlaster card version 2.0 (from Westpoint Creative on 0743 248590) costs around £140, is mono but has some stereo capability. It has a stereo output, an on board (4W) amp, a games port and a MIDI interface. It features speech sampling and will emulate the AdLib board, so games which support the AdLib standard should sound just fine with your SoundBlaster.

● For another £90 you can get the Sound Blaster Pro (also from Westpoint Creative), which is stereo and, like the AdLib Gold, samples up to 44.1KHz and adds a lot of recording features to the original SoundBlaster standard – and is fully compatible with it.

● And finally at the top of the tree, the Roland LAPC-1. Costing around £290, it doesn't have a games port and, although it wouldn't be the best buy for people who play only games, it does have astonishing sound quality. Beware also, that the Roland card is a full-length card, and if your PC is crowded inside, you may have difficulty fitting it in.This is primarily a music maker's card, but it is getting a bit long in the tooth. So much so Roland has launched the Sound Canvas card. This costs £339 and is strictly for music makers and multimedia enthusiasts and is well worth the money if you want to take making music on your PC seriously.

FIRST STEPS WITH THE PC

something if at the same time, it's completely silent. Add the scream of jet engines and that turbine whine, and you really might be able to believe you're strapped into the cockpit.

Furthermore, a few games will use sound effects, movie-style, to warn of impending danger, or otherwise indicate your progress. You're much less likely to notice any of this if the only note of tension from your PC is a slightly squeakier beep.

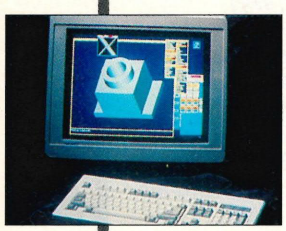
As with so much in the way of PC technology, there is no hard and fast standard sound card which fits, or suits, all. The software has to be able to talk to the sound card and though that may sound easy, it isn't necessarily so.

It is imperative to check the software is compatible with the sound card you have if you are going to get the benefit of the added effects in that game. It should say on the box which cards are supported – if it doesn't, call the manufacturers.

Memory is a consideration when playing games with sophisticated sounds. Usually expanded memory is used (as with Wing Commander II) because it will work with all processors. The other type of memory (extended), which is easier and cheaper – and also newer – only runs on 286 processors and above. Though for anyone with a 386 or above the good news is it is a fairly simple job to run a program that will convert a 386's extended memory to

Next Month

Next month, PC Review will show you how to put yourself right in the picture by upgrading your PC to incorporate VGA graphics.



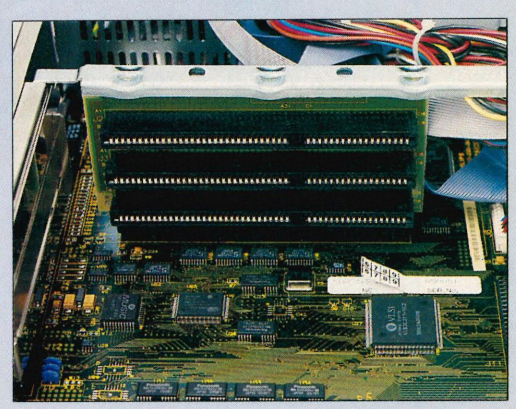
Previous articles in the First Steps series have dealt with basic PC components (Issue 1); explanation of MS-DOS principles and configuring your PC at start-up. (Issue 2); fitting a hard disk (Issue 3); MS-DOS commands (Issue 4). If you have missed any of these, back issues can be ordered by telephoning (0733) 898100.

Fitting a soundboard

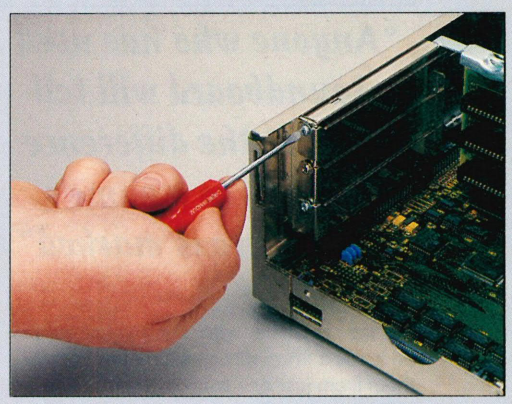
1. Disconnect the power supply and leads from the computer, and unscrew the lid from the back. Remember to keep the screws in a safe place. Opening the lid of your PC will usually invalidate the warranty, if yours is still valid.. Check with your supplier if you're in any doubt about this.



2. Once you have removed the machine's lid – it usually slides out forwards from the back – you should be able to identify the machine's expansion slots. On this particular Philips PC, the slots are placed so that the expansion cards will sit horizontally in the PC. On some models, the cards push down vertically into slots set into the bottom of the PC. To make things clearer in this guide, we'll fit the soundboard into the top slot, although obviously it's easier in real life if you start from the bottom and work your way up.

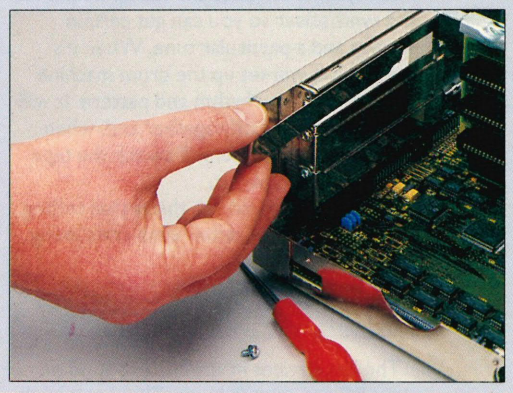


3. The next step is to unscrew the backplate which protects the innards of the machine from the outside world. The back of the card and any ports or sockets included on it will protrude through this space when the card is fitted. Again, the backplates here are placed horizontally, yours may be vertically at the back of the PC.



4. Slide the backplate out carefully (and try not to drop the screw in around the circuitry at this point!)

NB It is particularly important to keep both this screw and the backplate. Expansion cards do not normally come with their own screws, so you'll need it for the soundboard, while the backplate should be kept in a safe place. Should you ever remove the soundboard for any reason, you don't want to have a gaping hole at the back of your machine where the backplate should be.



Glossary

Analogue: Anything that works with variable quantities which cannot be expressed as a set number of discrete values. For example the electrical signal generated by a microphone is analogue, whereas the electrical signal generated by a PC's serial port is digital.

Analogue to Digital: The conversion that takes place where a analogue signal is broken down into slices and each slice is given a digital value. Once changed the information can be stored on, or manipulated by, a computer.

CD: Compact Disc, a platter of coated plastic, on which data can be stored in digital format. When recording music, a maximum of 74 minutes playing time can fit on a single CD (though some non-standard CDs play for longer).

CD-ROM: Compact Disk Read Only Memory, the computer version of the CD, where the data stored on the disk can be used by the computer. A single CD-ROM can hold in the region of 660Mb.

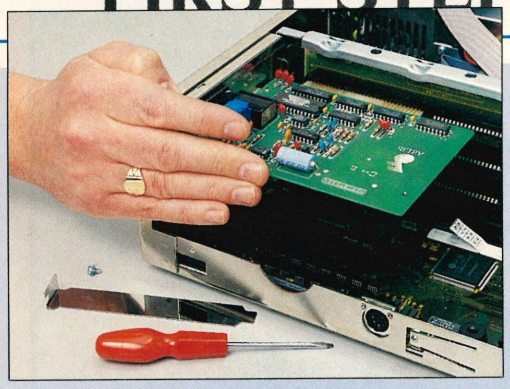
Digital: Something whose value defines its current state, like a digital watch where the value displayed is an exact representation of the time.

Digital to Analogue: The assembling of a digital signal into analogue form, to be listened to.

Disk drives: Peripheral devices connected to your PC, which read data on the disks within them and pass it to the PC, or write information sent from the PC to the disk. See also floppy disk and hard disk.

Expanded Memory: A way of using more than the usual 640K of memory on a PC. Created by Lotus, Intel and Microsoft, it will work on any processor and is sometimes used by games manufacturers to store large programs.

FIRST STEPS WITH THE PC



5 Line up the sound card with the expansion slot as shown, and push firmly with the flat of your hand and a slight rocking motion to insert the card fully into the slot. If it seems to be stuck, check that the card's connectors are correctly lined up and that the backplate isn't jammed against the back of the PC.



6 Once the card fits snugly, line up the notch in the backplate with the hole in the casing and screw the soundboard in firmly. The metal strip of the backplate should happily fit flush into the space for sockets at the rear of the machine without bowing or twisting.



7 Correctly fitted, you can see two jacks provided by the AdLib neatly displayed and ready for you to plug into.
This AdLib MSC is a short card, which fits in with room to spare behind it. Some soundboards, notably the Roland LAPC, will extend the full length of the PC – make sure you have enough space to fit it in. On this Philips PC it would be no easy task to clear away the cables and squeeze a Roland in under the floppy disk drive.



8 Finally, replace the lid of the PC by sliding gently over the casing from front to back. Make sure that the lips around the edges aren't catching on cables inside the machine – this is a horribly easy way to pull cables out of alignment.
From here, all you need to do is to screw the lid back on, replug all cables and flexes and now run any software which came with your soundboard to install it.
Happy listening!

expanded memory. Again, don't forget to check the software.

The buying criteria should be, firstly, what do you want the card to do (MIDI, stereo, particular games, etc) and secondly, how much can you afford? Don't buy the cheapest just because it's all you can manage, if it doesn't have all the facilities you want. Believe me, it is not worth it.



Though it isn't imperative, it is very useful to have a reasonably sized hard disk. Sound files tend to be very large if you want to do any more than just play games. Speech files, specifically, take up an almighty amount of space – perhaps around 8K for a couple of seconds of sampled speech.

Game ports

Look out also, for sound cards which have game ports built into them as well – the Soundblaster and the forthcoming AdLib Gold Card both include joystick ports, which not only saves one of your precious expansion slots but money as well in the long run.

It's a fairly simple process to use a sound card. Once plugged into the PC you either connect it to an amplifier or, if it has a socket plug, your headphones.

If your computer is placed conveniently, you may be able to connect it to your hi-fi unit; failing that, a pair of small speakers, even the truly minute specimens supplied with the Amstrad 5286 Games Pack, or even Walkman-style headphones to start with.

As I said earlier, you should check the card you are using is supported by the software. Not all cards are the same and there isn't one definitive sound standard, although AdLib is coming remarkably close with its Music Synthesizer Card (MSC), and now, the Gold Card (which is MSC compatible).

There are also a number of cards around which are billed as being AdLib-compatible, most famously the SoundBlaster, but also the Thunderboard and Gravis's UltraSound (see box on page 35).

Extended Memory: The memory placed on the mother board on 286 and above processors; a lot less complicated than expanded memory, but has been around a shorter time.
Floppy disk: Portable platter on which data can be recorded and stored for use by the computer.
Hard disk: A fixed disk normally fitted inside your PC. Can hold much more information than a portable floppy, but you can't carry conventional hard disks around with you (although confusingly, there are such things as removable hard disk cartridges, they only fit into their own special drives). Known as a mass storage device.
Game port: A 15-pin socket in which you can plug a joystick.
Kilobyte: 1,024 bytes. One plain text character on a PC will take up one byte of memory.
Line out: an audio or video output.
Line in: an audio or video input.
MIDI:- Musical Instrument Digital Interface, a system that allows a computer to talk to a musical instrument or piece of recording equipment.
Megabyte: 1,024 kilobytes (see Kilobyte, above).
Memory: the place that stored data on the hard disk moves to so that it can be manipulated by the processor.
Multimedia: the mixing and manipulation of video and sound via the computer.
Sound card/ Soundboards: add in cards with all the necessary digital to analogue conversion hardware on it, and which enable your PC to play music, and sound effects. Can have either mono or stereo output.



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Reviews



Virgin's Shuttle goes into orbit.

What better way to kick out the February blues with some high-class computer entertainment – and here are 14 of the latest PC games available at the moment. All of them have been put through their paces by our team of reviewers. Their no-nonsense views, opinions plus game facts and figures make essential reading for would-be buyers. Let the good times scroll.

● Alternatively

... we believe games should be placed in context. If you like the sound of Monkey Island 2, for example (see over the page), you'll be interested in other games of a similar style. In all our major reviews, we offer comparisons with other titles on the market, some of which may be more suited to your tastes.

● Hardware requirements

... there is nothing quite so annoying as discovering your hard disk has run out of space when you're half-way through installing the latest multi-disk epic – and the manual doesn't always tell you how much space you need. We do, though. We also tell you how many disks come in the box, so that floppy-only owners will know how much disk-swapping is likely to be involved.

● Tech specs

... our no-messing, no-guessing guide to the hardware supported by the game. And if there's anything unusual about the specs, or any additional information, we note it in the accompanying comment box.

● Two minutes

... the nearest thing to seeing the game in action, as we take you through selected screens and note the gameplay required.

You'll find the reviews concentrate on the atmosphere generated by the program and the gameplay involved, rather than regurgitating reams about the background story. You can always read the novella when you buy the game – our job is to help you decide whether you want to buy it in the first place.

● Our rating system

... we're as fed up as you are of over-complicated rating systems that mark everything from packaging to intro sequences and tell you nothing about the real quality of the game. That's why we've made our rating system simple and consequently useful. We give a single mark out of 10, based on the game's overall quality and how enjoyable it is to play.

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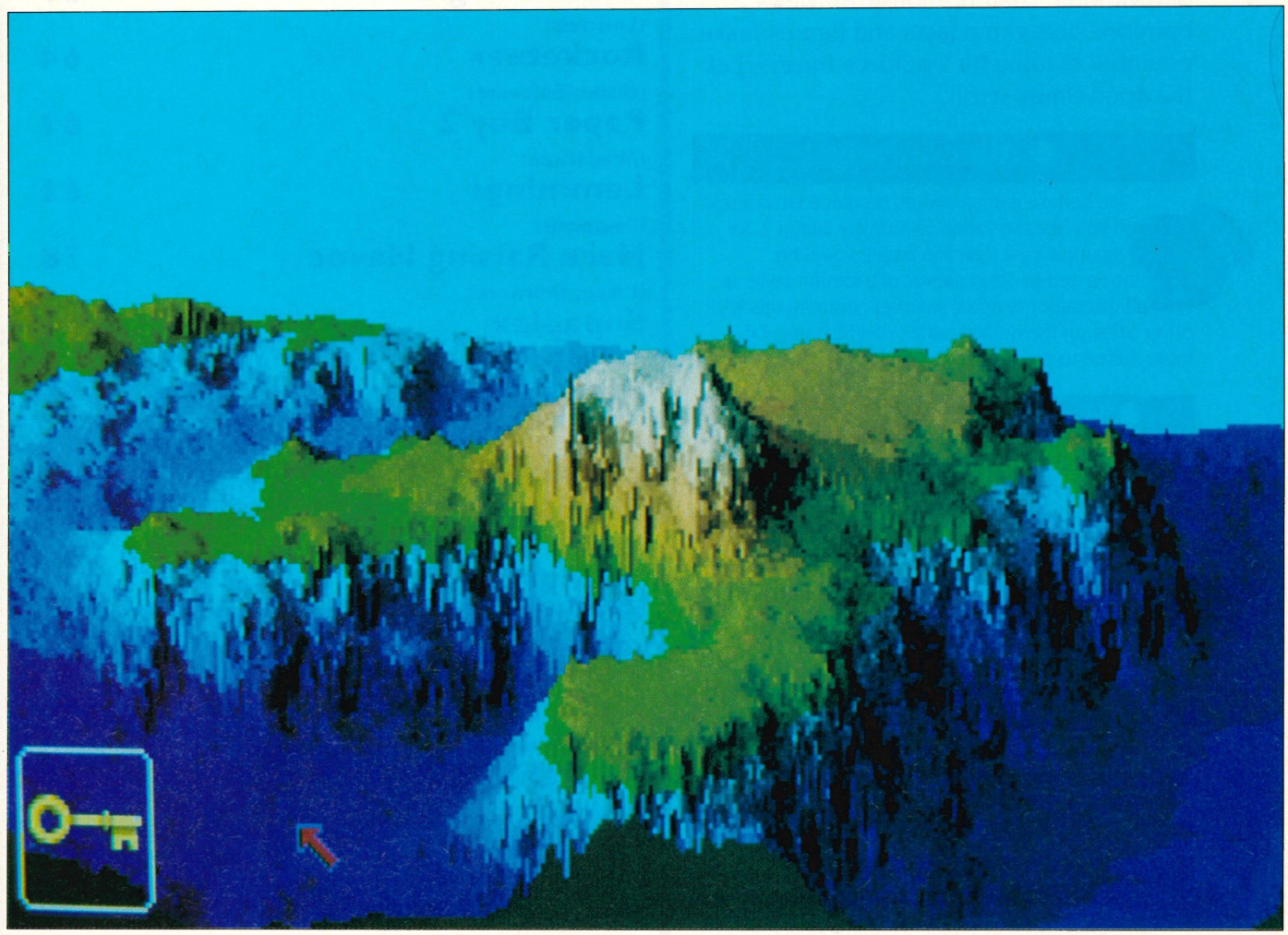
THE GAMES THAT GOT AWAY

86

In the booming PC entertainment market there are always games which didn't quite make it on to the reviews pages. Here you'll find a list of them, some explanations or excuses for those games which have been delayed, plus a quick guide to the ratings given to games in this issue.

MARCH 1992

Midwinter II Flames



TWO MINUTES OF MAKING CONTACTS

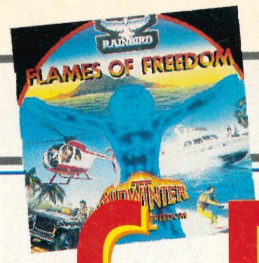
My mission on Aledo is to destroy the Saharan's airbase. Assassinating the bombing unit commander Major Nathan Owen would help enormously.

First, though I want to meet Liam Kelly, my resistance contact. A quick check on the map shows that he is waiting for me at the Oasir Plateau, not far from my landing point.

One bumpy ride later, that shadowy outline in the distance should be Kelly (if my map-reading is correct), though he's hardly within hailing distance yet.

Better stop now, or I'll run him over. The handshake in the special actions window means I can start talking to him now. Hit F1 to enter 'talk mode'.





■ Midwinter II: Flames of Freedom
■ Rainbird ■ (0666) 504 326 ■ £39.99

# of Freedom

Save the Atlantic Federation from the brutality of the Saharan Empire in Maelstrom's psychological thriller

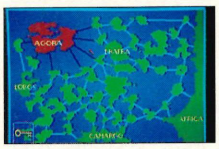
Flames of Freedom has been the subject of slow-burning hype, ever since it became known there would be a sequel to Midwinter. Similar to the anticipation that built up around Wing Commander 2 last year, Midwinter II threatens to become known as more of an event than a game.

The original Midwinter was set in a near-future ice age, on an island in the Azores, in which you took on a number of missions to ensure the freedom of the island from the threat of dictatorship. Gameplay was based on utilising the modes of transport available to you and interaction with other computer characters, in a suitably chilly-looking landscape. One of the distinctive characteristics of the game was the importance attached to your psycho-profile and how you would relate to other characters met in the game. In Midwinter, this aspect of play looked rather as though the whole concept was still in early stages of development, and the psychological side to Midwinter II has been beefed up considerably.



Interaction

With all the emphasis on psychological traits and 'relating' to other characters, you may be surprised to hear that Midwinter II is an all-British production, programmed by Maelstrom Games, which is headed by one Mike Singleton. His first commercial title in this market was the venerable Lords of Midnight in 1984, and it's not too difficult to trace the path of development and refinement from Lords to the Midwinter canon: emphasis on character interaction rather than straight action, and offering different styles of play to achieve the end result. And Lords, despite being played with spindly little stick-men on a Spectrum, oozed atmosphere, as does Midwinter II.



The Saharan Empire

Midwinter II is set around the threat to the Atlantic Federation posed by the Saharan Empire. The ice has thawed dramatically, Midwinter island is under several hundred fathoms of sea and action is centred on a network of 42 islands, the Atlantic Federation, off the Saharan coast, using the independent island of Agora as a base. The Saharan Empire is intent on expanding its empire throughout the archipelago; your task is to defeat the Saharan forces by liberating the islands, each of which has its own particular freedom objective.

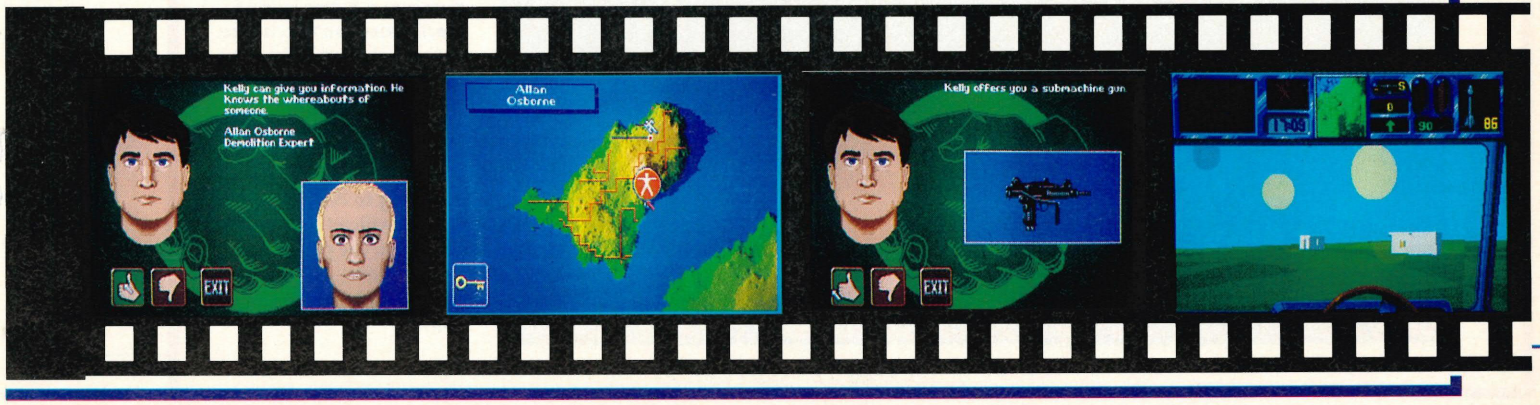
The full version of the game is to play it as one grand campaign, undertaking to accomplish missions associated with several strategically placed islands, freeing each in turn until the Saharan forces are vanquished. This is probably not the best way to start; Midwinter II is complex, encompassing a

Aha, a demolition expert could be useful for taking out an enemy airbase. Select the thumbs up and down symbols to accept or turn down the offer.

The map screen comes up to show where on the island Allan Osborne, the demolition expert, is residing. Yes, I'll go off and find him. Has Kelly got any other ideas?

Yes, he has. Since he's a gunsmith I was rather hoping he could add to my meagre collection of weaponry. Kelly offers me a submachine gun for my own use. Accepted, with thanks.

Back to the truck and time to look up Allan Osborne, the demolition man. Better head off quickly: those yellow balloons are actually enemy missiles raining down on me.



number of game disciplines, and in order for a campaign to stand a chance of success, a good deal of familiarity with the controls and tactics required is needed.



Ram-raiding

The best way to get into Midwinter II is to start by trying out a few raids, where you take on one mission at a time, and once it's over, it's over. Your success or failure won't count towards a campaign.

To kick off, though, you can choose to play it simply as an action game, dumped into the middle of the fighting and left to sort things out as best you can. You could happily spend hours with Midwinter without going anywhere near a mission. The training section of the game enables you to try out all the modes of transport and practise your escape strategy should you be captured by the Saharan security guards and thrown in jail.

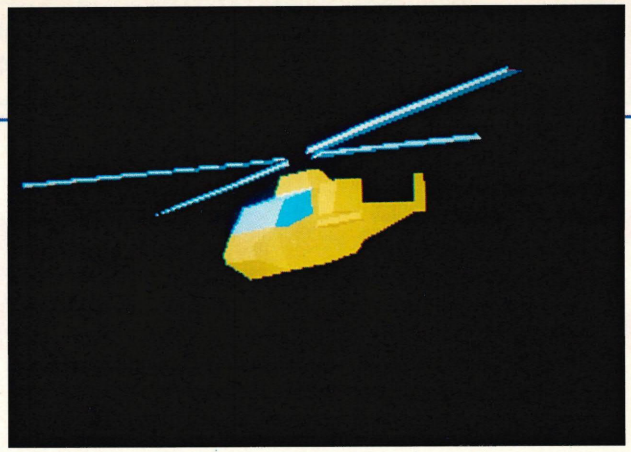
Before you undertake some missions for real, it's well worth spending time here. In training, you can get to know each of the guards and whether they are susceptible to bribery, force, or even seduction, in order to let you escape.The same guards appear in the game proper, so if you've already got to grips with them when you come across them for real, you'll spend less time languishing in jail.



Creating a character

Next you may well want to create your own character to play the game. The personnel section is like a grand dressing up box, where you can tailor your character's physical features to your fancy and then assign yourself psychological traits (see box).

Finally, you might feel ready for a mission or two. Playing them one at a time, you can select a mission from the map, at which point you'll be told what that particular island's problem is, and usually given a specific target to knock out plus a Saharan to assassinate. You'll also be given one or more contacts to meet – members of the island's resistance who will be helpful to you, and a mode of transport from the 22 possible options.



There are 22 methods of transport in all (if you include 'on foot'), divided into land vehicles, sea-faring vessels (you can also swim), aircraft, including the helicopter, above, and amphibious. To switch from one means of transport to another, simply hit the Esc key when you are alongside your chosen vehicle.



Learning to drive

From here you are delivered to the island in question, popped into your vehicle and now you are on your own. Calling up the map screens will show you where all the salient points are, where your contact is and any enemy activity in the area. A good starting point is to head for your contact for any further information you can glean. Your presence in the area will attract the enemy, so be prepared to fire a few missiles along the way.

There is an autoroute facility to get you from A to B – much needed since learning to manipulate the vehicles can be a bit of an uphill struggle, not helped by the fact that particularly on the sea your craft will pitch and roll with an alarming realism which made me almost feel seasick. If you map out your course using the autoroute feature, you can sit back and enjoy the scenery as you are transported from one place to another.

However, travelling on auto-pilot doesn't protect you from being shot at: you'll need to keep a finger on the fire button.

Controlling your vehicle



1. The radar display, also the special actions window – display changes when you are able to switch modes of transport or talk to people.
2. Your current state of health is shown here. Below, the time ticks away on the game's clock.
3. Map shows your whereabouts and direction of movement. Hitting F5 to access the main map screens gives you a better idea of precise location in practice.
4. Compass and, below, the speedometer.
5. The turn indicator. The arrow bends to left or right according to the turn direction, and lengthens according to degree.
6. The artificial horizon, and, right, the fuel gauge
7. Altimeter
8. The weaponry at your disposal.

It pays not to get into a shooting match when you are approaching your contact, since the first couple of times I played I attracted so much enemy attention that my trusty resistance fighter was killed in action before I even managed to talk to him – and almost certainly as a result of 'friendly fire'.

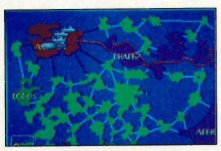


Talking to people

Talking to contacts and asking questions is done through selecting icons, so be prepared for limited conversation. Normally, they'll suggest people to meet, or take the game further by suggesting "I'll help you if you'll kill this guy". They may well also introduce you to other characters, but be warned, some of these may turn out to be undercover Saharan agents, in which case they'll betray you and you'll end up in jail.

Your mission is accomplished when you have achieved the objectives set out at the beginning, not necessarily the secondary objectives which the contacts suggest. The is not an arcade game and you don't die all the time as a result of enemy gunfire. You just drain all your energy reserves and need rest. This takes up precious time and by the time you've recuperated the Saharans may well have overrun your island completely, making your mission that much harder.

In the raids game, successful missions simply mean that you can start again on another one. If you're playing a campaign, that island is now liberated and you can set to work on the next.



Strategic links

In a campaign, you need to choose your islands in the right order. You can see from the maps that they are linked strategically, giving the Saharans an island-hopping route to the Agora, the jewel in your crown. Therefore, you need to liberate islands so that the Saharan route is cut off as quickly as possible and their armada cannot set sail. Saharan routes can be seen in the strategy section of the training module – another good reason to spend time practising before you play a campaign for real.

Midwinter II's complexity is daunting. Parameters are heaped on parameters, so that you really do need to know the game well before you can take on a mission or campaign with a realistic chance of success.

This could be counted as a defect of the design – after all, even though every stage of the game can be practised in training mode, playing the game as a simulation of playing the game lacks a sense of purpose. However, the corollary to this is that the very complexity and attention to detail gives it an authentic feel, and the psychological emphasis really does add to the tension.



Gentle persuasion

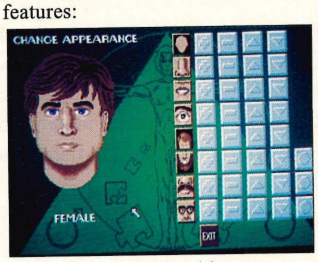
As an example, take interacting with your characters. Firstly, the character may refuse to help you, agree to help but on certain conditions, or be only too glad to help. In the first instance, you may be able to persuade them to help after all, but a lot of this will depend a) on whether you choose to use charm or bribery or force to persuade them, and b) whether the personality you allocated to yourself means you're any good at these three means of persuasion and c) whether their personality as defined by the game means they are susceptible to your chosen method. And just as in real life, you don't know what the correct approach is until you try it.

Then add the fact that this particular character may be genuinely friendly or he/she may be a Saharan traitor (this applies more to your casual pick-ups rather than named contacts). If they are a traitor and set you conditions before agreeing to help, then you could go off and spend a considerable amount of game time killing the wrong people, or blasting at the wrong building, you'll end up in jail, and you've probably not done your original mission much good because you've taken out sites or people who could have been useful to you.

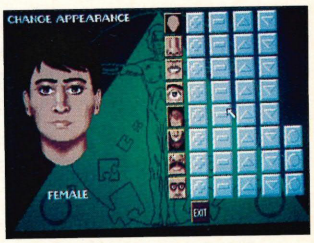
Also, you need to bear in mind that some missions require slightly different personalities to others. On Iquitos, for example, you need to enlist the help of the island's jet-set inhabitants to get cooperation. Did you boost your charm rating

Body building

Your default personality is Gavin Steel, who sounds as though he'd be more at home in a re-run of The Avengers. Thankfully, you can build up your own character as you please, first physically by altering 'your' features:



This Gavin won't be able to cope with a horde of Saharans ...



... tidy up that hairstyle ...



... though perhaps, on second thoughts ...



... yes, the eyes have it

Character development

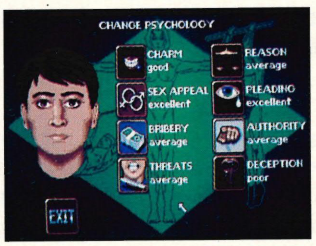
Secondly, add personality traits. While the physical features are really just a bit of fun, your psychological profile will have a bearing on your performance in the game:



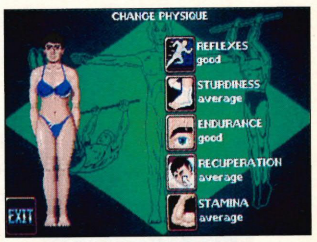
Bump up your threats rating and your charm begins to vanish ...



... improve your charm and this will impair your authority ...



... now your ability to reason is dwindling. Never mind, your sex appeal rating is always excellent.

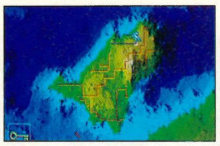


Finally, on the physique screen you can alter your strength and powers of recuperation.

when you were outlining your character? If you thought that powers of bribery and threats would stand you in better stead, then you'll find the mission on Iquitos comparatively more difficult, while when you take on the mission to liberate Jebba which is already a hotbed of corruption and slavery, these traits might prove more successful.

Graphic styles

The tension in the game's atmosphere is further enhanced by



the graphics and sound effects and also by the attention to detail in the description of the islands, the names used for places, and the maps. There are three distinct graphic styles at work in Midwinter II. Your character and portrait close-ups have an airbrushed look to them, while the landscape as you are driving/flying/navigating is portrayed in vector-generated patchwork quilt style – not realistic perhaps, but effective and allows for fast, smooth animation. Maps come in two designs, a flat atlas-view, or contoured as fractals. The latter are especially attractive, although they're in there really as a programming extra, all the information is presented more clearly on the flat maps.

It's in the presentation of the storyline that Midwinter II really screams authenticity and plausibility. Mike Singleton and the Maelstrom team have evidently spent weeks, if not months, carefully devising the entire infra-structure of the Saharan Empire. Thus we have the island with the oil-fields, which must be liberated without the Saharans then activating an ecological disaster by setting fire to the oil reserves; there are the islands nearest the Saharan mainland which are treated well by the empire and where a major subversion of the population is required; there are islands held by underworld factions whose loyalty to either Saharan or Federation is held in doubt. If 42 tiny islands in the one archipelago each with their own distinct economic or political problem and different means of solving it leaves little room for the grey areas normally found in real life, it's still been crafted extremely well.

Timing



The game's overall pace is somewhat uneven. There are spells of strategic thinking time, interspersed with frantic mouse scurrying or joystick tugging as you find yourself under enemy fire just as you're about to blast at a key installation. For this reason, it is perhaps not a game for specialist strategists or dedicated shoot 'em uppers, more for those who like a mix of gaming styles. You'll need a fast PC (more than 16MHz) to avoid lulls if you, say, want a quick look at the map while chugging across the landscape. That having been said, I spent more time hitting the pause key so that I could sit back and try to remember what my original mission plan had been and where I should head off to next, than becoming irritated by ponderous screen changes.

Midwinter II is a rich mix of strategy, psychology, accurate manoeuvring and action. Perhaps too rich for some; I mean, it's not exactly wieldy. Keeping tabs on where, who, how, and even why at times can be difficult and you can't play this and have the radio on, and keep an eye on supper at the same time. There is also the danger that 42 missions, 22 modes of transport, and almost infinite personality changes is just a bit too much. After you've completed 15 missions in 18 different types of vehicle and you've got the hang of how it all works, how much motivation will there be to plough through the other 27? Or to go back and try them all again but with a central character of the opposite sex? There's no denying that Midwinter II: Flames of Freedom is an immense achievement, but if anybody does ever make their way through the lot, I and QED will be dying to hear from you.



CHRISTINA ERSKINE

ALTERNATIVELY ...

Midwinter

Rainbird £35.75

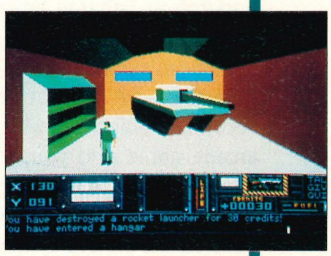
The original Midwinter was set in a snowy landscape and largely portrayed through the then famous 'ski-goggle' viewpoint. Graphics, animation and the choice of characters to play excited much interest at the time, but you don't need to have played Midwinter to enjoy Flames of Freedom. The sequel takes the psychological premises of Midwinter several stages further, and makes using transport rather easier. One possible reason for checking out the original first is that it's simply a smaller game and you might find it more manageable



Hunter

Activision £29.99

Superficially very similar to Midwinter II, Hunter is also set on a series of fractal generated islands and with a filled polygon display. Once again you play a lone agent on a series of covert resistance missions against the enemy, and you also have a variety of modes of transport at your disposal. Where Hunter differs is that psychological characteristics play no part in the game and the emphasis is entirely on exploration and combat rather than strategic planning in any depth. If you prefer action-oriented games then this is probably a better choice for you.



BattleTech: The Crescent Hawk's Revenge

Activision/The Disc Company £35.99

Based on the hugely successful BattleTech board game from the FASA Corporation, this game is a mixture of exploration and strategy set in a world dominated by hugely powerful armour-clad robots. In the role of Jason Youngblood, you must manoeuvre your battle Mech across varying terrains, stalking, locating and eradicating enemy machines. It's a interesting attempt to convert a board game to computer and may well whet your appetite to play the original game.



HARDWARE REQUIREMENTS

Midwinter II must be installed on a hard disk and it will take up around 2Mb. Comes on three 3.5" disks.

TECH SPEC

Mouse control is convenient for decision-taking but feels a bit flimsy for manoeuvring vehicles.

3½ ✓ 5¼ ✓ AD Lib ✓ Roland ✓
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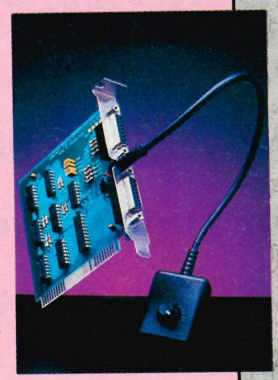
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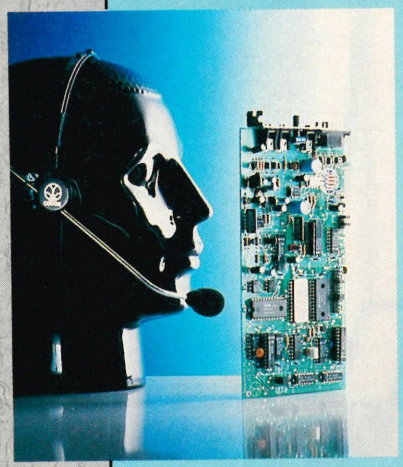
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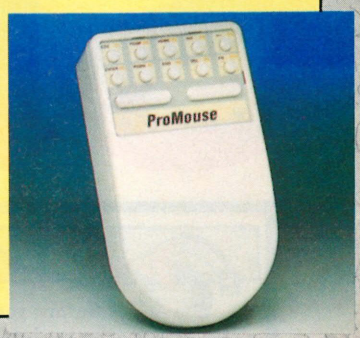
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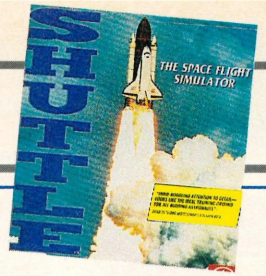
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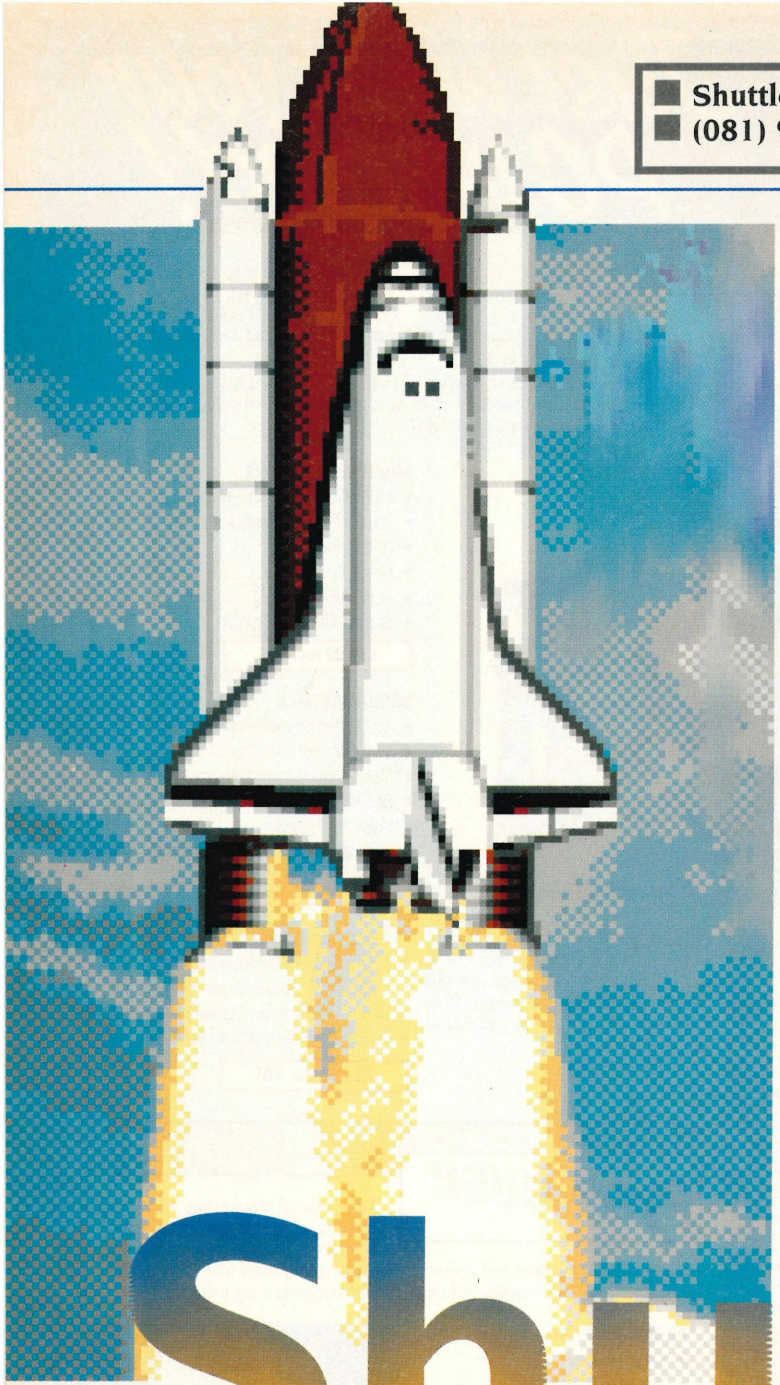
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Shuttle

Armchair astronauts everywhere have been pining for Virgin's space flight simulator for almost two years. Has it been worth the wait?



NASA's Space Shuttle has been in active service for over ten years, launching military spy satellites, conducting scientific experiments in zero gravity, and putting the Hubble telescope into orbit. It's the first space vehicle able to take off, fly into space and land safely back on Earth, and looks as if it will be used to transport and construct the world's first internationally-sponsored space station

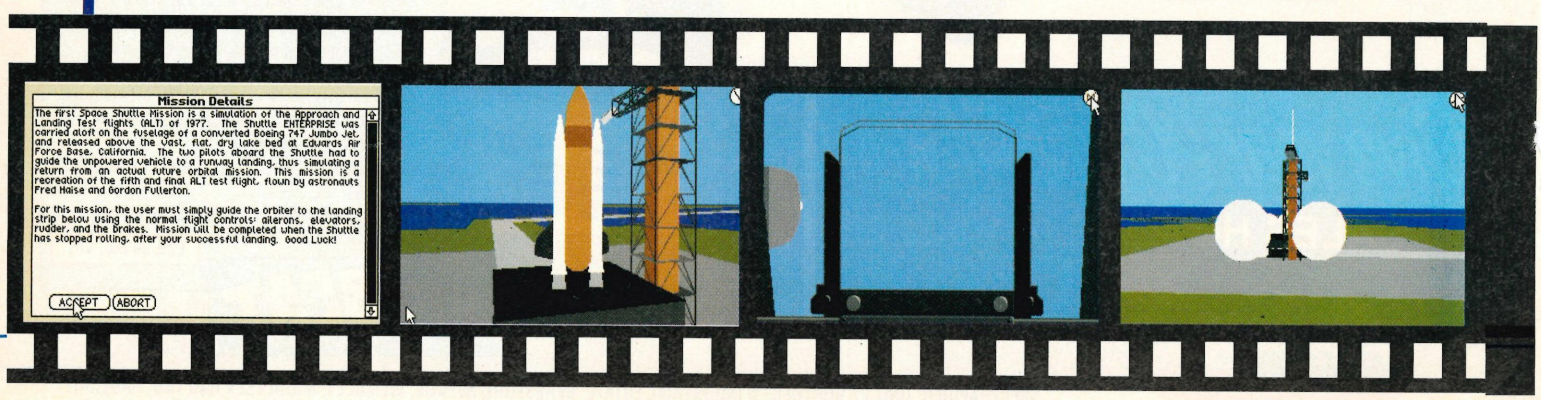
As you'd expect, then, there are no tasty bits of futuristic hardware, marauding aliens or deep space trading posts anywhere in the game. This is a true space flight simulator: you customise the action to suit your skills, accept the mission, take off, carry it out and calmly glide back to terra firma. If you land safely, you'll be offered the next job along the line; if not, it's back to the drawing board (or an early grave). This combination of flying skills and serious space business puts the

PC review TWO MINUTES OF SPACE TRAVEL

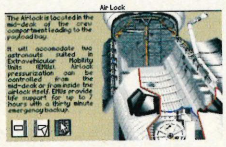
Before you even park your backside in the Shuttle, you have to examine the assignment you're about to endure. You're only given the basics – more information from the accompanying mission guide.

You've run through all the communication checks, the Shuttle's external fuel tanks are ready to burn, you've entered the flight plan into the computer – all you have to do now is wait for the countdown to finish ... ... and waiting can be a bit of a bore if you haven't fiddled about with the various time configurations in the setup menu. There's not much to do in the pilot's seat if you're on automatic – play a game, perhaps?

We have lift off ... the solid rocket boosters ignite, and the shuttle clears the tower. After 11 seconds it begins to roll into the heads-down



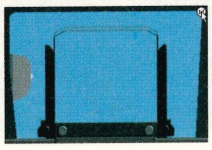
gameplay somewhere between Flight Simulator IV and the space travel sections of Elite.



Manual labour

The first thing you have to tackle is the manual, a hefty tome weighing in at 144 pages. On the whole it's excellent, given the job of conveying a mass of complex information in concise form. The instructions are well organised and very clear but such is the depth of this simulation, it will take you a very long time even to begin to understand how the Shuttle's systems work. This is how it should be: the whole booklet has the feel of a training manual, and is definitely recommended for enthusiasts.

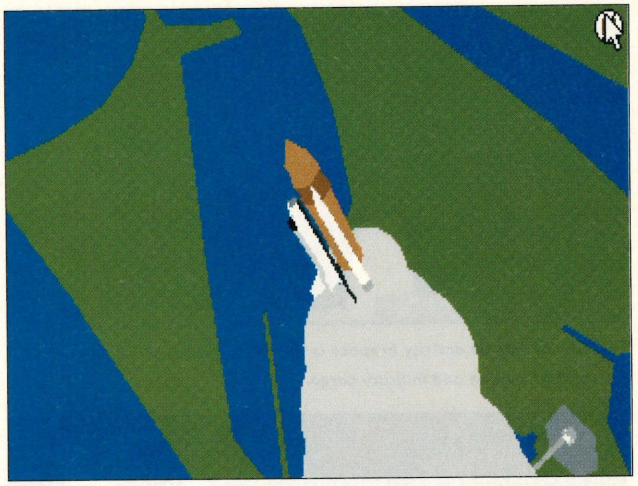
Nonetheless, there are a couple of minor drawbacks: there's a good 24-page section detailing some of the more remarkable Shuttle missions, but the history abruptly terminates at the Challenger disaster in 1986 – what about the story since then? It would also have been handy to have a separate sheet detailing the key presses (this is partly remedied by a keyguide at the end of the separate mission booklet). On the plus side, there is a huge poster in the box which shows the Shuttle's control panels in detail.



Menus

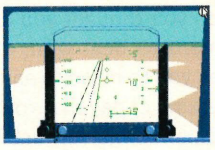
The game itself follows the example set by the manual: a huge and bewildering number of controls and options are simply operated with pull-down menus and/or key presses. This is a particularly nice touch: during the first few flights you find yourself groping for the right menu with the mouse, but after a day or so it becomes instinctive to carry out most actions with a couple of keys. Learning the hundreds of controls brings a lot of satisfaction in itself: you really feel that you've been through a rigorous training procedure.

Before you begin your first assignment, you can set up the game to match the speed of your computer and your own skill. There's a lengthy demo which takes you through many of the basic procedures and shows off the game's external viewpoints (you can watch the Shuttle fly from any angle at any time, and at a variety of distances). After that, it's time to create a new log to record your mission performances (this can be saved to disk at your discretion).



Once you're airborne, you can make use of the 360 degree 3D viewing facilities. The grey area in the bottom right hand corner is the launch

The game setup menus are extensive, giving you just enough choice to play exactly how you want to. Missions can begin at the rollout (a 7-hour procedure which involves the Shuttle being delivered to the launch site and yes, you can watch all of it!), at the launch pad itself, in orbit, or on the approach to a landing. There's no need to worry about getting to grips with the controls, either: you can set your own difficulty level from fully automatic, through First Simulation, First Command and Veteran, to Full Manual Control. This last one is a particularly hairy experience which will have even Shuttle simulation pros of many months' experience waking up in the night and gibbering.

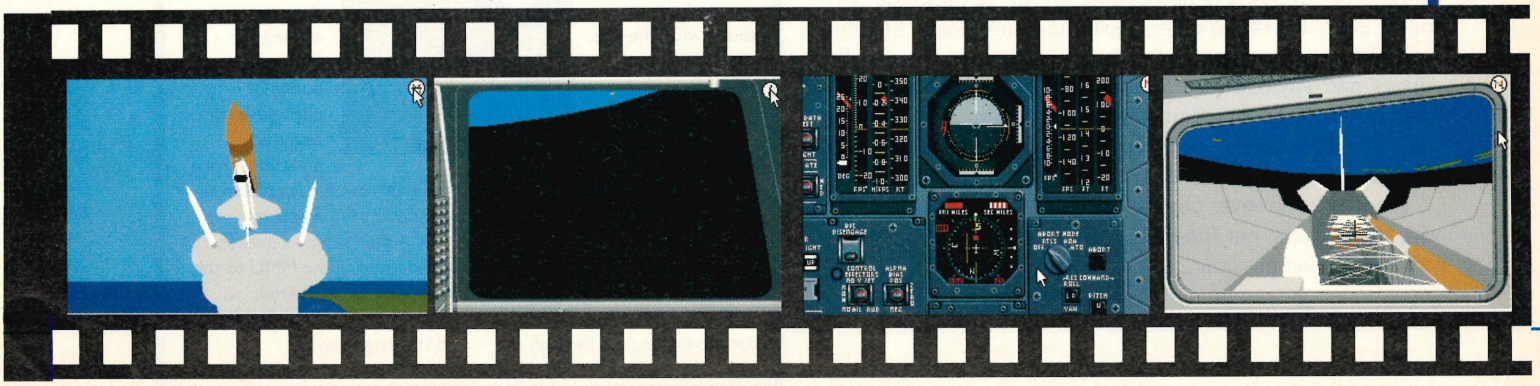


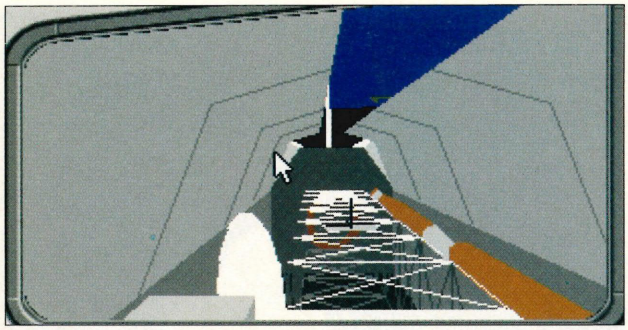
3D display

One important aspect of the setup routine is the ability to change the complexity of the 3D display. This is especially important for the machines at the lower end of the power scale (ie, around 12 MHz), where the movement can be a little on the jerky side. The action doesn't suffer much: the most startling effect occurs when you remove the continents, and look down on Earth, completely covered with water.

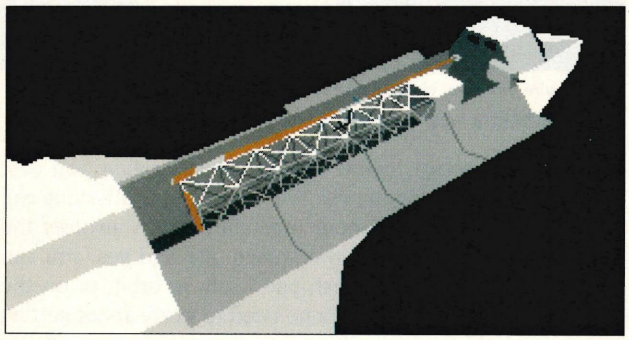
The other features – such as toggling the stars on/off, and

position common to all launch procedures. A couple of minutes into the flight, things start getting busy: the twin solid rocket boosters disengage from the main external tank and fall back to earth to be recovered later. At last you're in space, circling the Earth at around 160 miles. It's lonely up here: all you can see out of the window is the corner of some humble planet orbiting an insignificant sun, and a few distant stars. However much you might like to gawp at the view, in the end there's a job to be done. For most of the missions this involves paying attention to the hundreds of controls spread across half a dozen panels. Many of the later assignments make use of the Shuttle's payload bay. In fact, you won't be able to launch the satellites,

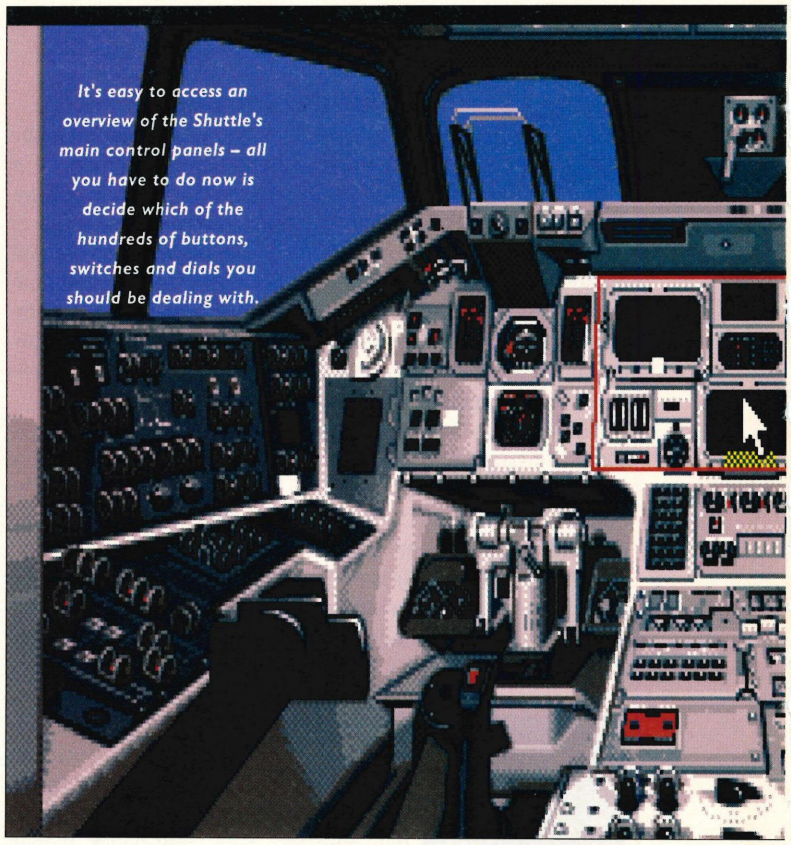




The core of Shuttle activity in space is the payload bay, which can carry a variety of civilian and military cargo.



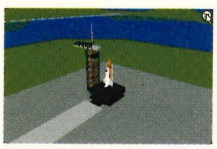
Just for fun, why not look at the payload bay from the outside, too.



Shuttle

three levels of detail for the map and polygons – are considerably less intrusive.

Just when you thought you'd had enough setup options, you have more to deal with: a handy time advance control which enables you to move to any point in the mission, the ability to set the time of day that you fly, and (on a more practical level), an impressive and very useful joystick calibration routine.

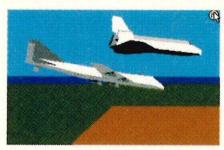


On the launch pad

Once you've adapted the game to your liking, you can examine the launch and landing sites. There are two choices for each: you can take off from the Kennedy Space Center and Vandenburg Air Force Base, and you can belly-flop back to earth at Kennedy or Edwards Air Force Base. Whenever you select these options from the menu, a neat 3D rolling demo takes you on a brief fly-by of the site in question.

The pre-game presentation is packed with bonus features which all add an extra edge of credibility to the simulation itself. For example, once you've indulged in the demo and are happy with the bases and the setup, why not take a tour of the Shuttle's engineering marvels? Yet another pull-down menu gives you an overview (graphics and text) of the Crew Compartment, Solid Rocket Boosters, External Tank, Main Engines, Orbital Manoeuvering System, Reaction Control System, the Airlock and Payload Bay, Remote Manipulator Arm and the Manned Manoeuvering Unit (MMU). The artwork isn't amazing, but it's a neat touch, and typical of the attention to detail throughout.

Eventually, however, you've just got to stop playing around with the gadgets, put the theory you've learned into practice, and fly your first mission ...



Mission one

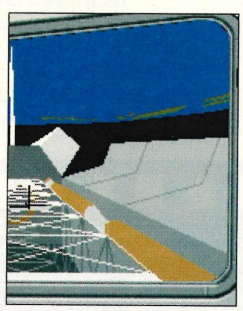
There are a dozen assignments in all, beginning with the Enterprise's test landing from the back of a Boeing 747.

This is just a case of activating the right systems at the right time and guiding the Shuttle gently on to the runway, a routine that any flight simulation fan will

THE MMU

In February 1984, the second Shuttle, Challenger, was the first orbiter to use the MMU (Manned Manoeuvring Unit). This completely independent life support system cost $10 million to develop and was used by astronaut Bruce McCandless for 90 minutes, 160 miles above Hawaii.

In the game the MMU is used only on later missions. To give you some idea of the simulation's comprehensiveness, this is what the info section has to say about it:



"It's used for occasions when objects to be retrieved are out of reach of either the RMS or a normal tether, requiring the astronaut to leave the safety of the orbiter to float free in space.

"Once in his pressurised suit, the astronaut goes through the airlock into the payload bay, and attaches himself to the MMU stowed there. He then latches the hard shell back of his space suit to the MMU, disconnects the tether, and unclamps the MMU from the payload bay wall.

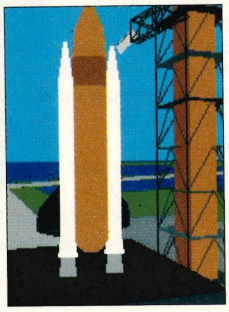
"The astronaut finally propels himself out into space by using the hand controls at the end of each armrest. These control any or all of the 24 thrusters around the MMU, firing bursts of nitrogen in the required direction, giving the astronaut full rotational or translational movement.

"It is then simply a question of manoeuvering the MMU to the object to be recovered, grabbing hold and pulling it back to the cargo bay."

TO BOLDLY GO

The NASA Space Shuttle is the first reusable rocket in aeronautic history.

It takes off vertically, weighs more than 2,000 tonnes (although the delta-winged aircraft itself only weighs 100 tonnes), and is usually placed at low altitude (160 miles). It can carry a 39-tonne payload and, using its robot arm, can place this cargo into orbit. Once its job is done, the pilots simply fly it back to Earth through the atmosphere.



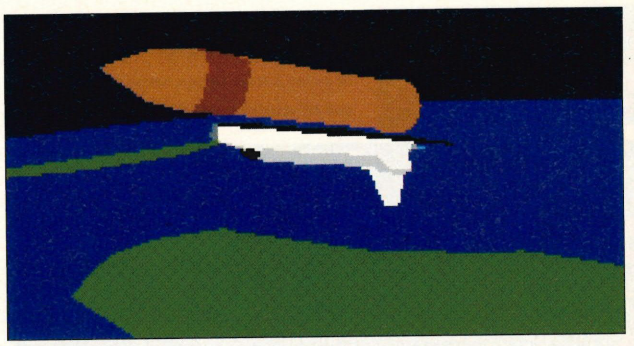
The Shuttle programme was originally given the go-ahead by President Nixon in 1971. One of the first proposals suggested it should be an orbital vehicle perched on top of a Saturn V rocket, but the cost was prohibitive.

After experimenting with landing and launch techniques from the back of a Boeing 747, the first Shuttle, Columbia, took off for its maiden flight on 12 April 1981, with John Young and Robert Crippen at the controls for 54 hours.

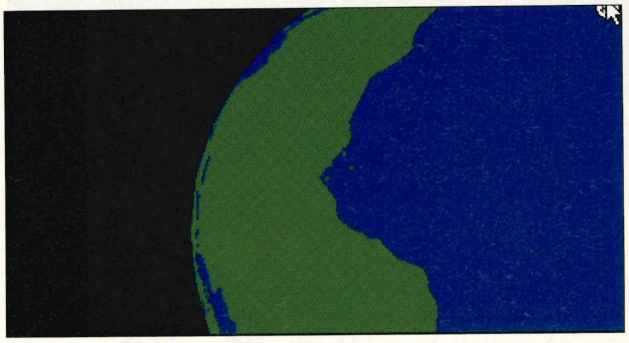
The second Shuttle, Challenger, saw the first use of the Manned Manoeuvring Unit (MMU) in February 1984. Challenger was later destroyed in 1986, the only Shuttle accident to date.

As well as launching spy satellites, the Shuttle programme has seen the deployment of the Hubble Space Telescope and will, over the next decade, be used to construct the orbiting space station, Freedom.

Virgin's simulator allows you to complete all these projects on your own PC.



On the edge of space, the Shuttle still has its liquid-fuel external tank intact, but has already jettisoned the twin solid fuel rocket boosters.

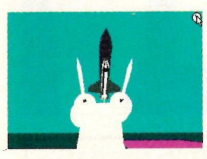


The flexibility of the external views even allows you to travel hundreds of miles away from the Earth and the Shuttle, and just float quietly in deep space.

be familiar with. Unfortunately, things get a little trickier after that. After undergoing the trials of a couple of test launches and an MMU test flight, you're sent on your first mission, the relatively 'simple' task of putting a satellite into orbit. Taking manual control after only six minutes, you have to manoeuvre the Shuttle into the correct position for deployment, make sure the spin table and satellite have achieved the correct rotational speed, activate a few payload switches to release your cargo, and then begin the landing procedure. Simple? Not likely. This kind of accuracy is guaranteed to please the most fastidious of simulation fans, and is just as likely to intimidate hardened arcade game players.

The other missions expand on this complex procedure. You can launch the Hubble Telescope (presumably with its mirror incorrectly aligned), build a space station with a solar panel and crew module, repair the Hubble Telescope (by sorting out its focussing problem with the aid of the MMU), recover a useless satellite, take part in a secret military mission and perform an instrument-only landing.

The amount and variety of in-flight assistance you use is up to you: the help levels are so well programmed that you can feel smug about having completed the simple satellite deployment even on auto. But don't worry about lastability: there are many weeks of disappointments ahead before you can begin to call yourself a pilot.

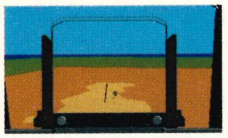


External viewing

Shuttle features few compromises to arcade-style action, but what there is enhances your enjoyment of the simulation. The help levels mentioned above are the most user-friendly feature: the most basic stage (virtual auto-pilot) even highlights the panel switches you need to activate, and the toughest is extremely hard however good you are. It's the variety of external viewing options, though, that really makes passive flying a pleasure. When you get the time to just sit back and watch (which isn't often) there's nothing more rewarding than seeing your very own Shuttle struggle to clear the tower, climb through the atmosphere and head for orbit.

For all its attention to detail and brilliant customisation features, there are a couple of problems with the action; both of which depend on the power of your machine and the graphics display.

The first snag is the loading speed, which can be irritating if you haven't got a hard disk, if you're running at 12MHz, or you haven't decompressed the files. It only occurs when the computer tries to access the Shuttle's control panels during a game: this can take a fair few seconds (anything from twenty downwards). It might be a small point, but it diminishes the otherwise frantic atmosphere in situations such as landing.



Presentation

The graphics are the second slight disappointment. The 16-colour VGA is generally very good and the level of detail very high but the effect isn't mind-blowing, and the whole package lacks the kind of impressive presentation features found in games such as Origin's Wing Commander. EGA is perfectly adequate, and doesn't interfere with the gameplay except in an aesthetic sense. However, in CGA the external 3D views can look a bit of a mess, and a couple of the control panels lack clarity. Less important than you might expect is the update speed: it's moderately jerky at 12MHz, but there's so much happening that you barely notice it, and the problem is irrelevant on more powerful machines.

The AdLib sound is a mixed bag of major let-downs and innovative effects. The title screen features a fuzzy fanfare looping to infinity, but provides an appropriately grand entrance for the action to come. When you actually get to the launch procedure, you find that much of the initial in-flight effects consist of

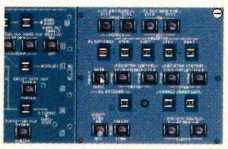
Shuttle

The variety and scope of the control panels can be overwhelming – but the in-game presentation takes the hassle out of selecting which switch to flick.



annoying white noise. This is just about remedied by a good 'distance' effect – ie, the volume of sound increases/decreases according to your viewing position, and also changes subtly when you switch from an exterior to an interior view. On the whole, though, much more should have been made of this important contribution to the atmosphere. The game suffers without the thunderous roar of take-off and snatches of speech from mission control – staring at a teleprinter just isn't the same. In a simulation as detailed as this, it is a pity that one minor factor lets down an otherwise excellent product. Don't let this deter you from buying the game though, you'll live without a bit of sound.

PC review 8 RATED



Flight control

Shuttle isn't the kind of game that you'll get used to within an hour, or even a whole day. After a week you should be a master at landing and launching, but there are so many things to do – and the simulation is so thorough – that once you're hooked, you stay hooked.

Don't think you'll be getting a MicroProse-style arcade flight sim, though: both the hefty price and the huge number of in-flight controls point to the seriousness and long-term potential of this game. In fact, Vektor Grafix would have had to simulate weightlessness to make this any more realistic. As it is, Shuttle is an incredibly detailed simulation of the real thing which will have you playing into the early hours for many months to come.

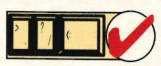
GORDON HOUGHTON

HARDWARE **REQUIREMENTS**

Shuttle comes on four 360K 5.25" disks or two 3.5" disks, but make sure you get hold of the right version. The minimum memory requirement is 530K, and should you decide to install it to a hard disk (highly recommended), the whole program takes up a mere 1.4Mb. The packaging advises at least a 12MHz processor: this is definitely adequate, if a tad jerky. However, if you have 16MHz or faster, all the better.

Disappointing graphics even in 16-colour VGA, but the attention to detail is in a class of its own.

TECH SPEC

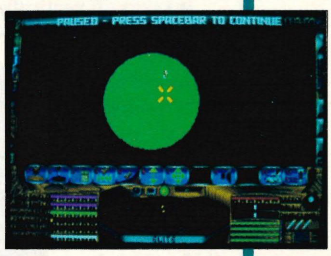
3½ ✓ 5¼ ✓ AD Lib ✓ Roland ✓
CGA ✓ EGA ✓ VGA ✓ Tandy ✓
Hercules ✗  ✓  ✓  ✓

ALTERNATIVELY ...

ELITE PLUS

MicroProse (£39.99)

Featuring filled polygons plus Roland and AdLib sound, this is an advanced version of the original CGA-only Elite. The classic game design remains the same, however: you're a rookie space pilot embarking on a career of legal (or illegal) trade between planets. You begin with a Cobra Mark III ship, which is just about good enough to see off space pirates, but it can be enhanced with goodies such as weapons, shields, mining equipment and larger cargo bays. With a whole galaxy of stars and planets ahead of you, every system featuring creatures with varying technologies and levels of aggression, Elite is a near-perfect blend of strategy and arcade action.



WING COMMANDER

Origin/Mindscape (£35.99)

You need a powerful machine (at least 16Mhz) and a hard disk to get the most from this – but if you have both, you're in for a treat. It's the 27th century, and the human race is at war with the feline Kilrathi race. As one of the pilots involved in deep-space dogfights, your job doesn't just involve flying out and blasting everything in sight: you need to communicate with your wingsman, adopt tactics, choose your fighter and then annihilate the enemy. The whole game is bound together by cinematic presentation screens – and if you have the right equipment, cinema is exactly what it feels like.



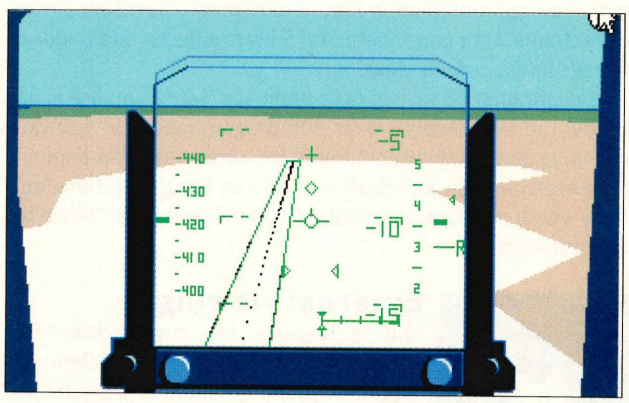
FLIGHT SIMULATOR IV

MicroSoft (£44.95)

Forget about MicroProse-style flight combat games: like Virgin's Shuttle simulator, this is for serious pilots only, with a 220-page manual, a collection of maps, a choice of locations across the US, and a variety of different planes. Once you're up in the air, attention to detail is superb, including authentic airport layouts, movable aircraft parts viewed from outside, random weather, extensive ground detail, and parameters which include visible stars, time of day and season. You can even design your own plane and watch it fly, or link with another machine and fly in formation!



There is an amazing array of viewing options, both internally and externally. This is what you would see from the pilot's seat.

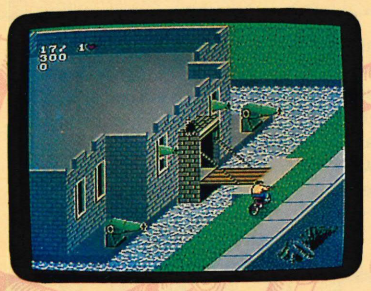


Look out - he's back!

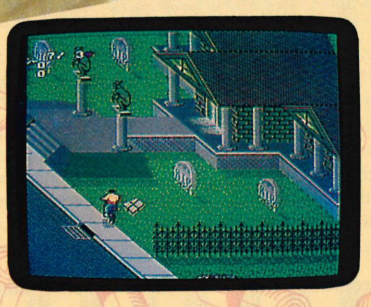
PAPERBOY 2

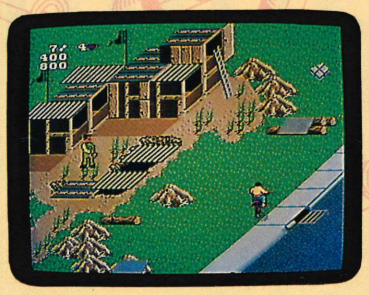
No window is safe. No fence is too high. The paperboy is determined to deliver the paper to his subscribers any way he can. Tossing papers left and right, riding in three directions, jumping anything, this free-wheeling carrier visits more neighbourhoods and houses, faces more targets and obstacles, in more vivid colours than ever before.
Plus, rad stunt riding and BMX tracks in bonus rounds. Choose to ride as either Paperboy or Papergirl too!

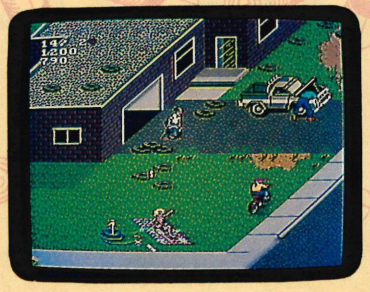


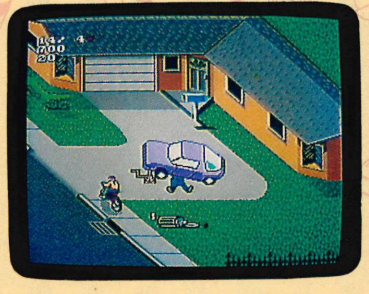












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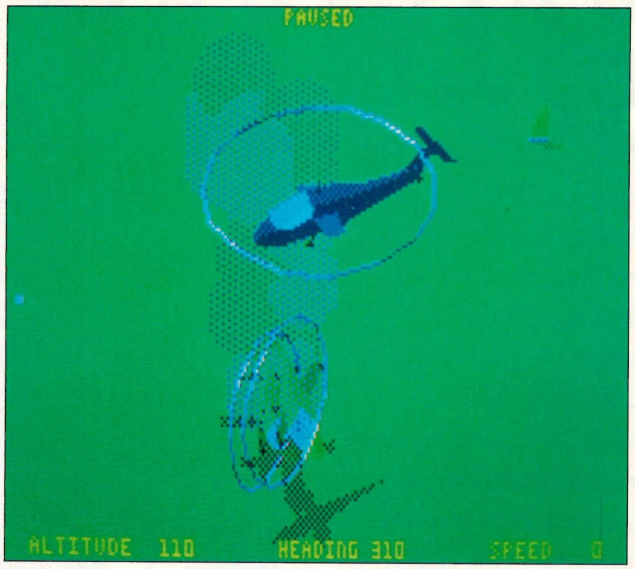
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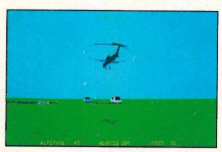
If the thought of yet another flight simulation has you heading for the bunker, try this arcade orientated release out for size



Say goodbye to a boring old Hind-A helicopter gunship: obviously this ageing aircraft was no match for the advanced spec of your AH-73M!

Thunderhawk

Is there really that much difference in the bewildering range of flight simulations out now? Of course, to the aviation enthusiast, the veracity of the simulation is of prime importance. But for those who simply want to fly their PC with plenty of action thrown in, the difference between specific models is esoteric. Facing such an overcrowded and highly competitive market, newcomer Core Design has tried a fresh approach. Obscure flights over empty oceans and fields are a thing of the past, the day of the sophisticated shoot'em-up has arrived.



Up, up and away

Eager pilots can be in the air from the word go. With Thunderhawk you don't need a maths coprocessor or spare couple of days to read the manual. Everything is kept simple and direct. Just enter the flight simulator in the common room and you're straight into the thick of it. Instead of trudging through a myriad of briefing screens and crashing into a building within the first few seconds of flight, your futuristic AH-73M helicopter gunship will bounce back intact from any nasty collisions. This is 'seat of your pants' flying at its finest. Practice simulators, as seen in the first Wing Commander, are invaluable. Once the controls have been mastered, it's time to switch over to the missions proper. The Thunderhawk craft is child's play to handle with the mouse in control of most of the airborne trickery and a few keys to dispense chaff and flare cartridges.

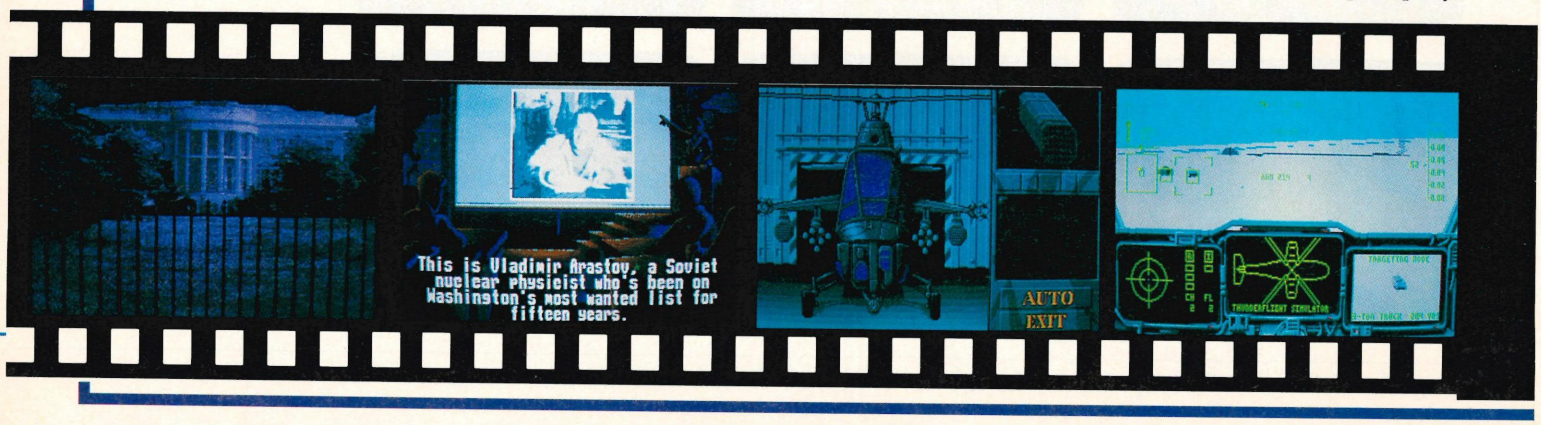
TWO MINUTES OF DANGEROUS LIAISONS

Oh dear! Bad news from the White House. The President wants you to help a Soviet nuclear physicist defect to the West with some lovely top secrets. This is part of the lively intro sequence that sets the scene for the action ahead.

Don't fall asleep during the mission briefing: you could miss a life-saving snippet of info. Thunderhawk comprises six different campaigns, each split into a number of individual missions. It seems Vladimir Arastov has been on Washington's hit-list for some time!

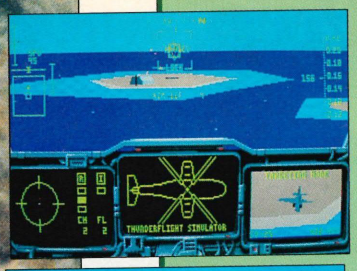
Time to dust off the ammunition stores, get strapped into your cockpit and yell like a banshee. It's wise to employ the auto-arming option for most missions. However, remember the AGM-214 Firestorm laser-guided missiles are more accurate than FFAR rocket pods.

The first mission sounded a little rough, so let's see what the weather is like in Alaska. Use the infrared and radar jamming systems sparingly, overuse makes it easier for the enemy to trace your position and send out a reception party.





STRAITS TO IT



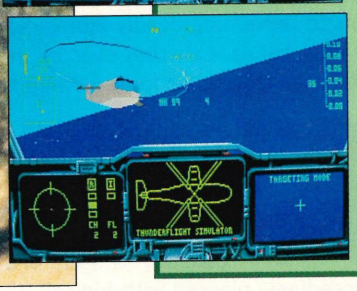
One of the most risky campaigns in Thunderhawk sees our fearless flyer in the Persian Gulf.



Su-25 Frogfoot ground attack fighters are slow in the air but heavily armoured. Lay down flares and chaff to dodge their missiles then let them have it!



It looks as though the enemy are getting some inside info on your position, could it be that radio mast in the distance?



A head-on collision is one way of knocking out an attacking helicopter, but we wouldn't recommend it!



Non-stop action

There's no time to sit back and rest. Heaps of enemy planes, helicopters, boats, trucks, buildings and other military installations are waiting to test your ability to react fast and hard to the next danger or target of opportunity. Believe me, there are plenty of them. The only hassle comes when endless details about the missions ahead are pumped on to the screen during the briefing. Bloodthirsty gamers will be pleased to see the most excellent range of armaments and enemy hardware to keep the trigger finger busy. Nothing is allowed to detract from the pure of enjoyment of flying a mean machine against progressively tougher odds. And of course, your progress can be saved on to disk.

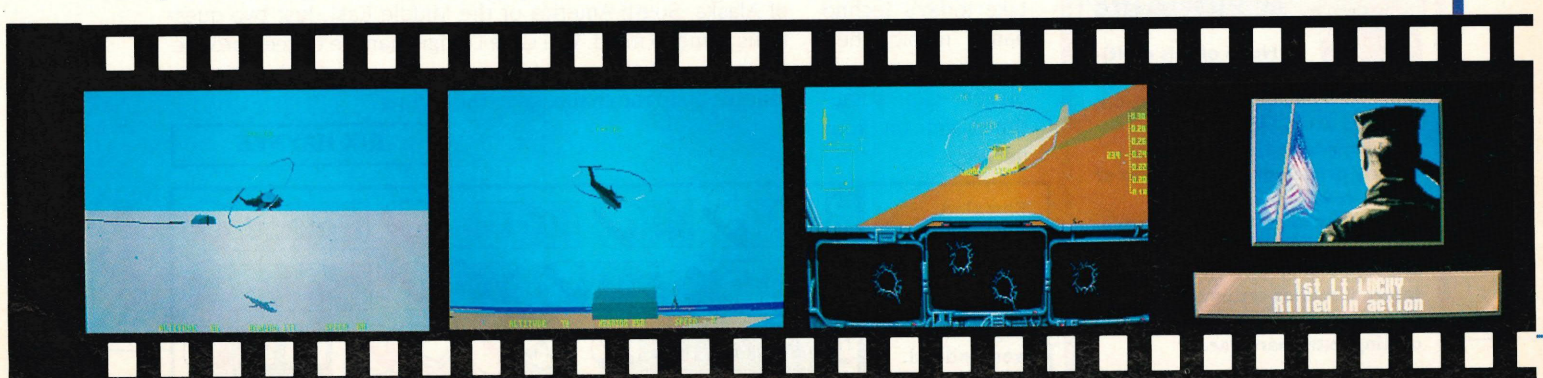
While Thunderhawk has none of the fancy thrills of, say, Wing Commander 2 or F-117A Stealth Fighter, it's more fun when actually playing it. Individual missions form part of a larger story detailing the merciless anti-terrorist exploits of

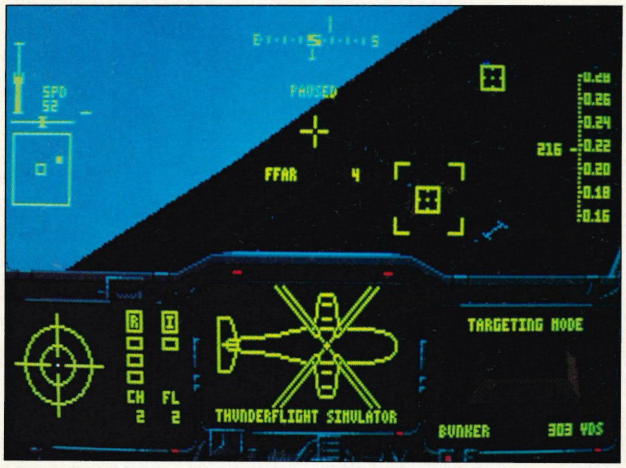
If the spectacle of destruction seen from inside your cockpit isn't thrilling enough, switch to one of the numerous external views which come complete with full rotation and zoom controls. There's a dreamy satellite view, too.

After that little sortie, it's time to sample the delights of the Middle East. Strategic use of ground obstacles like hills and buildings separates cannon fodder from top guns. Remember to play a game of 'hide and seek' when the odds are stacked against you. Alternatively, get the hell out of it!

Shot to pieces within 90 seconds. Extremely embarrassing. It's worth going for the fire button because the AH-73's cannon could still be working perfectly. This cheeky guy in the helicopter may just find his exhaust pipe filled with white hot lead after all ...

A salute from a solitary soldier is the only thanks for services rendered. What did you expect? There's no glory in war. If you do manage to fly and fight better than this, Thunderhawk lets you save and load games for use at a later date. Maybe next time, eh?





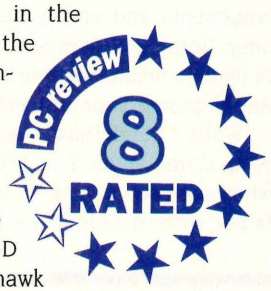
A brilliantly simple HUD (Head Up Display) arrangement helps you keep a cool head at the height of the fighting.

your crack assault team. These are divided into six separate campaigns set around the world, from busting South American drug cartels to preventing deadly biological weapons getting into the wrong hands. Can they ever be in the right hands, though? Thus, the stage is set for something truly gripping.



Graphics

And what about those magnificent 3D visuals? Realism isn't the key factor so every object populating the kill zone is carefully chosen and looks brilliant. Feeling exceedingly pleased with himself, the original Amiga programmer Mark Avory is now using the same routines for a new car racing game due later in the autumn. My only niggle is that the graphics haven't used the full potential of those 256 colours available in VGA mode. I guess this may have caused a few problems with the impressive speed performance. A flight simulation is made or broken on the merits of its 3D graphics system. What Thunderhawk lacks in gory realism, it more than makes up for in terms of speed. You simply won't believe your eyes as the hills and buildings fly by, even at the relatively slow speeds your helicopter can muster. There are plenty of neat touches, like the way your cockpit is blistered by bullet holes when the opposition gets tough and the flickery black and white film projection screen during the mission briefings.



Sound inside the game is pretty safe. Plenty of standard spot effects enliven the experience slightly. Like today's techno dance music, their repetitive beats and bleeps can sometimes get on your nerves.

HARDWARE REQUIREMENTS

None of this multi-disk nonsense, Thunderhawk comes on just two. Core Design recommends a hard drive and speedy processor going 12MHz or faster. It will only gobble 2.3 megabytes of precious disk space. Although joystick and keyboard are supported, stick to a mouse. Internal sounds are available to those without the luxury of owning extra hardware.

Sampled speech from an AdLib card is heard in the introduction. Impressive work indeed.

TECH SPEC

3½ ✓	5¼ ✓	AD Lib ✓	Roland ✓
CGA ✗	EGA ✓	VGA ✓	Tandy ✗
Hercules ✗	✓	✓	✓

ALTERNATIVELY ...

Gunship 2000

Microprose £39.99



Wow! You're part of an American multi-helicopter attack group out to smash the bad guys in Central Europe and Iraq. That's right. The scenario is somewhat tired and politically out of date. Nevertheless, fans of that infamous dawn raid in the movie Apocalypse Now will load this mighty game in eager anticipation. Microprose has carved a reputation for quality simulation products and Gunship 2000 is no exception. Two points to bear in mind before you buy. A tasty machine, with VGA display and suitably fast processor, is needed to really push this game past the sound barrier. Finally, the daunting nature of the product can easily confuse the novice.

LHX Attack Chopper

Electronic Arts £39.99



Sure, LHX is getting a bit long in the tooth but the game still has plenty of bite. Author Brent Iverson is one of EA's star developers with a string of hits to his name. There's plenty to tackle here, including a variety of aircraft to fly and over thirty missions in Libya, Vietnam and Europe. Above average polygon visuals run across most major graphics cards, though the Roland soundboard isn't catered for. Which game should you go for? Thunderhawk is slicker and easier to handle, while LHX Attack Chopper has a far greater array of tempting features. It's still a worthy choice. Keep an eye out for a bargain from dealers trying to move old stock.

F-29 Retaliator

Ocean £34.99



Flying a helicopter isn't everybody's cup of tea, so, for those desktop pilots itching for arcade action in a supersonic jet fighter, F-29 is heartily recommended. Retaliator's fast pace and smooth 3D graphics are a joy to behold. As a bonus, creator Digital Image Design has also incorporated a tremendously competitive two-player option, via datalink between computers, which takes the whole thing one stage further.

Perhaps Thunderhawk hasn't got the staying power of rivals like Gunship 2000 or Falcon 3.0, but this is a different sort of sim. It is certainly the best attempt, so far, to fuse the thrills of a shoot 'em-up with the depth of a flight simulation. It's refreshing to find a game where you don't need a military degree to understand the mission objectives or three hands to play it. This is the release to try if you've never attempted the genre before. Once the mysteries of aerodynamics and FFAR rocket pods no longer puzzle you, it's just a question of practicing those flying skills for the next stirring battle over the skies of Alaska, South America or the Middle East. Just two questions come to mind. Will Core Design manage to keep producing games of this quality, and, more importantly, are your reflexes up to the challenge to this outing?

RIK HAYNES

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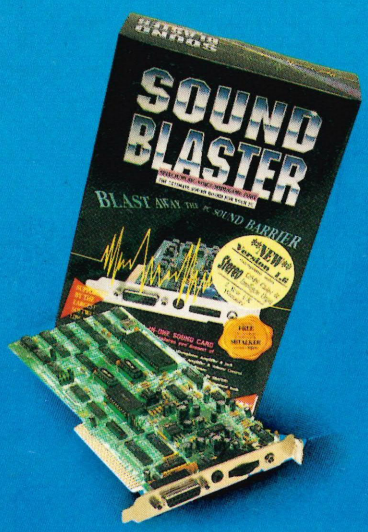
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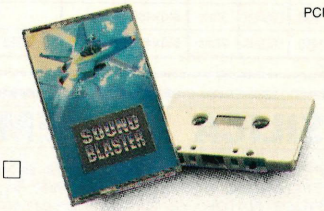
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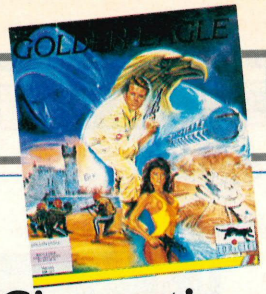
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Golden Eagle

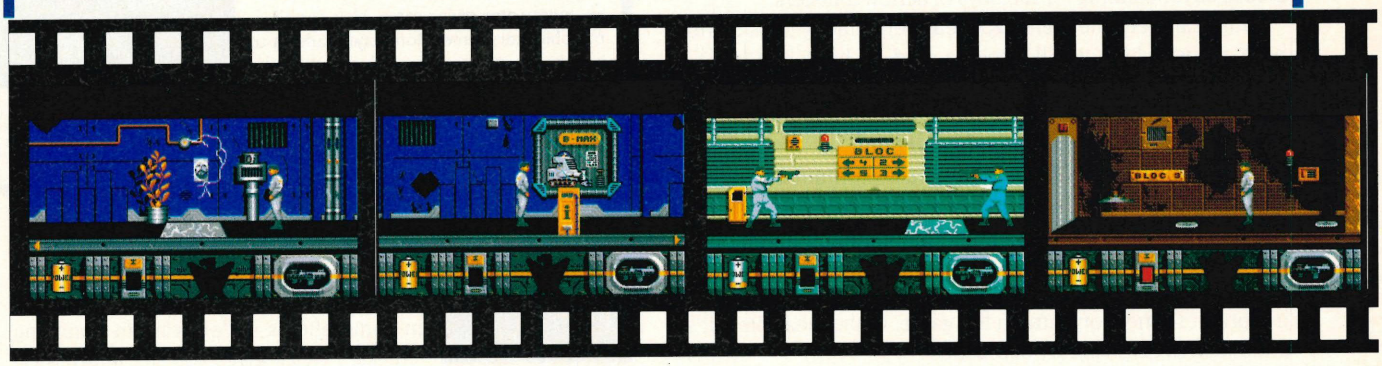
TWO MINUTES OF EAGLE-EYED DETECTIVE WORK

A quiet corner of Nahmur's base – a network of passageways, rooms and halls divided into connected sections. It's full of traps such as the electrified plate switches, in front of you. Watch out for guards.

When you thought the base was all bad, you stumble on this information post, one of many around the complex: it allows you to access maps, personal statistics, the underground news, and even a mini-computer game.

Guards are the worst kind of opponent. They'll whip out their weapon and unleash laser death. Most can be dispatched with a crouch-and-fire movement, but you stand more chance if you keep your gun holstered.

It won't be long before you're taking a stretch in prison. You can be smart, you can be swift, but it's inevitable the guards will catch you. If this happens too often your brain gets reprogrammed and it's then °game over.

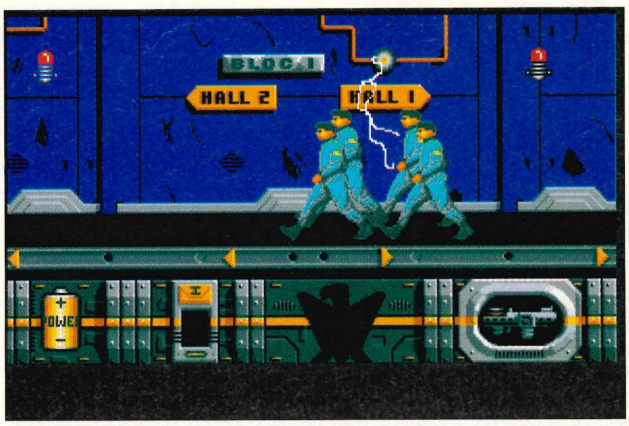


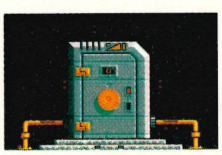
It's surprising how many planets there are which are pretty much like ours in every detail, except that they are light years away across the other side of the galaxy.

The world in this game is just such a planet, a place where the locals worship a mythical statuette made of mysterious matter whose origins are unknown – the Golden Eagle. Religions have worshipped it, people have indulged in fisticuffs because of it, and now a crooked High Priest called Nahmur has captured it, chopped it into several bite-sized morsels, and scattered it throughout the city.

Nahmur believes that if a job is worth doing, it's worth doing to excess: in addition to hiding the Eagle parts, he enslaved all the former keepers of the icon (including you, Friedrich von Horgen), planted hypnotic modules in their heads and banished them to the depths of the city. Luckily these ex-keepers aren't entirely dim, and they've disconnected your module with a handy laser beam, so that you can gather all the bird bits together and overthrow Nahmur. This is where the action really starts.

Once you've read all about the checkered history of your oppressors, it's time to collect those valuable pieces of eagle. But where do you start? Try to explore the city undetected – easier said than done.





Crack ahead

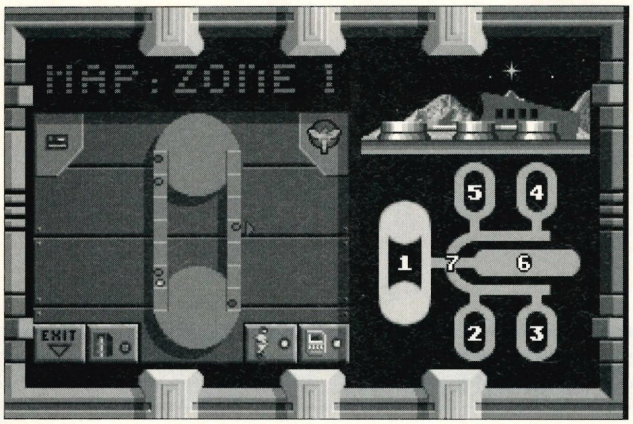
All you have to do now is explore the city undetected, crack the combinations of the safes which contain the Eagle, and assemble the bird to restore peace and truth. Simple, isn't it?

Well, not quite: for a start there are more safes than there are pieces of the icon, but you can't tell whether one is empty or not until you've opened it. This isn't as easy as it sounds, either: safes have a five-digit combination which can be cracked by listening to the combination lock as it turns – but not all safes are the same.

Probably the most useful elements in the game are the information posts: these are found throughout the complex and, among other things, allow you to examine a map of your current location. This is handy in itself, but it's also supple-

REQUIREMENTS

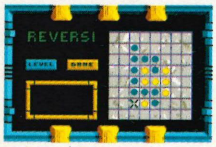
Our version came on four 5.25" 360K disks. You're advised to install to a hard drive if you have one: playing from floppies means a lot of inconvenient disk-swapping and loading. If you do install, the game uses 1.4Mb of disk space.



At the information posts dotted around the city you can access a map of your current location and floor plans. These are extremely useful but, cunningly, some information remains secret.

mented in the packaging by a separate poster-sized floor plan, to which you attach stickers containing essential features, such as weapons stores – it's a neat and unusual idea which will please anyone pining for the days of action transfers.

Unfortunately, there are two areas deliberately missing from both maps, which you'll need to find to have any hope of reconstituting the mysterious icon.



Passing time?

The info posts also contain a sub-game, known as Reversi, the rules of which are vaguely similar to the Chinese game, Go. At first you think it's just a way of passing the time, but the manual assures you that it's very important to the story later in the game. In the meantime, it's a good idea to get in plenty of practice.

The most important news for shoot 'em up fans is the distribution of armouries. Bizarrely known as 'Self gun', these weapons stores are primarily designed for hardware maintenance, but you can use them to get a more interesting model than the one you're already carrying. No gun is inherently better than any other, but they are all useful in the right situation.

Naturally enough, Nahmur has minions on the lookout for anything unusual, and the result is an excellent variety of opponents and defence systems pitted against you, including guards, robots, and hovering needles.



Caught in the act

One of the better features of the game is that it doesn't matter if you're playing with joystick or keys, because Friedrich walks quite slowly, and there are few complex moves in his repertoire. Unfortunately, it also means that on the first few attempts you're likely to get captured until you learn how to avoid opponents.

This doesn't mean that the difficulty is excessive: at first it's tough enough to have you screaming at the screen, but once you start using the map and learning enemy movement patterns you can get some serious exploration done. This allows you to discover the quality of the graphics: as well as the smooth animation, the bold, colourful and varied backgrounds make each section distinctive.

ALTERNATIVELY...

Murders in Space

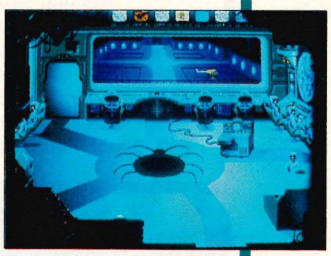
Infogrames, £30.64



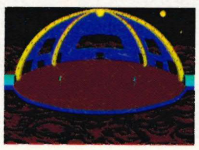
An attempt has been made on the life of Philippe Amiot, Commander of the Space Station Pegasus and you, undercover agent Dick Anderson, have been sent on board to investigate. What follows is an unusual mixture of interactive adventure (questioning suspects, making sense of onboard systems, cracking into the station's mailbox) and a smidgeon of more conventional arcade action (such as using the MMU). It's not quite up to the quality of a top-notch Lucasfilm or Sierra romp, but with four sub-games and eight potential murder victims there's plenty to keep you occupied.

Operation Stealth

Delphine/US Gold, £30.99



This was Delphine's second game using its interactive Cinematique system. The action centres on secret agent James Glames, and as you might guess it's a tale of international espionage. The gameplay is a logical, well-structured combination of puzzle, adventure and arcade sequences – Glames has to negotiate two mazes, a jet-ski battle and an underwater diving game. He's got all the obligatory James Bond-style gadgets to help him out: recording razors, rocket launching cigarettes, a megalomaniac and lots of breathtaking stunts. If you're after an arcade adventure with a tad more depth, check this out.



Irritating crackles

AdLib sound, on the other hand, is very disappointing: both the title music and in-game effects suffer from an annoying 'crackle', which gives you the impression that they are bad samples. This doesn't radically affect your enjoyment but it could have been better.

Golden Eagle is a compact and very playable game which doesn't break any new ground, but which is challenging enough to keep you interested. In particular the variety of enemies (there are some pretty nasty surprises lurking about the base) will have you coming back for more.

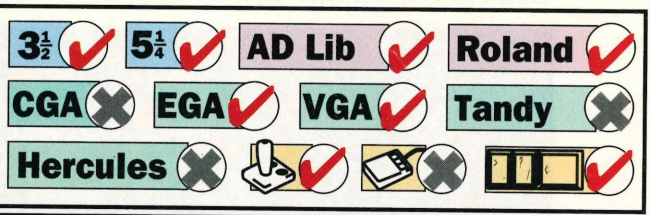


Combine this with excellent puzzle elements, tasty shoot 'em up action and polished presentation features, and you've got a game which should keep arcade fans happy for a few weeks.

GORDON HOUGHTON

A colourful and nicely animated arcade adventure slightly marred by poor sound effects.

TECH SPEC





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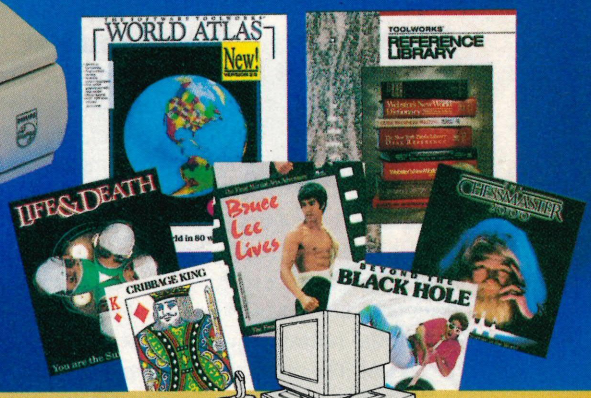
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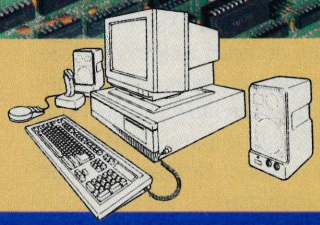
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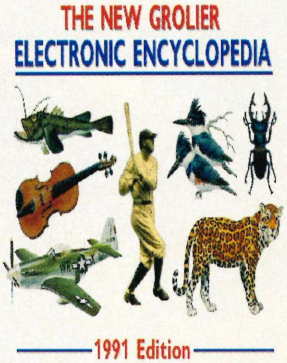
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America's foremost academic encyclopaedia makes its CD ROM debut, but can it successfully replace the good old-fashioned book?



The American Academic Encyclopedia is the US equivalent of the Encyclopaedia Britannica; with 21 volumes, the price means you're unlikely to find it in the average American household. It may well transpire, however, that the encyclopaedia makes its way into a few more homes with the advent of its CD incarnation. A single CD contains the text from all 21 volumes in addition to maps of the states of the US and all the countries of the world, a few thousand mono and colour pictures with captions and a selection of recorded items.



What you get

This all sounds very nice, but apart from the sounds, what does CD-ROM offer that 21 leather bound books can't? The answer becomes apparent the instant that you begin working with the encyclopaedia. There are no less than five ways of accessing some or all of the information: word search; browse titles; browse word index; browse picture index and browse map index. The latter two, as you would expect, allow direct access to the visual material (although you can forget about that if you don't have VGA). The pictures have been scanned from the originals in the paper encyclopaedia, and are, on the whole, of good quality. The maps are not particularly detailed and show only the shapes of the countries, rivers, and major towns and cities. In addition to the countries of the world and a globe map, all 50 of the American states are shown in greater detail.



Navigating with ease

Taking into consideration the size of the encyclopaedia, finding the articles you need is surprisingly simple. The most powerful way to find information is by using the word search. This allows you to search for a main keyword and associate it with up to three minor keywords. The software will then hunt for articles in which all the specified keywords are mentioned. You can set the degree of refinement of these searches by specifying that the listed words must be 'in the same article', at the lowest resolution, through to 'next to each other, in exact order', at the highest resolution. Additionally you can use standard DOS wildcards, or even set a keyword that mustn't be present for an article to be listed. You can also confine searches to particular parts of the article, like picture captions.

There are two other methods of searching for articles. You can specify the exact title of the one you require, by selecting from an alphabetical list, or you can look for articles containing a word listed in the colossal word index. This contains all the words used in the encyclopaedia, although those that occur far too commonly to be of any practical use are not listed.



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You will require a CD-ROM drive with audio out capabilities if you wish to hear the recorded items. DOS 3.0 or greater is needed to run the program (or DOS 3.1 if you have a Pioneer minichanger). You do not require a hard drive.



Comprehensive information

Each article can contain up to seven elements: the main text, an outline which summarises the main text, a picture, a recorded item, a fact box which shows relevant statistical information, a bibliography for further reading, and a table where one is required (a periodic table for example). Most of these can be accessed with a single keypress where they are available.

Finding your way round entries is made easy by the WIMP interface, which allows you to have up to five articles open at once and switch between them freely. Comprehensive keyboard short-cuts will also speed things up once you have learned them.

A particularly powerful feature is the link ability. In each article certain keywords are picked out in upper case. These are links to related articles. You can scan through the article to find them and then immediately access a list of articles which are relevant to the selected link. For example, from the entry on Baroque Music I was able to directly access an article on J.S.Bach.



Research tools

The encyclopaedia contains a selection of tools to aid research. The most significant is the notepad which can store up to 20 paragraphs from any article. While you are researching a subject you can simply pick out the relevant information and store it in a notepad until you need to access it again. Notepads can be saved to disk and loaded again at a later date.

If you don't wish to save a particular reference but want to be able to find your way back to it quickly, you can use the bookmark. This does not save the contents of the paragraph in

ctronic Encyclopedia



The quality of the illustrations in The New Grolier Electronic Encyclopedia is superb, and many are accompanied by recorded items.

the notepad, but rather a reference to it. From here on, you can simply call up the notepad and click on the required reference which will take you directly to the precise point in the right article, regardless of whether the article is currently being viewed.

If you wish to quote from the encyclopaedia in your own documents then you are free to do so, provided that you include a source reference for each quote. Pasting bits of the encyclopaedia into other files is a simple matter. The paragraphs required must first be marked and then saved to disk as plain ASCII files, which can be imported into practically anything remotely resembling a word processor or text editor. You can also print selected paragraphs by selecting them in the same manner.

Although I only ever used the encyclopaedia for browsing, it is very easy to see how serious research can be speeded up enormously by judicious use of the research tools. Even if the encyclopaedia doesn't contain precisely the information you require, the extensive bibliographies at the end of most articles will point you in the right direction.



In conclusion

The New Grolier Electronic Encyclopaedia is a very convenient way of owning a superb 21 volume reference work. As far as British users are concerned, it does suffer from an American bias (it is a US encyclopaedia after all), but for a product of such high quality this is a deficiency you might be prepared to live with. The presentation isn't exactly what I'd call slick; functional is more like it. Having said that, in a product of this nature it's the quantity and quality of the information that matters most, not fancy looking screens. The existing WIMP interface works well enough, especially if you have a mouse.

The manual is almost exactly what a manual should be – short, concise, and informative. The only thing it lacks is a decent quick reference section. It's a pain having to plough through the tutorials to find the information you need. There is also a rather terse on-line help system if you come unstuck without the manual at hand.

Installing the software is simple. The INSTALL program creates a start-up directory on your hard drive or a system floppy along with a configuration file which can be adjusted to make the encyclopaedia run the way you want it to. The configuration program allows you to change everything from default print and save options to the colours used for windows.

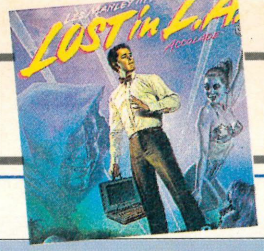
All in all The New Grolier Electronic Encyclopaedia represents a good investment if you are looking for a powerful, but accessible research tool. Since the current edition is the 1991 update, you can be sure of getting reasonably up to date information. If you just want to brush up your Trivial Pursuit skills, however, then there are cheaper products out there, not to mention the common or garden desk encyclopaedia.

LAURENCE SCOTFORD

You will need VGA to view pictures and maps. Mouse is recommended, but keyboard is workable.

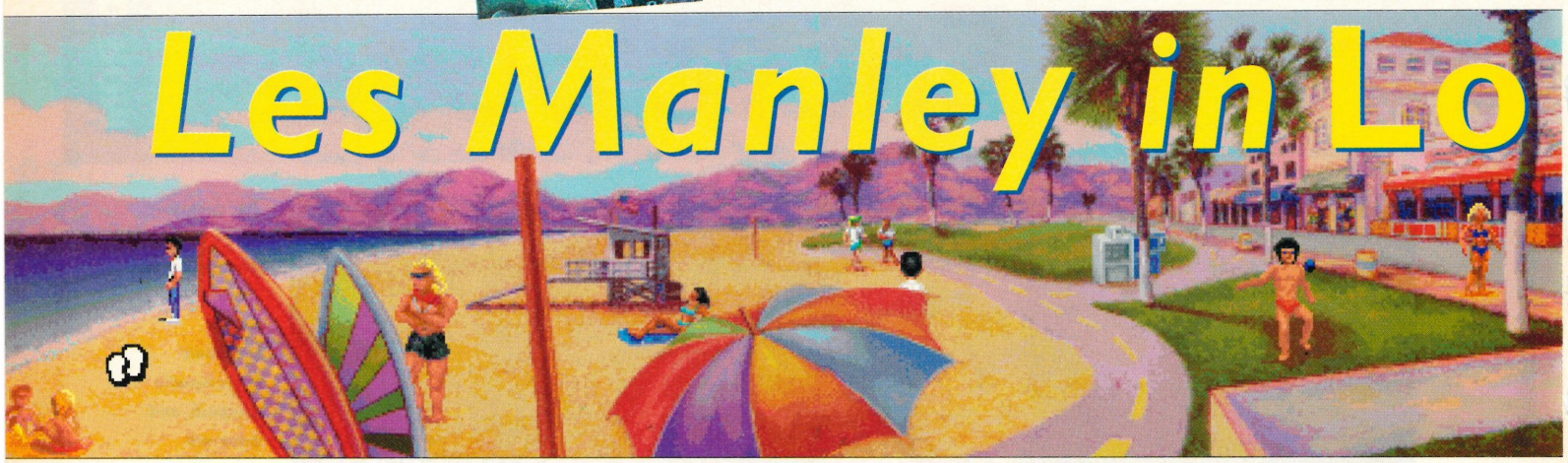
TECH SPEC

3½ ✗	5¼ ✗	AD Lib ✗	Roland ✗
CGA ✓	EGA ✓	VGA ✓	Tandy ✗
Hercules ✗	✗	✓	✓

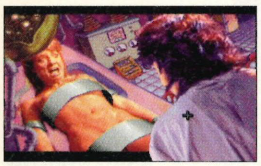


■ Les Manley in Lost in LA ■ Accolade
■ (081) 877 0880 ■ £34.99

Les Manley in Lo



A kidnapper stalks the streets and homes of Tinseltown, preying on celebrities and building his very own private collection of stars



In Los Angeles the stars don't come out at night. In fact, they don't come out at all anymore. And it's not the smog which keeps them holed up in their smart town apartments or beach front properties.

For the past six months celebrities have been disappearing without trace. But why? Is it a cheap publicity stunt set-up by a cunning PR to generate headlines and keep star names in the public eye? Or is it foul play?

Because everyone in LA thinks they are a star, every blonde beach bimbo, bronzed muscleman with perky pecs, and no-hope wannabee celeb, now walks in fear.



Little big man

The disappearance of Helmut Bean, the world's smallest man, ex-circus freak, and now famous Hollywood stuntman, and his girlfriend LaFonda Turner, has sent fresh shock waves through the smart set. Just before they vanish, Helmut calls his old pal, Les Manley, asking him to visit and try to solve the riddle of the disappearing celebs. But Les arrives too late to save his pal and sets out to rescue him.

IT'S A MANLEY LIFE



The many characters encountered in Lost in LA are all real people, mostly actors, actresses and models. Some of the girls have appeared in Playboy and, according to Accolade, have held titles such as Miss Legs Hawaii, Miss Body Beautiful International and Miss Maui Sun. The face of Les is provided by Johnny Orason, seen by Accolade working in a Caiifornian bar. Apparently, he bore an uncanny resemblance to the original artwork of Les created for Search For The KIng. He auditioned for the part, won it, and had the arduous task of being photographed with bikini-clad girls. "I've done things which were less fun," Johnny said.

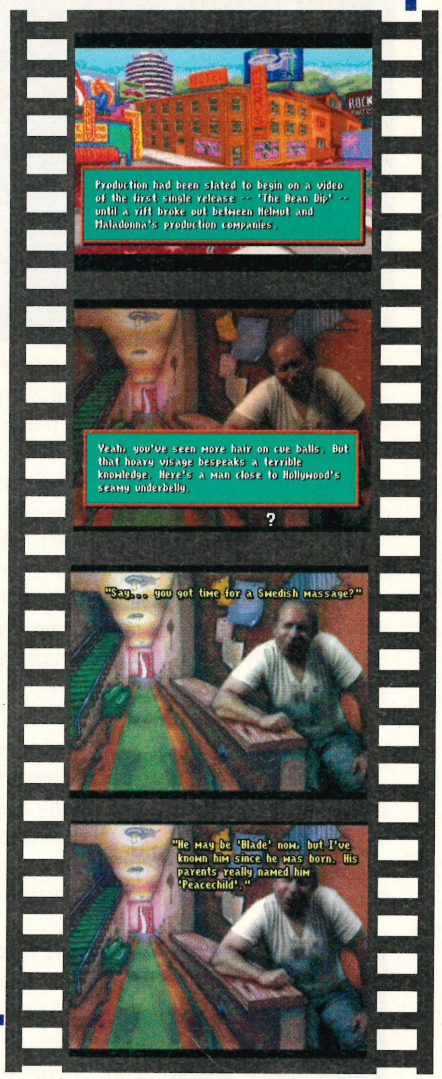
TWO MINUTES OF QUESTIONING

Murry's Hotel in the seedy part of Hollywood Boulevard. Les enters the dirty dive in search of information. And perhaps a room to rent?

Murry's in no hurry to talk. Finding out about him and his hotel could reveal a way to get the man to open up. Les decides on the softly-softly line of questioning.

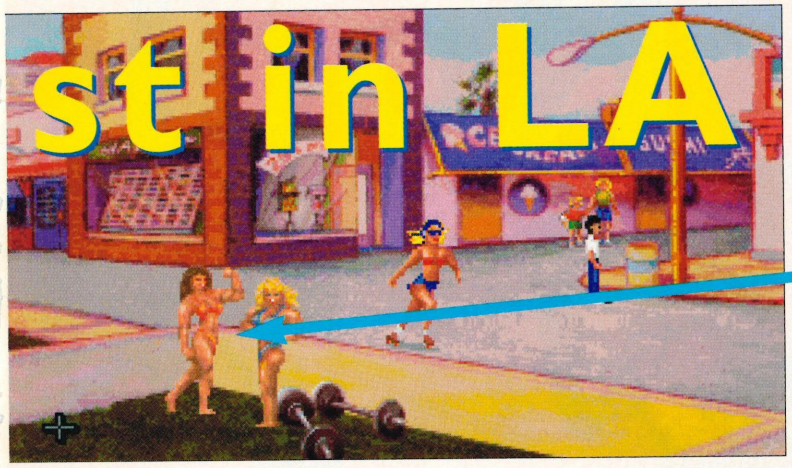
"Nice place you've got here," says Les. Murry lets slip that there's a free phone service in the rooms. But no credit is taken here. Les must get his hands on some cash.

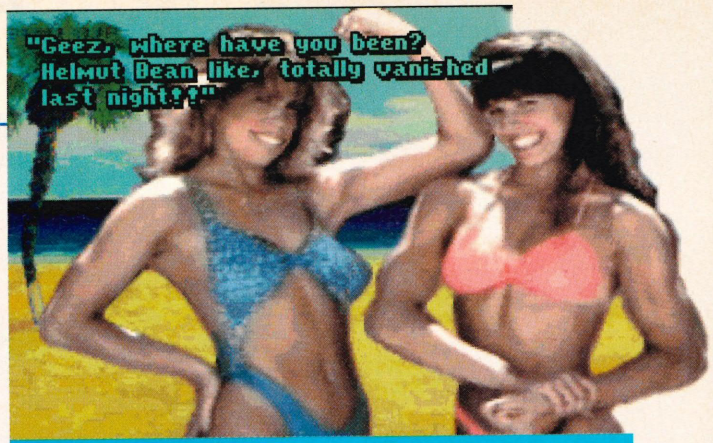
Murry also says that Blade, the tough kid hanging around opposite hotel, is really called Peacechild.



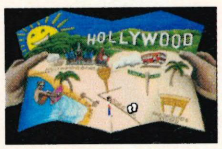
This is the second Accolade game to feature the amiable if slightly naive Les. In 1990 Les debuted in Search for the King, a mystery involving Elvis. Now he is back with more of the same, a light-hearted, humorous romp through the glamorous and sleazy lowlife of Hollywood, visiting Hollywood Boulevard, Rodeo Drive, Mulholland Drive and Venice Beach.

st in LA





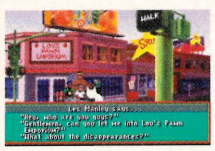
Perfect bodies, perfect tans, perfect smiles. If nature is less than kind, Dr Scalpel and Dr Silicone can make it better. But these babes do have some usuful information.



Making moves

Moving around is simplicity itself with just four different icons determining actions. Footprints indicate places where Les Manley can walk; a question mark highlights characters in the game with whom Les can talk and also descriptions of objects and locations; a cross simply means nothing can be done; and a hand appears when new screens are being accessed.

The question mark is obviously the most useful. At the least you will get a description or statement about the object clocked on. At other times an options box appears allowing you to talk to and question a character and, if applicable, take an object into their inventory. The inventory is located in a strip at the bottom of the screen together with the icons to save and load games.



Choice remarks

Here Les is hanging out with 'the Boyz', an apparently streetwise gang of rap artists. But are they? As with other games of this type, Les is often presented with a choice of questions or comments with which to quiz a character. Choosing the right one is important. An inopportune remark can mean vital information won't be forthcoming. although the Boyz act and talk very tough, Les has previously learned that they actually come from wealthy families and live in the best parts of town. One is even a neighbour of Helmut Bean.

Games such as Lost in LA have constant layers to be discovered, frustrating at times, but very satisfying when a new sequence of screens or line of enquiry is unearthed.



Adults only?

Every now and then you think the game teeters on the edge of smuttiness when you encounter the strip and mud wrestling clubs and you begin to think you are entering Leisure Suit Larry territory, but it never really oversteps the mark. One of the icons allows Les Manley to touch things but he should be careful where he puts his hand. That is a warning in the unlikely event that any PC Review reader develops a case of wandering hands! That said, the warning on the box: 'Recommended for Mature Audiences' is little more than a tease and is never really justified.

All in all Lost in LA is tremendous fun, treading the fine line of humour at the expense of the often bizarre attitudes and lifestyle of the rich and famous in California without descending into farce (which would have ruined it as a mystery). It is obvious a lot of love, care and attention has gone into the game's 'movie' feel. It's all very tongue in cheek. Of course. But this is Hollywood, don't forget. The question is whose tongue is in whose cheek?

PAUL BOUGHTON

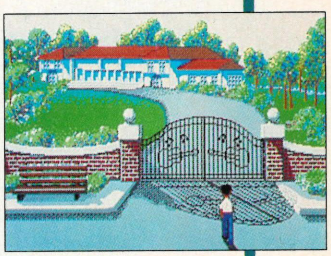
PC review 7 RATED

ALTERNATIVELY ...

Search for the king

Accolade, £29.99

When Les Manley made his debut in this game, he was seen as a rival to Larry Laffer from Sierra's Leisure Suit Larry series. They displayed the same sort of nerdish qualitities. Here Les sets out to discover the King, an ageing rock 'n' roll star who has been missing for years. The TV station for which Les works has offered a $1,000,000 reward to whoever finds him. Perhaps a little dated now, but Search for the King is an amusing animated adventure, with a jolly soundtrack and amusing touches of humour.



Leisure Suit Larry V

Sierra On-Line, £39.99

The Lounge Lizard gets mixed up in a dual plot involving his pursuit of Patti and undercover work for the FBI. Graphically superior to the early Larry games, although probably easier to play, it serves as an ideal introduction to the cult antics of Larry Laffer.



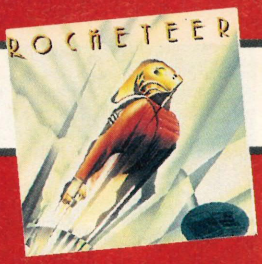
HARDWARE REQUIREMENTS

A 10MHz or faster, 640K of RAM and a hard drive are the minimum requirements. 256 colour VGA or MCGA. A sound card is desirable.

Good digitised pictures add reality and atmosphere to the game. Tasty music, as well.

TECH SPEC

3½ ✓	5¼ ✓	AD Lib ✓	Roland ✓
CGA ✗	EGA ✗	VGA ✓	Tandy ✓
Hercules ✗	✗	✓	✓



■ Rocketeer ■ Disney/Infograms
■ (071) 738 8199 ■ £30.99

Rock

Will Disney's rocketman take off where the film fell straight to earth?





It's just one close encounter after another for our hero.

PC review

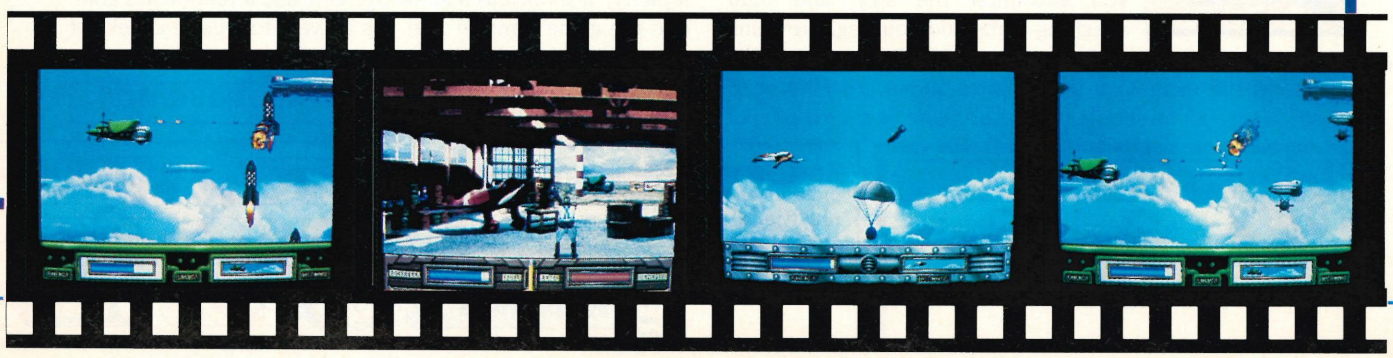
TWO MINUTES OF AERIAL ANTICS

Earn the respect of your girl, and a go on the rocket pack by winning two races. Don't expect to take to Rocketeering straightaway.

The Nazis are attacking! Blast them with your pistol and avoid their fire by rocketing out of their. Your ammo is unlimited, but rocket fuel isn't.

Help is at hand in the pursuit for your sweetheart. Balloons containing weapon power-ups float onto the screen. Just be careful not to shoot them.

The rocket pack has been ditched in favour of the Locust. A brand spanking new German fighter which Secord swipes for level four.



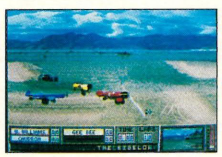
eteer



Between scenes you are treated to some stunning cartoon strips with voice overs.

At the start of '91 the Rocketeer was tipped to be one of the major movies of the year. It had to be. Having exceeded its budget by 300% and with Disney investing plenty of money overseas, the end of year profits weren't going to look good. Despite the best efforts of the Buena Vista hype machine, the Rocketeer only just covered its outgoings in the cinema and the video release didn't peak much interest either.

Now we have the game, which promises quite a lot to begin with. The plot whisks you back through the mists of time to the 1930s, then focuses in on Cliff Secord, pilot ace, and his revolutionary rocket pack. The opening sequences show the story unfolding in comic strip style with the Disney Sound Source supplying the music and a voice over. All this leads you into the first event, the air race.



Set course

You choose to play one of three planes and face off against the other two in a race across two screens around a pair of pylons. Once you get the hang of timing the turns, the event is a piece of cake, unlike the ensuing challenge.

When you win both races you get to fly the Cirrus rocket pack. All the timing and techniques you learnt while flying your plane immediately go out the window, the rocket man goes much faster and has a smaller turning circle than any aircraft. Mastering this stage can only be described as a pig (and we all know about pigs that fly!) The sprite scaling makes it difficult to judge the position of the Rocketeer, which usually results in him becoming a large pink stain on the side of a pylon.

HARDWARE REQUIREMENTS

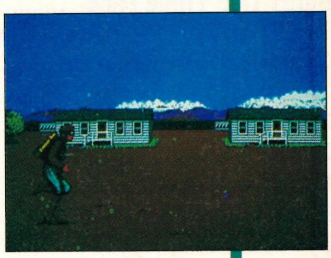
The game comes on both disk formats, and clocks in at around two meg. A large amount of the files contain the speech and sound effects for the Sound Source, so if you don't have that gizmo the game can probably live without them. If you are running with the Sound Source, prepare yourself for slow-down every time it kicks in.

ALTERNATIVELY ...

Rocket Ranger

Mirrorsoft, £9.99

It's set in the 30s, it features a rocket pack, Nazis, and it's a damn sight better than the Rocketeer.



Rocket Ranger was programmed by Cinemaware, the people behind It Came From The Desert, and it combined action with strategy as the brown-leather clad hero set out to thwart the Nazis plans to build a base on the moon. All the essential elements are there, including a goofy professor and a large-chested brunette to provide the love interest.

A great game, especially seeing as it's out on budget for a tenner.

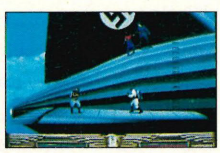


Shoot out

The next stage is a shoot out between you and a group of Nazis in an aircraft hanger. Nazis appear from all corners, lobbing grenades and taking potshots at you, while the occasional German Rocketeer flies through the hanger door. I was under the impression the game was about the Nazis attempting to get hold of a rocket pack but, from the evidence, they've had quite a bit of success building their own. Anyway, when you've plugged the equivalent of an SS brigade the level finally ends. In the heat of the battle the leader of the Nazis kidnaps Secord's girlfriend. No need to panic, you only have to wait for the next level to boot before you can set out to rescue her.

PC review 3 RATED

Levels three and four are very similar. You guide your Rocketeer/plane through a horizontally scrolling shoot 'em up level zapping Nazi rocketmen/planes. Not much to write home about. The graphics are unspectacular, and the sound amazingly dull. Both stages are also gratuitously long, giving you plenty of time to reflect on why you're actually playing the game.



Trash the trash

Finally you get your revenge (on top of a Zeppelin of all things!) on the fiend who kidnapped your girl. Beat him and you can jet on home for some apple pie!

The sound source is OK when there's not much action but as soon as something is happening on-screen, the visuals slow down. Even a 20Mhz machine has no respite from the appalling sluggishness caused by the sound hardware.

Rocketeer suffers from a chronic lack of action. Level one is too tough, two is too easy, three and four are identical and five is just plane dull. You'd be far better renting the film from the video shop, finding a particularly interesting action clip about 10 seconds long, then watching it 20 times in succession. It's far cheaper and you don't waste any hard disk space.

MARK PATTERSON

14 Mhz is pretty much the minimum speed, especially if you're playing in VGA mode.

TECH SPEC

3½ ✓ 5¼ ✓ AD Lib ✓ Roland ✓
CGA ✗ EGA ✓ VGA ✓ Tandy ✓
Hercules ✗ ✓ ✓ ✓

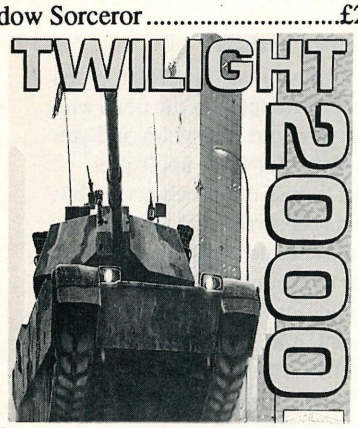
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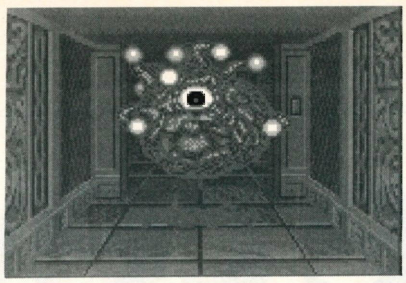
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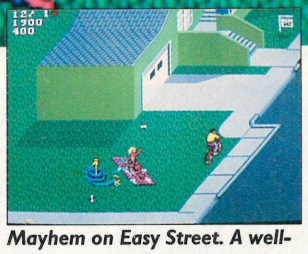
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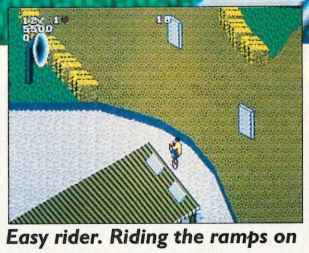

The Daily Sun
PAPERGIRL FIRED!

■ Paperboy 2 ■ Mindscape
■ (0444) 831761 ■ £25.99

Paperboy 2


Papergirl dodges the fire bolts but misses collecting the papers.


Mayhem on Easy Street. A well-aimed paper sets off a sprinkler.


Easy rider. Riding the ramps on the bonus obstacle race.


The Daily Sun
PAPERBOY FIRED!
Disgrace. Paperboy gets the sack – without any papers in it!

Classic games never die. They just get re-cycled. And that's the fate which has befallen the evergreen Paperboy. A look back over the past few years of computer entertainment would be incomplete without it. Paperboy's been a constant companion over the years, starting life as an Atari coin-op, moving across to virtually every computer format. A winner all the way.

Paperboy 2 also started life in the arcades, this time from Tengen, and again has been converted across the various computer formats. Now Paperboy 2 is doing the rounds on the PC. So get on your bikes and ride! Read all about it.

For all those PC Review readers who write in demanding more reviews of arcade-style software, this should be a cause for celebration. Sadly, I think they will be more than a little disappointed. Frankly, Paperboy 2 is strikingly lacklustre in the playability stakes and its graphics look tired.

The idea of the game is very simple. You control a bike-riding paperboy – or girl, if you prefer – on his delivery round. Initially you are presented with a map of his route on which the homes of subscribers flash. Points are scored for successfully delivering the papers into the paperboxes outside their homes. Fail to deliver the papers and they will cancel their subscriptions. Extra points are scored by by breaking non-subscribers windows and a vast array of other anti-social behaviour.

The game is divided up into three weeks of seven days. Each week has 20 houses, 10 subscribers and 10 non-subscribers. In week one there is also a petrol station and market. Week two's extras include a fair and park and week three's delights are a car dealer and shopping centre.

Of course, things are a little more complicated. Your route is fraught with hazards, including cars, drains, dogs, monsters, scarecrows, holes in the ground, piles of earth, fences, ramps, burglars and a whole lot more. Not to mention the bonus round obstacle course at the end of each day, a race which grows longer each week.

As if that isn't enough, this is followed by a review of the paperboy's performance. A success in the delivery stakes will mean you're up bright and early the next morning doing the rounds again.



This 'review' appears in the form, appropriately enough, of a newspaper report. Paperboy/girl Fired is the headline you do not want to read. The longer you survive, the more glowing the headlines become and along with promotion come new routes to conquer.

A joystick is obviously the more flexible means of control, but the keyboard controls are adequate, using just six keys. Cursor up speeds the bike up, cursor down slows it, cursor right and left moves it in those directions. The remaining keys allow you to throw papers left and right. Paperboy 2 is a one or two-player game. When playing an opponent, you do not play simultaneously but take it in turns. The second player has another set of keys.

I played Paperboy 2 on a 286 using keyboard and with PC sound and a 386, also with keyboard, and AD Lib sound. Both were all right for speed although, obviously, the 386SX was preferable. PC speaker sound was OK. The sounds of breaking windows and barking dogs were quite nice.

The AD Lib offering was, quite frankly, bizarre. I would have thought the appropriate music for a fairly fast action game would have been upbeat. What you get sounds more like the music you would expect from a laid back, smoky nightclub. (It was nice, but it didn't seem to fit.) There was also a strange clunking when a life was lost and the game restarted, rather like the noise of a stylus dropping on to a record.

Graphically it really is nothing to write home about. Even with VGA everything was chunky. In EGA it must be pretty dire. But I suppose it's a trade for extra speed.

What I did find annoying was the collision detection. Several times I was run over when I was nowhere near a car or ran into a fence when I should have missed. At other times I rode over the extra bundles of papers scattered around the route only to find they hadn't been picked up or managed to ride through a fence or hedge which should have tripped me up. It didn't happen that often but enough to become irksome and obtrusive. If I had paid out £25.99 for this, I would have been more than a little annoyed.

Value for money? On your bike!

PAUL BOUGHTON

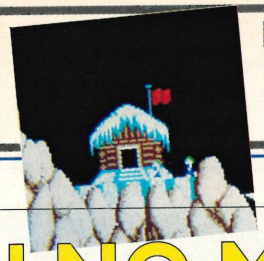
HARDWARE REQUIREMENTS

Supplied on just one 3.5" or 5.25" disks, the game needs 512K of memory. It can be installed to the hard drive or run from one floppy drive – 720K, 1.2Mb or 1.44Mb – or two floppy drives – 360K.

Plays best with joystick but also handles quite well with keyboard.

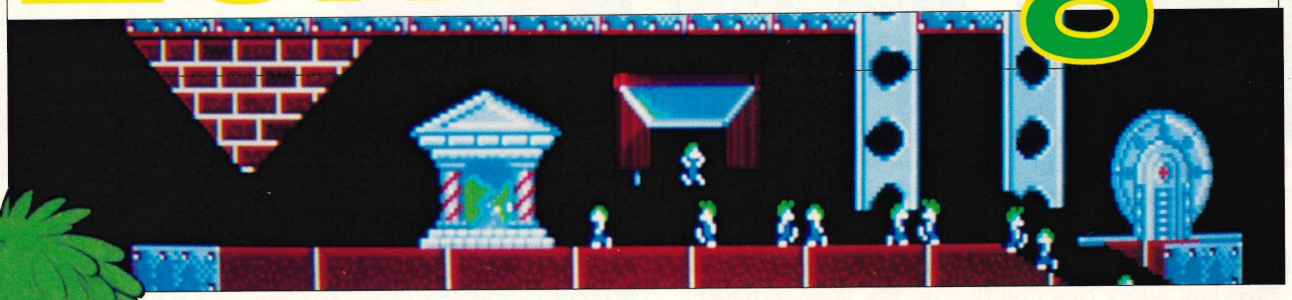
TECH SPEC

3½ ✓	5¼ ✓	AD Lib ✓	Roland ✓
CGA ✗	EGA ✓	VGA ✓	Tandy ✓
Hercules ✗	✓	✗	✓



■ Oh No! More Lemmings ■ Psygnosis
■ (051) 709 5755 ■ £29.99 (stand alone) Data Disk (requires original Lemmings disk) £25.99

OH NO MORE Lemmings





The program that Lemmings fans world-wide have been waiting for has finally arrived. The suicidal little critters now have 100 more levels to get stomped, chomped, bashed, burnt, crushed and drowned in.

Experienced Lemmings players can expect a similar affair to the first game with completely new graphics and puzzles while newcomers have a second opportunity to experience a unique and completely addictive piece of classic computer entertainment.

The 100 levels are divided into five sections of 20 levels each Tame, Crazy, Wild, Wicked and Havoc, which, as their names suggest, range from the pathetically easy to the mind-numbingly difficult. Once again, each level has its own access code and a cryptic, and frequently pun-ridden name; Worra Load of Old Blocks and Snow Joke are just two examples of humour.

To call the first 20 levels Tame has to be the understatement of the year. They are so easy that even complete newcomers to the game will not find them at all challenging. I tried them out on someone who has never played a computer game in her life and, once she had mastered the controls on the first level, she zipped through the lot without tripping up once. DMA Design claims it has been designed with younger players in mind, but I think that younger players are a lot smarter than these levels would indicate.

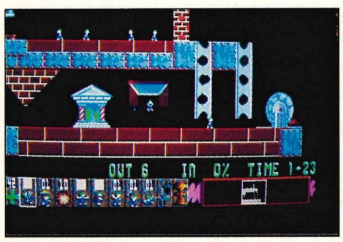
Fortunately the remaining 80 levels are a lot more substantial, and more than make up for the first section. In fact the general level of difficulty is much higher than that of the original game. On the whole I found the level design to be more interesting too. Many of the levels are quite bizarre. Take 'Introducing SUPERLEMMING' for an example. It features just one little lemming who moves at an incredible speed across an expansive level. Getting the little critter home is not an easy task, especially when he has to do everything himself. The sick touches are very much in evidence too. Just try the Lemming Tomato Ketchup Facility if you want to see what I mean.

This really is a data disk, rather than a new game. The gameplay remains identical, although the background graphics have been changed and there are new traps.

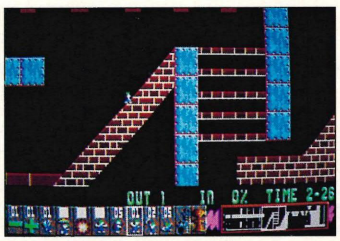
That considered, it is a little on the expensive side, although I am sure Lemmings addicts will be happy to pay the price. If you think you have already had your fill of standard lemming fare then you might want to hang on to your cash until Lemmings II arrives, which does at least promise something a little different.

PC review 7 RATED

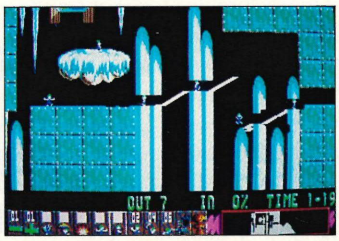
LAURENCE SCOTFORD



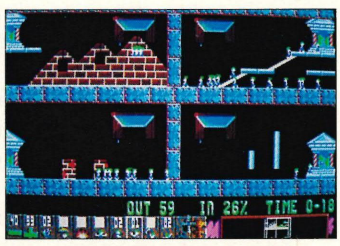
Here are those sick bits of the game we were talking about. The Lemming Tomato Ketchup Facility has more than its fair share of gore.



One of DMA's special levels features a lone lemming in a bid for freedom. There's no room for error here – it's 100% or nothing.



For the last 20 levels things get really hectic (not to mention, phallic). You're unlikely to complete any of these levels first time around.



Yes, things can get worse. If you thought that dealing with one stream of lemmings was difficult, just try handling four!

HARDWARE **REQUIREMENTS**

The game can be played directly from the single disk, or installed first on a hard drive.

We recommend that you use a mouse – other control options are difficult.

TECH SPEC

3½ ✓	5¼ ✓	AD Lib ✓	Roland ✗
CGA ✗	EGA ✓	VGA ✓	Tandy ✓
Hercules ✗	✓	✓	✗

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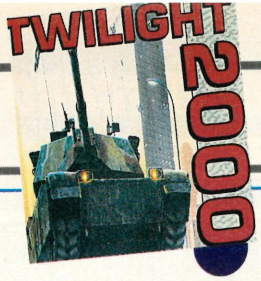
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■ Twilight 2000 ■ Empire
■ (0268) 541126 ■ £39.99

Twilight 2000

Paragon Software's simulation of life after World War III is based on a popular role-playing game from the Game Designers' Workshop. The result is a whole new game system

The cold winter in 1997-98 brought with it famine, epidemics, and death. The global casualty rate was 50%, and only a few depleted military command structures remained intact: survival became more important than conflict. By the year 2,000 Europe had divided into cantons, civil authority had virtually ceased, and a new, maniacal leader came to power in northern Poland.

The storyline behind Twilight 2000 has just enough plausibility to be quite chilling. Following the reunification of Germany, border disputes, minor wars and international disagreement became commonplace. Romanians and Hungarians clashed over medical aid, civil war erupted in Albania, Russia and China were locked in a territorial struggle and, faced with increasing instability throughout Europe, Germany secretly increased the size and strength of its armed forces.

Then, in 1995, full-scale war broke out between the Soviet Union and China. The Soviets called on former Warsaw Pact allies for help, the Chinese responded by appealing to NATO. When ethnic Germans in the Polish divisions were killed for protesting against conscription, the Germans mobilised troops close to the border. Incidents at this frontier led quickly to war.



The vivid images and horrors of World War III.

The Czechs joined the conflict on the Polish side, pushing through southern Germany and surrounding Berlin. When the

TWO MINUTES OF WORLD WAR III

This office is the hub of your network. You can check resources, examine a tactical map and organise missions. This room is only one of three in the complex. In addition you can visit the store room and the Motor Pool.

To find out your mission you have to contact your intelligence officer. This is the very first assignment. Czarny's troops have been plundering Zator town. You have to meet a group in Skawina who will donate medical supplies, and go to Zator, where the village leader will relieve you of them.

If you haven't got a vehicle (and you don't start with one), this is the viewpoint you're most likely to see. It's described as '2D', but it's more like isometric 3D. If you have a ground vehicle (the only type available), the action switches to true 3D mode. This features a variety of views.

It's often hard to know where you're going in 2D, so the game provides a pocket LCD map. Use this to instruct your character to move anywhere in Poland and zoom to any area on the map, using two levels of magnification.

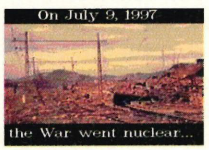




The face of the enemy – Baron Czarny

Germans called on their allies for help, the United States alone responded – to the protests of other NATO countries. By early 1997, the Soviet, Polish and Czech forces were driven back by the allied US and German troops, until eventually the city of Warsaw was surrounded.

As the advancing armies closed on the Soviet border, the USSR's forces began to use limited nuclear weapons, both in the west and in the war with the Chinese. The NATO armies responded in kind, with tactical nuclear missiles. But the worst, however, was yet to come.

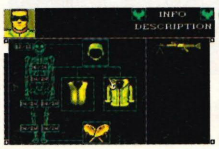


A winter's tale

These days, no RPG worth its salt can afford to ignore arcade-style action. Games that just feature reams of statistics and a weedy graphic interface are seen as old-fashioned. Releases such as the Ultima series and Eye of the Beholder have highlighted the PC as an ideal machine for complex role-playing. This means that Twilight 2000 has a lot to live up to and unfortunately first impressions aren't favourable. The manual, although it gives excellent coverage to the basic rules and includes a couple of nifty hardware catalogues, is actually out of date. Consult the 'Readme' file on disk, and you will discover there are more than a dozen pages of addenda, detailing features that have been omitted or included since the game's manual was written.

For example, you have to consult the disk file to learn about combat (which has been completely redesigned) and the Supply Room (included). These are vital aspects of the game and their omission, along with dozens of others, is a poor reflection on the documentation. It's also a pity that the scenario is a little out of date: it's a bit irksome to read throughout about a Soviet Union which no longer exists.

Once you've got used to these initial drawbacks the game itself – a series of missions designed to lead to the ultimate defeat of Czarny – is a pleasant surprise.



Generation game

This is mostly due to the innovative character generation system, which the manual rightly proclaims as the most exciting and unique such system ever implemented in a computer RPG. It's icon-driven and allows you to build five squads of up to 20 men/women each. Each of these individuals, once killed, can't be replaced so the more you create, the more chance you have of success.

The character generator is a joy to use: you can choose randomly created people if you want but the manual version is more fun. As an idea of its depth, here's just a basic list of features to choose from: male or female, name, face, country, language (and second language), six attributes (such as charisma and intelligence), a selection of almost 40 background skills, dozens of careers in education, military and civilian life, and even a selection of secondary skills. All of these are activated with the mouse: simply point at the icon you want, and click.

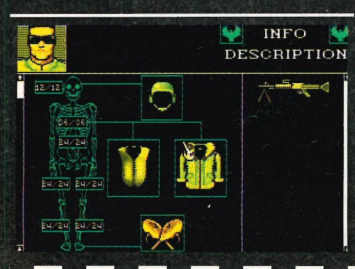
You might think it's a good idea to keep a record of these statistics on paper so that you can design and employ your characters accordingly. Handily, the program allows you to print them out, and what you end up with is a professional dossier on each of your squad members – a nice touch. Fans of the original pencil-and-paper role-playing game will be pleased to know that they can use this generator to create characters for their game, too.

If you should come into contact with hostile forces, be prepared. This excellent character sheet – just about the finest and most detailed you'll find in any game – tells you all you need to know about every single recruit you control.

Much of the exploration involves seeking out contacts, and this can be a nerve-wracking experience later on in the game. For the first mission, Skawina, a very small town just to the south of Warsaw, appears to be deserted. Here you find yourself exploring the local hospital.

And since you have been instructed to collect medical supplies, the hospital seems to be the ideal starting point But there is little of any use here. Moving on to another house in the town, you discover a crate containing the medical provisions which you must give to the village leader.

On the move again and out on the town, aiming to avoid any unfriendly contact. The three-dimensional driving screens feature a variety of viewing options within the tank/truck , including driver, gunner, radar and even an enemy's eye view of your position.









Twilight 2000





REQUIREMENTS

Twilight 2000 comes on five 3.5" disks – a 5.25" high density version is imminent. The game can't be played from floppies, so a hard disk is essential. Once installed, it uses 4.9Mb if you want to run the intro sequence or 2.5Mb if you don't (once you've watched the intro, you can simply delete the files without having to re-install). The more memory you have, the better: it runs of 512K machines, but extra graphics and sound are implemented if you have 640K.

Drive time. The different views from inside the Humvee.







Taking charge

After you have selected your men and women, you can make use of Twilight 2000's unique PAL system. This basically involves the computer relieving you of some of the more fiddly tasks of leadership, based on the character statistics you have created.

For example, it will select the individual with the best observation skills to relay the necessary information about trouble ahead, and it will volunteer people for jobs to which they are best suited.

This gives the impression that you are in command of a squad of characters who can think for themselves, and this certainly adds to the game's atmosphere. The computer also takes time to train every individual in specific tasks, so that even before you even begin a mission you have a trained squad with diverse abilities and skills.



What's in store?

The major part of the game involves completion of these missions, details of which are given to you at your office by roving intelligence officers. The office screen enables you to organise a party and weaponry to fulfil any assignment, and to check how the war is going on your personal computer. The computer is an indicator of your success to date, revealing information on food, ammunition, medicine, fuel, allies and the morale of your resistance group.

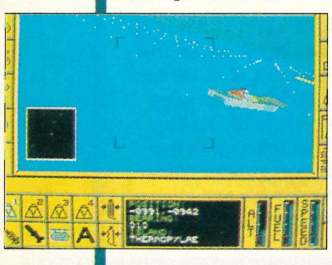
Missions take your squads around the whole of post-war Poland, where you come across a variety of population centres, from large cities to villages with only a few buildings. You can cross forests, mountains, lakes, and even radiation zones, meeting anyone from a single peasant to organised members of a reconstituted society. Some of these will help you against Czarny, either by giving you information or by trading your protection for their allegiance and weaponry.

ALTERNATIVELY ...

Midwinter

Maelstrom/MicroProse, £35.75

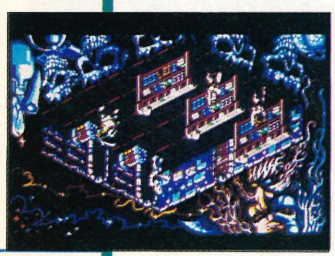
Midwinter is another game with a scenario comparable to Twilight 2000. In 2017 a meteor struck the Earth causing widespread global cooling. The Azores archipelago became the island of Midwinter, an island whose democratic tendencies are threatened by the dictatorial General Masters. It's your job, with few resources to hand, to recruit a band of followers and sabotage the General's plans. There are 32 characters to choose from and six different modes of transport, including hang-gliding, cable car and skis. Maelstrom has captured the sense of stark isolation perfectly, using fractal graphics: lonely buildings are the only relief from seemingly endless wastes of snow. The presentation graphics are equally flawless, with easy controls, a superbly detailed map to help you plot your course, and beautifully understated sound effects.



HeroQuest

Gremlin, £34.99

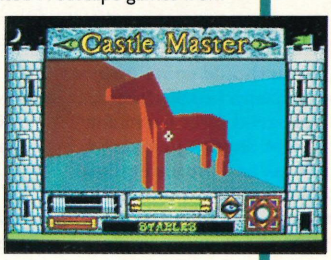
A very competent conversion of Games Workshop's hit board game.The action is of a 'my move, your move' type rather than Cadaver's real-time interaction. The emphasis is more on combat and exploration than problem solving, so this will appeal to younger players than seasoned adventurers.



Virtual Worlds

Domark, £29.99 (Compilation of four games)

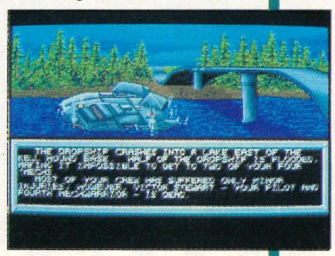
A value for money collection of the now dated Freescape games from Incentive. Here it is most definitely problem solving that is the main thrust of the gameplay (which is probably a good thing considering the plodding speed of the Freescape system). The action is presented from a first person perspective using filled polygons, but you can control the direction and the which angle you are looking in.



BattleTech 2

Infocom/Activision, £30.99

Infocom's text adventures are famous the world over, but the company was equally successful with its BattleTech series. A desperate search for his kidnapped father takes Jason Youngblood through 20 battle scenarios on five different planets, and features all the major BattleMechs in the FASA universe – including OmniMechs, hovertanks, scout cars, armoured vehicles and fighters. This game will appeal to dedicated RPG fans who enjoy the depth of detail found in Twilight 2000; although it features comic-book style graphics, Battletech 2's real strength lies in its receation of the original role-playing game's rule system.



Manoeuvres After Dark

Most of the essential functions in Twilight 2000 are carried out via a point and click graphical interface. This instant access comes in handy when you are in a bit of a tight spot.





NECESSITY	GAME MENU	COMMS	INVENTORY	COMBAT
Sleeping and eating	Set game options	Talk to Headquarters	List objects carried	Engage the enemy.



INTERACT	TAKE ITEM	USE ITEM	MAP SCREEN	LOOK AHEAD
Talk to game character	Pick up an object	Use a held object	Navigation or movement	Surveillance or observation

Others are not so friendly: it's not only Czarny's Black Legion troops you have to worry about, but also the odd angry citizen or pernicious marauder. You can complete an assignment without firing a shot but equally, you can be attacked when you least expect it.

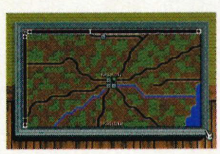


Choosing weapon

It's a good idea to carry a selection of weapons. At this point you begin to appreciate the impressive depth and detail in the game. Each character has a basic kit – including ordinary fatigues, a pack, combat webbing, thermal fatigues, personal medical kit and grenades – to which you can add extra weapons, ammunition and equipment.

The manual features 14 pages of these, ranging from small arms and pistols, through sub-machine guns, assault rifles, sniper rifles, shotguns and automatics, to heavy weapons such as machine guns, grenade and rocket launchers, antitank missile launchers, mines and plastic explosives. Each has its own picture and description in addition to text and details such as rate of fire, damage and price. You can also get hold of miscellaneous equipment, such as hand tools, vision devices (ie, binoculars), Geiger counters, body armour, medical supplies, snow shoes and even a tent!

When it comes to fighting, you have three choices: interactive combat (where you personally control the ground fighting), descriptive combat (the computer takes over the action for you, and you watch it unfold like a movie), and quick combat (the computer resolves the fight quickly, without animation, based on your characters' skills and weapons).

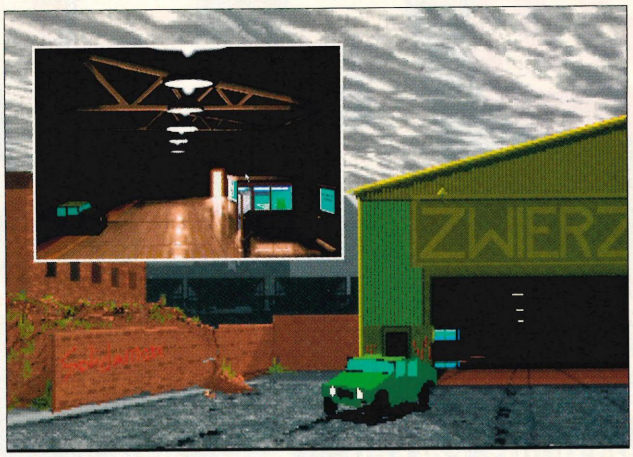


On the move

Unfortunately, before you actually get to the more interesting parts such as talking to people or engaging in combat, you spend a good deal of time exploring the terrain which can be dull.

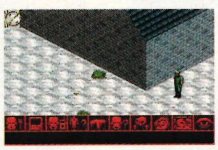
This, in fact, is one of the game's few faults. Particularly when you start playing, you spend a tedious amount of time wandering around looking for action – and it's not always easy to see where you're going. You are provided with a map, but every time you consult it you have to endure a few annoying seconds' loading and a brief animation before you can see where you are.

The 3D sequences go a long way to rectifying this fault. Once you have found a vehicle (the manual lists eight, including two types of truck and six tanks), you can indulge in exploration and battle situations of a quality similar to many tank simulations currently available.



Two views of the Motor Pool. Three-dimensional images of the vehicles are available and rotated, allowing you to make your choice.

First you have to collect your craft from the Motor Pool – a well-presented process which features rotating 3D computer images of the transport of your choice. Obviously your options are limited. You don't get every switch and dial inside a tank, but you do get features such as a radar, infra-red, map and walkie-talkie, as well as the opportunity to drive the vehicle and directly attack the enemy with it. Simulation fans will also be pleased by the variety of viewing options, including driver, gunner, radar, slot view, front/side, and enemy view.



Feeling flat

Twilight 2000 succeeds better as an role-playing game than as an arcade game. Its graphics, particularly in '2D' mode, lack variety, and give the impression that most of the towns you visit are exactly the same, apart from the position of the buildings. Exploring these towns can be slow and unappealing, too.



However, there's plenty to recommend Twilight 2000, not least its five minute digitised intro sequence, the ability to print out character stats, and the decent sound effects and music throughout. It's designed so you can tailor your involvement: you can do it all yourself or let the computer take over.

On the whole its innovative qualities outweigh its drawbacks. It is an ambitious release which does not quite achieve all it should have done in arcade terms, but if you are more interested in the statistical and logistic side of role-playing, Twilight 2000 is one of the best games of its type available.

GORDON HOUGHTON

Extra memory helps you get the most of the game's aesthetic effects.

TECH SPEC

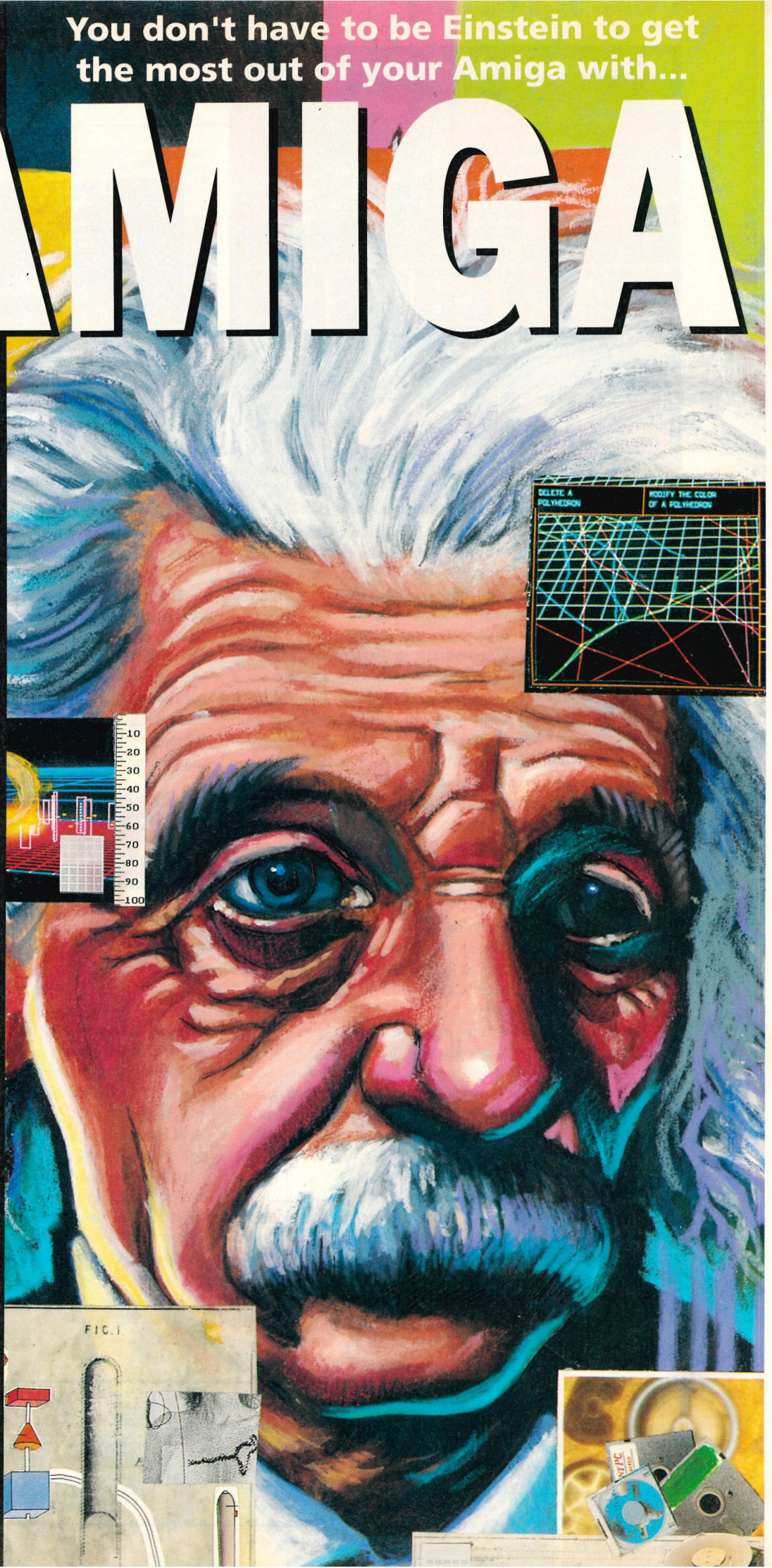


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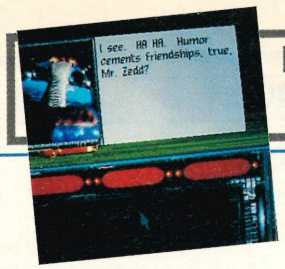
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■ Free DC ■ Cineplay Interactive
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Free DC

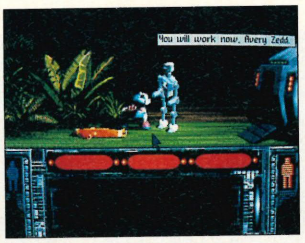
Interactive detective adventures have huge potential. US software house Cineplay Interactive opens its futuristic casebook

Welcome to the zoo where the endangered species is you and me.

This is The Human Zoo. In the remnants of the ruined US capital Washington DC it is a secure controlled environment, where robot 'keepers' patrol a small group of homo sapiens whose purpose is to 'entertain and educate' visitors to the zoo while enabling scientists to gather information about the rise and fall of ancient human culture.

But beneath the outward calm, the zoo authorities are worried. A human with a taste for freedom has developed a device for short-circuiting the robot masters, with a success rate of 62 terminations to date. The zoo has now been closed to the public and the authorities have ordered that the subversive specimen be found and removed. Easier said than done. Set a thief to catch a thief, the saying goes. The robots have decided to set another human on the trail of this menacing miscreant.

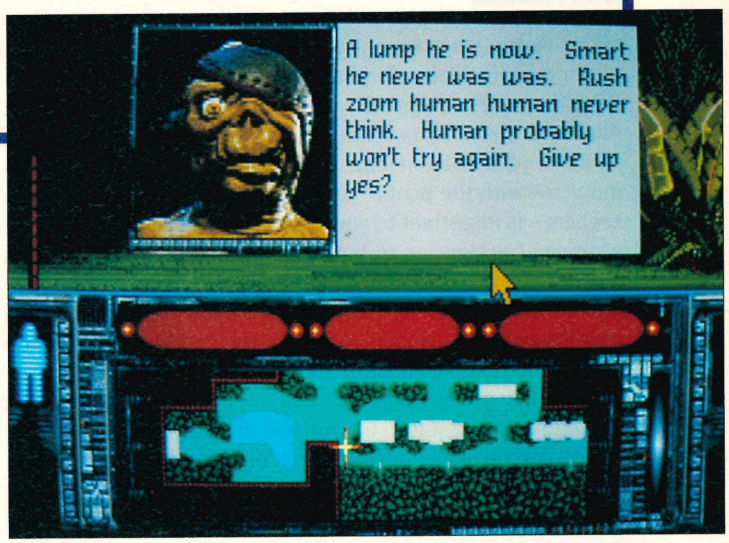
Enter Avery Zedd, a 're-activated' human. To make sure he complies, a lethal substance has been planted in Zedd's body. He has 12 hours to accomplish his mission, or he dies. Equipped with the names of three suspects, a



An unconscious Avery Zedd is brought unceremoniously to the human zoo before being 'reactivated'. Wattson is his robotic helper and side-kick.



Dazed and confused, Zedd regains his senses and decides to make light of his plight with a joke. But Wattson doesn't find it amusing.



This is the 'Claymation' face of Harry the sub-human, one of DC's strange inhabitants. But there could be more to him than meets the eye – such as a source of information.

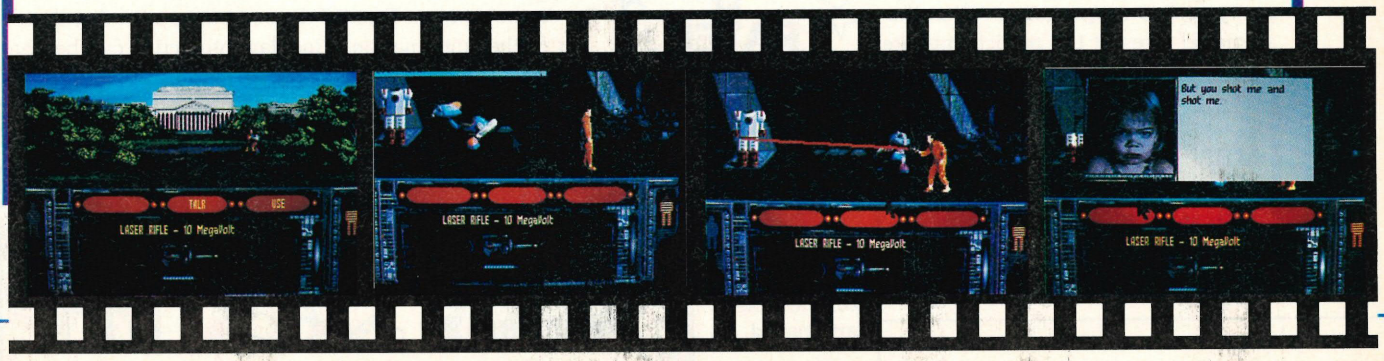
TWO MINUTES OF AMAZING DISCOVERIES

Avery Zedd and Wattson arrive outside the National Archives. The robot guards think that because it now contains large quantities of paper dust it may have once been the basis of faith for a major religious sect. But what secrets does it also contain? The only way to find out is to enter and explore.

Zedd and Wattson discover what appears to be a warrior robot. But, strangely, it does not seem hostile. But then it moves. Think quickly. The situation could be more dangerous than at first thought. Wattson senses movement and at last Zedd begins to take notice of his metallic side-kick.

Stand and fight or run away? That is the question. Zedd decides to fight. He blasts away at the mysterious object. And then a chilling thought. Is this part of the Decetron which Zedd is searching for? If so it's likely to be a little damaged. But then more movement is noticed among the wreckage.

From within the tangle wreckage crawls a tiny baby. It pleads for your help. But does Avery Zedd really need to be saddled with a kid at a time like this? But it turns out this tot has some useful information. But, as always, there's a trade. Zedd would be wise to offer the baby his protection.





Riding on Wattson, Zedd sets out to explore DC. The map is very helpful. Look carefully to spot clearings and hidden entrances.

Free DC

laser stunner, and a Wattson escort robot who is general helper, font of knowledge *and* converts into a futuristic motorbike when required(!), Zedd enters the zoo.

The hunt is on ... Needless to say the plot thickens. Unfortunately the gameplay is not addictive enough to keep you sleuthing.

Here's a tip. Make a beeline for the suspect named Valerion. He will provide some really useful information and an insight into the undercurrents which swirl through the game.

Remember relationships are very important. How you communicate with the people you meet – even some of the robot keepers – is important to your survival. Zedd is presented with a series of options as to how to hold a conversation. He can reply to a question angrily, kindly or funnily. Talking tough may not always be the right approach. It's also worth revisiting characters. They usually provide new or more information about what is going on in the zoo.

But there are some people and things you just cannot talk to. Zedd has to resort to his gun – or any of the other weapons he can find throughout the game. Free DC isn't a shoot 'em up, but the gun play is a little naff. It all seems a little bit random when it comes to aiming at the various robot targets and pulling the trigger.

The way Avery Zedd gets killed – or is 'deactivated'– is very odd indeed. If he is astride the faithful Wattson and gets zapped, he calmly gets off his robotic helper, stands upright for a second or so, before laying down on the ground.

There are, however, a couple of features of note. Gimmick number one is that this is a 'talking computer game'. What this means is that you get three megabytes of recorded speech, the catch being it is available 'exclusively through the Sound Blaster card'. That's a shame for us Ad Lib-ers as the characters mouth silently at you. However, the music and sound effects are pretty neat. During a conversation the animated faces of the participants are shown on screen in turn. That's fine to begin with, but the time delay this involves quickly becomes tedious.

Gimmick number two is that some of the characters are created in 'Claymation', a method of animating clay models, (as seen in the Californian Raisins advert). It's clever, but maybe too clever for a computer game. Innovation is all very well but basics must not be neglected. Free DC is one of those ideas where the designers and programmers have come up with a lot of good ideas but the finished product falls short of the initial vision.

At the moment Free DC does not have a UK distributor. For further information, Cineplay Interactive can be contacted at the telephone number in the fact box or at 2580 NW Upshur Street, Portland, Oregon 97210, USA.

PAUL BOUGHTON

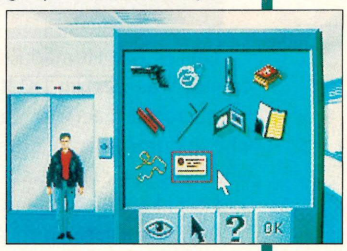
PC review 4 RATED

ALTERNATIVELY ...

POLICE QUEST 3

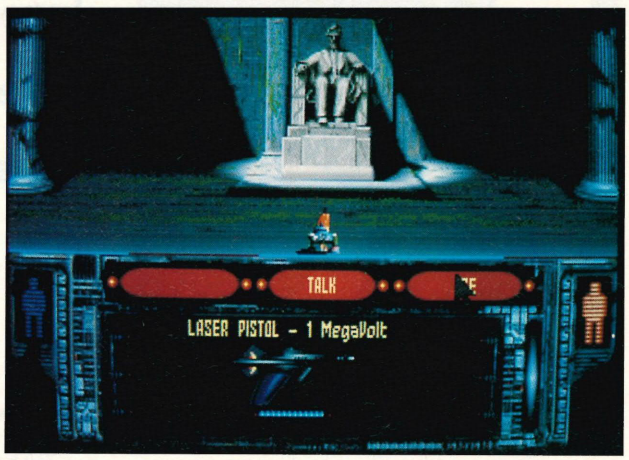
Sierra On-Line, £39.99

This is the latest 'real-life' street-pounding cop drama created by former-policeman Jim Walls.

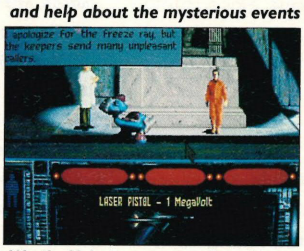


Visually pleasing with puzzles which will not overly tax the brain, PQ3 puts you in a black and white finding, catching and incarcerating the bad guys and cleaning up the streets. As with most Sierra games it's a polished performance. If this appeals then also check out Sierra's Rise of the Dragon and Heart of China.

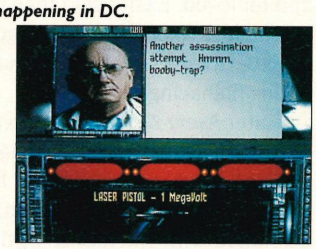
Miami Vice music man Jan Hammer provides the soundtrack to PQ3 but adds nothing really special.



The Hairy-Faced Stone Man Shelter – otherwise known as the Lincoln Memorial – should be visited as soon as possible. Here you will find one of the suspects, Valerion. He can provide Very Zedd with some important information and help about the mysterious events happening in DC.



Warily, Valerion emerges from his lair beneath the ground to meet Zedd and Wattson.



Face to face with Valerion. It is worth visiting characters several times to obtain the most help.

HARDWARE REQUIREMENTS

The game is supplied on five high density 3.5" disks and requires 640K RAM. A hard disk is necessary.

Owners with Roland will benefit from speech, but those without won't find the game ruined.

TECH SPEC

3½ ✓ 5¼ ✓ AD Lib ✓ Roland ✓
CGA ✗ EGA ✗ VGA ✓ Tandy ✓
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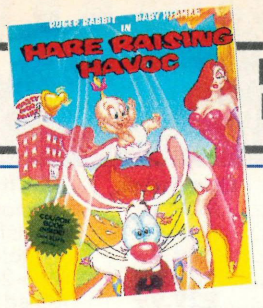
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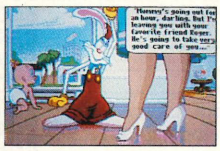
■ Hare Raising Havoc ■ Activision
■ (071) 738 8199 ■ £59.99 (inc Sound Source)

Interactive cartoons are not new to the PC, but has Disney succeeded where others have failed and created an interactive cartoon with real gameplay?

Hare Raising Havoc

Roger Rabbit, one of Walt Disney's latest creations, was a big hit when he co-starred with Britain's very own Bob Hoskins in Who Framed Roger Rabbit? The film's appeal came not only from the innovative mix of live action and animation, but also its tongue-in-cheek look at the wonderful world of toons.

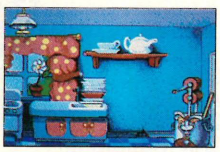
Hare Raising Havoc was an attempt by Disney to cash in on the success of the original film, but unfortunately this short feature flopped to the same extent as Roger's ears. Nevertheless Disney has found a way to get a bit more mileage out of their investment with this software interpretation of the stuttering rabbit's antics.



The carrot plot

For the benefit of those of you who didn't see the cartoon, the plot is quite simple. Mommy has popped out for a while and left the devious little Baby Herman in Roger's charge. This apparently simple task is made a great deal weightier by two things: first, Baby Herman is an irritating little swine who'll do his best to get Roger into trouble; second, Mommy has told Roger that unless all is well when she returns he'll be carted right back to the experimental lab (where no doubt he'll spend his time smoking 60 a day and having shampoo squirted into his eyes).

Sure enough, no sooner has Mommy turned her back than Baby Herman slips off to investigate a huge baby's bottle perched on top of the Tasty Moo Dairy. Roger better get him back before Mommy returns or he's dead meat! This is where you come in. You have to help Roger to escape from each location he finds himself in until Baby Herman is caught. The story so far is shown in an excellent animated intro sequence, which can be bypassed when you've seen it a couple of times.



Pest control

Roger's movements are mainly restricted to shuffling left and right in each location, although sometimes he can jump on or off objects. Otherwise the joystick fire-button, or a single key, is used to instruct Roger to do something, and his action will depend on what he happens to be standing next to at the time. Pressing the fire-button while Roger is standing on the sofa for example will make him bounce up and down. This simple control method allows for a surprisingly wide range of

TWO MINUTES OF ESCAPING RABBIT

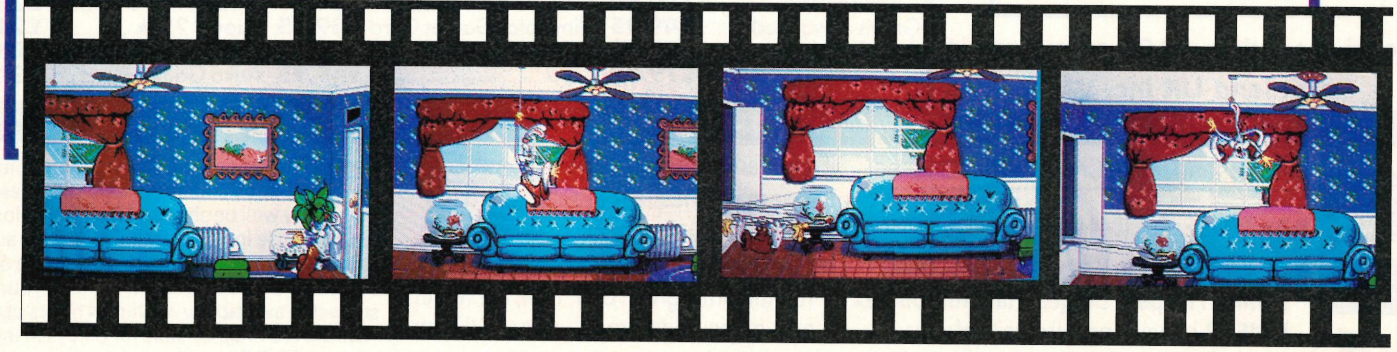
Since the first location is not that taxing, I won't be giving too much away by showing you the crazy sequence needed to solve it. Incidentally, there is one other action that comes in handy in this room, but you'll have to figure that one out for yourself.

First thing to do is give that footstool a kick and position it to the left of the rug. Don't try kicking it in the opposite direction or you will end up with a very sore foot.

Now, bounce on the sofa until you manage to reach he switch for the fan. Hitting the fire-button at the right moment will cause the fan to be switched on.

Finally pull the ironing board down. Unfortunately there is no way of doing this without getting hit repeatedly on the head by the falling board.

Bounce on the sofa and catch the fan. When facing the board, let go. You'll be flung against the board, and bounced on to the stool and through the ventilator.





Even toons can get burnt bums, as Roger Rabbit proves in Hare Raising Havoc. The best aspects of this game are the animation and the sound effects, both of which maintain Disney's usual high standards. The gameplay is ... erm ... a little limited.

HARDWARE REQUIREMENTS

You'll need a hard disk to play this, and what with all those samples and the animation it takes up a hefty 5Mb. You will also need at least DOS 3.3, and a machine that runs at speeds of 10Mhz or faster.

actions, from the aforementioned bouncing, through pulling switches, to moving objects from one place to another.

Given the control method it is not too difficult to work out that the two main skills required to complete the game successfully are the application of a bit of lateral thinking to work out how to escape from each location, and a fairly acute sense of timing to get Roger to do the right thing at the right time. This doesn't exactly make for stimulating gameplay, especially as the range of things to be done in each location is severely limited, but it is certainly an improvement on the sort of interactive cartoons I've played before. At least the player has direct control over the order in which the animations occur, and isn't confined to pressing a button or wiggling the joystick once every five seconds.



Under pressure

Just to make life that bit harder, you're reminded of the time left till Mommy comes home by a ticking clock that appears periodically in the corner of the screen, with increasing frequency as your time runs out. You can get extra time by finding the sand-timers that are hidden throughout the game. Some of these are revealed when you search locations while others require more problem solving.

Where Hare Raising Havoc doesn't really succeed is in keeping the player's interest. The game is linear, so each location has to be solved before Roger can move on to another one. If you get stuck in one location for too long, the endless visual gags start to pall a bit after you've seen them for the sixth or seventh time. The documentation does generously provide one clue for each location, but these won't really help you to formulate a complete solution.

Once you have finished Hare Raising Havoc you are unlikely to want to come back for more, since there will be no challenge left in the game, and by that time you will have seen as much of the animations as you are going to want to see.



Getting animated

Hare Raising Havoc is spiced up by the great animation, which is true to the spirit of cartoons. You can expect to see Roger repeatedly whacked over the head, bitten by ravenous mice and goldfish, getting his bum burned and generally being thrown every which way. If you have a suitable soundboard then you are also treated to archetypal toon sound effects and the sampled voices of the characters. In fact the sound is the game's best feature, and if you don't already have a Sound Blaster then I'd recommend hooking up The Sound Source which is packaged with the game. This is Disney's own sound add-on, which ingeniously plugs into a parallel port and plays quality sampled sounds and speech. This won't replace a decent soundboard though.



As well as the intro sequence, there is also a wonderful end animation each time you fail. Does Roger end up on a slab in the lab? Well, no, this being a Disney production and all, the whole charade is just make believe and Roger's only fate is a sharp ticking off from his director and the opportunity to try a second take.

LAURENCE SCOTFORD

ALTERNATIVELY...

Dragon's Lair

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The world's first interactive cartoon began life as a laser disc arcade machine but eventually made it on to the PC and other computer formats. The idea is to guide Dirk Daring into the castle of the evil dragon Singe and there rescue his kidnapped beloved after putting an end to the slimy reptile. The animation and sound, created by cartoon experts Sullivan Bluth, are great and really put this Disney effort to shame, but the playability is close to nil and, quite frankly, you'd have about as much fun playing Trivial Pursuit on your own.



See the review of Space Ace on page 85, for Sullivan Bluth's latest interactive cartoon on the PC.

TECH SPEC

Joystick is definitely recommended as is either The Sound Source or Sound Blaster.

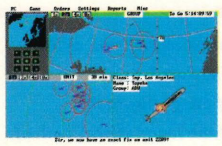
3½ ✓	5¼ ✓	AD Lib ✗	Roland ✗
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Harpoon with Battleset 2: North Atlantic Convoys £34.99 ■ Battleset 3: The Mediterranean Conflict

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Harpoon has been around for a while now, but still has a faithful following of war game fanatics. That's not really surprising when you take into account the program's pedigree. Based on the board game, designed by naval officer Larry Bond, Harpoon is easily the most accurate simulation of modern naval strategy available to the general public. Electronic Arts is the third distributor for the program in the UK, it having previously been under Mirrorsoft's wing, and later, a part of the Mindscape range.



New edition

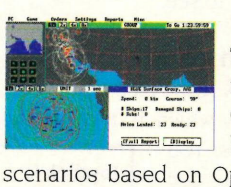
The Electronic Arts version of the program has been updated and is now packaged with Battleset Number 2: North Atlantic Convoys, in addition to the first battleset: Greenland, Iceland, UK. The original battleset is a little outdated now, dealing with a speculative NATO-Warsaw Pact conflict in the North Sea. Surprisingly, the second battleset is also based on Soviet-NATO conflict. The assumption is that sometime in the middle of this decade the reform process will break down and Communist hardliners will once again seize power and launch an all-out attack on NATO. Defence cuts in the West have left an insufficient number of conventional forces in Europe to repel the Soviet invasion.

Since there are not enough transport aircraft to airlift the necessary troops and equipment, most of the resupply lines would be achieved through shipping lanes established across the Atlantic. This battleset is an opportunity to try out both tried and tested and new tactics for escorting convoys.



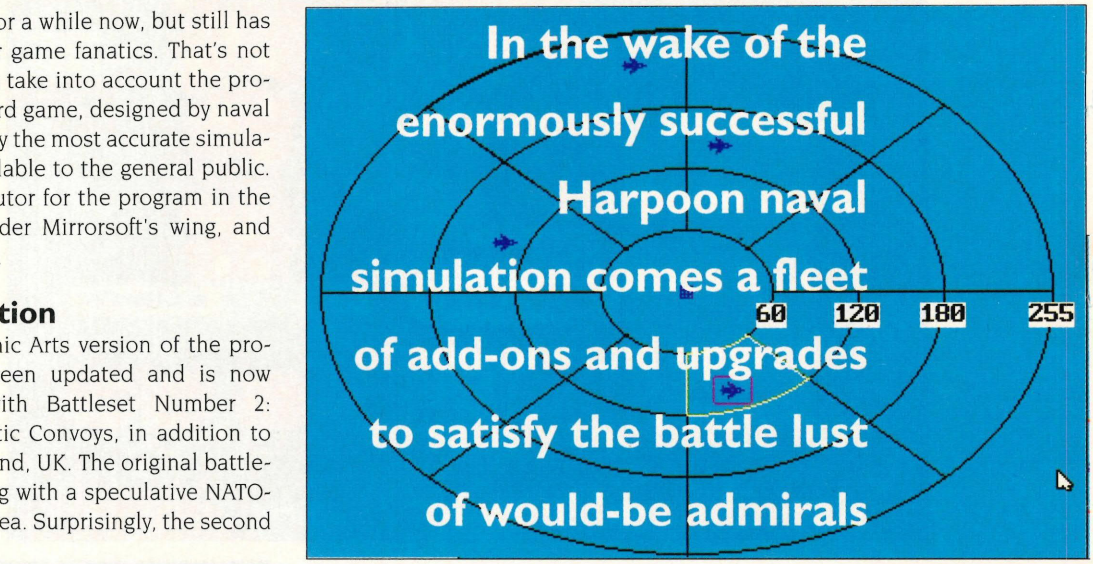
Warmer waters

If you're tired of American paranoia you'll find welcome relief in the third battleset: The Mediterranean Conflict. Rather than a NATO/Soviet war, these scenarios look at the all too real possibility of conflict in the Middle East. There is an opportunity to play other nationalities, including Egypt, Lybia, Syria, Turkey, and Israel. Unfortunately the battleset is already out of date because it assumes that the chemical weapons programmes instigated by Lybia and Iraq were meant to make-up for their lack of a nuclear arsenal. We now know that Iraq at least may already possess a limited stock of nuclear arms, and was certainly on the point of mass production before the outbreak of the Gulf War.



Up to date

The Gulf War brings us nicely on to the fourth and most recent Battleset: Indian Ocean/Persian Gulf. As you have probably gathered, this battleset includes scenarios based on Operation Desert Storm, or at least the much ignored naval side of the conflict. What is rather nice is that this battleset hasn't simply been an attempt to cash in. It also contains plots that speculate on India-Pakistan disputes.



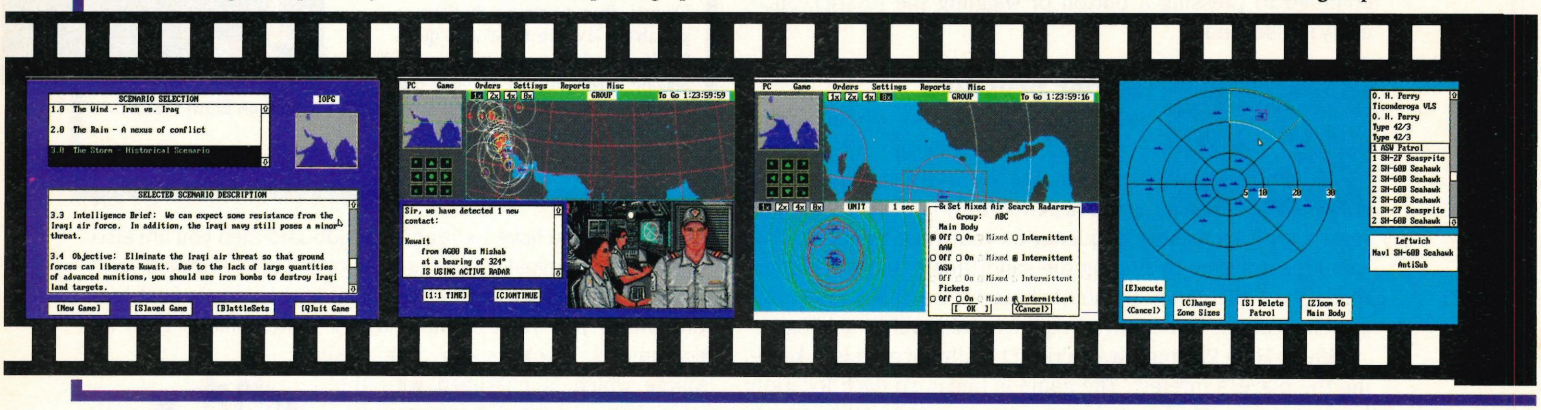
TWO MINUTES OF SADDAM BUSTING

I've chosen to play the historical Desert Storm Scenario in the Indian Ocean-Persian Gulf battleset. My job is to pave the way for a land invasion of Kuwait and Southern Iraq by setting up a naval bombardment of ports and airports, backed up by a bombing campaign, and also achieving air superiority.

The moment the game begins I have a new contact. Considering that the enemy is at such close quarters, it is entirely possible that this could have been a MiG fighter or possibly a missile. But, thankfully, on this occasion I can safely relax. The contact is just the radar signal from a nearby friendly airfield that I am picking up.

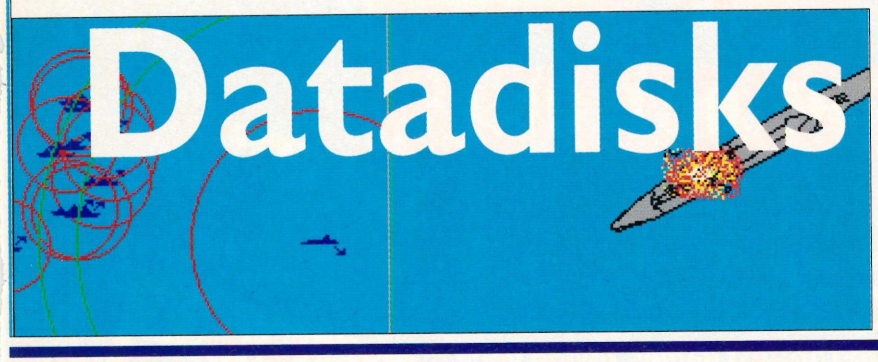
The first thing I need to do is to set up the sensors for my surface groups. I'm leaving those of the main carrier group off and just turning on the Picket and Anti-Submarine ring sensors intermittently. Essentially this makes it harder for enemy missiles to target the carriers and my radar can always be made active later.

Next thing to do is to check the formation of the forward surface group and set up helicopter patrols. This group is the most likely to come under attack from Iraq's limited naval threat and from MiGs, so it is important to have a good defensive ring to protect the main group.



£14.99 ■ Battleset 4: Indian Ocean/Persian Gulf £14.99 ■ Harpoon Scenario Editor £19.99 ■ Three Sixty/Electronic Arts ■ (0753) 549442
Electronic Arts version of Harpoon.

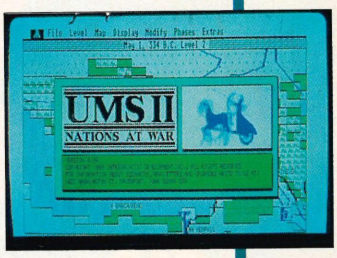
Harpoon Datadisks



ALTERNATIVELY ...

UMS II

MicroProse, £40.87



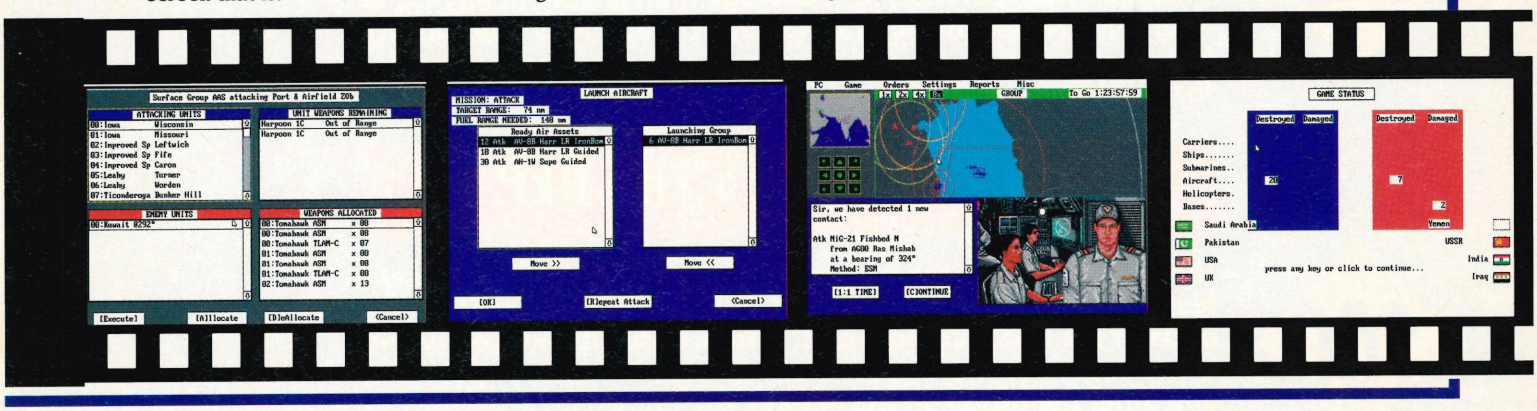
The only simulation that really comes close to approaching the depth of Harpoon is Intergalactic Developments' all-singing all-dancing military simulation. Unlike Harpoon, UMS also deals with land and air warfare. UMS is a very versatile simulator with an infinite range of possible scenarios, but it lacks the precise detail that so characterises Harpoon. If you are not concerned about that sort of detail then do take a look at UMS II.

Having got everything just as I want it, it's time to start bombarding the enemy coastal ports and airfields. These will be attacked with pinpoint accuracy by the infamous Tomahawk missiles. Provided they manage to get past the Iraqi AAM screen that is.

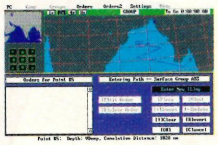
While the Iraqis are being diverted by the naval bombardment I'll send three Harrier groups out on bombing missions over the inland airfields. Since I am attacking military bases away from civilian areas, I do not need to use precision guided weapons, so I've chosen to use unguided iron bombs for maximum damage to a wide area.

The Iraqis have now had time to launch a counter-attack and MiGs are heading out to intercept my Harriers and to attack my surface groups. The surface groups should easily be able to take care of themselves, but the speed of the Harriers has been slowed down because of full bomb loads, making any dog-fighting impossible.

The first phase of the battle is now over and I have come off particularly badly. Although I managed to shoot down seven MiG fighters and put serious holes in two enemy bases, I've lost 20 planes in the process. These aren't 'acceptable losses'. It looks like it's time for me to call it a day and send for Stormin' Norman.



Furthermore, this battleset is future-proof because it includes platforms and weapons that are not yet in commission but due to be put into service in the coming years.



Do it yourself

The Harpoon scenario editor allows you to edit all aspects of any of the battlesets and scenarios you own, except for the specification of the platforms and weaponry. The editor uses similar screens and menus to those in the actual game, so finding your way around is fairly intuitive. Be warned though, that unless you are making one or two minor changes to an existing scenario you need to sit down and plan with pencil and paper before attempting to put anything into practice.

If nothing else, the scenario editor provides a useful insight into the mechanics of Harpoon.The datadisks and scenario editor are excellent additions to a superb and enduring war game.

If you do not already possess a copy of Harpoon, now is a great time to buy it!

LAURENCE SCOTFORD

PC review 8 RATED

HARDWARE REQUIREMENTS

640Kb of RAM with 540Kb free and DOS 2.0 or later version. You don't need a hard drive, but it is recommended that you install these programs on a hard drive if you have one. XTs will run Harpoon but it will be unbearably slow.

TECH SPEC

Plays well in all graphics modes. Keyboard control will send you insane – buy a mouse!

3½ ✓ 5¼ ✓ AD Lib ✓ Roland ✗
CGA ✓ EGA ✓ VGA ✓ Tandy ✓
Hercules ✗ ✗ ✓ ✓

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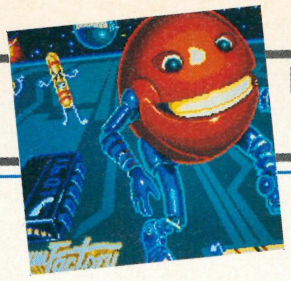
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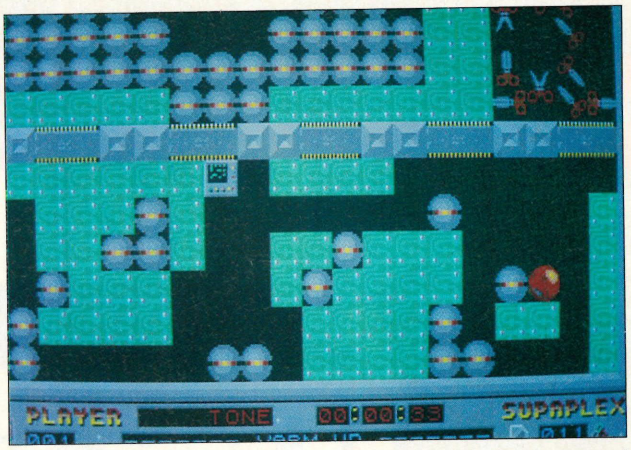


■ Supaplex ■ Dream Factory
■ (0276) 684959 ■ £25.99

Supaplex

Remember Boulderdash? It was one of those compulsive action puzzle games that had computer owners burning the midnight oil back in the mid 80s. The basic concept of moving delicately balanced objects to reach your reward has cropped up again and again in a variety of guises, the most recent of which is this effort from Dream Factory, the action label from simulation specialist, Digital Integration. Accompanying this review, we have a 3-level extract from the game on this month's cover disk.

The player character is a Pacman-style figure, Murphy the Bughunter, whose job is to explore and escape from 111 brain-teasing computer circuits. Rather than simply zipping around in search of the exit (would that things were that simple), Murphy must first collect all the infotrons (which look like multi-coloured pretzels). This is made a little more difficult by Murphy's habit of dislodging bits of the circuit board known as base-Xs, thus causing the critically balanced spherical zonks to fall down towards the bottom of the screen. If you're not careful how you move Murphy you'll find him getting trapped or blown up by the falling components. Each level also contains a variety of other components, some of which can be blown up or moved around while others, like hardware, are fixed.

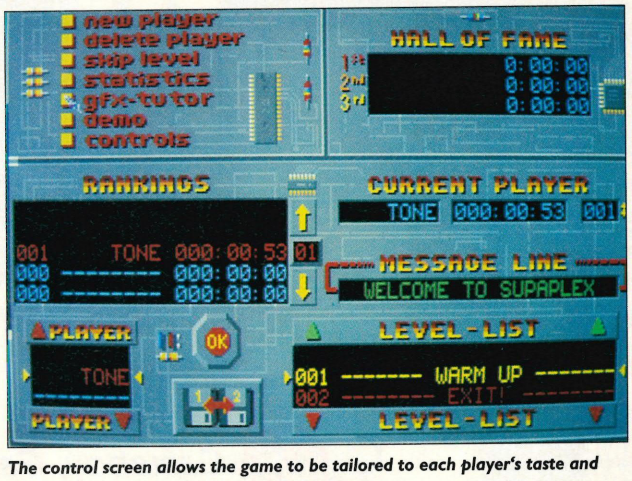


Murphy gets Murphy the Bughunter in action. Could he be a distant relation of Pacman we wonder? Or perhaps he's a chum of Rockford.

To begin with, the levels gently introduce you to the art of collecting infotrons and dealing with zonks! As you progress you will encounter more elements. Orange discs, for example, can also be dislodged to fall downwards, only these will cause an explosion when they land, or when another object collides with them. There are some components that can be carried by Murphy and then used at another part of the level, like the portable red discs which can be dropped to explode and remove obstacles. Even more useful are the yellow discs, which can be moved to the desired locations and then exploded simultaneously by tapping into a computer terminal.

Add to this mayhem access ports, which only permit travel in certain directions, base-Xs infected by bugs, enemies, such as the deadly snik-snaks and the infotron carrying electrons and you have a fun and addictive version of the original Boulderdash game.

Another point in the game's favour is that it stores the progress of individual players, so even if it's played by more than one person, each player always starts off at the last level reached. The program also records statistics like best time for each level and average time to complete levels.



The control screen allows the game to be tailored to each player's taste and also keeps track of individual player's progress.

Supaplex may not be the most original way to launch a new label, but it is a fast, addictive version of an action puzzle game with plenty of imaginative levels to conquer.

TONY NAQVI





Level 2 is erm ... amazing.



Get to know your opponents first.

HARDWARE REQUIREMENTS

You can either run this from the distribution disk or install it on a hard drive. You'll need 512K of free RAM and DOS 3.0 or better.

TECH SPEC

Keyboard control is recommended. Bleeper generated sound effects are surprisingly good.

3½ ✓	5¼ ✓	AD Lib ✓	Roland ✓
CGA ✗	EGA ✓	VGA ✓	Tandy ✗
Hercules ✗	✓	✓	✓

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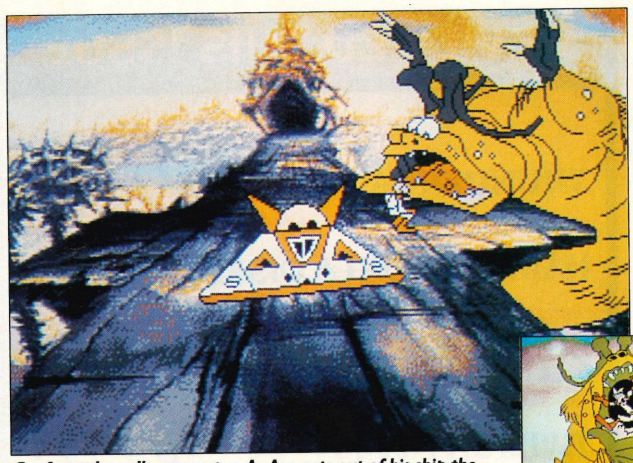
■ Space Ace II: Borf's Revenge ■ Readysoft/Empire
■ (0268) 541126 ■ £39.99

Space Ace II: Borf's Revenge

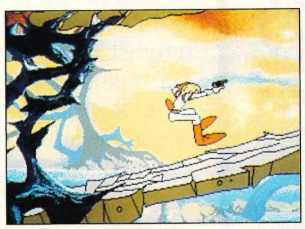
What is the secret of Space Ace II: Borf's Revenge and the series of games which preceded it – Space Ace, Dragon's Lair I and II and Wrath of the Demon? All have the same ingredients, excellent cartoon-style graphics, clever animation, nice sound and music, a hefty price tag and virtually zero game play. And yet these titles appear to sell in sizeable quantities. It's a mystery.

In Borf's Revenge you are presented with a succession of 27 scenes in which the gameplay consists of 'reacting' to the problems facing the central character by pressing one of five keys, making the character move up, down, left or right and fire. Essentially, it all comes down to timing. Hit the right key and you quickly move on to the next scene. And that's it.

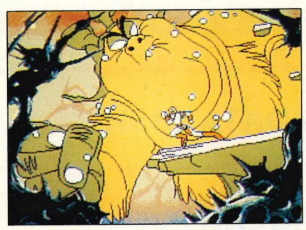
Initially it's quite frustrating gauging the exact moment to hit the key but repeated play soon sharpens up the reflexes. That's why it pays to save the game immediately when you have worked out what to do. Almost inevitably you will fail and if it's your last life, it's back to the beginning again. And looking at the same animated sequences again and again and again – over which you have no control or input – soon becomes exceedingly tedious and irritating. And the thought of going through this process throughout the entire game brings about the feeling that life is passing you by while you're indulging in an aimless pursuit. One noble colleague, whose dedication deserves the reward, soon solved the entire game. Once he had cracked the timing, he could whip through it in minutes. And with absolutely no variation in gameplay that's hardly surprising. But would you want to shell out almost £40 to do the same thing?



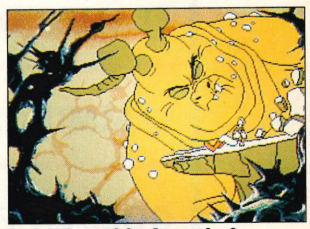
Confront the yellow monster. As Ace gets out of his ship the monster strikes. Ace must jump out of the way or get eaten.



Another confrontation with the yellow monster ... this time on a narrow ledge.



Crunch! The monster smashes the ledge to pieces. Great graphics but gameplay is lacking.



Is this the end for Space Ace?



In the original game Dexter – otherwise known as Space Ace – the 'world's greatest hero', had to stop the evil Borf from destroying the world and rescue the beautiful Kimberly. In the sequel, Borf has been blasted with an Infanto ray transforming him from a baby into a marauding monster bent on world domination.

As you can see a great deal of imagination has gone into the plot.

Here Ace must fire his gun and destroy the attacking goons. Fire as they run towards him and again when they reach the steps.



REQUIREMENTS

Runs in 640K. There is no support for internal sound so unless you have soundboards installed you'll miss out totally. You can run the game from the floppies, but it involves a lot of disk swapping – it comes on six 3.5" disks. Hard disk installation is recommended. Amazingly the game runs CGA. What's the point of that? The quality of the animation is the only thing worth seeing. Actually, when you select CGA or Tandy, each scene is loaded and then converted from EGA or VGA to the desired format, resulting in delays.

PC review 2 RATED

In all honesty I couldn't recommend this game to the mature PC owner unless they have an attention span of a few seconds and a burning desire to spend an excessive amount of money for little return. Perhaps the kids might like it. If you really are intrigued by it, ask to see it running before you buy. Oh yes, you do get a free poster.

PAUL BOUGHTON

Excellent graphics, animation and sound. Like watching a movie.

TECH SPEC

3½ ✓ 5¼ ✓ AD Lib ✓ Roland ✓
CGA ✓ EGA ✓ VGA ✓ Tandy ✓
Hercules ✗ ✓ ✗ ✓

The Games That

REVIEWED THIS ISSUE

THUNDERHAWK	PC review RECOMMENDED	8 RATED
HARPOON DATA DISKS		8 RATED
SHUTTLE		8 RATED
TWILIGHT 2000	PC review RECOMMENDED	7 RATED
FLAMES OF FREEDOM		7 RATED
LEMMINGS DATA DISK		7 RATED
GOLDEN EAGLE		7 RATED
LES MANLEY IN: LOST IN LA		7 RATED
HARE RAISING HAVOC		6 RATED
SUPAPLEX		6 RATED
FREE DC		4 RATED
ROCKETEER		3 RATED
PAPERBOY 2		2 RATED

PC review THE GAMES THAT GOT AWAY

We would love to be able to review every game that ends up in our postbag, but if we did that PC Review would end up an expensive doorstop. So we

FAMOUS FIVE 1

Enigma Variations, £24.95

Adventure based on Enid Blyton's famous characters from her books.

ROTOX

Action Sixteen/D.I., £9.99

Reissued US Gold game which attracted a lot of interest when it first game out, mainly for its unusual style. Basically, it's a space shoot 'em up in which you zap the aliens. The gimmick is the central character remains static and the landscapes move. Slightly confusing to begin with.

THE PLAYROOM

Infogrames, £25.99

Designed for three to eight year olds, this includes five programs to help youngsters learn to tell the time, develop spelling, and count, plus creativity and logic skills.

MIXED UP FAIRY TALES

Sierra On-Line, £39.99

Aimed at encouraging reading skills, this game is typical Sierra offering, slick and entertaining. It involves various fairy tale characters, including Cinderella and Jack and the Beanstalk, plus classical music soundtrack.

L'EMPEREUR NAPOLEON 1

Infogrames, £39.99

War/strategy game which relives Napoleon's battle campaigns.

MINDBENDER

GBH/Gremlin, £9.99

Interesting attempt to produce a different style of game, in which a ray is directed by angling mirrors round the screen, tagged on to a standard plot.

THUNDERSTRIKE

GBH/Gremlin £9.99

All-action futuristic space shoot 'em up, fast and colourful with plenty of thrills. Good value .

ULTIMATE GOLF

GBH Gold/Gremlin £11.99

Excellent value simulation, featuring practice, matchplay, strokeplay and singles modes, with a range of levels from arcade to a proper simulation. Once known as Greg Norman's Ultimate Golf.

A QUICK GLIMPSE ...

Famous Five 1 **L'Empereur Napoleon** **Mindbender** **Mixed up Tales**









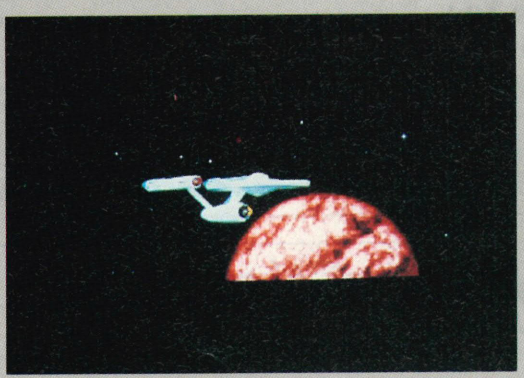
compromise by reviewing an interesting selection from the software available, not necessarily the best! But to keep everyone happy here's a quick round-down of everything else that should be in the shops soon.

WHATEVER HAPPENED TO...?

If you've eagerly turned to the review pages to check out a game that has been previewed and advertised recently only to be dismayed by its absence, you'll probably find it in our lame excuses' Hall of Fame.

SUPER SPACE INVADERS

The saga of this much-delayed release appears to have ended. By the time you read this, Domark says it should be in the shops. Seeing is believing.



STAR TREK: THE 25TH ANNIVERSARY

As we go to press, Electronic Arts is expecting the finished game to arrive from America, with a UK release for late February.

AETERNUM

The pre-Christmas release date has now been moved to March, says Infogrames. Hopefully, it will be reviewed in April's PC Review. Fingers crossed.

PC REVIEW'S BEST BUYS

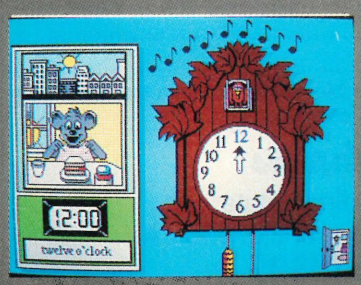
You'll notice in the Reviewed This Issue list that the new PC Review Recommended symbol has appeared against Thunderhawk and Twilight 2000. This is a new scheme set up by PC Review and leading distributor Centresoft. In 100 software stores supplied by Centresoft, you'll find a special rack dedicated to PC Review and PC Review Recommended games. We hope this will help you make the right decision when it comes to parting with hard-earned cash!

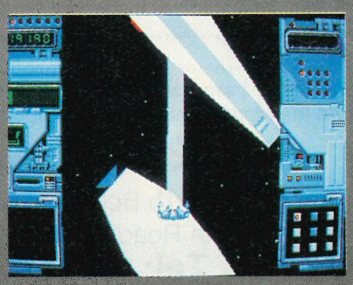
In these pages, we try to time our reviews and the game's release so that they coincide as nearly as possible. In the case of games like Shuttle and Flames of Freedom where the reviews precede the release date, they should receive their PC Review Recommended awards as they reach the shops.

PC ARENA

If you want to sell or buy PC or peripherals, don't miss out on PC Arena, the cheapest. easiest and quickest to do business. And it costs just £5 for a maximum of 25 words. For full details turn to page 139 of this magazine.

The Playroom **Rotox** **Thunderstrike** **Ultimate Golf**









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QED

This month QED gives you the second instalment of tips for Sierra On-line's Conquest of the Longbow, plus hints and tips on SSI/US Gold's sequel to Eye of the Beholder and an update on Savage Empire

CONQUEST OF THE LONGBOW

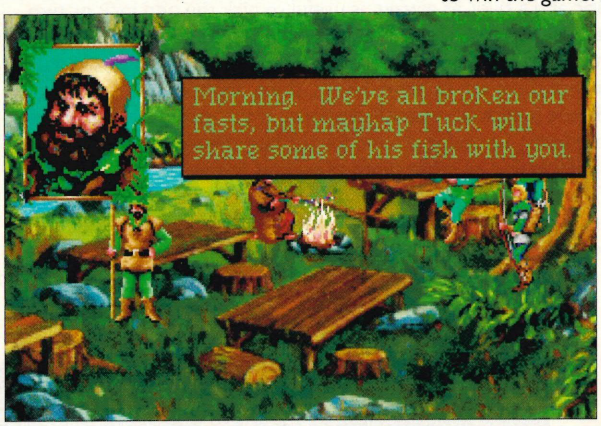
LEGEND OF ROBIN HOOD

Just when your men are looking less than merry, Little John really is on the small side and even good old Friar Tuck is turning to sin, along comes PC Review with the second part of its walk through of Sierra's stunning new graphic adventure.

DAY 6

Exit the cave. After listening to your men, walk to the overlook. From here, use the hand on the Abbey Monk who walks by. During the encounter, just click the hand on him and he will give up. When you are in the abbey clothes, go to the main map and then the town map. From the town map, go to St Mary's and walk inside. Once inside, go to the laundry room. There take the three outfits and exit the room. Now walk to the refectory and talk to the abbot. Use the hand on the cask and then exit from this room.

Now leave the abbey and go to the town map. From there go to the pub. Once inside the pub, give the bartender the cask. Talk to the man sitting at the table and play the Morris game with him. You don't have to win the game. After you are done with the game, use the hand on the door in the back of the room. The bartender will come over and open it for you. Inside the beer cellar use the hand on the second beer cask's tap.



You are now inside a cave. Walk two screens to the east and use the hand on what looks like a brown doorway. After walking from behind the tapestry, give the Abbot the refilled cask. Select 'Aye' when he asks if you want to drink with him. Click the amethyst on your cup of beer. This will keep you from getting drunk, but the abbot will get drunk. After every drink the abbot takes, talk to him. Once the abbot passes out use the hand on him then take the empty cask.

Exit the room to the floor of the abbey. From here, walk into the abbot's bedroom (it is the room due East). Once inside the abbot's room, use the hand on the far pillow. This is where the puzzle box was hidden. Now return the pillow to the position that it was in. Exit this room and the abbey. Now go back to the pub.

Once inside the pub, pay the abbot's bill in full (12 pennies) and return the empty cask to the bartender. Then use the hand on the back door again. Use the hand on the second cask and enter the caves again.

Now walk due north. You will see a door with a peephole. Use the eye on the peephole. After the guards have walked away, use the hand on the door.

Once inside, leave pennies on the table for the guards. Immediately exit the room. Now look back through the doorway again. When the guards leave again, this time for a long while, quickly walk back into the room.

Inside the room, use the hand on the trapdoor. Click the abbey outfits on the trapdoor. Robin will make a rope out of them and rescue the three sons.

Once you are inside the caves again, walk West, through the back door to the pub. Select 'Aye' when the three sons ask you if you want to attempt to pass the sheriff and his men. Now walk into the main bar and when the sheriff asks you to bless him click the talk icon on him. After this, leave the pub immediately.

DAY 7

Exit the cave. After listening to your men, go to the main map and then to the willow grove. Give Marian the hand scroll and the half heart. Make sure you remember what she tells Robin.

Now walk into the forest and when you see a sprite click the net in its path. Once you catch the sprite he will lead you to the Oak Grove. After the Oak Man tells you to think before talking again, use the talk icon on him.

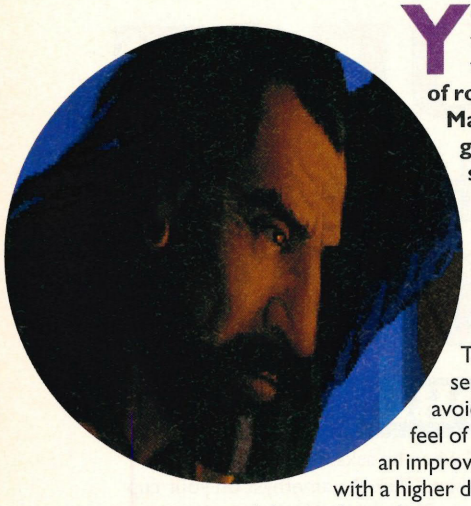
From here you will have to guess three puzzles using the handcode. The puzzles are in the documentation.

Once you leave this room, after solving the puzzles, the day will end.

That's all, folks ... tune in next month for the final gripping installment.



EYE OF THE



Yes we know ... it's tougher! That's why we've enlisted the help of role-playing guru Robin Matthews to guide struggling gamers through some of the intricacies of SSI's best RPG released to date.

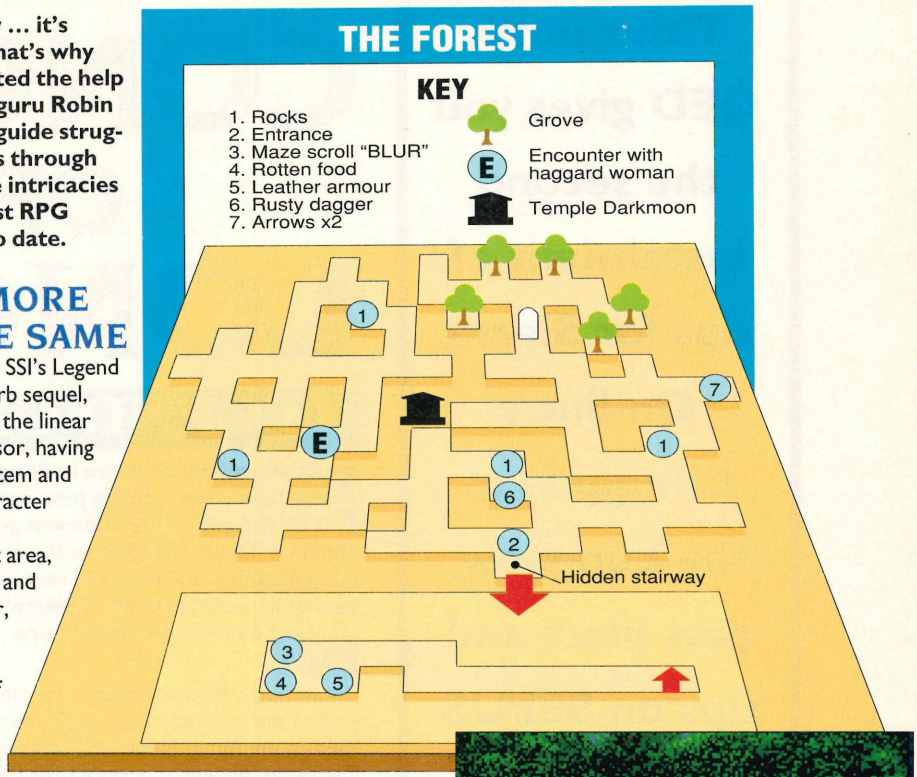
NOT MORE OF THE SAME

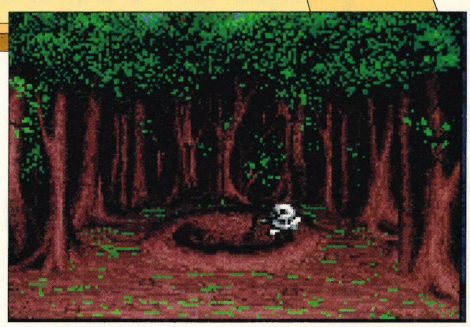
The second in SSI's Legend series is a superb sequel, avoiding much of the linear feel of its predecessor, having an improved magic system and with a higher degree of character interaction and depth of storyline.

The quest is divided into an 'introductory' forest area, the Temple of Darkmoon itself with an upper level and several lower levels, and three huge towers – silver, azure, and crimson.

Each of the locations is fairly self-contained, eventually allowing access to the next, the order of completion being as above.

As in EOTB I, character development and weapon/armour improvement is limited (compared with Might and Magic III or Bane of the Cosmic Forge), but this is compensated by a much more sophisticated system as regards 'battle tactics'.





GETTING HORNY

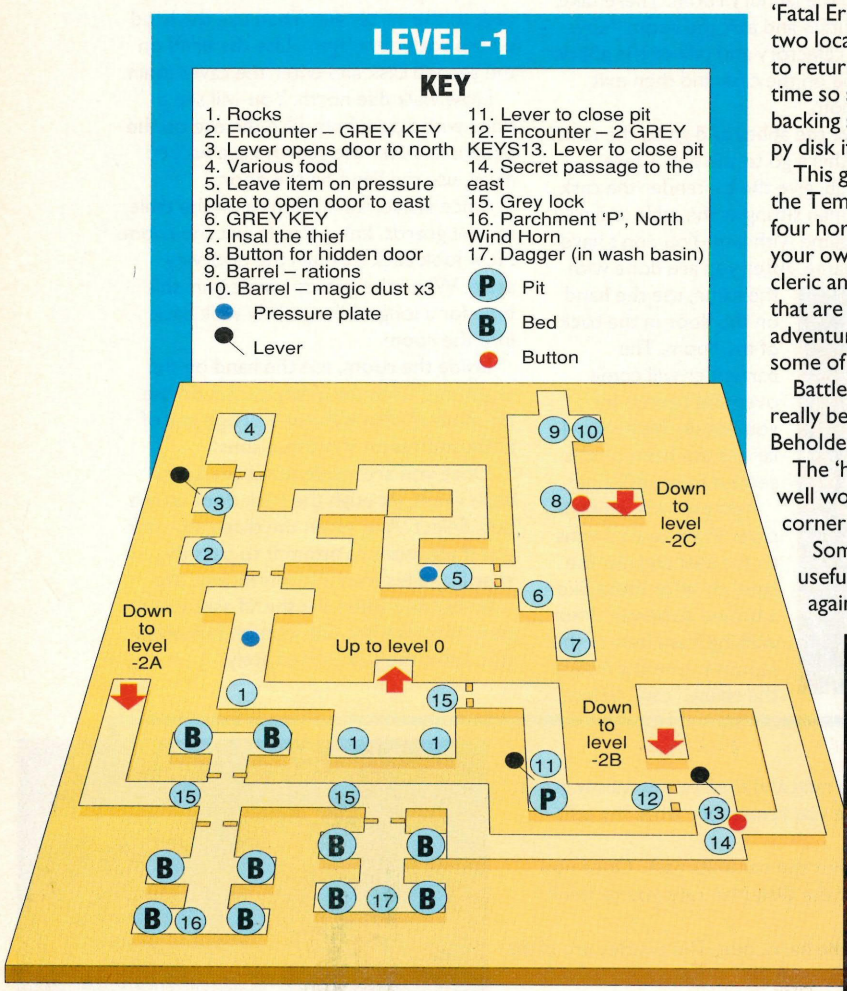
Beware! In Legend of Darkmoon there are several 'Fatal Errors' and one or two locations it is difficult to return from for some time so save often, including backing saves down to floppy disk if necessary.

This guide will help you through the forest and the first levels of the Temple of Darkmoon – the initial quest being to retrieve the four horns. The quick start party is adequate, although you can roll your own. Any party should include the usual fighter, mage and cleric and a thief, as always, is useful to pick the odd lock or two that are 'keyless'. There are opportunities, however, to enlist adventurers as you free them from captivity, or by resurrecting some of them bones, them bones, them dry bones.

Battle tactics are crucially important, the earlier confrontations really being a training ground for the later heavy stuff involving Beholders and all other types of serious nasties.

The 'hit and dodge to the left, hit and dodge to the right' style is well worth perfecting, as is the 'hit and run then wait around the corner and wack 'em again' tactic.

Some of the lower magic spells, such as Burning Hands, remain useful throughout, although certain spells are more effective against particular terrors than others.





Encounters are of both the 'fixed' and 'random' type – the latter number of encounters appears to be infinite, so if you decide to stay on a level until you clear it out you may eventually have to pop out to collect your pension!

Finally on general tactics, if you have a scrap in a corridor you will not be able to do the 'Ali shuffle' – here use the tactic of 'hit, run, let your opponents come on to you and then wack 'em' and repeat. You should find this will be pretty effective as long as you do not back into a dead end, and as long as your victims don't have 'ranged' magic spells.

THE WIDE OUTDOORS

So into the fray, or rather the forest. This is an easy intro, with the only wildlife being some wolves, which are easily dealt with using the tactics mentioned above.

Items are limited to rocks, a rusty dagger and some arrows. There is a single hidden stairway along the southerly east/west path and a graveyard to the north. Desecrating these doesn't seem to have any particular effect, but the stairway will reveal a mage scroll.

The Temple of Darkmoon is approached from any of three directions, or you can have a guided tour by a friendly old lady.

THE TEMPLE OF DARKMOON

This is likely to be your home for many a long night, but do not be deceived by the apparently warm welcome of the brother and sister clerics; accept their welcome, have a wander and a word with Calandra's sister, then show no mercy – get the drop on Joril and Nadia, and waste them!

Note the artwork for later reference, and explore the rest of Level 0. The wall button will reveal the teleport which leads to a triple life-saver. This can be used to restore any old bones, as long as they are a full set. This facility should be used sparingly – you may really need it later.

DOWN AND NOT OUT?

The back corridor offers you a chance to go up or down, but at this stage down is the way to go. You will need keys from the lower levels before it is worth going for higher things. Level -1 has a series of fights which will build up your characters, and you should find three ways down to level -2.

The four wind horns are needed to progress to the first tower later on, and the North Wind Horn is on level -1.

Be careful with the fight after the pit as although you close the pit to cross it, the advancing nasties cunningly re-open it. If you try to retreat you'll plunge down to the next level.

Note that two of the routes to level -2 are through the secret passages marked.

PASSAGES TO THE BLACK HOLE OF CALCUTTA

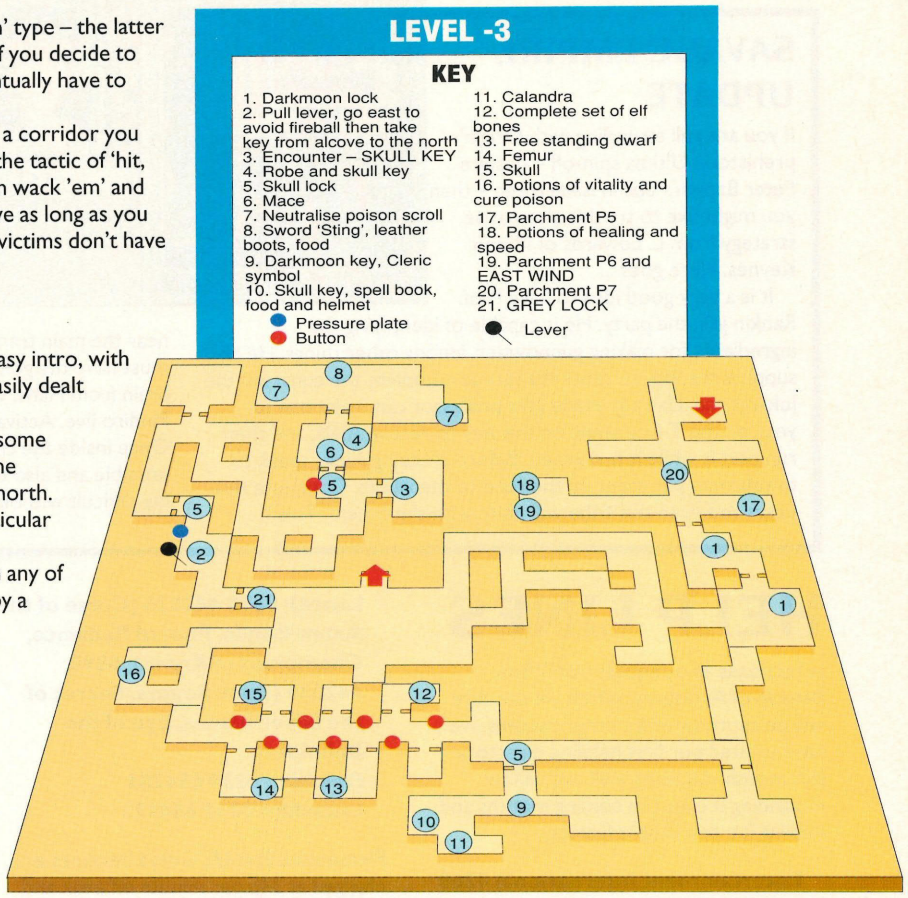
Level -2 is really just a series of short corridors, with one of them giving access to level -3. The other areas will give you a spidery meeting. Victory will reward you with a copper key needed to progress in level +1.

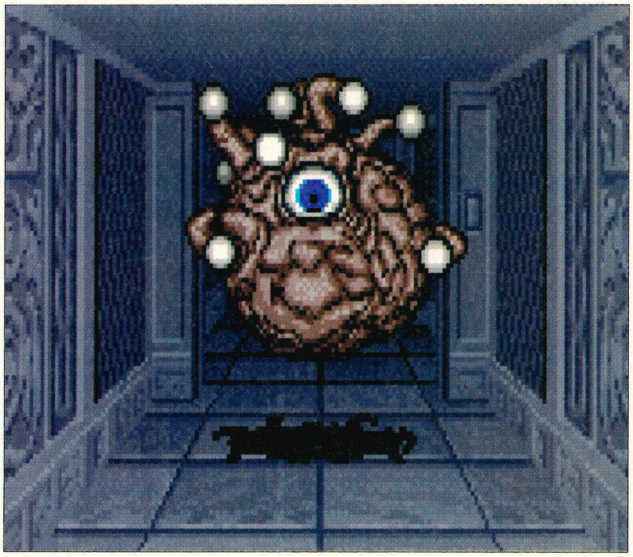
The third area leads to a useful scroll and, by opening a door, you may be helped from 'the pits' later on.

WHEN THE EAST WIND BLOWS

Level -3 is the toughest yet with some very heavy scraps and lots of goodies. Numerous keys are about and you will have to obtain two Darkmoon keys to progress to level -4.

The fights will need some thought and possibly several attempts





to win, but persevere – you should be able to get through this level with all your characters intact. It is also important at this stage not to waste any scrolls or potions. These will be very much needed in a level or two!

A bit of leverage may be a good idea if you are going out of your skull, but make sure you take a step afterwards in the right direction! This may well be a useful weapon later if you manage to get the northern hordes following you. (Thank you to LR from Shropshire for this tip). It may well be necessary to mount a number of expeditions to clear out the northern tribes, with a couple of 'Camps' in a more peaceful spot to recuperate.

Once you have done this, you should be ready to look at Level -4, but make a save before you go down any further into Eye of the Beholder 2: The Legend of Darkmoon. You may not see your bed for some time …

SAVAGE EMPIRE UPDATE



If you are still struggling with Origin's prehistoric Ultima spin-off – despite Peter Brown's tips in issue three – then you might like to try this alternative strategy from L. Edwards of Milton Keynes. Here goes ...

It is a very good idea to have Prof. Rankin join the party. He is capable of identifying the ingredients for making gunpowder, among other things. He also supplies the way to cross the lava to complete the quest for the Jukari tribe. Use a grenade (the professor can make one for you) on the T-Rex while on the way to rescue Aiela, and then run past it while it is stunned. Before rescuing Aiela, speak to the shaman you meet on the road to the village. Complete this quest and even this tribe will unite with the others. This is essential as the game cannot be finished until all the tribes are united. This also means that the T-Rex will not attack you on the way back.

The Haakur quest involves finding a shield belonging to the chief's son and returning it to him. You will need plenty of torches to complete this. The giant gem holder is on the northern most part of the great mesa. The hidden entrance will open near the main transporter pad. Before going into the city you must have the golden head from the Aztec type city and the brain from Hans, who is hiding in a cave near to where the Pindiro live. Activate the golden robot and he will join you. Once inside the city you need collect as many weapons as possible and also the locating device, as the end game is incredibly difficult without it.

HELP LINES

In response to a request from Mark Benson of Aylesbury, which we are sure will be appreciated by other readers, we have printed our first helpline directory this month. All being well, we will be expanding it over the coming months and making it a permanent feature.

Entertainment International 0268 541212
MicroProse 0666 504399
Ocean 0626 332533
US Gold: SSI 0898 442025 (Hillsfar, Dragons of Flame, Heroes of the Lance); 0898 442026 (Curse of the Azure Bonds, Pool of Radiance, Champions of Krynn); 0898 442030 (Buck Rogers, Secret of the Silver Blades, Eye of the Beholder)
Delphine 0839 654284
Lucasfilm 0839 654123

Please note that US Gold's helplines are charged at 34p per minute off peak and 45p per minute peak. If you are under 18 you must get permission before you phone from whoever pays the bill in your household.

It stands to reason that the tens of thousands of people who read PC Review can't all be beginners at games playing. It follows then that we can expect hundreds of hints, tips and helpful answers for lost souls to drop into our mailbag every month. Send your helpful epistles to QED, PC Review, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU.

HELP! REQUESTED

Spirit Of Excalibur

Jim Donners of Huddersfield admits to being 'completely and utterly stumped' in Episode 4 – The Enchanted Knights of the Forest Sauvage. He has managed to locate Heyle's Book and the Livre d'Sangrail, but cannot get any further. Are there any questing knights among PC Review readers who can dash nobly to his rescue?



Police Quest 3

Listen up to this description: "I come into the homicide office at the start of my shift on day five and give the killer's car description to dispatch, based on the gold paint transfer from the car in Andrew Dent's murder scene. Then I talk to Hanks and he says he's trying to find a pattern to the homicides. So I switch on my computer and plot the crimes on my city map and then I base a pentagram on the four points and make a fifth point where the lines join."If this sounds like familiar territory to you then you may be able to assist Waleed Rizk of Arkley with his enquiries – he can't figure out what to do next.

Xenon

Mark Butler from Swansea is hoping that someone will be able to help him out of a tight spot with the first sentinel (zone 1, sector 1). Where is its weak spot?

King's Quest III

If you know where the wand is to be found or how to stop the wizard from killing you, then please drop a line to help out beleaguered James Turner from Norwich, who doesn't.

HELP! SUPPLIED

Leisure Suit Larry

It's James Turner again, this time with help for overheated Mark Nicholson of Rowlands Gill. To get off the cruise ship without getting fried, you need the big old drink from the shop in town, some sun lotion from the chemists in town, and the wig from the hairdressers on the ship. You also need to go into mama's cabin when she's not there and get a sewing kit from the nightstand. You do this by going in by your door the first time then walking out when you can. Then go back to your room, close the door, open it again and go through and mama is not there!

As for the helicopter, James hasn't seen it and he has finished the game!

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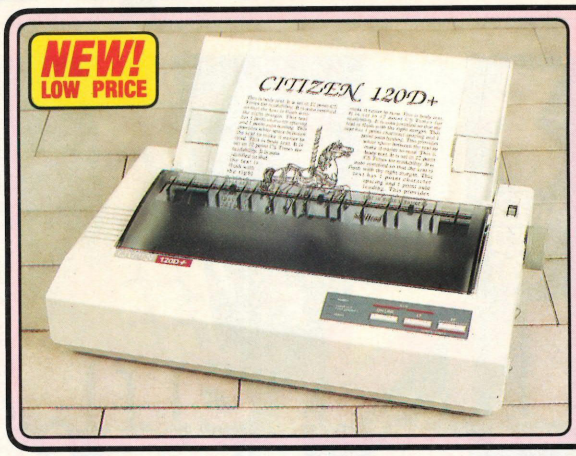
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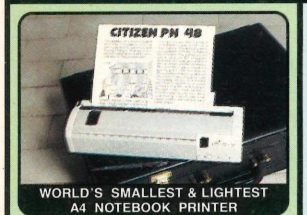
192 CPS **136** COLUMN

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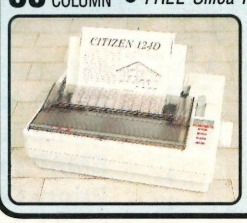
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- *Epson and IBM Emulation*
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WIN an AdLib Gold soundboard

The brand new AdLib Gold soundboard promises to take PC add-on sound and music into a new dimension – and you can win one in this exclusive PC Review competition.

Just like its highly successful predecessor, the AdLib Music Synthesizer Card, the AdLib Gold plugs into a free expansion slot inside your PC. It will add sound effects and music to games which support it – the AdLib Gold is fully downwardly compatible with the original AdLib board, the most widely supported in the PC entertainment market.

The AdLib Gold, however, takes PC sound a stage further. Just look at this list of impressive features, all included in the AdLib Gold card:

- 20 independent stereo channels of FM synthesised sound
- synthesiser with 16-bit digital to analog converter with dynamic range of 96dB
- audio digitiser with 12-bit stereo digital to analog converter with dynamic range of 72dB
- stereo sampling at rates up to 44.1KHz

Plus, the AdLib Gold card comes with software to enable you to take advantage of its features:

Furthermore, the AdLib Gold card has enormous potential for future expansion, with sockets and connectors for a SCSI-CD-ROM interface, Surround Sound Module (an add-on board to enhance sound effects with echo, reverb, etc) and a PC telephone answering system. Look out for a full review in the next issue of PC Review.

Exclusive

AdLib has very generously given PC Review one of the first AdLib Gold Cards to give away to one lucky prizewinner in our special AdLib competition.

And if you don't manage to win the AdLib Gold Card? Well, we've got one AdLib Music Synthesizer Card – the soundboard which has become a standard for PC games – to give away as a runners-up prize.

How to enter

Nice and simple this time. Just answer the three questions below correctly on the form (you can use a photocopy if you don't want to cut up the magazine). Clue: there is a lexical link to the answers.

Questions

1. The Von Trapp family appeared in which film?

2. Which stretch of water separates the Isle of Skye and the Scottish mainland?

3. "Hello darkness my old friend, I've come to talk with you again"?

Send the form to

AdLib Answers
PC Review
EMAP Images
Priory Court
30-32 Farringdon Lane
London EC1R 3AU

and make sure it reaches us by March 20, 1992. We'll announce the results in our May 1992 issue.

Rules

The AdLib Gold board winner will be the first correct entry drawn at random after the closing date.
The next correct entry will win the AdLib MSC board.
No entries received after the closing date will be considered.
Only ONE entry per person, please.
No employees, or their relatives, or associates of AdLib Inc, Mindscape International or EMAP Images are eligible to enter the competition.
The editor's decision in all these matters is as final as ever.

AdLib Answers

The answers to the questions are as follows:

1 .....

2 .....

3 .....

Name.....

Address.....

.....

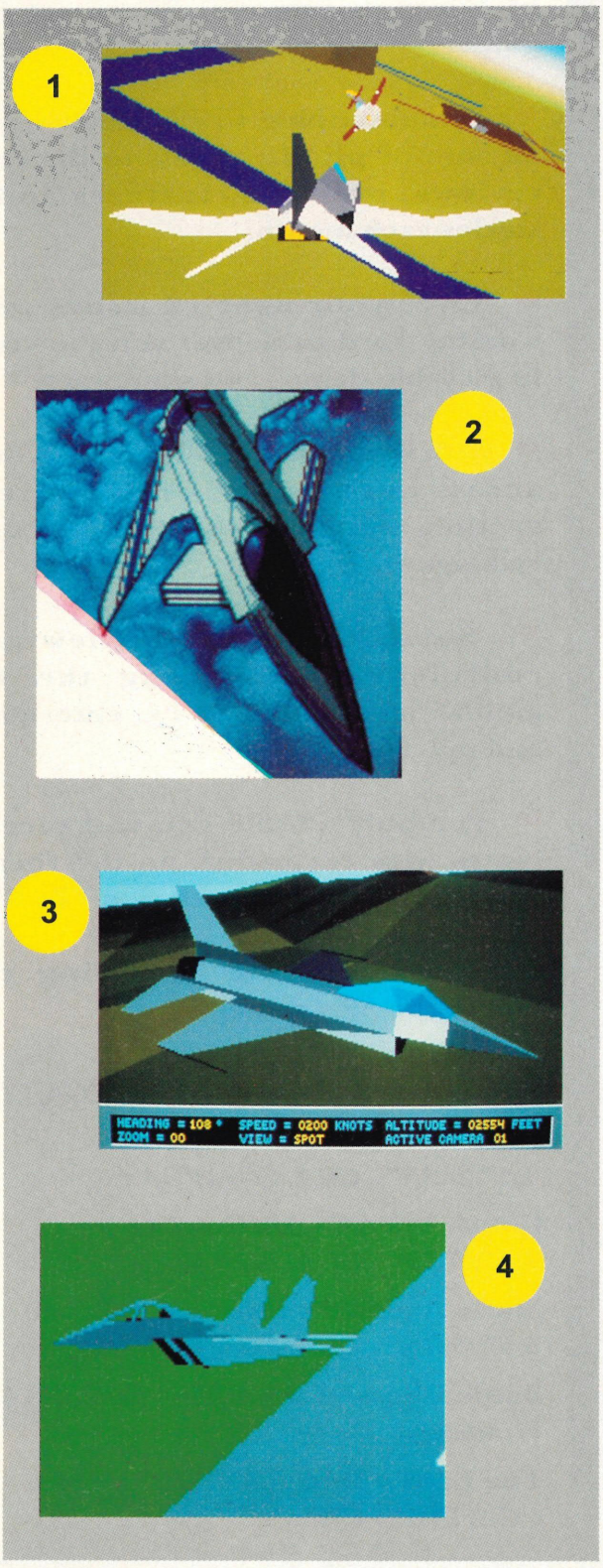
.....

.....

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

Plane Sailing

IMPORTANT ANNOUNCEMENT



Closing date extended – full details below

As we now all know, the Plane Sailing competition in PC Review Issue 4 was anything but. We got our aircraft pictures in the most fearful muddle, and made a nonsense out of the names in the coupon in the process. Humble apologies to everyone.

Now, we've given some thought over how to deal with this in the fairest way possible. We obviously can't just judge the competition as it stood in Issue 4, since with the wrong pictures it is actually impossible to get the answers right, and presumably quite a number of you were put off entering by that very fact. Besides which, the prizes, a Commodore 386SX computer and copies of Falcon 3.0 plus co-processor, are pretty valuable and ought to be won fair and square.

Accordingly, we've come up with this rather complicated way around it. The closing date for Plane Sailing has been extended to March 20, 1992. The competition itself is repeated below.

However, if you have already entered, AND you pointed out on your entry form, or an accompanying letter, that the pictures as they were shown last month didn't match the names given on the form, then you DON'T have to enter again. You are already in the draw. We're sorry if that means you'll have to enter twice and use another stamp, but I suppose it all helps us to get nearer to buying that guide dog.

PLANE SAILING

Match the pictures of the aircraft above to the names listed below.

I think the pictures correspond to the following aircraft:

Mig 29 ❑ F4 Phantom ❑

F-16 ❑ F29 ❑

Name.....

Address.....

.....

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.....

My PC has the following processor.....

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

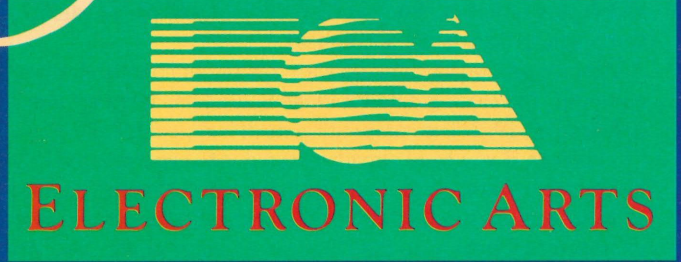
Closing date: March 20, 1992. Rules for this competition are as last month's PC Review.

PC Review March 1992

Remember: you don't need to fill this form out again if you entered last month and pointed out the discrepancy in the pictures.

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3.5"/5.25" - CGA, EGA, VGA

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Mario Andretti's Racing Challenge
3.5"/5.35" - CGA, EGA, VGA

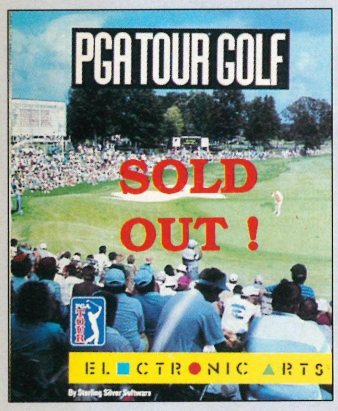
Battle Chess *3.5"/5.25" - CGA, EGA, VGA, Windows*

The Bard's Tale *3.5"/5.25" - CGA, EGA, VGA*



POPULOUS

Out of the darkness were born two nations, fanatical followers of their own beliefs, warriors by nature. Ultimately there can only be one survivor to claim victory over all! Design your own worlds and conquer them! Control the awesome power of nature and experience this classic, biggest selling 16 bit title ever!

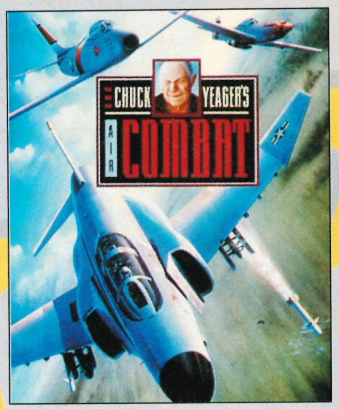


PGA TOUR GOLF

PGA Tour Golf is the only computer game ever licensed by the US PGA. Panoramic fly-by shots and look-back view let you play real tournaments on real courses. Instant replay lets you relive great shots as you compete against 60 PGA pros!

CHUCK YEAGER'S AIR COMBAT

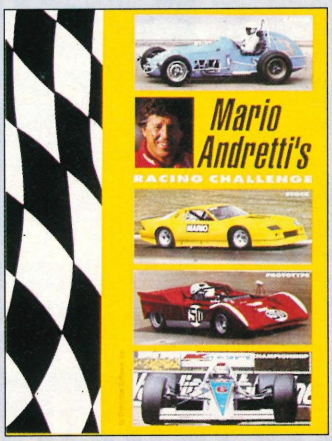
Choose from over 50 missions from World War II, Korea and Vietnam as you fly with the leading pioneer of modern air combat, General Chuck Yeager. Learn from the experience and guidance



from the man who has flown with them all. Will you have the right stuff?

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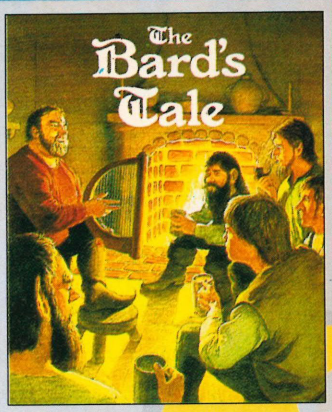
challenges in this brilliant professional racing simulation.

BATTLE CHESS

Battle Chess brings chess to life by combining a magnificent chess logic system with colourful and dramatic 3D animations and digitised sounds. Winner of the Software Publishers Association award for best graphics.



THE BARD'S TALE



You are the leader of a ragtag group of freedom fighters in this stunning fantasy role playing game. Combat the evil wizard Mangar and experience animated colour monsters, 3D full colour mazes and outstanding special effects.

NB: The free software offer is ONLY available to UK Residents

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Mario Andretti's Racing Challenge	❑ 3.5"	❑ 5.25"	source code: 0015Y
Battle Chess	❑ 3.5"	❑ 5.25"	source code: 0016D
Battle Chess (Windows)	❑ 3.5"	❑ 5.25"	source code: 0017H
PGA Tour Golf	❑ 3.5"	❑ 5.25"	source code: 0018M

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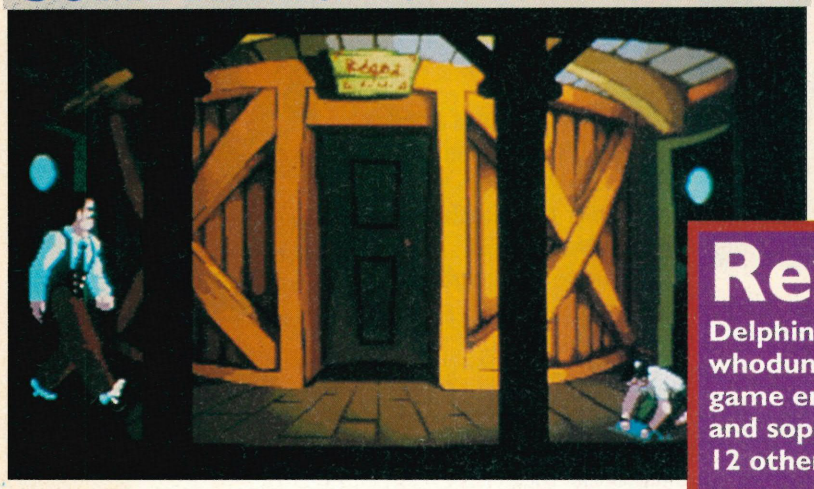
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NEXT MONTH IN PC review

SOMETHING FOR EVERYBODY



Windows

In two years, Microsoft has sold two million copies of Windows 3.0, which gives you an icon-based, point and click PC interface instead of all that clumsy typing in DOS. Hugely popular in the business community, PC Review explains what all the fuss is about, and looks at a selection of Windows-driven games.

Reviews

Delphine's Cruise for a Corpse is a complex whodunnit, using the firm's Cinematique game engine to produce high quality graphics and sophisticated parsing. We give this and 12 other games the full PC review treatment.



Classic Game Guide

Our fully updated Classic Game Guide gives you mini-reviews of the very best of PC entertainment.

Plus...

the latest news, the best tips, a host of sneak previews, shareware bargains, and much much more.

Exclusive – AdLib Gold Card

PC Review has grabbed the first AdLib Gold Card to make it across the Atlantic. We'll be putting this brand new soundboard through its paces and making it sing

ISSUE 6 OF PC REVIEW WILL BE ON SALE FROM MARCH 17TH. PLACE AN ORDER WITH YOUR NEWSAGENT NOW.

Don't forget, PC Review is available in both 5.25" and 3.5" cover disk versions.

Contents may be subject to change

PC review Buyers guide

Because all of us here at *PC Review* are PC users as well as reviewers we're perfectly placed to know that shopping for your PC can be a veritable nightmare, even if you're looking for something as simple as a joystick. The PC's open architecture has meant that expanding the machine is a fairly simple operation, but it's also meant that, during its 10 years of existence, the machine has attracted an enormous number of manufacturers of both hardware and software. The choice facing the potential buyer is awesome.

That's why we've set aside over twenty pages in each issue to guide you through the quagmire of hardware and software. Within this section you'll find up to date information on the very best hardware and software available. Not only will we tell you what you can buy, but where you can buy it from and how much it will dent your pocket.

We don't claim that the guide in a single issue is totally exhaustive, but over the course of a few months you'll find it builds up into an invaluable reference work for PC buyers.

Happy Browsing!

HOW TO USE THIS GUIDE

We've divided the guide into four easy to use sections: **Hardware** lists add-ons and upgrades that will improve your PC's performance or add features not available on the basic model; **Software** gives you a run-down of a wide-range of productivity software and utility programs; **Ancillary** is for those of you who want to invest in a new machine or simply keep your existing machine in tip-top condition; finally **Games** is a guide to all that's best in software for entertainment. You'll find all the product types covered in these sections listed in the index below.

Within each section you'll find that we've listed the basic capabilities of each product as well as any major plus or minus points. If you're a little confused by Technospeak (and aren't we all from time to time) just turn to our *Technical Terms* panels for a simple explanation.

All of the prices given are inclusive of VAT at 17.5%, although where there is no recommended retail price for a particular product we've listed the average price, thus: c£550. Please bear in mind that these prices do not include postage and packaging, courier charges, etc.

If you require further details on a product then simply look up the supplier in our directory where you'll find an appropriate telephone number and address.

What could be simpler?

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DISCLAIMER

We have done everything humanly possible to check the information in this guide. But prices do change, distribution switches from one company to another, even brand names can be updated. While we will update the information regularly to take account of this, we can't be held responsible for any errors contained herein.

Anyone – suppliers, publishers, readers – who knows of products suitable for inclusion but which have mysteriously been omitted can write in with details (write, please, don't phone) to the address at the front of the magazine.

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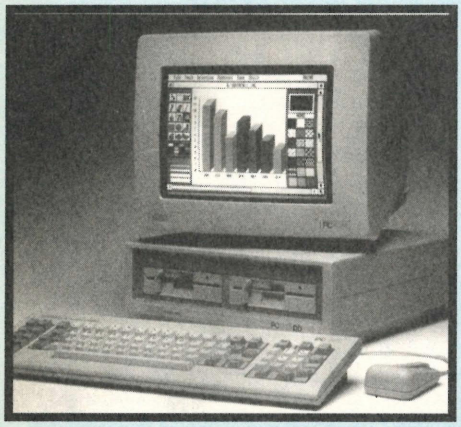
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PC hardware

MEMORY UPGRADES

Most PCs will take extra memory chips, either on a slot-in card, or directly onto the motherboard – and just as well, given the latest crop of memory hungry games. The minimum RAM acceptable these days is 640K; some older PCs (such as the Amstrad PC1512) were sold with 512K.

However, an increasing number of games make use of extended or expanded memory above 640K, and you'll need a good 2Mb should you ever want to run Windows. The prices quoted here are for a selection of IBM and Amstrad machines. Prices for other clones may vary.

Size/Type	Price	Comments	Supplier
1Mb/Card	£94	For IBM XT	Memory Direct
2Mb/Card	£146.88	For IBM XT	Memory Direct
2Mb/Card	£164.50	For IBM AT	Memory Direct
2Mb/Card	£246.75	For IBM AT (LIM 4)	Memory Direct
4Mb/Card	£339.57	For IBM AT (LIM 4)	Memory Direct
640K/Chip Set	£29.95	For Amstrad PC1512	Evesham Micros
4Mb/Chip Set	£160	For Amstrad PC2286	Evesham Micros
16Mb/Chip Set	£815.45	For Amstrad PC2386	Memory Direct

TECHNICAL TERMS

The original XTs and ATs could only directly address a maximum of 640K of RAM, but there are two methods of extending the available RAM on these machines. The first is known as **Extended Memory** (memory located above the first megabyte which can be directly addressed by the 80286 and its successors), while the alternative is **Lotus Intel Microsoft Expanded memory Specification (LIM EMS)**, named after the three companies that developed it. **LIM 4** is the latest version of this, designed to work with DOS version 4.0 and beyond. Most software that uses extended or expanded memory is configured to work with only one of these systems, so you should check which of them your applications support before you make a buying decision.

HARD CARDS

No room for a hard disk drive? Want a simple plug in, cheaper solution? Hard cards fit into a free expansion slot and can be used as a conventional hard drive.

Model	Type	Capacity	Speed	Width	Price	Supplier
Smartcard 30XL	XT/AT	32Mb	24ms	1 Slot	£205.62	Time
32MbXT	XT	32Mb	40ms	1.5 Slots	£186.83	RSC
Smartcard 40XL	XT/AT	40Mb	24ms	1 Slot	£229.13	Time
45MbXT	XT	45Mb	19ms	1 Slot	£233.83	RSC
45MbAT	AT	45Mb	19ms	1 Slot	£233.83	RSC
Smartcard 100XL	XT	100Mb	19ms	1 Slot	£417.13	Time
Smartcard 100XL	AT	100Mb	19ms	1 Slot	£534.63	Time

• The XL versions of Time's Smartcards are supplied without driving software. If you wish to buy the version with the software please add £47 to the listed price.

• RSC's cards are supplied with a free copy of Norton Utilities v.5 (RRP £139)

TECHNICAL TERMS

Cards which occupy **1.5 slots** will prevent you from plugging a full length card into the adjacent expansion slot, so check the arrangements of existing cards in your PC and plan carefully if you intend to utilise any unoccupied slots in the future. The **speed** of a card is an indication of its average **seek time** (the time it takes for the read/write heads to reach the appropriate location on the disk).

HANGING ON THE TELEPHONE?

Remember, PC Review now has a new telephone number: 071-972 6700. Our address remains the same: Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

HARD DISKS

If you're using a PC which has only floppy disk drives, then a hard drive could change your life. With capacities ranging from 20Mb to well over 100Mb (more in business heavyweight machines), you can store all your programs, all your data, on the one drive, and still access it far more quickly than on floppy. No more disk-swapping every five minutes, no more booting DOS from floppy every time you switch on. Also, more and more games these days actually require you to install them on a hard disk.

Model	Interface	Capacity	Speed	Size	Price	Supplier
Seagate ST325N	SCSI	32Mb	28ms	3.5" 1" high	£205.63	Dataplex
Seagate ST351A/X	AT/XT	42Mb	28ms	3.5" 1" high	£193.88	Dataplex
Seagate ST125A	IDE	21Mb	28ms	3.5" half height	£170.38	Corporate Upgrades Ltd
Seagate ST157A	IDE	44Mb	28ms	3.5" half height	£163.33	Corporate Upgrades Ltd
Seagate ST225	MFM	21Mb	65ms	5.25" half height	135.13	Dataplex
Conner CP3024	IDE	21Mb	27ms	3.5" 1" high	£176.25	Unimart Computers Ltd
Conner CP3044	IDE	42Mb	25ms	3.5" 1" high	£217.38	Unimart Computers Ltd

TECHNICAL TERMS

You can only fit an internal hard drive if you have a suitably sized spare drive port in your machine. If you are at all unsure you should first check with the supplier of your machine which size of hard drive you will be able to fit. There are a number of different hard drive interfaces in use so make sure that you buy the appropriate drive.

GRAPHICS CARDS

The PC has had a long and chequered history of different graphics standards, thanks to IBM's decision not to include graphics at all in the original machine. The current best standard now for games is VGA (Video Graphics Array): with a maximum of 256 colours on-screen, this really shows off the potential of PC games.

Type	RAM	Size	Resolution	Colours	Price	Supplier
Hercules	64 Kb	8-Bit	640x350	2	£28.20	Watford Electronics
CGA	64Kb	8 bit	320x200	4	£37.60	Watford Electronics
EGA	256Kb	8-Bit	640x350	16	£76.38	Watford Electronics
VGA	512K	16 bit	1024x768	256	£92.83	Dataplex
SVGA	1Mb	16 bit	1024x768	256	£92.83	DS Computers

• *Watford Electronics graphics cards are all supplied with a built-in parallel printer port.*

US SPORTS STARS BEST KNOWN IN THE UK FOR COMPUTER GAMES

1. Mike Ditka (Ultimate Football)
2. Earl Weaver Basketball))
3. Tony La Russa (Baseball)
4. Joe Montana (American Football)

PC add ons

SOUNDBOARDS

Until recently, the best the PC could produce in the way of sound was 'beep'. But the advent of soundboards has changed things dramatically. A soundboard will take up a single expansion slot and produce genuine music and background sound effects in the games which support it – which is an ever-increasing number these days. Below are the 'standard' soundboards catered for by most titles.

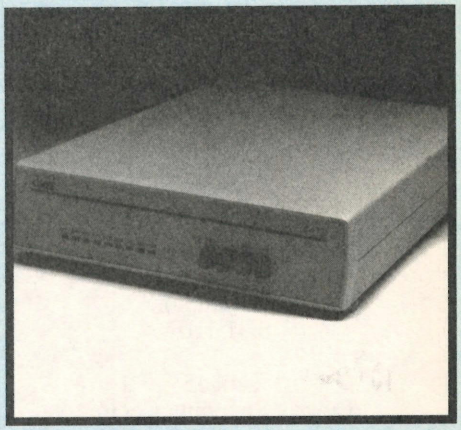
Name	Supplier	Price
AdLib	Mindscape	£89.99
Comment Currently the most popular system, and a good trade-off between price and performance.		
LAPC-1	Roland	£379.00
Comment Superb sound quality probably priced out of the reach of many games players. Non AdLib-compatible.		
SoundBlaster v2.0	WestPoint Creative	£139.95
Comment AdLib-compatible and capable of producing sampled sounds. Try it with Wing Commander 2 to hear what we mean!		
SoundBlaster Pro	WestPoint Creative	£249.95
Comment Has all the features of soundblaster, but is compatible with many CD ROM games.		

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Market Street
Manchester
M4 4HA

Unit 12
Bargate Shopping Centre
East Bargate
Southampton
SO1 1HF

Unit 15
Liberty Shopping Centre
Romford

Unit 106
Thurrock Lakeside Shopping Centre
West Thurrock
Essex
RM16 1WT

Unit 12
The Marlowes Centre
Hemel Hempstead

Unit 6
The Glades Shopping Centre Bromley
Kent
BR1 1DD

Unit A17
The Harlequin Centre\Watford
WD1 2AT

3 Chevy Chase
Eldon Square Centre\Newcastle Upon Tyne
NE1 7UG

GAME LIMITED

JOYSTICKS

No provision is made in the design of the standard PC to plug a joystick in directly. You'll need a joystick card in one of your expansion slots which allows an analogue joystick to be plugged in. A number of manufacturers sell both cards and joysticks together. For flight sims and racing games, yoke and pedal style controllers are also available.

Product	Price	Supplier	Comments
Anko AK-GC27A	£19.95	ABS Computer Supplies	Auto-fire option
IBM Joystick	£19.95	Computer Mates Ltd	Includes games card
Powerport 2	£63.45	Power Mark	Self-adjusting PS/2 Twin Port
The Yoke	£57.58	Power Mark	Self-centring Yoke
Gravis Analogue Stick	£48.18	Power Mark	8 Tension adjusters!
Tecniche PC Power Stick	£23.49	RSC Ltd	Includes games card
Analog Edge	£29.99	Evesham Micros	Includes games card
Analog Xtra	£39.99	Evesham Micros	Includes games card
Gravis PC Mousestick	£89.95	RC Simulations	Includes games card

• The Tecniche stick is available without games card for £17.61
• The Analog sticks are both available without games cards for £12 and £15 lower than the marked prices respectively.

MICE AND TRACKBALLS

Many games are tailored to be easily controllable with a mouse, which is much more of a standard PC add-on than a joystick. Then again, there is the trackball, which in effect is an upside-down mouse, with you moving the ball directly to control on-screen movement – useful if your desk space is limited or you're using it with a portable machine.

Product	Price	Supplier	Comments
Genius GM6000	£28.95	ABS Computer Supplies	Includes pocket, pad and software
Genius GMF302	£37.95	ABS Computer Supplies	As above, higher resolution
Anko AKTB500	£49.95	ABS Computer Supplies	Trackball with 'drag button'
Logitech Mouseman	£62.28	Acolyte Services	
Cordless Mouseman	£116.33	Acolyte Services	Uses radio technology
Logitech Pilot	£45.83	Dataplex	
Tec-Mouse	£34.08	Dimension Computers Ltd	Includes paint software
Microsoft Ballpoint	£104.58	Dimension Computers Ltd	Trackball for portables
Amstrad Mouse	£22.33	Dimension Computers Ltd	Works with Amstrad PCs
Axelen Mouse	£21.15	DS Computers	
Truemouse	£22.99	Evesham Micros	Serial/ PS/2 /Amstrad versions
Cordless Truemouse	£49.95	Evesham Micros	As above but with infra-red link
Golden Image Mouse	£34.95	Evesham Micros	Optical Mouse
Trackball	£39.99	Evesham Micros	Features lock drag
Mousepen	£116.33	KSI	Mouse shaped like a pen
Unmouse	£159.80	Picture Perfect UK Ltd	Tablet – use finger as mouse!
Nakasha Mouse	£41.13	RSC Ltd	Includes DPaint II
Squik Mouse	£19.98	RSC Ltd	Low cost serial mouse

TECHNICAL TERMS
A Mouse or Trackball requires a suitable **driver** to be installed before it will operate. Most devices are supplied with suitable software, but you should check first with the manufacturer. You should also note that there are different types of mice and trackballs designed to work with different systems (eg **Serial** and **Microsoft Compatible**), so make sure that you are buying the device that is correct for your model of PC.

NEW PC REVIEW ADVERTISEMENT MANAGER SHOCK

PC Review now has a new advertisment manager. He's Nigel Taylor and you can contact him on 071-972 6700 extension 2474. Call him before he calls you.

MODEMS

Get your PC to be more sociable. A modem will connect you to other PCs via the telephone lines, giving you access to bulletin boards, public database networks and multi-user games – or you can simply use it to send messages to friends.

Product	Price	Manufacturer
Biscom (internal)	£258.50	Dataflex
Biscom (external)	£323.13	Dataflex
Comfax (internal)	£387.75	Dataflex
Comfax (external)	£517.00	Dataflex
Courier 2400e Quad (internal)	£464.13	Miracom
Courier 2400e Quad (external)	£522.88	Miracom
Keycard 3000 V22	£346.63	Miracom
Keycard 3000 V22 BIS	£464.13	Miracom
PC Professional	£517.00	Dataflex
Quadcom (internal)	£387.75	Dataflex
Quadcom (external)	£517.00	Dataflex
Rapier (internal)	£646.25	Dataflex
Stradcom (internal)	£193.88	Dataflex
Stradcom (external)	£229.13	Dataflex
WS4000 (SB2422)	£186.83	Miracom
Quattro 2400	c£500.00	Dowty
Smartmodem 2400 Quad	£339.57	Hayes
SM2400	£222.08	Amstrad
Milgo Maxam IV	£468.83	Racal
2400 MNP Class 5	£468.83	Worldport

TECHNICAL TERMS

PC Modems come in two types: **internal** and **external**. Internal versions require a spare expansion slot, but they are usually £50 to £100 cheaper than their external counterparts. External versions plug into a **serial port** instead. If you are going to use your modem mainly to communicate with one other party (e.g. a particular bulletin board) then you should first check which **protocol** is in use by them and buy the appropriate modem.

DOT-MATRIX PRINTERS UNDER £300

Dot matrix printers are coming down in price, but at the same time the quality is improving: letter quality modes are no longer dotty or lacking true descenders on letters such as 'g' or 'y'. This is particularly true of models with a 24-pin printhead. This is probably a good time to buy.

Company/model	Price	Speed	Buffer	Type
Amstrad DMP3160	£233.83	160/40	16K	9-Pin
Brother M-1209	£264.38	168/35	2K	9-Pin
Citizen 124D	£292.58	120/40	8-32K	24-Pin
Epson LX850	£269.08	200/30	4-32K	9-Pin
Mannesmann Tally MT81	£186.83	155/26	8K	9-Pin
Olivetti DM109	£257.33	240/36	21K	9-Pin
Panasonic KX-P1180	£252.63	192/38	2-K	9-Pin
Samsung SP 0930N	£222.08	300/50	3-11K	9-Pin
Seikosha SP1900AI	£116.33	192/40	1K	9-Pin
Seikosha SP2000	£233.83	160/40	6K	9-Pin
Victor VP10D	£210.33	175/30	None	9-Pin

TECHNICAL TERMS

A printer's **speed** is a measurement of the number of characters it can print per second. The first figure is for **draft mode** and the second figure is for **Near Letter Quality (NLQ) mode**. The **Buffer Size** is an indication of the amount of internal memory the printer has. The higher this figure is, the quicker your PC will be released to perform other tasks.

INK JET PRINTERS

Ink jets are the newly fashionable item for style-conscious PC owners: with distinctly better print quality than dot matrixes , the advantage of being virtually silent.

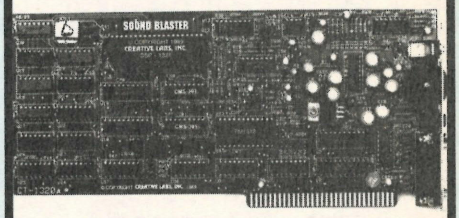
Company	Price	Speed	Buffer
Brother HJ100	£405.38	142/83	37K
Canon BJ300	£699.13	300/150	30-128K
Epson SQ850	£903.58	600/198	8K
Hewlett-Packard DeskJet 500	£586.33	240/120	16K
IBM 4072 ExecJet	£868.33	600/300	30K
Mannesmann Tally MT9	£938.83	220/110	32K
Olivetti JP350	£586.33	360/120	8K

DEALER DIRECTORY

CUSTOM GAMES

UNIT 1 KOTHERHALL CLOSE
NORWOOD IND ESTATE
KILLAMARSM

TEL : 0742 752732

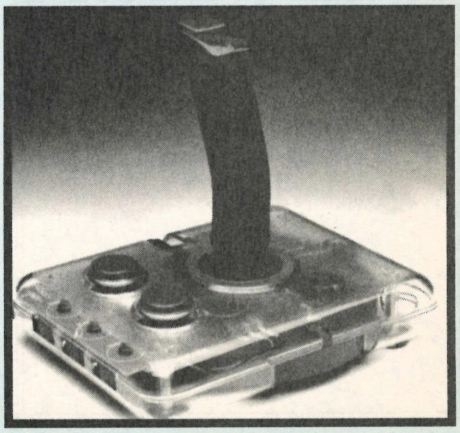


GALLERY SOFTWARE

140 ARNDALE CENTRE
WANDSWORTH
LONDON
SW18 4TQ

Tel : 081-877-1017
Fax : 081-870-4941

PC Software and hardware retailers - Contact us for all your PC requirements.



DEALER DIRECTORY



A-Z COUNTRY SUPPLIES

23A LOWER MALL
WESTON FAVELL CENTRE
NORTHAMPTON
NN3 4JZ

TEL : 0604 414528

COMPUTER RUN

21 STATION WAY
COXETERS YARD
ABINGDON
OXON
OX14 3RJ

TEL: 0235 528595

ULTIMA RETAIL

UNIT 2
THE FRIARY CENTRE
2 FRIARS WALK
READING
BERKS
RG1 1B4

TEL : 0734 568510

EXTERNAL DRIVES

If you don't have space for any more floppy disk drives – a problem with newer slimline models, you can always add an external model.

Model	Size	Capacity	Price	Supplier
IBM compatibles	3.5"	720Kb	£109.95	ABS Computer Supplies
IBM Compatibles	3.5"	1.44Mb	£119.95	ABS Computer Supplies
IBM Compatibles	5.25"	360Kb	£119.95	ABS Computer Supplies
IBM Compatibles	5.25"	1.2Mb	£129.95	ABS Computer Supplies
Amstrad 2000 range	5.25"	360K	£57.58	RSC Ltd
Amstrad 2000 range	5.25"	1.2Mb	£76.38	RSC Ltd
Olivetti/Amstrad 3000s	5.25"	1.2Mb	£175.08	RSC Ltd

CD ROM DRIVES

Are you looking to make your PC the ultimate games machine? Then a CD ROM drive is the perfect addition. CD ROMS offer a huge storage capacity, typically the equivalent of about 700 720Kb floppy disks! The only disadvantage is the slow access speed. There are not too many games or other CD ROM applications available at the moment, but the list is growing larger every month.

Model	Price	Supplier	Comments
Chinon CDS431	£351.33	SMC Computers	Internal
Goldstar GT2000	£398.33	SMC Computers	External
Philips CM50	£316.08	Diamond Computers	Portable

• The Philips drive comes with a free copy of World Atlas and Audio Player

GAMESMASTER TV SHOW: FIVE VERDICTS

1. A brave effort at bringing computer entertainment to television.
2. Who wants to watch old games?
3. Patrick Moore as the Gamesmaster? Ho, ho, very ho.
4. Gothic church setting, Gregorian chants, tolling bells and a monk. Songs of Praise with computers.
5. Without PCs, no future.

HAND SCANNERS

If you use any sort of Desktop Publishing package, then a hand scanner is an invaluable addition to your PC. While most hand scanners can only read small images and at a relatively low resolution, they are considerably cheaper than flatbed scanners.

Model	Price	Colours	Supplier
AG-256	£164.50	256 grey shades	Watford Electronics
Genius GS-B105G	£176.25	256 grey shades	Reeves
PC Hand Scanner	£82.19	16 grey shades	UK Home Computers
Marstek M105	£81.08	64 grey shades	RSC Ltd
Marstek M105 Plus	£110.45	64 grey shades	RSC Ltd
Marstek M800 Plus	£169.20	64 grey shades	RSC Ltd
Marstek M-6000 CG Color Artist	£327.83	262,144 colours	RSC Ltd

• The PC Hand Scanner comes with a free copy of Microsoft Windows.
• The Marstek M105 Plus and M800 Plus are also available in versions for Windows. Add the suffix W to the model number and read the price as £139.83 and £186.83 respectively.

DIGITISERS

While not being quite so high up on the essential DTP buy list as a scanner, a rudimentary digitiser can transform the appearance of your documents. Digitisers will allow you to import line-based artwork by tracing it with a stylus or puck. They're also ideal for Computer Aided Design applications.

Model	Size	Software	Price	Supplier
GT 1812 Genitizer Tablet	18"x12"	CasCad II/Colour Maestro	£316.08	RSC Ltd
GT906 Tablet	9"x9"	CasCad II/Colour Maestro	£105.58	RSC Ltd
GT1212B	12"x12"	AutoCAD/Dr Genius	£182.13	Technomatic

PC software

GRAPHICS SOFTWARE

So you're the artistic type? If so then in the PC you have a potentially limitless canvas, not to mention a huge choice of software with which to realise your potential. Here's a selection of the best for budding Renoirs.

Product	Price	Supplier	Comments
VBase	£175.08	Highland Grafix	Full colour picture database
Clip Art	£5.88	Cybernetic Imagination	Range of disks containing 30 images each in PCX or IMG format
Deluxe Paint II Enhanced	£99.99	Electronic Arts	The standard cheap paint program for PCs
Deluxe Paint Animator	£99.99	Electronic Arts	One of a range of DPaint add-ons
Disney Animation Studio	£99.99	Empire	Cel animation package
Corel Draw v2	£270.25	Corel	Very popular and versatile

DTP SOFTWARE

The PC has always been a superb machine for DTP applications, and now that Windows 3 is firmly established this is even more the case. There are already a host of excellent DTP packages available for the PC at prices to suit every pocket. Here is just a small selection.

Product	Price	Supplier	Comments
Page Plus	£160.98	Serif	Budget priced page layout for Windows
Timeworks Lite	£41.13	GST	Simple DTP
Deskpress	£235.00	GST	Timeworks and more!
Pagemaker	£457.08	Aldus	Professional DTP package
Ventura Publisher	£587.50	Ventura	Professional DTP Package
Timeworks DTP 2	£116.33	GST	Improved version of the budget system

COMMUNICATIONS SOFTWARE

If you're one of those sociable types that likes to to link-up, go on-line, and download from time to time then you're going to need some suitable software to get in touch with your fellow PC owners. There are plenty of packages to choose from, especially in the Public Domain libraries. Here are a few we recommend you consider.

Product	Price	Supplier	Comments
Sage Chit-Chat	£66.98	Computers By Post	
Crosstalk	£71.68	Computers By Post	For Windows 3
Eazlink	Shareware	Various	Try before you buy!
Mirror 3	£121.03	Computers By Post	With teletext emulation
PC Anywhere IV	£101.05	Computers By Post	
Procomm Plus	Shareware	Various	Very Powerful System

COMPOSING SOFTWARE

Gone are the days when you had to sit huddled over a second-hand Bontempi scratching notes onto a piece of torn manuscript. Most modern PC music packages make life a lot easier, some will even construct the score for you!

Product	Price	Supplier	Comments
Music Studio 3	£70.50	Datel	Sequencer, composer, score printing.
SPJunior	£163.325	Computer Music Systems	Music package
Sequencer plus Junior	£64.63	Computer Music Systems	64 track sequencer
Sequencer Plus Classic	£193.88	Computer Music Systems	500 track sequencer
Cadenza	£198.58	Digital Music	Sequencer with graphic editing
The Musicator	£368.95	Digital Music	Notation based sequencer
The Composer's Pen	£146.88	Composit Software	
Pianola	£29.38	Clockwork Software	

REASONS TO BE CHEERFUL

1. You're reading PC Review
2. It's nearly Spring.
3. The recession is over ... well, perhaps.

DEALER DIRECTORY

SOFTSPOT LTD

OXFORD COMPUTER CENTRE
4 LINCOLN HOUSE
TURI STREET
OXFORD
OX1 2DS

TEL : 0865 794202

ERA VIRTUAL REALITY

Unit 6
The Capital Exchange Centre
Queen Street
Cardiff
CF1 41IQ

Tel : 0222 641089

ERA / BEATTIES

UNIT 8
THE SHIRES
LEICESTER
LE1 4FR

TEL : 0533 512697

THINK PLAN LTD

3 RIVERSIDE WALK
BISHOPS STORTFORD
HERTS
OH23 4AJ

TEL : 0279 506535

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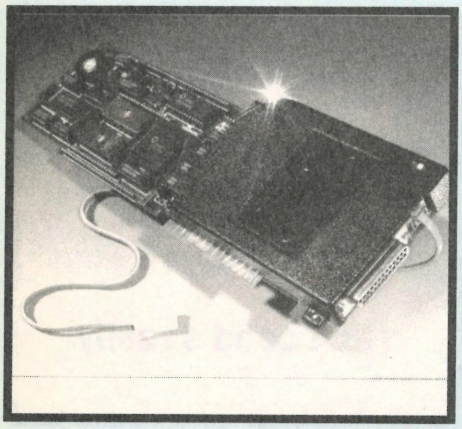
ULTIMA RETAIL

118 EAST STREET
SOUTHAMPTON
SO1 1HD

TEL : 0705 639419

ULTIMA RETAIL

UNIT 28
WHITE LION WALK
GUILDFORD
SURREY



THE CARTRIDGE FAMILY

151 HIGH STREET
TEWKSBURY
GLOS GL20 5JP

TEL : 0684 290097

ANTI VIRAL

It's a sad state of affairs that Anti-Viral software is needed at all, but unfortunately there are still lots of people out there in computerland who haven't grown up and think it's funny to wreck other people's work and enjoyment of their machine. Naturally the same people don't think it's very funny when it happens to them. If you are one of these people then may we express complete contempt for your activities on behalf of the computing community. If you're one of the remaining 99.9% of decent, honest computer users, here are a few useful pieces of software to protect you from the aforementioned nerds.

Product	Price	Supplier
Dr Solomon's Anti-Virus Toolkit	£69.33	S&S International
Comments: £99 for 4 quarterly upgrades; £275 for upgrades, monthly newsletter and fax alerts. Complete kit of tools for identification, removal of and immunisation against the dreaded virus, with other disk goodies too.		
The Computer Virus Protection Handbook (Colin Haynes) ISBN 0-89588-696-0	£27.00	Sybex
Comments: Includes 5.25" disk: The what, how and why of viruses including simulated ones on disk for quick recognition. Also covers disaster plans and industrial sabotage.		
The Computer Virus Handbook (Richard B. Levin) ISBN 0-07-881647-5	£22.95	Osborne McGraw-Hill
Comments: Lots of advice and short programs to avoid virus attacks. Covers hard disks too.		
PC Immunise II	£39.95	SA Software
Comments: Protects hard and floppy disks and files with three levels of detection and help screens.		

MISCELLANEOUS UTILITIES AND PRODUCTIVITY SOFTWARE

Can't find what you're looking for in our other software sections? Then you'll probably find it here. Below we present a pot pourii of the very best of the rest.

Product	Price	Supplier	Comment
Autoroute Express	£61.10	NextBase	First rate route planning software
Coursemaster	£29.38	IntraSet	Betting aid for flat & hunt racing
Eight In One Gold	£115.15	Logman Logotron	Integrated WP, spellchecker, outliner, spreadsheet, database etc.
Flexibak Plus	£35.25	Nildram	Hard disk back-up utility
Framework IV	£458.25	Ashton-Tate	One of the better integrated systems
LogoLink	£34.08	Locomotive	Transfer files PCW-PC
Microtext Adaptor	£198.58	Microtext	Half card adding teletext to your PC
Mini Office Personal	£29.38	Europress	Database, WP, spreadsheet, label printer and comms.
Money Manager	£58.75	Connect Software	Household Finance
PC2 Teletext	£176.25	Microboss	External teletext adaptor and software
Printing Press	£45.83	Power Up	Make letterheads, posters etc
ProBook	£52.88	BBHW	Database and address book
Scoredraw	£72.00	RDN	Comparative analysis system for football result prediction
Trackmaster	£20.00	Intraset	Greyhound racing tipster
Xtree Easy	£58.75	Softsel	DOS File manager

PC ancillary

PORTABLES

Whether for games or more serious use, a portable enables you to take your programs with you. Most are best used when you are able to plug into the mains on-site: battery power normally lasts between 1.5 to 3 hours. Portables are now becoming genuinely slim and light enough to carry around in comfort.

Company/Model Screen	Price (ex. VAT) Slots	Speed Weight	Disk Size Size (mm)	RAM
Amstrad ACL-386SX	£3,999	20 Mhz	120 Mb	4 Mb
VGA LCD	Yes	8.0 Kg	320x400x113	
Compaq SLT 386S/20	£4,195	20 Mhz	60 Mb	2 Mb
VGA LCD	Yes	6.4 Kg	106x343x216	
Dell System 320LT	£1,999	20 Mhz	20 Mb	1 Mb
VGA LCD	Optional	6.8 Kg	318x89x360	
Epson AX 3/33	£5,999	33 Mhz	80 Mb	4 Mb

VGA LCD	Optional	7.8 Kg	360x325x110	
NEC Prospeed 286	£3,145	16 Mb	40 Mb	1 Mb
VGA LCD	No	6.8 Kg	330x376x89	
Olivetti A12	£1,199	12 Mhz	20 Mb	1 Mb
CGA LCD	No	2.95 Kg	297x210x52	
Panasonic CF-270	£2,195	16 Mhz	20 Mb	1 Mb
VGA LCD	No	3.1 Kg	310x245x44	
Philips PCL101	£799	10 Mhz	No	1 Mb
CGA LCD	No	1.6 Kg	220x280x28	
Samsung 386S/16	£2,220	16 Mhz	60 Mb	1 Mb
VGA LCD	No	3.2 Kg	297x213x51	
Sanyo MBC-17NB	£1,495	12.5 Mhz	20 Mb	1 Mb
VGA LCD	No	3.2 Kg	310x255x52	
Sharp PC-8501	£7,995	20 Mhz	100 Mb	2 Mb
VGA LCD	No	6.9 Kg	318x399x94	
Tandy 1500HD	£1,300	10 Mhz	20 Mb	1 Mb
CGA LCD	No	2.7 Kg	309x245x94	
Toshiba T3100SX	£3,850	16 Mhz	40 Mb	1 Mb
VGA Plasma	Optional	6.8 Kg	360x310x80	
Zenith Supersport SX	£2,795	16 Mhz	40 Mb	1 Mb
VGA LCD	No	7.7 Kg	380x310x85	

MAINTENANCE AND REPAIR

A variant of Parkinson's Law states that your computer probably won't go wrong while you still have that 12 month, on-site warranty intact. Once it expires, that's when the machine will start playing up. Below we list some of the companies which will provide you with a service contract and then come to your rescue.

Company	Price	Duration	Call Out
ACL Computers Data Recovery Service	Cost varies	na	na
AEM	10-12% value	5 years	24-48 hours
FMG	Up to £470 PA	5 years	Next day
Kalamazoo	9-12% of value	5 years	8 hours
Newbury Data	6-12% of value	Flexible	8 hours
Response	8-11% of value	Flexible	8 hours

HEALTHY SNACKS FOR GAMERS

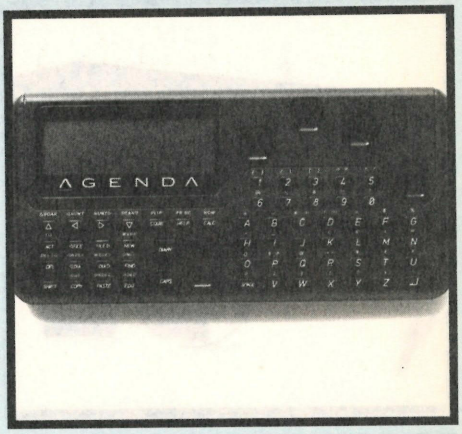
1. Family sized packets of crisps.
2. Pickled onions.
3. Chips.
4. Eggs and bacon.

PC directory

Below you'll find contact numbers and addresses for all the suppliers we've mentioned in the sections covering hardware and serious software.

ABS Computer Supplies 071 224 8320
4 Shouldham Street, London, W1H 5FG.
ACL Computers 081 341 3329
395 Archway Road, Highgate, London, N6 4ER
Acolyte Services 041 848 0055/0066
Victoria Buildings Business Centre, Violet Street, Paisley, PA1 1PA.
AEG 0753 630111
Agenda 081 681 7777
AKORE Shareware 0800 252221
Freepost, Akore, Nottingham, NG1 1BR
American Research Corporation 081 684 4144
Amstrad (Centresoft) 021 625 3302
Arche Technology 0602 862700
Arnor 0733 68909
Brother 061 330 6531

DEALER DIRECTORY

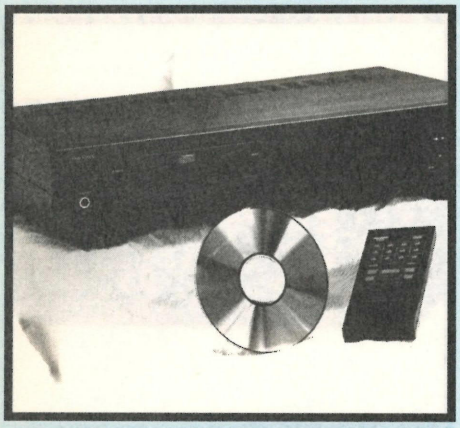


PV COMPUTERS
104 ABBEY STREET
ACCRINGTON
LANCS
TEL : 0254 35345

CHIPS GAMES CENTRE
CLARK YARD
DARLINGTON
CO DURHAM
TEL : 0325 381048

CHIPS
7Dundas Street
Redcar
TS10 3AD
Tel : 0642 488522

DEALER DIRECTORY



Pudsey Computers Shop

161 Richardshaw Lane
Pudsey Leeds
LS28 6AA

Tel: 0532 36065

INVICTA SOFTWARE

49 QUEENSROAD
HASTINGS
SUSSEX
TN34 1RE

Data Day

51A Farringdon Road
Swindon
Wilts
SW1 5AR

Cambridge Computer	0223 312216
Canon	081 773 3173
Citizen Europe	0895 272621
Compaq	081 332 3000
Composit Software	0952 595436
10 Leasowe Green, Lightmoor, Telford, Shropshire, TF4 3BR	
Compuadd	0272 637488
Computer Bookshops	021-706 1250
Computer Mates	0753 631101
Pinewood Studios, Iver Heath, Bucks, SL0 0NH.	
Computer Music Systems Ltd	071 482 5224
5-7 Buck Street, London, NW1 8NJ	
Computers By Post	081 760 0014
12 Sutton Lane, Banstead, Surrey, SM7 3QP.	
Connect Software Ltd	081 743 9792
3 Flanchford Road, London, W12 9ND	
Corel	
PO Box 160, Southall, Middx, UB2 5BR	
Corporate Upgrades Ltd	081-893 8161
Cybernetic Imagination Systems Ltd	0923 52196
21A Church Road, Watford, Herts, WD1 3PY	
Dataflex	081 543 6417
Premier House, Gayton Road, Harrow, Middx, HA1 2XU	
Dataplex	0753 535557
129 Bath Road, Slough, Berks, SL1 3VW.	
Datel Electronics Ltd	0782 744324
Govan Road, Fenton Industrial Estate, Fenton, Stoke-on-Trent, ST4 2RS	
Dell	0800 414535
Diamond Computers	071 580 4355
232 Tottenham Court Road, London, W1.	
Digital Music	0703 25213127
Leven Close, Chandlers Ford, Hants, SO5 3SH	
Dimension Computers Ltd	0533 517479/621874
Dimension House, High Street, Leicester, LE1 4FP.	
Dowty	0635 33009
DS Computers	071-281 5096
Unit 206, Belgravia Workshops, 157 Marlborough Road, London, N19 4NF.	
Elonex	081 452 4444
Epson	0442 61144
Evesham Micros	0386 765500
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PC games

FLIGHT SIMULATIONS

Ever since Microsoft released its first Flight Simulator way back in the 1980s they've been firm favourites with PC owners. Nowadays they're so realistic you need a parachute!

Chuck Yeager's Air Combat — Electronic Arts — £34.99
12MHz, Hard Drive
Latest, and probably the best, flight sim from programmer Brent Iverson at Electronic Arts. Light on ground targets and heavy on dogfighting and super-smooth graphics.

Elite Plus — Firebird/Microprose — £39.99
VGA
This space simulation has, frankly, never been bettered. No wonder Microprose preferred to upgrade the presentation (thus the plus) instead of completely reworking the game. Author David Braben is currently working on a sequel.

F-15 Strike Eagle II — Microprose — £35.75
12MHz, Hard Drive, VGA
Top quality sequel to one of most famous flight simulations ever released. Microprose recently brought out an accurate Desert Storm add-on scenario disk for gung-ho pilots.

F-117A Stealth Fighter — Microprose — £39.99
16MHz, Hard Drive, VGA
Can you handle the high-tech systems of this Bat-like plane? By the very nature of the radar-evading stealth fighter, don't expect much in the way of aerial dogfighting.

F-29 Retaliator — Ocean — £34.99
Hard Drive, EGA
All action cross between an arcade game and a flight sim which incorporates an exhilarating head-to-head mode for two players via modem link-up.

Flight Simulator 4 — Microsoft — £29.95
12MHz
Latest version of the one that started it all. Accurate and tough to fly simulation that has been used to train real-life Cessna 182 pilots in the past.

Gunship 2000 — Microprose — £39.99
16MHz, Hard Drive, VGA, AdLib, Roland
Feature-packed update of the best-selling helicopter game. Typical Microprose aircraft simulation: plenty of options, excellent graphics and a fair sprinkling of strategy.

Jet Fighter 2 — Velocity/US Gold — £39.99
16MHz, Hard Drive, VGA, AdLib
Laughable drug-busting scenario but, more importantly, extremely playable piece of entertainment set in the near-future. The built-in interactive hypertext help system is a neat idea.

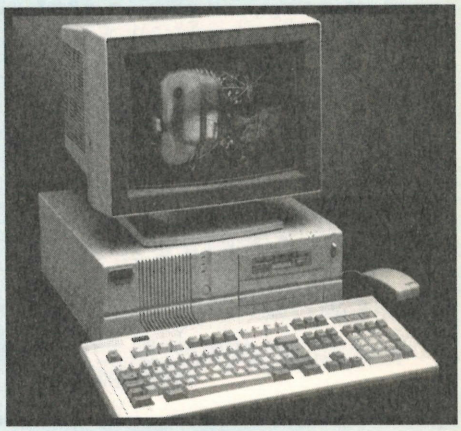
LHX Attack Chopper — Electronic Arts — £39.99
Hard Drive
Good choice for novice and expert desktop pilots alike. Brent Iverson, creator of all the top Electronic Arts flight simulations, certainly knows how to put a great game together.

MiG-29M Super Fulcrum — Domark — £40.85
Minimum hardware requirments
A solid game, easy to get into and good fun, but it fails to come close to the standards set by American software houses.

Red Baron — Dynamix/Sierra On-Line — £39.99
16MHz, Hard Drive, VGA
A refreshing opportunity to tackle the hardships of biplane dogfighting during World War One. Sorry, there are no air-to-air missiles to help you out! Highly recommended.

Secret Weapons of the Luftwaffe — Lucasfilm Games/US Gold — £40.99
16MHz, Hard Drive, Expanded Memory, VGA, Joystick, AdLib, Soundblaster
Worth every penny just for the superb manual. Players have the choice of flying experimental German jet fighters or heavy-weight American bombers during the later part of WWII.

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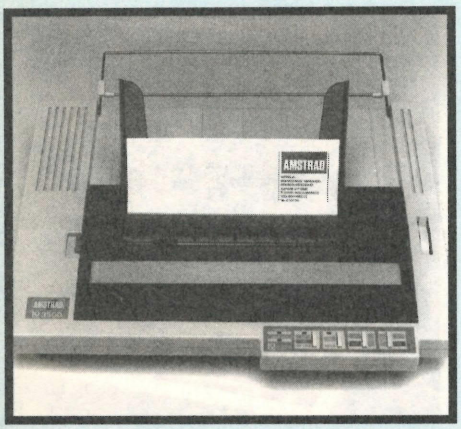
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Starglider II Rainbird/Mirror Image £9.99
EGA, Mouse
Similar game play to the old Star Wars arcade machine from Atari but with far superior solid-3D graphics. Fine value.

Their Finest Hour: Battle of Britain Lucasfilm Games/US Gold £39.99
16MHz, Hard Drive, Joystick
Relive the trials and turmoil of the bleak summer of 1940. Atmospheric simulation of the crucial air war between the RAF and Luftwaffe.

Wing Commander 2 Origin/Mindscape £39.99
16MHz, Hard Drive (uses 21 megabytes), DOS 5.0, Expanded Memory, VGA, Joystick, Soundblaster
Landmark PC game which comes closer to an 'interactive movie' than anything before. If you've got a powerful system, you simply must buy this game!

OTHER SIMULATIONS

If the PC is capable of simulating sophisticated aircraft then its certainly capable of simulating lots of other things as well. Here you'll find everything from tanks to futuristic robots.

Battletech II Activision £35.99
12MHz, Hard Drive, VGA
FASA Corporation's monstrous battle robots make another appearance on the PC. Hardly a moments rest as you tackle the role of an interplanetary mercenary.

Carrier Command Rainbird/Microprose £25.53
Control a complete fleet of military planes, boats and vehicles and go island hopping before the enemy takes over. Looks a little dated but still has plenty to offer.

Designasaurus II Britannica Software/Active Sales £24.99
EGA
Amusing and 'educational' Do-It-Yourself dinosaur construction kit. How long will your creation survive in the wild? Full of fun and facts.

Life and Death II Software Toolworks £30.99
12MHz, Hard Drive, VGA, Mouse
How about this for off-beat? Try your hand as a brain surgeon. Examine the patient, make your diagnosis, get 'em on the slab and reach for the scalpel and drill. Brilliant stuff.

M1 Tank Platoon Microprose £40.86
12MHz, EGA, Hard Drive
Almost everything one could ever demand from a tank game. Perhaps too accurate a simulation for arcade fans, though.

Patton Strikes Back Broderbund
Hard disk, VGA
World War Two battle recreated with great style and great graphics.

Team Yankee Empire £35.75
12MHz
Inspired by the eponymous novel by Harold Coyle. Take control of a company of Nato tanks as the powerful Soviet Union war machine strolls into West Germany. Thematically very much out of date now, but look out for *Team Yankee II*

ARCADE GAMES

Although the PC is a good machine for those who like their games on the cerebral side, it has plenty to offer to those seeking action too. Here is a very small selection of the huge list of games currently available.

Conan the Cimmerian Virgin Games
Joystick
Hack and slash exploration with a modicum of strategy.

Golden Axe Virgin Games £29.99
12MHz, Joystick
One of the few conversions that does justice to the original arcade video game. Conan the Barbarian has nothing on the antics of Death Adder and his axe-wielding chums.

Interphase Imageworks £30.64
Surreal shoot' em-up for cyberpunks who like to think before they fire. Look for the frogs.

It Came from the Desert Cinemaware £35.75
EGA
Tribute to the black & white B-movie *Them!* about giant mutant ants invading Los Angeles

Prince of Persia Broderbund/Domark £30.64
Joystick
Sword-play in the Sultan's court. Main character is superbly animated as he runs, leaps and fights his way out of danger. Errol Flynn would be proud.

Rick Dangerous 2 Microprose £25.53
Joystick
The British answer to Indiana Jones. Jump on platforms, dodge alien traps and solve the puzzles. If only it was that easy...

Terminator 2 Ocean/Acclaim £29.99
Joystick
Unimaginative and limited arcade games strung together and branded with the magic name of the massively successful movie.

Virus Firebird/Microprose £24.99
12MHz, Mouse
Cruise over a full 3D landscape and blow everything to bits. A little tricky to control but well worth the effort. Technically superb shoot 'em up from the hand of David Braben.

Xenon 2 Imageworks £9.99
16MHz, Joystick
A fast blaster from the now legendary Bitmap Brothers that looks good and really tests your reflexes. Excellent value for money, too.

Home Alone Accolade £29.99
Keyboard and joystick control, VGA,EGA
Based on the top-grossing comedy movie of all-time, in which heo Kevin must set trap and lead burglars into them. Easy control but not a brilliant game.

PUZZLE GAMES

Say the term 'Puzzle Games' nowadays and most people instantly think of Tetris, but you may be surprised to find out how many others there are, and all just as compulsive. Try these out for starters

Lemmings Psygnosis £34.99
Mouse
Original and addictive, the surprise hit of 1991. Organise the pathetic little death-wish creatures through increasingly difficult levels of brain-teasing traps.

Klax Domark £7.99
EGA
Cheap, cheerful and colourful variation on the Tetris falling blocks theme. Instant decision making keeps the tension high.

Pipemania Lucasfilm Games/Empire £25.53
Another infuriatingly addictive offering. Players attempt to construct pipelines before some disgusting ooze drips onto the screen. Can you handle the pressure?

Tetris Infogrames £24.99
Who would have believed a Russian programmer could program one of the most famous video games since Space Invaders! Tetris spawned a whole batch of arcade puzzlers, many of them by the original author!. (Well, we had to have it in, didn't we!)

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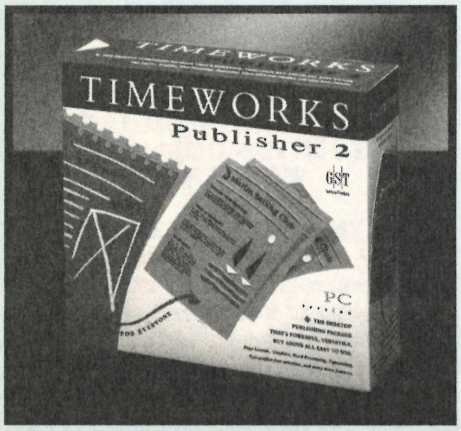
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BOARD GAMES

Why bother to use a computer to play a board game? Well, for one thing there are no pieces to lose, and for another, it's so much more difficult to cheat!

Battlechess — Interplay/Electronic Arts — £24.99
Hard Drive, VGA, Mouse
This is no ordinary adaption of chess. Watch the Rook transform into a rock monster and crush a cowering pawn or the Queen zap a knight. Unbeaten animation and a great sense of humour.

Cluedo, Scrabble, Risk, Diplomacy — Leisure Genius — £24.99
These four successful board-games cost £24.99 each, a lot more than the original board versions!

Laptop Chess — Software Toolworks — £25.99
One of the few games suitable for PC players on the move. Take a welcome break from that spreadsheet number-crunching.

Shanghai II — Activision — £35.99
Ancient Chinese game of Mah Jong will keep you glued to the PC for hours on end.

Trivial Pursuit — Domark — £24.99
The game that launched thousands of trivia bores comes to your micro. How many games were released for the PC in 1989? Answers on a postcard to...

SPORTS GAMES

Mike Ditka's Ultimate Football — Accolade — £34.99
Hard drive, 10MHz, joystick
Ace action, good graphics , this American football simulation combines all the match action plus management and league options. But who is Mike Ditka?

The Games - Winter Challenge — Accolade — £34.99
Joystick, keyboard, mouse
Sports covered includes downhill ski-ing, cross-country, luge, speed skating and ski-jump. A joystick is recommended for maximum success and control.

4D Sports Boxing — Mindscape — £30.99
Hard Drive
Not really a journey into the fourth dimension, just a damn fine game of fisticuffs. Make sure you train your boxer in the gym before the big one.

4D Sports Driving — Mindscape — £30.99
12MHz, Hard Drive, VGA
A better *Hard Drivin'* game than the official conversion. Fill the racetrack with all sorts of high-bends and loop-the-loops in the built-in construction set, then burn rubber.

4D Sports Tennis — Mindscape — £30.99
Hard Drive
This playable piece of simulation software completes the 4D Sports series developed by Canadian coders DSI for Mindscape. Use the impressive replay options to relive your best moves.

Budokan — Electronic Arts — £10.99
Hard Drive, EGA
Slightly more high-brow martial arts mayhem than the Bruce Lee competition from Software Toolworks. The definitive PC beat 'em-up has yet to appear. Still, you can't beat the price.

Earl Weaver's Baseball — Electronic Arts — £29.99
EGA graphics and above
Probably the most realistic representation of baseball available in Europe at the moment.

Indianapolis 500 — Electronic Arts — £24.99
12MHz, Hard Drive
Incredibly realistic 3D polygon-based graphics help to recreate the excitement of the real high-powered race.

PGA Tour Golf — Electronic Arts — £29.99
Mouse
Easily the best golf game available.

Mario Andretti's Racing Challenge Electronic Arts £29.99
12MHz, Hard Drive, EGA
Successor to EA's Indianapolis 500 which follows the career of this famous driver. Jump behind the steering wheel of just about every style of racing car around.

Speedball 2 Imageworks £35.99
16MHz, VGA, Joystick
Remember the cult 1970s movie *Rollerball* starring James Caan? *Speedball 2* is an equally violent and compelling futuristic sport. The original Speedball is now available for £9.99 from Mirror Image.

TV Sports Boxing Mirror Image £35.99
VGA
Excellent rendition of the noble art. Good quality graphics and ability to create and train your fighter.

TV Sports Football Mirror Image £9.99
EGA
Possibly the most popular title in the Mirror Image budget line so far. Takes a more arcadey tone than the strategy-heavy John Madden's American Football from Electronic Arts.

ROLE PLAYING GAMES

The nice thing about computer RPGs is that you get the machine to do all those horribly boring things like calculate the results of combat and how long torches burn for, and who's got what spells, that make traditional table-top RPGs such a chore. To top it all you get some pretty graphics too.

Bloodwych Mirror Image £9.99
Hard or floppy disk
Classic 3D RPG now released at a budget price. Highly recommended.

Corporation Core Design £34.99
Hard Drive, EGA
Premier release from Derby-based developer turned publisher Core Design shows veteran developers a thing or two. Players try to steal laboratory secrets from a sinister corporation. Beware of the peculiar security guards.

Eye of the Beholder SSI/US Gold £29.99
12MHz, Hard Drive
One of the best-selling games of 1991. You may just get a felling of deja vu if you've ever played *Dungeon Master* from FTL/Mirrorsoft. Superior graphics to the average SSI release.

Megatraveller 1 Paragon/Empire £34.99
Hard Drive
Based on the popular sci-fi gaming system from the Game Designer's Workshop. Enormous amount of depth but don't expect any fancy graphics and beware the idiosyncratic combat system.

Martian Dreams Origin/Mindscape £36.99
16MHz, Hard Drive, Expanded Memory, VGA, AdLib, Roland
Inventive mix of fact and fiction, as famous Victorian personalities like HG Wells and Rasputin go to Mars. All-round winner with pretty 'steampunk' visuals.

Might and Magic III New World Computing/US Gold 0£40.99
12MHz, Hard Drive, VGA, Soundblaster
After the success of *Ultima VI* and *Eye of the Beholder*, everybody is improving the audio visual presentation of their role-playing games. Hurrah!

Savage Empire Origin/Mindscape £35.99
12MHz, Hard Drive, Expanded Memory, VGA, AdLib, Roland
The first 'Worlds of Ultima' game to use the *Ultima VI* game engine. Reminiscent of classic pulp fiction, with a lost land occupied by dinosaurs and other malevolent forces.

Ultima VI Origin/Mindscape £35.99
12MHz, Hard Drive, AdLib, Roland
Latest in the highly-regarded series of fantasy role-playing adventures. Every Ultima is a new experience not to be missed.

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GRAPHIC ADVENTURES

While there are those who lament the demise of the traditional *Colossal Caves* style text adventure, the new breed of all-singing all-dancing graphic adventures have won new converts to the genre.

Floor 13 — Virgin/PSI — £34.99
8MHz ,3.5", 5.25", Roland, AdLib
Skull-duggery in government as politicians revert to dirty and illegal tricks to stay in power, abduction, torture and murder not excluded.

Future Wars — Delphine/US Gold — £25.99
EGA
This was the premier Cinematique game from French software house, Delphine Software. Impressive game engine coupled with ingenious puzzles to solve.

Leisure Suit Larry V — Sierra On-Line — £44.99
12MHz, Hard Drive, VGA, Mouse, AdLib, Roland
That infamous pervie is back in an all-new adventure. This is the first release to use the refined game system from Sierra On-Line. Unsuitable for younger players or those of a stern moral character.

Heart of China — Dynamix/Sierra On-Line — £39.99
12MHz, Hard Drive, VGA, Mouse, AdLib, Roland
From the team that brought us *Rise of the Dragon*. The graphics are stunning, they truly have to be seen to be believed.

King's Quest V — Sierra On-Line — £44.99
12MHz, Hard Drive, VGA, Mouse, AdLib, Roland
Prime example of the new breed of ground-breaking games from Sierra On-Line. Fantastic visuals, superior music score and lots to explore.

Rise of the Dragon — Dynamix/Sierra On-Line — £39.99
16MHz, Hard Drive, VGA, Mouse, AdLib, Roland
Another startling example of an 'interactive movie'. Players get the chance to play detective against a cyberpunk setting straight out of the film *Blade Runner*.

Secret of Monkey Island — Lucasfilm Games/US Gold — £29.99
12MHz, Hard Drive, VGA, AdLib, Roland
Lucasfilm Games recently updated this entertaining swashbuckling yarn with beautiful 256-colour backdrops. Employs innovative point 'n' click interface and movie-like presentation.

Secret of Monkey Islamd 2 — Lucusfilm Games/US Gold — £39.99
Hard drive, Adlib, Roland
Le Chuck returns to get his piratical revenge in one of the most highly-praised 'movie' adventures so far. Your machine must be running at least 16MHz to see it at its best.

Conquests of the Longbow — Sierra On-line — £39.99
VGA, joystick, mouse
Super slick Sierra romp in the greenwood of Sherwood Forest as Robin Hood must raise a ransom to free King Richard.

Cadaver — ImageWorks — £35.99
VGA, joystick and keyboard
Acclaimed 3D adventure from the Bitmap Brothers in which the hero must find the secret of the domain of Lord Carolus. Atmospheric and solid-looking graphics.

TEXT ADVENTURES

Whoever said the text adventure was dead? Well, Okay, it may have disappeared in its original form, and the offerings here may have all sorts of souped-up static graphics and sophisticated parsers, but they're essentially text adventures nonetheless.

The Magnetic Scrolls Collection — Magnetic Scrolls/Virgin Games — £34.99
Value for money compilation of some of the best text adventures ever devised. Pack includes *Fish!*, *Corruption* and *Guild Of Thieves*.

Hitchhiker's Guide to the Galaxy — Infocom/Virgin Mastertronic — £9.99
Based on the popular Douglas Adams novel, radio series and T-shirts. A computing enthusiast himself, Douglas helped in the design of the game.

Leather Goddesses of Phobos Infocom/Virgin Mastertronic £9.99
Strange, whip-tickling sci-fi adventure. Originally sold with a disgusting scratch 'n' sniff card.

Wonderland Magnetic Scrolls/Virgin Games £34.99
Interactive adaption of the classic Lewis Carrol book. Incorporates many innovative features and shows there is still life in the text-based adventure.

Zork I, II & III Infocom/Virgin Mastertronic £9.99
Classic text adventuring trilogy from the microcomputer pioneers of the genre.

STRATEGY GAMES

If you think that computer strategy games are boring then it's probably true that either (a) you've never played one, or (b) you haven't played one in the last half a decade. (My slightly reserved apologies to those of you who genuinely can't stand anything but shoot 'em ups). If that is the case, try some of these – you'll be pleasantly surprised.

Balance of Power 1990 Mindscape £25.99
The power of economic politics and strategic diplomacy are evident in what is perhaps the best example of a Chris Crawford game.

Centurion: Defender of Rome Electronic Arts £24.99
Hard Drive, EGA
Meet Cleopatra, enter a chariot race, fight a sea battle or conquer foreign lands. Bet you never knew life in Ancient Rome could be so much fun!

Civilization Microprose
Hard disk
Entertaining, atmospheric and absorbing strategy with much appeal for arcade fans as well.

Railroad Tycoon Microprose £35.75
Hard Drive
Build yourself a railroad empire during the golden years of locomotion in the USA or Europe. This off-beat computerised train-set deservedly attracted loads of accolades.

Sentinel Firebird/Microprose £24.99
Mouse
Classic game that defies description. Simple, surreal and completely captivating.

Silent Service II Microprose £39.99
Hard Drive
Absorbing Second World War submarine simulation from the designer of *Gunship*, *F-19* and *M1 Tank Platoon*. Historically and technically accurate but still fun to play.

Supremacy Virgin Games £34.99
First-rate introduction into the complex world of strategy gaming as you create a star-spanning empire in the face of hostile opposition.

Tracon II Wesson International/Mindscape £45.99
EGA
Another unusual release from Mindscape. This time you're in the role of an air-traffic controller. Bit expensive but worth a look.

Universal Military Simulator 2 Microprose £40.87
Hard Drive, EGA
No dedicated strategist should be without this one. Flexible program where the wargamer can alter just about every battlefield factor. Up to 50 players can take part in a single game.

Battle Isle Ubi Soft £29.99
Hard drisk, VGA
Action ranges over 32 islands. You must conquer islands by eliminating enemy forces, either against the computer or another human player.

GOD SIMS

Everyone likes to exercise their ego once in a while and your computer is the perfect object to carry out your plans for world domination. These programs represent the closest you'll get to being God without becoming a magazine publisher.

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Powermonger Electronic Arts £29.99
12MHz, Adlib, Roland
This real-time wargame from Bullfrog, creators of Populous. employs amazing graphics and employs a 3D display system with a hefty number of control icons.

Castles Interplay/Electronic Arts £34.99
12MHz, Hard Drive, EGA
Another hybrid, influenced by SimCity and more traditional role-playing games, has you fending off medieval hordes by constructing castles, raising a few armies and keeping the local peasants happy.

Moonbase Wesson International/Mindscape £45.99
EGA
Sort of SimCity in space but not quite in the same league as the influential Maxis game.

Populous Electronic Arts £10.99
EGA, Mouse
Very original game placing you in the role of a digital deity with almost total control over your little people. An essential purchase at this price. If you like it look out for *Populous II.*

THE SHORT STRAW

If you've been having a little trouble getting someone to sell you blank disks recently, then don't worry. It's not that the existing disk formats have become obsolete overnight. While the citizens of Eastern Europe have been suffering from chronic shortages of basic foods, we in the UK are currently plagued by a disk shortage. It seems that the popularity of disks has been so high of late that supply has not been able to keep up with demand!

SimCity Maxis/Infogrames £30.64
EGA, Mouse
Best-selling urban management game. Will you build your city with rock 'n' roll? Now sold with *Populous* as the ultimate megalomaniac compilation.

SimEarth Maxis/Ocean £39.99
12MHz, Hard Drive, EGA, Mouse
Not so much a game as a science project. Based on the Gaia Hypothesis developed by James Lovelock, it lets you take control of our planet and guide its evolution or even form more hostile worlds

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Here are all those essential contact numbers for the publishers of the games software we've mentioned in the previous pages.

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HANDY HINTS

If you are always running out of memory when you are trying to load games here's a quick solution. Format a blank disk as a System disk and use this to start up your PC before you try to load a memory hungry game. This should do the trick, but you will have to remember to install any mouse driver that was previously installed automatically by your AUTOEXEC.BAT file.

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While we aim to make the buyer's guide as comprehensive as possible we need your help to keep our readers informed of all your special offers and promotional deals. If you have any forthcoming promotions or special offers which would be of interest to PC owners, let us know and we'll tell our readers.

ATTENTION: READERS

We hope that you've found the buyer's guide useful and entertaining, but we also want to keep improving it to meet your needs. Tell us what you like or dislike, what sections you'd like to see added or changed, and we'll do our best to accommodate the most popular suggestions. Please write to us at:

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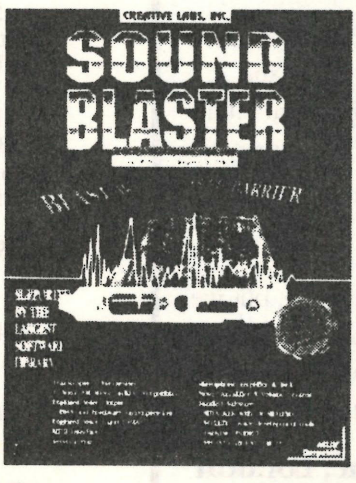
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Introducing PC review shareware

Although shareware has been in existence for several years, many PC users are unclear as to exactly what it is.

There is such a wide choice of software these days that it can be very difficult and costly to choose the right program for an application. The only realistic way to know whether a program is suitable is to try it out first. With shareware you can do just that.

The basic principle is that users can obtain shareware programs for just a few pounds from an authorised shareware vendor. If they find them useful, they are asked to make a payment, directly to the author and register themselves as a user. By registering, they can expect printed manuals, updates and technical support from the author.

The amount and level of support required and documentation depends upon the complexity of the program.

The registered version of a game, may , for example, be just £5 but a full Business Finance package could be £125 or so.

However in most cases, the registered version is likely to be considerably cheaper than the equivalent commercial program.

Of course, if a program is not found suitable, the user just re-formats the disk and uses it for something else.

Shareware software is NOT public domain. It is copyright software in the same way as any regular commercial program is – it's the method of promotion and distribution that differs.

Public domain software is where the author has relinquished his or her copyright permitting others to distribute the software. There is no request for payment from the author.

ABOUT THIS REVIEW SECTION

The purpose of this section of PC Review is to offer concise but informative reviews of what we believe to be the best programs in each respective category.

We offer a points out of ten score based on three criteria:-

1. How well does it perform the task?
2. How easy is it to use, particularly in terms of getting started?
3. Understandable documentation and help files.

Each review identifies the name of the program, author and the registration fee, where known.

In popular fields there are often many different programs available to cover a particular function. In these cases the standards are very high and consequently the rating is higher. There would be no point in offering you a sub-standard program in a well-served category.

However, in more specialised fields, there will be relatively few programs available so there may be cases when a lower rating will have to be tolerated as there is no better alternative.

Shareware programs may be obtained from a variety of sources. However, for your convenience, we have arranged that all programs featured in this review may be obtained from one source – Advantage which is a well-established, authorised shareware mail order company, based in Cheltenham.

PC Review readers can order their disks directly from Advantage either by phone, fax or post and can expect fast delivery.Advantage will also provide getting started support and advice.

As a special offer to PC Review readers, Advantage is offering a 25% discount on its regular price of £3 a disk – quote PC Review when calling or use the special priority order form at the end of this section and get your disks for just £2.25 each (both 5.25" and 3.5") including VAT.

WHICH COMPUTER?

There are so many varieties of computer and operating system (DOS) around today we cannot guarantee that all programs will work on all computers. However most programs run on a 512K RAM PC compatible running MS-DOS version 2.0 or above. A single floppy drive is usually acceptable but a dual drive or hard disk is more beneficial not just for these programs but for most of your other work as well.

A code is placed by each program if the minimum requirement is more than a basic PC compatible with a Hercules mono monitor:

CGA: Colour Graphics Adapter required with Colour Monitor.
EGA: Enhanced Graphics Adapter required with high resolution monitor.
VGA: Video Graphics Array required with high resolution monitor.
HD: Hard Disk Drive required.

Mono and CGA programs will run on an EGA or VGA monitor. Also, many CGA programs will run on a mono monitor if you load a CGA emulator program (also available as shareware).

Programs are written by a USA author unless otherwise stated.

Programs which make use of a printer expect to find an IBM or Epson-compatible. Most modern printers are.

If you have any questions about shareware or wish to discuss your requirements please call Advantage (not PC Review) on (0242) 224340.

SHAREWARE REVIEWS

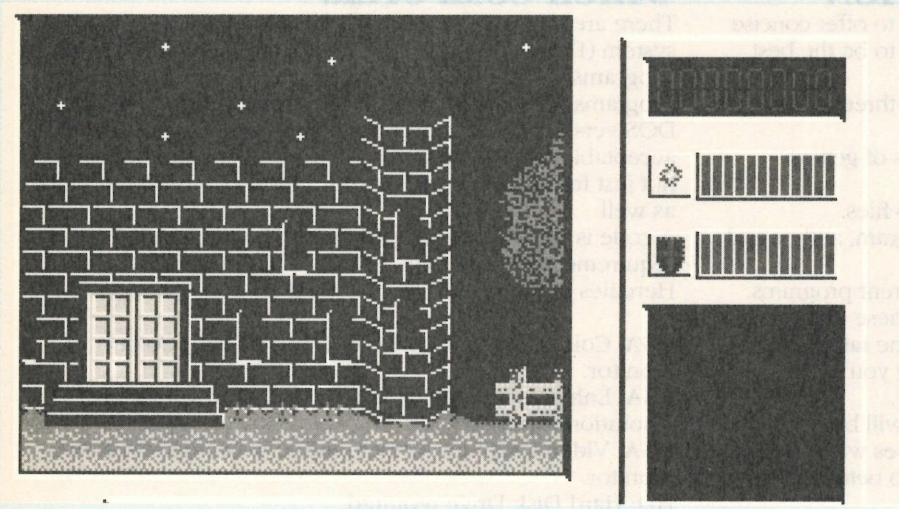
Personal Organisers

Desk Commando (one disk)
Authors: S Stump
Registration: $50
Performance: 8/10
Ease of Use: 8/10

Desk Commando is a memory resident utility that replaces several utilities. Some of its features include: User definable program menuing; A virtual memory text editor; A PC-Sweep style DOS shell with graphic tree support for all hard disks on the computer system; Three calculators: (1) a scientific RPN calculator with HP-12business, statistical, and computer science functions. (2) a formula calculator, (3) a tape calculator; Calendar/appointment book; User settable alarms (up to 15)

It also has an unlimited Rolodex with four indexes (name, city, state, zipcode). Rolodex can print address labels and handle bulk mailouts.; An autodialer (that can also be used from Rolodex) which works with Hayes compatible modems.; Screen blank.

Desk Commando makes an excellent permanent feature on anyone's PC. It can be arranged to spring into life every time the PC is switched on and provides a far more friendly front-end than the uninformative C:> prompt.



Calendar Mate (one disk)
Author: Hawk Software
Registration: $22.
Performance: 8/10
Ease of Use: 7/10

Calendar Mate is designed to create personalised calendars. The user defines events to the program and it will display them on the calendars when printed. There are three types of calendars that can be printed – a monthly block calendar, a one page yearly calendar and a daily appointment calendar/scheduler. The monthly calendar can display up to three events per day.

In addition to the attractive printed calendars, Calendar Mate's can handle different types of repeating events - simple intervals such as 'yearly' or 'weekly' or 'third Monday of the month' or 'Wed-Fri' for example. It can even delete or reschedule single occurrences of a repeating event.

Defining events to the system is a simple task. Much effort has been invested in making the program intuitive and user friendly. There is context sensitive help available anywhere in the program.

As well as the simplicity and ease of use built into the program there are several powerful features including automatic computation of Easter and lunar cycles, mouse support, optional Julian dates, automatic event repetition. calendars can be printed in English, French, German or Spanish.

Stocks and Shares

Noyes Investment Ledger (one disk)
Author: James Noyes
Registration: £18 UK
Performance: 7/10
Ease of Use: 7/10

The author has produced an investment program which is fairly easy to use. It is assumed that you have been using manual records so far and know a little about book keeping.

Data is entered on to a main input form on the screen. Once you have mastered this part of the program, the various reports will keep a good control over your investment portfolio.

The author is an accountant who has spent many years sorting out manual and computerised accounting problems and is therefore well suited to creating a program which is appropriate to the task without confusing the user with jargon and complex setting up procedures.

The Investment Ledger features analyses of purchase and sales of investments, calculates the profit and losses and analyses cash payments and receipts.

There is also a bank reconciliation facility, memorandum database, and several reporting functions.

It can handle up to 99 cash/bank accounts, 999 nominal ledger headings and a maximum value of posting currency of £100 million which should prove more than enough for most investors!

Desk Top Publishing

Rubicon (two disks)
Author: Rubicon Computer Labs Inc
Registration: $89
Performance: 9/10
Ease of Use: 7/10

The Rubicon Publisher is a professional standard system which can be used to publish high quality documents from text files which have been previously prepared in plain ASCII format using any suitable word processor or text editor.

It is a serious desk-top publishing program, not really designed for beginners; but if you can use a word processor, you can install and use the Publisher successfully, provided that you read and follow the instructions, and pay reasonable attention to detail when preparing text files for publication.

It will enable you to produce a wide variety of documents – forms, notices, advertisements, newsletters, reports, financial statements, leaflets, brochures, book-length projects, etc. – with typesetting of professional quality.

In short, it's a very useful program: and it's also more fun than most video games, because its creative possibilities are limited only by your imagination.

Rubicon does not offer any graphic image importing or editing functions. These are best undertaken as a separate activity using, for example, Desktop Paint and incorporated into your documents by manual methods if required.

SignSmith (one disk)
Author: Brian Smith
Registration: None Required
Performance: 6/10
Ease of Use: 7/10

SignSmith is not particularly sophisticated but on the other hand it is not difficult to get it working and, if you want to just produce a simple A4 poster or a letterhead for your business then it is eminently suitable. There is plenty of on-disk documentation and technical details for those who need it.

Signsmith works on any piece of text which has been created on a Word Processor – as long as it is in regular ASCII text format(ie no

control codes). You then add text and numerical codes in your document each time you require a change of font or size of lettering.

Then you just run the SignSmith program and it will print out the final document on your dot matrix printer. It uses graphics mode as do all other DTP programs, so will take longer than ordinary text.

The program has four fonts available, font 1, 2, 3, and 4 which are progressively more fully-formed. Normally you will prefer fonts 3 or 4. Font 4 is the best, but the basic height of font 3is only half of that of font 4, so that you have more choice in the size of font 3 (and font 2). Font 1 is really of use only if you are deliberately after a chunky 'computer-like' effect.

Two configurations are catered for. Portrait format is the default, tall and narrow, the way your printer normally works.That means that x goes from 1 to 1600, and y goes from 1 to 1280.

In landscape format, the printout is rotated so that the lines of text are parallel to the left edge of the sheet, and we get a short wide sign. In this case the range of x is from 1 to 1280and y goes from 1 to 1600.

The basic font 1 is 8 dots high by 8 dots wide, font 2 is 14 dots high and 9 dots wide, font 3 is 14 dots high by 18 dots wide, and font 4 is 28 dots high by 18 dots wide. You can enlarge the letters by expanding each dot to be several dots high (rows) by several dots wide (columns).

Print Partner (one disk)
Author: Robert Bequette
Registration: $20
Performance: 9/10
Ease of Use: 9/10

Print Partner is three programs in one – each being fully menu – controlled and very easy to use. You can use Print Partner to make printed banners, signs, and calendars for any year/month.You can also save and reload any of your compositions for later use.

First is Banner which prints text of your choice on a roll of paper with letters about six inches high. You can have a graphic on either end and use any font you select. Print Partner attempts to smooth the text and graphics to make them look better.

Next is Sign which is usually the most popular function. It produces an A4 sheet containing lines of text each of which can be printed with your choice of font. Signs may have any number of two different graphics you select and may be placed anywhere on the page you wish.

Third is Calendar, which will print an A4 size desk top or wall-mounted monthly calendar with a box for each day to fill in manually as required. It can be for any month in any year from 1980 to 2098, with the month name in any font you select.

Print Partner can be configured for most printers and comes with a varied and interesting set of fonts.

For anyone who finds the complexities of full-blown desk top publishing too much for producing straightforward publications,Print Partner's very straightforward and speedy performance comes highly recommended.

Typesetter (two disks)
Author: XLent Software
Registration: $30
Performance: 8/10
Ease Of Use: 7/10

Typesetter PC is a page layout program that gives you "What You See Is What You Get" (WYSIWYG) capability in designing a single page and prints it out in the highest resolution achievable on a 9-pin dot matrix printer.

Fonts and graphics can be mixed anywhere on the page. Fonts can be italicized, inverted, made bold and more.

Typesetter is a fully featured graphics program including such tools as pencil, k-line, circle, rectangle and spline. There are many on-screen help menus that list these functions.

A CGA and Hercules version of Typesetter PC are released as shareware. These versions allow you to use proportionally spaced fonts as well as flip and inverse sections of the page.

Typesetter is able to produce output that in many cases can be substituted for pages created with an expensive Desk Top Publishing system.You can create custom sized printouts for labels, business,

index and Rolodex cards.

One of the best features is the ability to generate Near Laser Output. If this option is selected, Typesetter can produce a page with 1920 x1392 pixels. That's 2,672,640 pixels! This is the absolute limit of the Epson FX 80 and compatible printers.

So is it a DTP? Well the answer depends on what you are trying to do. For a commercial quality magazine with scanned images and wrap around text you still need a 200+ program and all the hardware to go with itbut for letterheads, posters, labels, flyers, club Newsletters or infosheets, printed on a dot-matrix, Typesetter is great.

Home Finance

Home Finance Manager

Home Finance Manager comprises five programs to help you keep track of your money plus a whole lot more. Unlike other home finance software, this one is uncomplicated, easy to learn anduse, and written so that you need learn only those portions of the software you will actually use.

Different people want to do different things in financial planning. Some want only to balance their chequebook, others wan t to track stocks, still others want to plan their family budget,and so on. But not every-one wants to do all these tasks. With the five programs in Home Management II you can do all of this -and much more. But since each program is self-contained, you need learn only what you use. We keep it simple because we know how frustrating it is to waste time learning (and paying for!) parts of a program which are useless for you.

Much financial management software tries to be all things to all people, both in the home and business. As a result it does little useful work for anyone. Here a different approach is taken. Instead of incorporating all tasks into one giant program, five different programs have been included in Home Management II. This makes the sum of all the parts more flexible, and hopefully, more suited to the individual needs of the home user.

Checkmate Plus (two disks)
Author: Custom Technologies
Registration: $15.00
Performance: 8/10
Ease of Use: 7/10

One of the most popular uses of a home computer is in the control and monitoring of domestic finances. These can range from a straightforward 12 month breakdown of incoming and out going monies through to a mini-accounts package offering detailed analyses and reports.

Checkmate Plus falls more in the latter category, however. It is sufficiently well-presented and well-documented to be used in any simpler application. You don't have to make use of the more advanced features initially or at all. The strength is that the more powerful features are there to be used as you gain confidence and explore the potential of the program.

CheckMate Plus is a full-featured, easy to use,cheque book-based accounting package. It is a real accounting package, with real double-entry transactions. You can produce true balance sheets and income statements as well as numerous budgeting and graphical reports.

CheckMate Plus is intuitive, easy to use, and has extensive on-line help. To use the more sophisticated features you will need the user's guide to fully exploit its power. It comes with a disk-based introductory user's guide to aid you in evaluation. This is quite large.

Household Register (one disk)
Performance: 7/10
Ease of Use: 8/10

Most people have no real idea of the value of their possessions.Whilst this may not be important most of the time, should a disaster strike and they need to fill in a wad of forms for their insurance claim, it can often be difficult to persuade the insurance company of the full value of your things.

So, before a problem occurs it is wise to take an inventory,itemising all your goods and chattels and attaching their value. What better way to do this than on your PC?

Household Register is a fully equipped database system specifically tailored to log all your household possessions with their corresponding values, analyse the data and produce valuation reports and statistics.

You can use the reports to initiate your insurance assessment and present it to the insurance company along with any claims you may need to make.

Home Management

The Librarian System
Author: Peter Richards
UK Registration: £19.95
Performance: 8/10
Ease of Use: 8/10

The Librarian is a suite of tailor-made database systems developed for a variety of household applications. Each application is available on its own disk: Librarian: club membership; Librarian: home insurance; Librarian: record collecting; Librarian: audio cassette; Librarian: address book; Librarian: video collecting;Librarian: gourmet cookbook;Librarian: military aircraft Librarian: book collecting; Librarian: hit singles.

The programs have common features throughout the range of titles.These include fast file access search and edit customised database managers. Each has report and print facilities and additional features are available on the registered versions.

Menu selection is minimised and data entry is a simple case of filling in a form on the screen. Once the data is entered it may be sorted, searched and edited. The shareware version offers a report printout of the records entered. The registered version offers a wider range of reporting functions.

The Librarian System is professionally written using the latest programming tools. Presentation is neat and tidy and very easy to understand.

Home Video Library
Author: Turbo Systems
Registration: $34.95
Performance: 8/10
Ease Of Use: 8/10

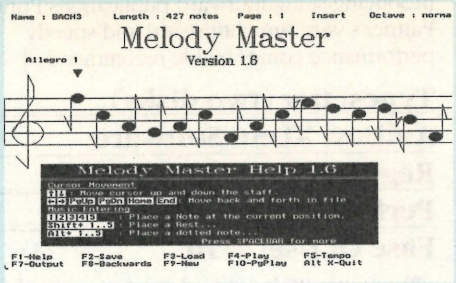
Home video recording has been popular for many years now and most of us have accumulated an assortment of anonymous looking tapes containing anything from unrepeatable family movies, through a seriesof old films taped off the TV, to old and totally expendable early episodes of Home And Away.

In most cases the labels, if we wrote any at all, have faded or peeled off and not only can you not find anything but also you run the riskof wiping out those precious recordings.

With your PC and the Home Video Library program you can get things organised properly.

Working the program and entering data is intuitively easy. Once you have entered in the basic details, you can quickly search your video library files and print reports to the screen, printer or a disk text file. You can also print labels to place on tapes for easy identification.

Home Video Library features mouse support, context sensitive help,movable, resizeable, scrollable pop-up browse and find windows.Features a database of current movies.



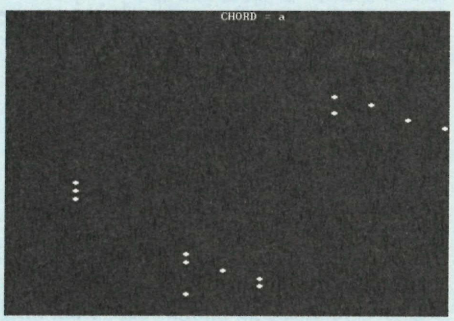
Music

Melody Master (one disk)
Author: A.A.Efros.
Registration: $20
Performance:8/10
Ease of Use: 8/10

Melody Master is a music system for writing, editing and playing one-voice music tunes. Melody Master uses graphics interface which lets you see and edit the music in sheet form.

Melody Master is very useful in many ways. You can use it just to listen to and play around with some of included tunes. It will also help you teach yourself (or your children) the beginnings of 'music grammar'. At last, if you are a programmers or a person who just likes to write Batch Files, this is a great tool for making you own programs 'sing'. Whatever way you are going to use it, I am sure you will have a lot of fun!

Melody Master support 5 note-lengths, 5 rests, around 7 octaves, repeats, sharps, flats, dotted notes, and 6 tempos. The melodies can be saved in special .MEL files. Melodies can also be transferred into different forms of output files such as BASIC programs, Pascal procedures, C functions, ANSI Music, etc. This package also contain utility 'Convert' which let you convert BASICs play-like strings of music into Melody Master .MEL files. This makes Melody Master compatible with many other music systems. This version also contain Configuration Utility which let you set you own colours, tempos,note-lengths etc.



Music Maestro (one disk)
Author: Peter Richards
UK Registration: £19.95
Performance: 7/10
Ease of Use: 8/10

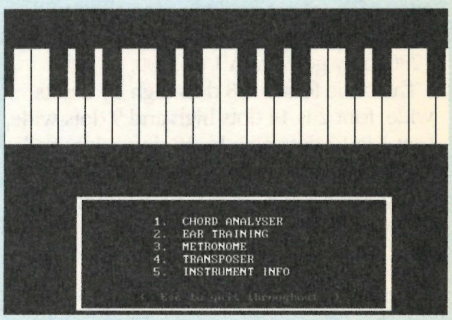
Whilst there are many database 'shells' on the market which allow you to design and build your own database manager, many users, particularly newcomers to the PC would prefer it if someone else had done the work for them.

The UK author had the new user in mind when he designed Music Maestro. Most people have a collection of music records – whether they be on vinyl LP, compact disc or tape.

As the collection grows it can be a great help to catalogue them all in a methodical way, entering information such as title, artist,duration, date issued, date purchased, location etc.

Taking the typical requirements the author has designed Music Maestro, ensuring at all times that the program is simple and easy to use.

Menu selection is minimised and data entry is a simple case of filling in a form on the screen. Once the data is entered it maybe sorted, searched and edited. The shareware version offers a report printout of the records entered. The registered version offers a wider range of reporting functions.



Musician's Toolbox (one disk)
Author: D T Richards
Registration: £10
Requires EGA or VGA

The Musician's Toolbox combines these functions:-

The Chord Analyser provides the musical spelling of the chord symbol sprinted on most sheet music. The relevant notes are sounded and displayed graphically on a simulated keyboard. Accepts a variety ofstyles of chord symbols and no difficulty should be experienced on this account.

Guitar Chord Dictionary. By pressing the space bar after using the keyboard Chord Analyser, a graphical display of the equivalent chord shape for guitar may be obtained. Three alternative possibilities are given which may vary in suitability depending on the current playing position on the guitar neck, the degree of proficiency of the player,etc.

Ear Training. Most musicians are aware of the importance of ear training (particularly in improvised music). This is also a requirement in the examinations of the Associated Board of the Royal Schools of Music and similar bodies. This module plays random intervals and requires the student to select the appropriate description.

Metronome provides a usable metronome, supporting all practical tempos and any time

signature in either simple or compound time. The audio output is accompanied by a matching visual display.

Transposer provides an instant reference for transposition of notes between any two keys. As the transposition is shown for the entire chromatic scale (so allowing for the inclusion of accidentals) it is irrelevant whether the key is major or minor. For this reason, only the tonic note of the key should be entered (e.g. "G" rather than "Gminor" or "Gm").

Instrument Information provides details of the range and usability of all the most common instruments of the orchestra This information is indispensable to musicians who wish to arrange for ensembles of instruments with which they may not be wholly familiar.

Genealogy

Gene Genie (two disks)

Author: Mike Allen

Registration: $39.95 (UK)

Rating: 8/10

Performance: 8/10

Ease of Use: 7/10

Interest in one's personal family history has always been a fascination and it continues to be a popular hobby. Before the advent of computers collating research was a very time-consuming and repetitive task, particularly when alterations and amendments had to be made.

Computers are ideal tools for the entry and re-organisation of information and so several programs have been specially written on genealogy and family history.

Gene Genie is a good example and it is written and supported by a UK author. It is more of a family history program, ie, it offers more space for text descriptions of each subject but it does not produce graphic family tree pictures.

It includes facilities to enter in all the standard genealogical details of the family: a unique record number,surname, forenames, maiden name (if applicable), sex, identity of father, identity of mother, date and place of birth, date and place of baptism, date and place of marriage(s), date of divorce (if applicable), date and place of death, whether buried or cremated, date and place of burial/cremation.

Other features include addresses, occupations, sources,navigation tree, personal notepad. On the registered version you get hard copy printouts for either an individual or the complete database.

A detailed tutorial is supplied on disk to help newcomers to this popular hobby. The shareware version limits the number of entries.

Trees II (one disk)

Author: Tomorrow's Designs

Registration: £49.95

Performance: 8/10

Ease of Use: 8/10

In some families, there already exists a wealth of information, stored in various forms, just waiting to be ordered and examined.

In others, records are patchy. Tracing ever further into the past involves careful investigation, following clues, hunting through public records for new leads upon which to build.

The science and art of investigations, (and it has all the attributes of both), is Genealogy. Investigating your heritage produces vast amounts of data, and the Genealogist must find ways of recording it, then correlating it to discover the stories that lies behind it.

Trees has been designed to aid the genealogist so as to make his or her job as simple and as fun as possible. While requiring no great specialist knowledge about either computing or genealogy, it nevertheless has all the power and scope of other fully professional genealogical software.

We are all proud possessors of a heritage that goes back to the dawn of recorded time and beyond.

Our ancestors have many tales to tell, can we but find them. And having found them, what better way to manage the information than with your PC?

Brother's Keeper (three disks)

Author: John Steed

Registration: $40

Performance: 9/10

Ease Of Use: 8/10

Brother's Keeper is a set of programs which will help you organise your family tree information, and which will print the information in several ways.

You will be able to print descendant charts which show how anyone named in your file is related to everyone else. You may also print ancestor charts, family group sheets, alphabetically-ordered name lists, descendant trees, lists of birthdays, and customised reports.

For each person entered in the file you may include a date of birth, a date of death, and three other significant dates and you may store a place of birth, a place of death, and a place for three other noteworthy events. You also may enter two additional fields for any other events or information you feel is relevant, the subject matter for which you may define.

Each person can have up to seven message lines of additional data, or a text file of unlimited size containing notes and addenda. Each person may have up to eight marriages stored (enough, even, for Elizabeth Taylor). Each marriage record can hold a marriage date, a place of marriage and one additional date and place,and can store up to 24 children.

Brothers Keeper is a very comprehensive system which offers all the features required by the average genealogist. It therefore comes highly recommended.

Puzzle Corner

Crossword Creator (two disks)

Author PC HelpLine

Registration $20

Performance 8/10

Ease Of Use 8/10

This is just the program for anyone who has to design crosswords in a hurry – whether it be for your own family entertainment or for your village Newsletter, magazines etc.

There are two approaches to adopt. First you can design your own grid, enter the words and create the clues. Helpful features include a Word Finder which makes use of a list of words on the disc that you can supplement or replace with a bigger list.

Second you can cut the development time by getting the Automatic function of Crossword Creator to design and build up the crossword for you.

Crosswords can be as big or small as you like, within the constraints of your printer and are printed out neatly.

The disc includes a useful selection of ready-to-run crossword puzzles and the program has extensive on-line help. It can also be controlled by a mouse. Great fun!

Wordsworth (one disk)

Author: Ted Clarke

Registration : £10

Performance : 7/10

Ease of use : 9/10

The core of Wordsworth is a purpose designed database of words and information linking them by various criteria. The software has been developed to analyse, sort and amend this information to provide several toolbox type programs and a range of games.

Wordsworth offers many variations of use within its nine main options. These options include anagram generator, anagram search, crossword completion, words from a phrase, character permutations, word ladders, create customised word database, find spoonerisms.

The author offers more extensive facilities in the registered version and is interested in talking to users about developing the program further.

For anyone interested in crossword puzzles and other types of word game this compendium will prove a useful tool.

Hobbies & Pastimes

Knitting Pattern Writer (one disk)

Author: Terry Mason

Registration: £19.95

Performance: 8/10

Ease of Use: 7/10

Knitting Pattern Writer has been developed by this UK author to enable you to create knitting patterns irrespective of yarn,stitch, size or machine.

Classic Styles comprises included, such as comprises V necks, round necks, raglans and inset sleeves, long, short or sleeveless styles. Standard sizes or your own measurements in inches or centimetres can be used.

Fashion Tops and Batwing will give you patterns for modern drop shoulder styles with a variety of body and sleeve styles and which are so easy to knit. Standard sizes are available but you can also use your own measurements.

If you input your own measurements the program will keep a check to see if they will fit on your machine. If you really want a deep sleeve you will pick the 'Batwing' which is knitted sideways.

Tops II and Cardigans: Not many patterns from this section appear in knitting magazines as they are more complicated to calculate for a variety of sizes. These have shaped back neck, shaped shoulders, simple inset sleeves, square necks and much more.

Skirts: From here you can knit your downward knitted skirts. Even if you choose the standard size option, you will be told the finished length and given the opportunity to make an adjustment so you can go from 'mini' to 'maxi'. You can combine the skirt patterns with any of the 'Tops' to knit suits and dresses.

All patterns are complete including how many stitches to pick up round the neck and to finish neatly. The program itself is very easy to follow and consists mainly of pressing selected keys

The Gardener's Assistant (one disk)

Author: Shannon

SoftwareRegistration: $25

Performance: 6/10

Ease Of Use: 9/10

Most hobbies and pastimes are enhanced by sourcing information on the subject and getting things better organised. As with most things,the PC can come in handy.

Not much software has been written on the subject of gardening, Landscape Plants (reviewed earlier) and this one, Gardener's Assistant, are about the only two we know of. They are American and therefore some of the plants and weather conditions are not applicable to the UK but most of the information is still relevant.

Gardener's Assistant was designed to help gardeners plan and plant their vegetable patch and obtain optimum performance from the soil they use, the seeds they plant and the seasons.

It works on both mono and graphic display adapters but not on Hercules. The graphic adapter displays are more flexible.

Registration entitles you to a copy of the 60 page manual,notification of up-dates, and reduced price upgrades.

Amusements and Diversions

Speech Synthesiser (one disk)

Author: Andy McGuire

Registration: None

Performance: 5/10

Ease of Use: 9/10

The sound chip and loudspeaker on the average PC is fairly basic only offering a single note at a time of variable pitch and duration. It was never intended to be more than a beep. This of course invoked a major challenge to software writers and they have managed to produce polyphonic music, sampled sound and, in the case of this program – speech!

Whilst the reproduction is still crude you can just about discern the words and, although the program has little practical value, it makes for both an interesting exercise in programming and a fairly light-hearted piece of entertainment.

The versions of speech to be found on this disk have been modified to produce versions for computers at various speeds. For example SPEECH8.COM sounds right on an 8MHz PC clone (w/ V20chip). The other speeds should work on faster computers.

Biorhythm Plotter (one disk)

Author: Bill McGinnis, Bill McGinnis Publications and Software P.O.

Performance: 7/10

Ease of Use: 8/10

Biorhythm Theory states that each of us is influenced by three biological cycles which begin at birth and continue throughout our lives.

The physical cycle is 23 days long and influences physical factors such as eye-hand co-ordination, strength, endurance, and resistance to disease.

The emotional cycle is 28 days long and influences our emotional states, affecting love/hate, optimism/pessimism,-passion/coldness, depression/elation.

The intellectual cycle is 33 days long and influences our memory, alertness, speed of learning, reasoning ability, accuracy of computation.

At the moment of birth, according to biorhythm theory, each cycle starts at a zero point and begins to rise in a positive phase during which the energies and abilities are high.(engineers will recognise the cycles as 'sine waves' in their form.) After reaching a positive peak, each cycle then gradually declines, crossing its zero point midway through its period –11.5 days for the physical, 14 days for the emotional, and 16.5days for the intellectual. The remainder of each cycle is a negative phase, during which our energies and capabilities are reduced.

The most unstable times are the 'critical days' in each cycle,when the cycle crosses its zero point, changing from positive to negative or from negative to positive. During these critical days, the abilities vary wildly, from extremely high to extremely low. You may make brilliant discoveries or tragic logical errors on intellectually critical days. You may win the Super Bowl or throw ten interceptions on a physically critical day. You may impulsively propose marriage or quit your job on emotionally critical days.

The program asks you for your name, date of birth and current date and from this information will plot on your printer your personal biorhythm chart.

The documentation supplied on the disc tells you thesignificance of the charts and tells you how to interpret the results. It also makes suggestions about your behaviour and activities during the 'difficult' times.

Shakespearian Plays

Author: T Fanning

Registration: £5 per play.

Performance: 8/10

Ease of Use: 9/10

Now you can have the complete works of the bard himself on your PC. Suitable for straightforward reading, printing out or, used for reference in conjunction with essays and tutorials.

Each play is supplied on its own disk with an attractive Playread program which lets you select the act and scene of your choice. The text is neatly presented and easy to read. Search and find is rapid.

Choose from: Anthony and Cleopatra, Merchant of Venice, As You Like It, Midsummer Night's Dream, Hamlet, Julius Caesar, Othello, King Lear, Macbeth and Taming of the Shrew.

Suitable for teachers, students, theatre directors or anyone interested in these great literary works.William himself would have been pleased with the idea..

Food and Drink

Vino: File(1 disk)

Author Mark Christian

Registration $25

Performance 7/10

Ease Of Use 8/10

Now that the price of wine is relatively low and we are able to obtain an ever increasing range of products, even at the local supermarket, many people are building up their own "wine cellar" and experimenting with the many varieties available. As with anything it becomes increasingly difficult to remember what different wines were like and whether you liked them or not.

VINO: FILE is a good PC-based method of getting the information organised. It will manage your wine cellar and log your tasting notes.You can analyse your cellar by variety, year, origin, peak drinking period and location. You can also identify future purchases.

VINO: FILE helps you maintain inventory of your collection, locate wines, enter tasting

notes using windows and pull down menus. It includes a neat Cross Reference facility, help screens, on-disk manual and sample files.

VINO: FILE features a flexible database manager for report printing functions, Import/Export, Un-delete and fast search and sort.

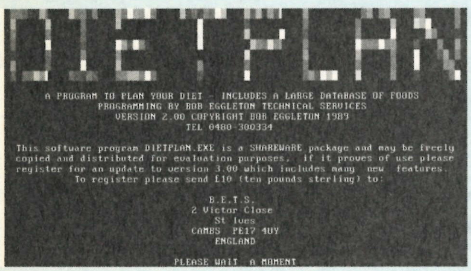
Diet Analyser and Planner (one disk)

Author: Bob Eggleton

Registration: £10

Performance: 8/10

Ease of Use: 8/10



The Dietplan program comprises two files a Foodfile which contains the food data and a Dietfile into which the user enters selected foods from the Foodfile to make an individual diet. Many Dietfiles may be created and saved to disk or printed out.

Data in the Foodfile is related to normal portions of food such as one apple or three rashers of bacon to allow easy selection, the user may add extra foods to the Foodfile and save to disk at any time. Help screens are available via the F1 function key and during functions explanatory messages are displayed to enable full operation without the manual.

The Foodfile screen shows a list of the foods available to select for entry into the diet created on the Dietfile screen. Foods are selected by moving the highlighted bar up and down the alphabetically sorted list of foods using the cursor control keys as detailed below:

Diet Analysis provides nutritional details on the following nutrients: Proteins, Carbohydrates, Kilocalories, Fats(saturated and non-saturated), Calcium and Fibre. For comparison, it also displays the recommended nutritional intake for groups of the population. All figures are based on a one day food intake. It has an updatable database. The File section offers user friendly facilities for adding new food products; most food producing companies now provide nutritional details on food packaging, therefore inputting these details should be quick and straight forward.

As well as displaying the actual and recommended totals for the intake of the above mentioned nutrients, Diet Analysis will display the balance of your diet, that is the percentages of Protein, Carbohydrates, Fats and Alcohol in the diet. This also is compared with a recommended balance.

The Dietfile screen shows the list of foods selected for the diet being created. Foods are selected from the Foodfile screen then the screen changes to the Dietfile screen for entry of the quantity. After entering the quantity the screen returns to the Foodfile screen for further selection.

It allows storage of up to 20 food items thus may be used to plan meals or a whole days dieting. To save time when compiling diets enter complete meals in the Foodfile such as breakfast where the same foods are consumed regularly

Edna's Cook Book (one disk)

Author: Specialty Microware

Registration: $29

Performance:7/10

Ease of Use: 8/10

Edna's Cook Book is for recording, filing, listing, and printing recipes. Essentially, it is the equivalent of the cookbook in which you now keep all your recipes, except that it is electronic.

The program may also be used in the preparation of cook books for publication, since it facilitates organisation and printing.

If you can type, you no longer have to deal with disorganised slips of paper and clippings thrown together in a drawer or box,only to be frustrated when you can't find that particular recipe that you remember you had, except you can't remember where it is,or what the precise name of it is.

Edna's Cook Book will take care of the tedious part, so you can get on with the real work. Good cooking.

The only thing we are not told is who Edna is!

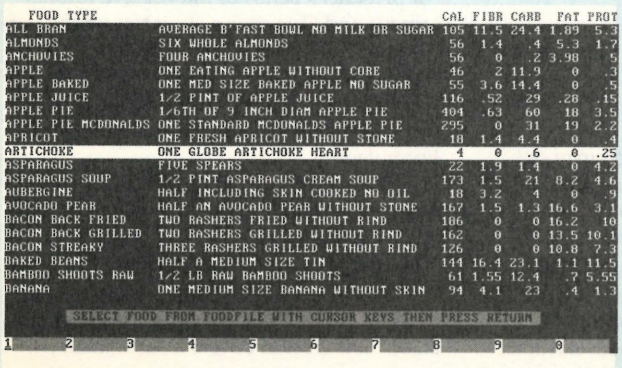
Kim's Kitchen (two disks)

Author: N/A

Registration: N/A

Performance: 8/10

Ease of Use: 8/10



Kim's Kitchen is more than a recipe management system. It features a fully operational database system of items and recipes from which the user can create menus, shopping lists and stock control management.

It is a useful tool for both the home cook and professional restaurateur and eliminates much of the drudgery in maintaining stock levels and creating shopping lists (or purchase orders).

The program contains an alarm, a note pad, a calculator, a conversion table and context sensitive help, all accessible by function keys.

Recipes are a set of quantities of items with instructions.Menu plans are a set of recipes and items, while your shopping lists can be created from either items, recipes, menu plans,stock levels or any mixture of the above.

There is a very comprehensive set of report handling features to complement the functionality of Kim's Kitchen.Supplied with the software are example databases and indexes.

Humanities

MapMaker (one disk)

Performance: 8/10

Ease of Use: 6/10

This program is not really designed for the casual user and is sophisticated enough for professionals and educationalists. The shareware version includes data for the continental USA

MapMaker produces two common forms of quantitative maps;Choropleth (Area Colouring) and Graduated Circle, on an IBM PC colour monitor, and if desired, in black and white on a matrix printer.

Any set of statistical values may be displayed for corresponding geographical areas. Map areas must be comprised of bounded units such as states, counties, census tracts, or areas delineated by the user. On any given map, only one variable is shown for each map unit.

Choropleth maps display statistical variables by using a sequence of colours (maximum of three). Circle maps represent data with proportionately-sized circles. Proper usage of both map forms is discussed in detail later in the manual. MapMaker can also save and later recall screen images without going through the create process.

Directions and suggestions are provided on the screen throughout the program and it is possible for users who have little or no experience in mapping to produce maps. In order to produce statistically meaningful and visually effective displays,however, users should read the manual thoroughly prior to creating maps.

Given the appropriate data sets, MapMaker has a great variety of applications, including scientific research, governmental planning, business and education.

If hard copy is needed, maps can be printed in monochrome on matrix printers, or slides may be taken directly from the colourscreen.

The World About Us (one disk)

Author: Hinh Van Nguyen

Registration: $15.00

Performance: 9/10

Ease Of Use: 8/10

Requires CGA, EGA, or VGA board and a compatible monitor

World Info is not only a useful aid to geography students but also makes an interesting way of finding out more about the world and testing the family's knowledge of countries, capitals and rivers. Of course with recent events some changes are inevitable but this is true of any World atlas.

The program displays on the screen a map of the entire world or part selected from the menu – Africa, America, Asia, Australia, Europe. You then have the options of country names, capital names, information by country, information by capital or information by maps.

The first two of these will ask you the name of the Country or Capital highlight on screen according to the continent you preferred before. The second two will wait for you to type the Country or the capital . After you ENTER, the computer will try to Match your input of the Country or the Capital and display the country name, the capital, population, population/square mile, largest city, area (square miles), languages and religions.

Option 6 has a circle on the screen and waits for you to move. You can use arrow keys or Home, PgUp, End, and Pg Dn keys to move the circle. Press Enter will let you know the Country and Capital names.

Other options available include the 12 Longest Rivers in the World, the 12 highest Mountains, the 12 largest Lakes and Seas.

Astronomy

The Night Sky (four disks)

Author: A C Stevely

Registration: £24.95

Performance: 8/10

Ease of Use: 8/10

The Night Sky is a computer planetarium capable of plotting depending on your disk system, either 24,000 stars to magnitude-+7.49, or 45,000 stars to magnitude +8.49.

It is a very easy to use menu-driven program. This program was written by an amateur astronomer who, when he is not looking at the stars, drives a London Transport bus!

He has spent many hours working on The Night Sky, which was originally started as an exercise in programming. Only when it was almost finished did the author think of distributing it as a shareware program by which time it had expanded to four disks.

Users can select from 28 different locations worldwide. If your city is not on the list then you will have to look up the altitude and longitude of your city in an atlas.

For anyone interested in the subject and for serious astronomers this program is a must.Best used on a hard disk.

Great Explorers (one disk)

Author: Solaris Systems

Registration: $10

Performance: 8/10

Ease Of use 9/10

With the price of books constantly rising and the cost of computer discs falling it is becoming increasingly cost effective for publishers to put out their work on a disc format instead.

Most systems contain the original text files and a piece of software to display it a screenful at a time. You can use the cursor keys to move up and down and usually there is a fast scan mode and facilities to search for words or phrases.

From a new range of software under the "Select-A-Story" comes "TheGreat Explorers Collection". Solaris have decided to offer two of the series as shareware.

The shareware version features Christopher Columbus and Marco Polo.Registered users get another six explorers.

The program was designed for children aged 10 to 14 who are learning about history in school.

Sciences

Exploring Physics (one disk)

Author: Bruce N. Baker

Registration: $20

Performance: 8/10

Ease Of Use: 9/10

Exploring Physics comprises a suite of programs for secondary school students and covers:

– Classical Physics Menu – Traditional physics formulas.– Relativity Physics Menu – Formulas for velocities approaching the speed of light.– Electrostatics/Dynamics Menu – Formulas involved electricity.– Optics Menu – Formulas dealing with the study of light.– Math Menu – Process vector and quadratic equations.– Conversion/Calculator Menu – Convert units and perform simple math.– Display Information Menu – Formulas and equations displayed.

Each subject is split into a series of sub-categories. For example, Electrostatics/Dynamics covers a) Coulombs Law. b) Electric Field and Voltage Potential by a single particle. c) Series Capacitors. d)Parallel Inductors. e) Parallel Resistors. f) Inductance Defined. g) Parallel Plate Capacitance.

The subjects are handled well and this disc comes highly recommended

Skull (two disks)

Author: Dr. Steven A. Reid

No registration fee

Performance: 7/10

Ease Of Use: 8/10

Requires EGA

Another novel program which may only have a small commercial potential but at PD prices is well worth having a look at.

Skull basically consists of a series of digitised images of the human skull taken in cross-section. The images are covered with invisible boxes that you can activate to learn more about skull anatomy. Users can select the point they wish to view and the corresponding section is displayed.

Skull is developed on a hypertext system called HyperBase, and it offers an excellent example of a hypertext system in practical use particularly as it cleverly combines graphics and text.

The package supports a mouse, although one is not required. You can scroll through the buttons on an image by pressing the right mouse button or the space bar. You activate a button by pressing the return key. You can see all of the labelled buttons on the image by pressing the F2 key.

The author states that if this package is successful, he will develop simulated patients, with access to x-rays, lab data, physical exam findings, etc. in the future.

Computer Science GCSE (one disk)

Author: Sergor Software

Registration: £19.95

Performance: 8/10

Ease Of Use: 9/10

The author of this program is a UK teacher and he has put a lot ofeffort into ensuring that the presentation and content makes a useful aid to GCSE studies. The shareware version covers a substantial part of the syllabus but users must register for the complete course.

COMPUTER SCIENCE covers Basics, Information Systems, Hardware, Machine Representation of Data, Files, Systems Analysis, Data Input, Output Design and Documentation.

Material presentation is properly sequenced, understanding is interactively tested at regular intervals and progress is recorded.

Maths

Mathematics GCSE Revision (one disk)

Author: Sergor Software

Registration: £19.95

Performance: 8/10

Ease Of Use: 9/10

Mathematics for GCSE has been developed by qualified college lecturers in the UK and has clearly been carefully assembled to provide an effective aid to study and revision whilst maintaining an element of enjoyment.

It presents a series of informative tutorial screens and then runs a short test on the corresponding subject.

Main topic headings in MATHEMATICS are Numbers, Computation, Applications, Proportions and Variations, Graphs and Formulae.

An updated score and percentage success rate are provided regularly along with time spent on the current revision session.

The author has put a lot of effort into ensuring that the presentation and content makes a useful aid to GCSE studies. The shareware version covers a substantial part

of the syllabus but users must register for the complete course.

File and Disk Management

DOS Toolbox (two disks)
Author: Computer Tyme
Performance: 7/10
Ease of Use: 7/10

The Computer Tyme DOS ToolBox contains powerful and simple to use utilities. Some of the programs are written for beginners, others for intermediate and advanced users.

The Computer Tyme DOS ToolBox programs come with help screens and on-line documentation which give quick proficiency with each program.The toolbox was originally written in 1985 to provide the same functions for MS-DOS as a program called Sweep did for CP/M. The main function of this program is to be able to select files from a list of files, then either copy them, move them, or delete them. Thus the design of this program is such to make these functions as easy as possible.

The files are displayed in a vertical list. The up and down arrows, page up, page down, home and end keys move you through the list. The 'G' (GOTO) command is provided to help you get to a desired place in the list quickly. Files are selected (marked)using the right arrow key, and unselected (unmarked) using the left arrow key. All files can be marked using Ctrl-Right Arrow and unmarked using the Ctrl-Left Arrow. A wild card mark is provided to mark all files that match a particular mask. When files are marked they are simultaneously highlighted for action.

For anyone with a lot of 'housekeeping' to do on the mass of anonymous files which have accrued on hard and floppy disks (and who hasn't?) this is a very useful tool which let's you get things sorted out very efficiently.

Using The Computer

PC-Tutor (one disk)
Author: Computer Knowledge
Registration: $15
Performance: 9/10
Ease of Use: 8/10

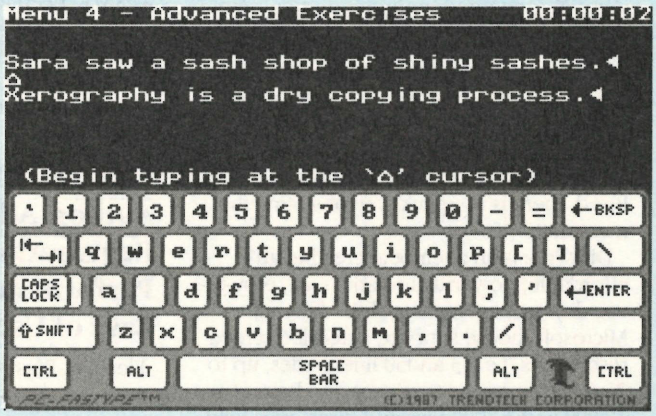
The majority of PC users have little or no knowledge of the way in which the computer and user interact, ie, the operating system. It is true to say some knowledge certainly is needed even to undertake a few simple tasks, such as finding out what is on a disk, deleting files, copying files, taking back ups and formatting blank disks.

Most PC manuals are virtually incomprehensible to the newcomer. Reading them can often make matters worse. What better way to learn how to use your computer than on the computer itself?

The author of PC-Tutor has gone to great lengths to ensure that his program helps, not hinders, and he does not assume any previous knowledge. The course is interactive, presenting the user with information, then asking for a response on the keyboard.

The program covers computer history, introduction to DOS,computer terminology, sub-directories, hardware, batch files, the keyboard and an introduction to programming.

Material is presented in a series of screens and the user has the ability to move forward or backward through the tutorials, or jump to selected locations using a menu. Short quizzes test you on your knowledge but you may bypass these when reviewing



Fasttype (one disk)
Author: Trentech
Registration: $20
Performance: 8/10
Ease of Use: 8/10

Fastype is a typing instruction program specifically designed for PC styled keyboards. These quick-start instructions will get you going right away. You must have a Colour/Graphics Adapter Card(CGA) or equivalent (EGA), (NOT Hercules)

For Drills: Place the fingers of each hand on the home keys (ASDF JKL:) and type each letter as you are prompted for it. The selection of letters to type is random: the number of characters you successfully type is displayed before you start. When the drill is finished your WPM and other data will be displayed in the text panel. For Lessons: type each character pointed to by the cursor and when you reach the symbol, press the enter key (Ÿ) (for carriage-return). When you finish the lesson your WPM and other data will be displayed in the text panel.

There are 5 drill, lesson, and feature selection menus and two sub-menus for selecting additional keys to learn. The primary menus can be displayed by pressing function keys F1 to F5 anytime while the screen keyboard is displayed. And, while any selection menu is displayed you can go to another menu either by selecting it from Menu #1 or by first holding down the ALT key and pressing F1, F2, F3, F4, or F5.

All menus have the Help Facility available

DOS Summary (one disk)
Author: Computer Tyme
Registration: Freeware
Performance: 7/10
Ease of Use: 8/10

A good companion to the PC-Tutor and from the same author. There is no registration fee – the program is yours for the price of the shareware copy.

For anyone who is likely to use more than one or two DOS commands this program is invaluable.

When starting DOS Summary you have the option of accessing either an alphabetical menu of DOS commands or a menu where commands are grouped by function.

A second way of accessing a command is by starting the program with a command name as a parameter. DOS Summary will find the closest match to the command you entered - so exact spelling is not necessary. Only DOS commands are in this version; batch commands and CONFIG.SYS commands are not. Support is given up through DOS version 4.01.

Foreign Languages

French Tutor and other Languages (one disk each)
Author: Andrew Bartorillo
Registration: $10
Performance: 6/10
Ease of Use:8/10

The programs on this set of disks comprise a series of Language Tutors for learning French Spanish, German, Italian and Hebrew.

Each disk is self-contained and offers a complete tutorial on one language. The following text refers to all the tutorials.

Language Teacher is a series of menu-driven language tutorial programs. Each program in the series contains hundreds of word combinations and verb conjugation forms. A printer can be used to take advantage of its versatility.

Also included is the capability to select language-to-English or English-to-language combinations, choose multiple choice answers,be retested on misses, print a multiple choice test, and to run a full quiz diagnostic routine with line printer output. Of particular interest to non-English students is the capability to select the direction of the combinations.

All word, phrase, and verb conjugation selections are done randomly by the program the user being unable to predict what the next selection will be. The program

package is not designed to teach conversational language or pronunciation but, instead, to provide practice drills in order to increase your working vocabulary and to enhance your use of the conjugation forms.

The extent of the vocabulary of each program is around 800 word combinations and about 1800 verb conjugations.

Menu Systems

Menu Direct Gold (two disks)
Author: Applied Micro Systems Technology
Registration: $39.95
Performance: 9/10
Ease Of Use: 8/10

Menu Direct Gold is the new name for the Point & Shoot Hard Disk Manager originally released as a commercial package. It was nominated for one of BYTE's best product awards at Spring COMDEX 1991.

For anyone with a hard disk full of assorted programs and files located in a variety of sub-directories it makes excellent sense.

Menu Direct Gold is essentially a file/directory/program manager but offers a wide range of associated features that make it very powerful.Yet the author has ensured that all functions are easy to use and clearly explained.

The program offers unlimited user menu entries with single keystroke execution of programs. Split screen file list and directory tree.

The normal Copy, delete, edit, find, print, and view single or tagged files, Delete, make, rename, hide, and print directories are offered plus the very useful Undelete files and directories.

Instant DOS access, user-defined program colours, floppy disk formatting, and mouse support are all provided. Menu Direct Gold features Pull-down menus, hypertext help system, password protection, usage logging and a host of other features make this an excellent DOS Shell.

Power Menu (one disk)
Publisher: Shareware Publishing
Registration: £49.95
Performance: 9/10
Ease of Use: 8/10

One of the biggest frustrations for a new user of a PC is the unfriendly operating system which comes with it (unless of course you are fortunate enough to have a high performance computer and Windows)

A newly unwrapped computer with a hard disk drive will probably just present you with the C> prompt when you switch it on. You then have to know about sub-director tree structures, DOS commands and the appropriate name to type in to get any programs running.

To overcome this problem several authors have written new 'front-ends' to MS-DOS which improve the interface between you and your programs.

These are usually in the form of an on-screen menu system which lists the options and programs available, tells you which keys do what.

Power Menu is one of the best examples of the genre. It is easy to install and menus are completely user-configurable. You just type in the title you require, the name of the program and where it can be located. Plenty of on-screen context sensitive help is provided and there are several useful additional utilities if you want them.

Disktree (one disk)
Author: Richard Smith
Registration: $20
Performance: 9/10
Ease of Use:8/10

Making order out of the chaos of the thousands of files contained on even the smallest of hard-disk drives is both important and incredibly tedious.

Without control and order, files get lost, space gets wasted and productivity drops as users spend more and more time just keeping track of what files are where.

Of course, in a perfect world, users would save their data according to a sensible and logical standard of what files should go where. Unfortunately, no one does this with any real conviction and when things get confused, there is no quick way of sorting the mess out.

DiskTree is an attempt at creating an affordable, powerful and above all, easy-to-use disk management tool. It offers full Microsoft mouse support, extended screen resolutions, i.e. 43 and50 line modes, up to 26 drives in memory at once and between 10,000 and 13,000 files and directories held in memory.

The Directory structure is displayed in pictorial fashion and can be traversed using either the keyboard or mouse. Features include – Files, directories, trees and even entire drives can be moved, copied or deleted with ease; Search for individual files or directories; Option to during file operations; Files can be viewed, edited or executed.

File and Disk Management

Integrity Master (two disks)
Author: Wolfgang Stiller
Registration: $35
Performance: 8/10
Ease Of Use: 8/10

Integrity Master combines several useful disk management and file recovery functions with powerful virus detection and elimination. It claims to recognize known viruses by name and will describe their characteristics and then guide you through their removal.

It can detect not only existing viruses, but will detect as yet unknown viruses. This means that, unlike other programs, which you must constantly update to keep ahead of the current crop of viruses,Integrity Master needs no updating.

Integrity Master will detect any form of file or program corruption, not just that caused by viruses. This makes Integrity Master a useful tool to provide PC security, change management and hardware error detection. Why spend your time merely checking for viruses when you give your PC a complete check out with Integrity Master?

Integrity Master can reload system sectors on disks which are so badly damaged that DOS can no longer recognize them.

It is useful as an aid to PC security. If someone changes, adds or deletes any of your files you will know.

You can run your normal test programs to check if your disk drive is working OK It will even detect if a disk error damaged some data yesterday.

You just restored your files from a backup. Are all the files really OK? Integrity Master will tell you.

You just deleted *.BAT rather than *.BAK. Integrity Master will tell you exactly which files you need to restore.

Your hard disk is having problems. Now DOS will not even recognize it as a disk. Integrity Master can diagnose and then reload your partition and boot sectors to 'fix' your disk!

Flexibak Plus (one disk)
Author: Adrian Mardlin
Registration: £29.95
Performance: 8/10
Ease of Use: 8/10

Flexibak Plus is a flexible, easy to use hard disk back-up system that takes a logical, simple and unique approach to the back-up problem.

With a conventional back-up system, you are required to take a full back-up approximately once a week and do daily incremental back-ups which are placed on separate disks. Should you need to restore from the back-up, you must first restore the full back-up and then each of the incremental back-ups up to the last back-up taken.With Flexibak Plus Plus, all this is different as the concept of full back-ups and incremental back-ups is removed. Instead, you only need to take a full back-up once and then all subsequent back-ups are placed on the same back-up disks, giving some long term speed increases, simpler file restoration and an improved back-up management capability.

Flexibak Plus offers:

Selective back-ups allow you to specify, both globally and by directory, which file groups should be included in, or excluded from, the back-up, potentially dramatically reducing the number of back-up disks required.

Incremental back-ups are placed on the same disks as the full back-up, so you only ever need to take a full back-up once.

File management system means that

Flexibak Plus keeps track of what has been backed up, and informs you if any files have gone missing from your hard disk since the last back-up. This allows you to recover accidentally deleted files.

File compression is included in the system as is the capability to handle up to 20 hard disk drives.

Alarm system warns you on booting your computer that you have forgotten to take a back-up for a specified number of days.

Maxiform (one disk)

Author:
Herne Data Systems Ltd
Registration: $10
Performance: 9/10
Ease of Use: 9/10

Are you tired of running out of space on your floppy disks? How would you like to fit 420k on a 360k disk, 800k on a 720k disk,1.4 meg on a 1.2 meg disk, or an incredible 1.6 meg on a 1.44 meg disk?

Sound impossible? Well not any more. If you are using DOS version 3.2x or later, then this innovative new shareware program from Herne Data Systems is just the thing for you. Using Maxi Form for all your floppy disk data storage needs is like getting an extra one and a half disks free with every box of floppies that you buy.

In most cases, no special software driver programs are required to access these disks from DOS. However, in cases where reliable standalone operation cannot be achieved (it is a complex function of ROM BIOS details, DOS version and disk controller characteristics), the simple device driver SMAX.COM can be used to patch the BIOS code and provide resident support.

To use Maxi Form you will need a 100% IBM compatible computer (PC, XT, AT, PS/2, Convertible, etc) with at least one 360K 5.25", 1.2 meg 5.25 ", 720K 3.5" or 1.44 meg 3.5 " floppy drive. The 1.44 meg drive can be used to format 800K 3.5" disks; and the 1.2 meg drive can also be used to format 420K disks or 800K 5.25" disks.

Note that with many BIOSes, you will need to use the TSR driver program SMAX.COM supplied with Maxi Form to read and write MAXI-style disks (especially 800K, 5.25" disks).

Early learning

Word Gallery (one disk)

Author: Kinderware
Registration: $17.50
Performance: 8/10
Ease of Use: 9/10

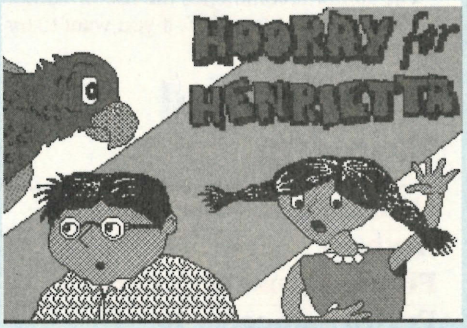
Word Gallery is designed for pre-school children who have not yet learned to read but are beginning to recognise the letters of the alphabet and relate them to everyday objects.

The program presents on the screen a series of colourful flashcards each containing a letter and an object whose initial letter is the same. These flashcards are used to play a variety of games.

Word Gallery looks best on VGA or EGA equipped systems but will also run on systems with MCGA and CGA displays. Use of a mouse input device is optional. It teaches letter recognition, the association between familiar objects and their corresponding name.

Individual games are 'colour-coded' so children can easily select the one they want. The options can be changed directly from each game. New options allow keeping score and placing a time limit on the responses.

There is also the opportunity to set the options to initial values and also to select which words you want Word Gallery to use.



Hoorah For Henrietta

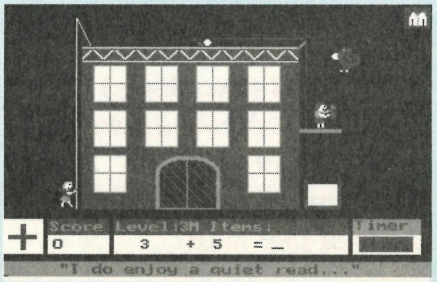
Author: Scetlander
Registration: £24.95
Performance: 9/10
Ease of Use: 9/10

Henrietta and Hopeless Henry are getting married in the morning.But all is not well. That mischievous bird, John the Parrot, appears at the last moment and is determined to create havoc. He steals the groom's wedding clothes and kidnaps the groom himself.If Henry isn't rescued in time, John will cover him in cold custard! You must help Henrietta collect Henry's coat, hat, boots and trousers, otherwise the wedding will be cancelled! Can you get Henry to the church on time?

Hoorah For Henrietta links mathematical exercises to an absorbing storyline featuring Henrietta, Hopeless Henry and John the Parrot. An endless supply of randomly generated problems at all levels guarantees boredom-free practice. It improves everyone's mathematical ability and makes the process stimulating and entertaining. It also provides practice in addition, subtraction, multiplication and division over a wide range of ability levels.

A major feature of the program is the extensive Parent/Teacher's Control Section which enables easy adjustment to suit every user.We strongly advise careful study of this section to ensure a comfortable starting point for each student.

The registered version incorporates eight levels of difficulty -only one is available on the shareware version



Wunderbook (one disk)

Author: Hung Fam Li
Registration: $10
Performance: 8/10
Ease Of Use: 9/10

There is something for all youngsters in this selection for 3-10 year olds. Each game is fun but contains a strong educational element too.Each of the five topics uses simple symbol-type menus which are selected from the keyboard or using a mouse.

Whilst the disc contains six basic topics, additional ones can be added at a later date as the child progresses.

The topics covered are objects, numbers, alphabets, words, shapes and language of different cultures. the latter may also be of interest to adults.

Each program is designed to stimulate children's memory, perception pattern recognition and language manipulation whilst also encouraging the child to explore and play.

Parents can also track their child's progress using scoring tables built into the program.

Monkey Business (one disk)

Author: Jenny Oldfield
Registration: £20
Performance: 8/10
Ease Of Use: 8/10
Requires Hercules or EGA and Mouse: CGA version available

This is a story about the escapades of the Terrible Twins written for 7-10 year olds. What makes it different from all the rest is that the storyline can be altered at various points to generate a different outcome. As the story unfolds, several exciting, crazy options take Marvyn and Marlene through an exhausting day at Tigerland Park. The story can be extended, contracted or diverted by simple mouse control, no typing to do!.

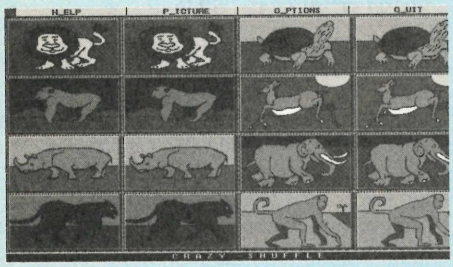
The Terrible Twins adventures are based on the sound, modern educational concept of the "real book" reading method with carefully researched vocabulary and interest levels. Their humour and lively illustrations and fast action will make them a firm favourite.

Monkey Business is illustrated with attractive line drawings designed to hold the child's interest. Whilst having a strong educational value the program forces down the barrier between Computer Studies and reading skills.

Jenny Oldfield is a successful writer of children's stories in both the educational and commercial fields, with more than a dozen books to her credit. This is her first successful venture into computer learning programs.

Children's Games

Crazy Shuffle (one disk)
Author: Alive Software
Registration: $20
Performance: 8/10
Ease Of Use: 9/10



Crazy Shuffle works on Hercules, CGA and EGA with the corresponding improvements in graphics.

It is basically a picture matching game with a lot of Levels, Games and Options. It tests the player's memory and concentration skills.

Aimed primarily at youngsters it is fun for any age and features great graphics. Registration benefits include over 260 quality colourful cards for this game, divided in 3 categories :-

A) For young children the Fun Learning collection.

B) For older children and adults, educational themes are used to sharpen knowledge and provide more difficult puzzles.

C) for adults who love a real challenge.

This is an enjoyable and challenging game with an element of educational content. A novel variation on the old Concentration or Pelmanism game using playing cards.



Programming Tutorials

C and Turbo C Tutor (two disks)
Author: Coronado Enterprises
Registration: $39.95
Performance:7/10
Ease of Use: 8/10

Many owners of the PC like to try their hand at programming at some stage but are often put off by the price of commercial programs. Of course it's always the case that you don't know whether you're going to like it until you try it.

Fortunately there are plenty of compilers and tutorials in the shareware marketplace so for a few pounds you can try your hand at programming or just find out more with one of the many tutorials available.

One of the most popular high level languages is C. Whilst not the easiest to understand initially due to its fairly brief syntax, it produces fast, executable programs and is very versatile.

A good introduction to C and the more powerful C++ can be found in this tutorial package. It comprises two disks, the first is full of text files containing the tutorial which takes you from beginner through to intermediate level. The second disk contains a collection of source code examples to study and compile.

The author recommends the use of Turbo C, Power C or Microsoft C, if you want to try the examples out.

Drawing and Painting

Mouse Paint (one disk)
Author:
Flying Mouse Software
Performance: 9/10
Ease Of Use: 8/10
EGA/VGA required
Works on Windows

Now parents can avoid the mess of pots of paint and dirty water all over the place by giving the children a copy of Mouse Paint. If they enjoy colouring in they will love this program which is fun to use and stimulates use of hand-eye co-ordination. It offers a wide selection of colours in the palette and 29 different pictures to colour in.

The program is very straightforward and is therefore suited to any age group. When the main menu screen appears you have a choice of selecting a picture by pointing to the picture and clicking on it. The pointing finger cursor is for selecting pictures, when it changes to a crayon you can colour.

Point to the colour you would like to use and click on it. Now move the crayon over to the picture and click anywhere within the picture to fill that area. When colouring a picture the menu buttons will ask for verification (yes/no). You can colour any picture within its boundaries with any color that is available from the palette at the right of the screen. If you do not like the colour you have selected or a filled in area select another colour and paint over the top of the old colour.

Mouse Paint includes a useful ScreenSaver function. This will allow you to interrupt the program and return later to the same spot you stopped.

PC Draft II (two disks)
Author: Natural Software
Registration: $50
Performance: 9/10
Ease of Use 7/10

PC-Draft II is a high resolution pixel oriented drawing and graphing utility, which is designed to facilitate a variety of drawing and drafting needs.

You can produce drawings up to 1280 by 700 dots using the colourgraphic adaptor high resolution graphics mode (640 x 200 dots per screen). Such a drawing will more than fill an 8-1/2 x 11 inch printed output (at 150 dots per inch resolution).

Built-in functions allow you to draw circles, lines, boxes, arcs and curves; draw bar, line and pie graphs; create patterns with which to fill areas; cut and paste objects and save objects to files for later use.

PC-Draft is both menu driven and command driven – all drawing commands may be selected from the menus or may be entered by a single keystroke command such as [C] to draw a circle or [L] for line.

You can zoom in to precisely edit one pixel at a time, record graphic keyboard macros saved in files for later playback and for animation effects and load and edit fonts.

Drawings may be printed on a variety of printers including those compatible with IBM and Epson Dot matrix, HP Laserjet+, and HP DeskJet printers. Also you can save the output to the printer in a file for later batch printing.

You can save portions of the screen or full drawings in GEM IMG file format. These can then be directly imported into such DeskTop Publishing programs as Ventura Publisher and WordPerfect 5.0.

PC Draft II offers many more exciting features such as screen capture in all graphics modes, it's own programming language called PIX. Highly recommended, professional standard throughout.

Desktop Paint II (two disks)
Author: Compass Systems
Registration: £20
Performance: 9/10
Ease of Use: 9/10
Requires: Hercules or EGA/VGA graphics

The use of pictures can make a big difference to the appearance and readability of a publication. Most Desk Top Publishing programs have the feature for importing pictures but not for actually creating and editing them in the first place.

There is a wealth of what are known as 'Clip-Art' images available in the public domain but many of these need to be altered or enhanced to suit individual requirements.

This is where Desktop Paint steps in. You can use it to create a drawing from scratch or, load in a suitable clip-art picture and edit it.

It offers all the standard drawing features plus a selection of graphics tools. Formats supported include IMG, TIF, PCX, MAC and WPG. A mouse is required.

Desktop Paint is an excellent drawing program. It is designed more for professional quality Desk Top Publishing applications rather than just as a children's doodler, hence it is not in colour.

Fingerpaint
Author: Poisson Technology
Registration: $32
Performance: 9/10
Ease of Use: 8/10

Fingerpaint is an excellent drawing package suitable for all types of graphics adaptor - Hercules up to VGA. It produces PCX compatible screens and so can be used with most Desk Top Publishers either directly or via a translation program such as Optiks.

Commands can be selected by pressing the function key or click the left mouse button. Command can also be selected by double click or press the function key twice.

Four different fonts are included, and each font can have 81, 9x9, different sizes.

Fingerpaint features a Movie program which can display up to 9999 continuous frames for animation use. You can draw lines, boxes, circles, pyramids, 3-D boxes or free-hand. Fill or brush with a variety of patterns. Whether it is for serious artwork or as an amusement for the children, Fingerpaint is an excellent program.

For VGA users there is a special version called, needless to say, Fingers VGA.

Board Games

Chess & Checkers (one disk)
CGA required
Chess
Author: Ken Goodman
Registration: $15
Checkers
Author: J & J Software
Registration: $10
Performance: 7/10
Ease Of Use: 8/10

Two board games – chess and checkers (ie draughts) fit neatly on to this single disk and each offers a challenging and well-presented game.

Springer is a chess program for the IBM PC which offers several levels of varying playing' strength to challenge the vast majority of human players, as well as an excellent on-screen display of the chess position. The playing strength of this program is, quite frankly, not quite as good as that of the best commercial programs, though most human players should find it more than adequate in this respect.

You should have no trouble using the program if you already know how to play chess. Springer starts out in its normal playing mode, with the board shown on-screen in the format of a standard chess diagram. Moves are entered by using the 'arrow' keys to move an indicator around the chess board and the Enter key to select the piece you want to move and the square you want to move it to. If you press an invalid key, a help screen/menu will appear, providing brief instructions and allowing single-key access to special functions such as saving/recalling games in disk files.

One unique feature is the 'replay' function which goes back one move at a time making it useful for game analysis and for correcting amistake!

Checkers follows all the standard moves of draughts using an on-screenboard controlled via the numeric keypad.

The game accepts the Hoyle or Huff jump rules. However, the computer always uses the Hoyle rule during all Levels of play. Levels 2 and higher require you to choose between the Hoyle and Huff> rules of play. Once selected, the game rule cannot be> changed, except at Level 1 which requires no jump rule. these rules are explained in the documentation.

Sports Simulations

Cunning Football (one disk)
Author: Cass Cunningham
Registration: $18
Performance: 8/10
Ease Of Use: 8/10
Requires EGA/VGA

Cunning Football is probably the best interactive football game available, including any commercial games. It is a fun and exciting game oriented toward those of us football fans who have a relatively good understanding of the game of football, and really enjoy it.

It tests both skill and strategy, requiring a user to guide players as well as call plays. The program requires an IBM compatible computer with an EGA or VGA adapter. Cunning Football allows the user to select either the keypad, a mouse, or a joystick as the controlling input device.

Cunning Football simulates a real football game as closely as possible. It includes interceptions, penalties, and other subtleties found in football. However, it was also designed to be easy to use, so some realism was sacrificed for the sake of user friendliness.

After registering your copy of Cunning Football, you will receive an extended user's manual along with an expanded playbook. The manual has detailed explanations of all of the plays.

Dragcity (one disk)
Author: Richard Nikula
Registration: $12
Performance: 8/10
Ease of Use: 8/10

For anyone who enjoys the thrills and spills of a computer-simulated car race this program comes highly recommended. It requires EGA or VGA to run but of course this does give you the benefit of great graphics.

The game starts by your inheriting an old-style dragster with three speed gearbox and front mounted engine. These and the steering are controlled from either keyboard or mouse.

You need to maintain accurate control at all times to optimise performance and, with a clutch, you stand the chance of over-doing it and stalling the engine.

Once you have starting racing, you will change from the starting line view to the racing view. You'll have to get to know your car to determine the optimum points.

At the completion of the quarter mile, your ending speed, elapsed time, and best time for this execution are shown.

Seabattle (one disk) UK
Author: S. Rooney
Registration: N/A
Performance: 8/10
Ease of Use: 8/10

In the period between the early 1900s and just after the Second World War, the battleship was considered to be the capital ship of the world's navies. Starting with the British Dreadnought and culminating in the United States Iowa class of battleships, which were in action in the Gulf albeit using weapons not heard or dreamed of initially.

Seabattle is an historically accurate simulation based on these famous warships. The objective is for the player of either side to achieve the minimum conditions for victory. Victory is not simply determined by the number and type of ships sunk on both sides. There are four different types of objective a player may be set: 1) Destroy Enemy Naval Forces 2) Move Ships To Objective 3) Deny Enemy Its Objectives 4) Perform Raiding.

Seabattle requires either CGA or EGA/VGA. In its registered form it enables a player to take on the computer or another player whilst in command of up to 20 ships and more than 50 squadrons of aircraft (both carrier and land based)

Arcade Games

Jumpjet (one disk)
Author: Montsoft
Registration: $15
Performance: 7/10
Ease Of Use: 9/10
Runs on all screens

A popular mid-80's program called 'Striker' has been a part of many shareware libraries – it's main drawback being the use of the old-fashioned – 'IBM' CGA colours (blue, purple and white) and rather crude animation.

Jumpjet is a welcome improvement which retains the original compulsive gameplay but introduces modern smooth and colourful graphics.

To achieve authentic arcade speeds, the author has used a combination of Assembly Language and C in his programming. Even though there maybe 50 to 100 objects animating on the screen at one time, the game will have no problem processing the information quickly.

Running Jumpjet on a 386 33MHz machine will appear to run at the same speed as a 6MHz 286 machine. There are approximately 18 frames per second. You will notice, however, a reduction in speed on slower machines.

The first screen you will see is the main menu. This is where you can select from playing the game, introduction, saving the score, reviewing the score, registration and exiting the game. To select an item, use the up and down ARROW keys and press ENTER or press the capitalized letter of the desired item.

You can control your jet by pressing the ARROW keys in the cor-responding direction you want the jet to go. By pressing the same direction again, the jet will accelerate in that direction.

Pinball Wizard (one disk)

Registration: Public Domain

Performance: 6/10

Ease of Use: 8/10

Requires CGA

A few years ago there was a commercial program called the Pinball Construction Kit. It could be used to design all sorts of different pinball game simulations including all the standard features such as springs, rubber wheels, booby traps etc.

This disk contains five different Pin tables designed this way.Each is sufficiently different to present new and interesting challenges. The scrolling of the ball is very smooth and the movements around the pin table look realistic.

There is a neat scoring system which allows for individual or team play. The only disadvantage of this set is the miserable old IBM standard three-colour graphics.

If you can't get enough of this sort of thing, there are two other disks in the series, each containing five more games -Pinball Fanatic and Pinball Madness.

Moraff's Superblast (one disk)

Author: Moraffware

Registration: £35 for complete set of games

Performance: 8/10

Ease of Use: 9/10

There have been many games based on the original Breakout theme where your task is to bounce a ball at a wall using a simple paddle, chipping away at the bricks until you get to the other side – but none of them is in the same class as Moraff's Superblast.

This one has so many new features that it brings a whole new life to the theme. The action is fast but not so fast that the game is unplayable (and it can be adjusted) but interest is sustained by the fact that each time a screen is completed a totally new and very different one comes up.

The variety of objects is also quite wide, some break up, some explode into a myriad of more balls, some bounce off, some make your paddle bigger, others make it smaller, others are one-way only.

The program has been cleverly designed to work on all types of monitors and adjusts the resolution and graphics accordingly.

This is the sort of game you shouldn't start late at night or you'll be going to bed in the small hours!

Robomaze III (two disks)

Author: MVP Software

Registration: $15

Performance: 8/10

Ease of Use: 9/10

A great follow up to Robomaze II - see last month's Shareware Review. Sub-titled The Dome, it compares favourably with virtually all shareware games currently on the market. Robomaze III comes in CGA and EGA versions and you must specify which type you require before ordering. Needles to say the graphics are best on the EGA version.

The theme of the game is that you control a Stalker robot searching for keys, weapons and equipment; enter mysterious underground hide-outs; battle enemies; encounter deadly poisonous plants, and more.

Your task is to find the evil dictator and free your country from his tyranny.

A great combination of adventure style intrigue and thinking, as you try to find the secret treasures and items necessary to complete the game, and arcade action battling 14 different enemies to win the game. 25 different graphics screens, outstanding 16 colour, 640x200 hi-resolution colour graphics (on EGA version) and addictive gameplay

Hi Resolution Games



Captain Comic (one disk)

Author: Michael A. Denio

Performance: 9/10

Ease Of Use: 8/10

Requires EGA

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

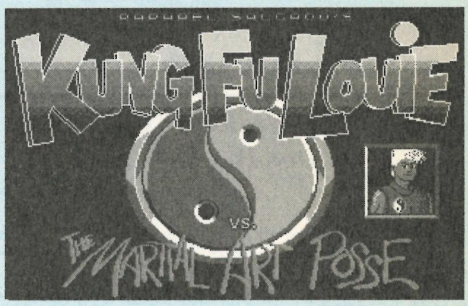
Your task will not be easy, you will need to gather tools to increase your fighting and defensive capability, navigate dangerous terrain,and avoid or destroy a hoard of deadly creatures. It will take all of the Captain's skill and wit to see the treasures returned to Omsoc.

The Captain Comic character displayed on the screen is controlled from the keyboard using the cursor control keys. The Space Bar makes him jump and, once he has collected his first can of BLASTOLA COLA the Insert key makes him fire.

When COMIC has possession of the DOOR KEY, this key is used to open doors. To open a door and pass through, position COMIC in front of the door and press Alt. The door will slide open and COMIC will disappear, finding himself elsewhere.

When COMIC has possession of the WAND, this key is used to teleport to another place on the screen. Press Caps Lock and COMIC disappears in a cloud of smoke, and re-appears in a new place on the screen. The teleportation is not random, and when used properly, can allow COMIC to reach places on the screen that are normally inaccessible.

COMIC starts the game with 5 lives, and no objects in his inventory.The game will end after COMIC retrieves all three treasures or when all spare lives are exhausted. The treasures include rare gems, a sack of rare coins and a jewelled crown.



Kung Fu Louie (three disks)

Author: Unknown

Registration: $30

Performance: 9/10

Ease of Use: 8/10

Requires EGA/VGA

In the history of the New York City brawls, groups of vigilantes,gang-bangers and renegades, otherwise known as ruthless streetfighters, stormed the neighbourhoods. Through constant battles and rumbles, the leaders arose, bringing a new breed of mayhem to the streets. Karate, kung fu, tae kwon do, shinobi-jutsu/ninjutsu, and all other martial arts quickly became influenced with the 'art' of streetfighting. Soon, corrupted masters and students began to take control of the streets.

Now, it's Kung Fu Louie to the rescue. His task is to rid the city of the streetfighting gangs. He needs your help to control his movements and actions.

Two karate students have got together with a team of programmers to produce a high quality game which compares very favourably with commercial equivalents, both in terms of the excellent animated graphics and the realistic game play.

Highly recommended commercial standard animated graphics game.

Text Adventure Games

Colossal Cave Adventure

Registration: Public Domain

Performance: 6/10

Ease of Use: 9/10

Back in the days when a computer filled a room and it was controlled by a series of terminal often in another room, all the programming was of a rather"serious' nature. Inevitably as the programmers got a bit tired of all this and, presumably in their lunch breaks, but probably at other times as well, they started trying to write lighter programs to give a little relief from the other dull stuff.

In those days the screens were all monochrome text only (no graphics – not even Hercules) and a 'Teletype' was the often method of entering instructions and receiving messages back from the computer on a print out (no joysticks either).

No-one really knows who started the idea but the first and most enduring game to be created on these main frame computers was what is now referred to as a text adventure. Basically it is story with which you can interact to change the outcome.

The computer sets the scene (text description of course) and, by issuing simple instructions (such as Go North or Take Key or Light Lamp) you explore various locations with the intention of finding the pot of gold in the cave without getting caught by the various traps and monsters lurking about.

Colossal Cave was the first and most well known text adventure and continues to be popular even to this day. It still stands up well to the more modern graphics adventures which show all the scenes on the screen and often allow you to point and select your options without doing any typing. The main reason that it endures is that it forces you to use your imagination which can often be more interesting.

Has anyone ever finished it?

Aliens Laughed At My Cardigan

Author: A M Boyle

Registration: £30 for an adventure tailor-made with you in the leading role.

Performance: 7/10

Ease of Use: 9/10

With a title like that, you've got to try the program! And, if you enjoy a challenge along with a laugh you won't be disappointed either.

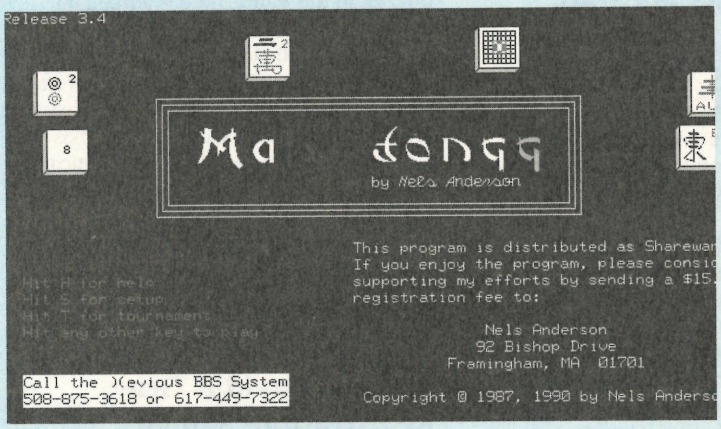
Aliens Laughed At My Cardigan is produced by a young UK author who clearly has a rather off-beat sense of humour. His style is of the Hitchhikers Guide to the Galaxy and Infocom type.

The scenario opens with you relaxing on a garden swing after celebrating your birthday. As you while away the hours an alien spaceship descends on to your lawn and two weird beings walk out of the lower bay door.

They stare and point at you then, when you ask them what they want, one says to the other, 'Is that a totally bogus cardigan or what?' Within seconds it pulls out a ray-gun, points it at your cardigan and shoots. Your cardigan fades away to nothing. Your mother bought it for you last Christmas so you know you're now in deep trouble. So what do you do next?

Combines a sense of absolute nonsense with classic adventure gameplay.

Card Games



Mahjong (two disks)

Author: Nels Anderson

Registration: $22

Performance: 8/10

Ease of Use: 9/10

Mahjong is an ancient Chinese game whose origins are supposed to date back some 3,000 years. This version has similarities to solitaire played with cards and also with dominoes since it is played with tiles. When I first discovered the game my initial impression was that the game would quickly become dull but having played it for a while and having given it to friends we've all found that it is quite addictive despite its apparent simplicity.

This disk contains versions of the game suitable for all types of screens.The object of the game is to remove as many of the tiles from the playing board as possible within the rules of the game. Tiles are always removed in pairs and can only be removed from the left or the right edges. Any tile that is not on a left or right edge is considered blocked and cannot be removed. Note though that the tiles are arranged in five levels and each level has a left and right edge so there are many more unblocked tiles than it would first appear.

Note that the tile on the top of the pile blocks all four tiles below it, and tiles on row five block both rows four and six.

Global Battle (one disk)

Author: Phil Munnelly

Registration: £6

Performance: 8/10

Ease of Use: 8/10

Global Warfare Simulator is, as its name suggests, about a world at war. The game is played by up to ten players, any number of which can be a human players. All others are controlled by the computer. If no human players are set up then the game will play as a simulation.

Each world is divided up into a number of continents which are themselves divided up into regions. Each region is occupied by one or more armies of a single player. The ultimate object of all players is to take over the number of regions required to win the game.

After the initial option setup, the game begins by allocating the initial armies to each player. The number of human players will have been set up as part of the initial options.

Each game turn involves each player being allocated additional armies depending on the number of regions held, with bonus amounts being given for controlling complete continents. The player can opt to attack a region of another player during their turn, but in doing so loses the armies generated by the regions (but not the continents).

Graphics Adventures

Kingdom of Kroz II (one disk)

Author: Apogee Software Productions

Registration: £9.95

Performance: 8/10

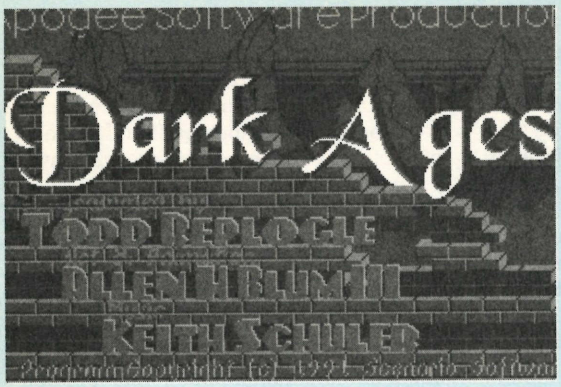
Ease of Use: 9/10

Kingdom of Kroz II uses high-speed 16-colour text-based graphics and therefore works on all machines. It features a tremendous sound effects library.

This shareware game is the first in a series totalling seven different games. The author has adopted an unusual and effective method of registration. instead of asking for payment for this, the first game in the series, he asks satisfied users to pay for the subsequent games in the series.

You must navigate through dangerous chambers, solving puzzles and avoiding pitfalls. Collect gems, whips, chests, nuggets, tablets,keys and scrolls to aid your progress. This game is as much strategic as it is pure arcade fun.

A unique combination of arcade action, strategy and adventure unlike any other game you've played. Some levels are puzzle orientated, which makes a great change of pace from the high action parts of the game. No two games are alike!



Dark Ages (one disk)

Author: Apogee Software

Registration: £19.95

Performance: 9/10

Ease of Use: 9/10

Dark Ages is the first shareware game to support the Ad Lib and Sound Blaster music cards. It features a movie-style soundtrack of eight unique songs and themes. It also has sound effects that don't require an Ad Lib (or Sound Blaster) card to enjoy.

The EGA/VGA graphics are colourful and stunning, with fast scrolling screens and high-speed animation. Dark Ages has such demanding graphics and animation that it requires an 80286 (or80386) machine to run at proper speed, otherwise it may run too slowly. Therefore, Dark Ages may only run on the newer, faster PCs and compatibles.

In the game, you're the Prince of the Great Kingdom, who as a child watched your father die at the hands of Garth, a power mad warlord with uncanny magical abilities. Garth sent you away from the Great Kingdom to be raised as a peasant, and to never fulfil your destiny as the future King.

But Garth made a terrible mistake. The very peasant he choose to raise you was once the Kingdom's greatest hero, long sincere tired and forgotten. And over the years you were raised as a warrior and as champion of justice, and the time has come for you to claim your heritage, and free the Great Kingdom from the dark age of Garth.

Hugo's House of Horrors (three disks)

Author: David P. Gray

Registration $19.95

Performance: 9/10

Ease of Use: 9/10

Requires EGA graphics

Hugo's House of Horrors is an exciting and challenging adventure game for all ages, using a combination of colourful three-dimensional animated graphics and text. You control Hugo's destiny as he tries to rescue his sweetheart, Penelope, imprisoned somewhere inside the haunted house, and must solve the various puzzles and challenges encountered during his quest.

To move Hugo, use either your arrow keys or the numeric keypad.If using the keypad, diagonal movement is possible.

Use simple English to instruct Hugo to perform an action. For example "Look around" or "Look at door" to look at things. To pick something up try "pick up the gold" or "get gold" or "take gold" Many synonyms are allowed but if Hugo doesn't seem to understand, try re-phrasing your command.

Certain actions carry a bonus score when carried out, as does picking up useful objects. When you have successfully completed the game, your score should match the maximum score shown on the status line at the top of the screen.

If you have trouble solving some of the puzzles in this game,there is a free hint booklet available. This contains a range of hints, from subtle to obvious, for each room.

To obtain your hint booklet you have to register. The registered version allows you to record and playback games and comes with a pre-recorded game which automatically runs from start to finish,achieving the maximum score possible.

This is a very good example of the quality games now available as shareware.

Hugo II WhoDunnit? (one disk)

Author: David P. Gray

Registration: $20.00

Performance: 9/10

Ease Of Use: 9/10

Requires EGA and Hard Disk

It's adventure time again as Hugo and Penelope get swept up in another superbly animated 3D EGA extravaganza! This time a murder mystery is afoot with a couple of fiendish twists and a large helping of humour along the way.

Just look what's in store; a revolving bookcase, a saucy French maid, and a murderer!! Hugo II, Whodunnit? follows the same look and feel of Hugo's House Of Horrors but with many more screens and characters. If you enjoyed the original Hugo adventure, Hugo II is a real treat in store for you!

Use simple English to instruct Hugo to perform an action. For example "look around" or "look at door" to look at things. To pick something up try "pick up the gun" or "get gun" or "take gun" etc. Many synonyms are allowed but if Hugo doesn't seem to understand, try re-phrasing your command.

If you have trouble solving some of the puzzles in this game, there is a free hint booklet available to registered users.

The Lost Adventures of Kroz

Author: Apogee Software

Registration: £9.50

Performance: 8/10

Ease of Use: 9/10

Apogee Software has written seven different graphics adventures in the award-winning Kroz series. Kingdom of Kroz II (reviewed in last month's PC Review) and this one are both released as shareware and require no additional payment but if you require other volumes in the series you will need to send £9.50 to the author – several shareware libraries stock these registered versions.

Lost Adventures of Kroz features creature animation, constantly growing forests, gravity wells, ropes, spears, daily diaries, and more! If you survive the 75 levels you'll get to read the sacred Tome (book) of Kroz that explains the untold stories that players have demanded. Also, for Rogue players,you'll finally get the Amulet of Yendor!

All Kroz games have 16-colour graphics and a tremendous sound effects library. In each game you must navigate through dangerous chambers, solving puzzles and avoiding pitfalls.Collect gems, whips, chests, nuggets, tablets, keys and scrolls to aid your progress. These game are as much strategic as they are pure arcade fun.

All Kroz games are designed to work correctly on any computer system, regardless of microprocessor type or speed. Although they are best played on a colour system, they do have an option to be played on a monochrome system.

Card Games

Klondike (one disk)

Author: EM Software

Registration: $15

Performance: 8/10

Ease of Use: 8/10

There are many card games available in shareware but this one stands out in terms of the slick appearance, clean cut EGA graphics of the cards and overall entertainment value. It is played solo as it is a variation on the classic solitaire or Patience theme.

The Klondike layout is based on a deal of 28 cards in 7piles. The first pile at the left has one card, the second two,and so on, up to seven in the last pile. The top card of each pile is face up and the normal rules for solitaire apply as you work through the remaining set of 28 cards.

Klondike, as played by its original rules, is very hard to win (it has been estimated that the chances of winning are one in every 30 games!) and thus can be a bit frustrating. Two popular variations greatly increase the odds of winning. Under the first variation, cards are moved from the pack to the waste pile in groups of three, and you can go through the pack as many times as you wish, ie, once the pack is exhausted, you move all the cards from the waste pile back to the pack. Under the second variation,cards are turned up from the pack one by one.

To add interest to the game, a gambling element is introduced. You pay $50 for the deck, and get $5 back for each card you are able to place on the foundation piles. Under variations 1 and 2, you can go through the pack multiple times,but you lose $3 for each extra pass on variation 1 and $10 for each extra pass on variation 2.

Klondike requires at least EGA graphics and a mouse.

Two Bridges (one disk)
Author: WR Software
Performance: 8/10
Ease Of Use: 8/10

Bridge is often regarded very seriously by enthusiasts and therefore a lot of time could be spent in sharpening up your game. It may ofcourse not be possible to gather round three friends to play and in some cases you may not want to play with them until your playing abilities have improved.

So in comes your trusty computer to stand in – no arguments and no criticisms if you play a wrong hand either.

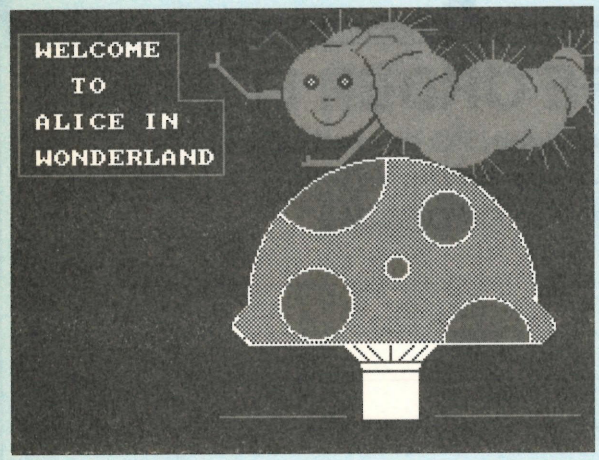
This disk actually has room on it for two different Bridge simulations: each has its relative strengths but both offer a practical solution to the need to practice on your own.

BridgePal is particularly useful as the manual that accompanies it on the disk not only tells you how to use the program but also describes the card game of bridge itself.

You can select HELP on the first BridgePal menu for a briefintroduction to the program. If you have played bridge before, this HELP information may be the only thing you'll need to read.

So now you can brush up your Bridge playing without embarrassment!

Classic Adventures



Alice in Wonderland
Author: R.C. Johnson
Registration: $10
Performance: 7/10
Ease of Use: 8/10

Alice in Wonderland is an adventure game based on Lewis Carroll's novel, Alice's Adventures in Wonderland. Although you need not be familiar with the novel to play, there are occasionally places it would help.

However, you will notice immediately (if you know the novel),that the author has added some possibilities that Lewis Carroll never thought of.

This game is meant to be played as an accompaniment to reading the novel, to make a great literary classic more interesting (as if it needs it). Reading the novel and playing the game as a supplement can be extremely engaging for adults and teenage children. Younger children may find the game too difficult.

There are 16 objects in Wonderland to interact with. You'll know them when you see them. You may pick them up, drop them, put them in your apron pocket, or manipulate them in a few other ways.

There are 10 creatures or other characters you can interact with.You may talk to them with the command TALK. You can interact in other ways, as well. These are the characters from the novel.They will behave in roughly the same way as they do in the novel.Some pose danger, some can help you, and some are merely there.

You will disk over that your size can change in this game. You start out your normal size, and then may grow or shrink,- depending on your actions. At times, you will have to be very small to accomplish certain tasks.

Fun and Games

Arcadia (one disk)
Author: Various Mostly Public Domain
Performance: 6/10
Ease Of Use: 9/10

Quite a few smaller games were written for the PC in the late 80s and we have gathered most of the good ones together in a series of Games Compendiums. Arcadia contains several classic programs which continue to entertain despite the lower resolution CGA graphics.

Arcadia features Digger, Mario Brothers, Snipe, Snakepit, Pearl Harbour, Wimps and RLogic.

All programs are easy to run and require no special setting up – in fact they can all be run from a start-up menu.

The selection offers plenty of entertainment for all ages.

68 titles

Author Various Mostly Public Domain
Performance 6/10
Ease Of Use: 9/10

Another very popular selection of classic games - most of whichrequire CGA graphics.Fun & Games features Pango, Bouncing Babies, Elevator, Centipede,Pyramid, Dragons, Pac and Osbit.All programs are easy to run and require no special setting up -in fact they can all be run from a start-up menu.The selection offers plenty of entertainment for all ages.

Pop Quiz (one disk)
Author: Software Creations, Inc.
Performance: 7/10
Ease Of Use: 8/10

Pop Quiz (or Rock'N'Roll Trivia) can be played by 1-4 players.

The object of the game is to be the player that scores the most points. Points are earned by answering trivia questions that appear on the screen. Each correct answer is worth from 1 to 100 points, determined by the amount of time that it took to answer the question.

On the screen are displayed the Counter which ticks off the time allowed to answer each question (The number of points awarded for a correct answer is determined by the amount of time left on the counter), the message box, the Questions Window, the Answers window (multi-choice) and the spinner which determines which of the six categories will be used for questions on each turn.

Pressing any key stops the Spinner at a category on which a question is asked, offering a choice of four answers from which the player must make his or her selection.

If the wrong answer is chosen, a message stating so will be displayed in the message box. If you wish to see it, pressing F1 at this point will display the correct answer. It will then be the next player's turn.

If the question is answered correctly, the number of points awarded is displayed in the message box while the player's score is added to in the Players box.

The game ends when any player answers a question correctly in each of the categories, and thus receives all six stars. The winner of the game, however, is determined by total points, and this is not necessarily the person who first gets all six stars.

Registered users get 1000 additional questions.

Christian Software

Discover the Bible (one disk)
Author: Ronald Byxbe
Registration: $15
Performance: 7/10
Ease of Use: 8/10

This program combines the entertainment value of an adventure game with the teaching of important truths from the Bible. All scripture quotations are from the New American Standard Version.

As in any adventure-style game, you should save frequently, especially when you reach points of decision (but see Bug alert,- below). If you seem to be stuck, wait a while. Something good (or bad) may happen to you and give you a clue as to what to do next. Also, many of the events in the game are random, so play will vary from one run to the next.

If you are a newcomer to computer games, basically, adventure-style games are like a novel where you decide what happens next. You can change your position (n, s, e, w) or manipulate objects to steer the action wherever you would like it to go. You then experience the consequences of your actions.

In addition, the disk also contains a good Bible Quiz.

THE ADVANTAGE TOP 50

1 (1).CLASSIC GAMES
2 (2). TUTOR COM
3 (3). PRINT PARTNER
4 (6). WORLD ATLAS
5 (5). PC KEY DRAW
6 (10). HENRIETTA'S BOOK OF SPELLS
7 (12). AMY'S FIRST PRIMER
8 (13). FRENCH TUTOR
9 (24). GALAXY LITE
10 (14). PRINTER TOOLBOX
11 (16). HOORAH FOR HENRIETTA
12 (15). EXPLORING WORDS
13 (3). PRINT SHOP
14 (20). ANDY'S WORD GAMES
15 (17). ARCADIA
16 (18). EDUCATING JUNIOR
17 (19). MATHS TUTOR
18 (18). FUN WITH MATHS
19 (19). DUKE NUKEM
20 (21). DUNGEONS AND DRAGONS
21 (21). DARK AGES
22 (25). PC FILE V
23 (32). AS-EASY-AS
24 (22). ESSENTIAL UTILITIES
25 (23). NIFTY NUMBERS
26 (26). CROSSWORD SOLVER
27 (27). ZEPHYR DATABASIS
28 (27). MUSIC MAESTRO
29 (36). LEARNING MATHS
30 (29). FUN AND GAMES
31 (28). GENE GENIE
32 (32). MUMMY'S BUSY
33 (30). GRAND PRIX
34 (31). HELPDOS
35 (35). DESKTOP PAINT
36 (47). FAST TYPE
37 (34). KEEP THEM AMUSED
38 (37). EXPLORING MATHS
39 (39). PC DRAFT II
40 (35). STAR TREK
41 (46). SOCCER STAR
42 (41). CIRCUIT DESIGNER
43 (43). DESK COMMANDO
44 (40). WACKY WORDS
45 (45). POWER CHESS
46 (46). FORM GENERATOR
47 (44). FORM MASTER
48 (42). DISK COMMANDO
49 (45). POWER MENU
50 (50). KINGDOM OF KROZ II

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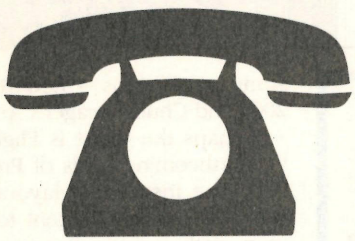
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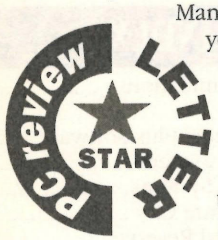
Dear PC review

Computer addiction, more on copy protection, the lack of arcade games for the PC, and our cover disk all come under scrutiny this month.

Blinkered attitude

I am writing in response to Ainsley Fernando's Star Letter of Issue 2. He has obviously got an extremely blinkered attitude or else he has never played a good PC game. He would probably argue the latter.

I originally owned a Commodore 64 in 1983 and I still have it. I remember being stunned by the latest graphics in Elite and spending 12 hours playing Football Manger when I first played it. The home computer industry was young and every step seemed to be the last word in technology. The games were original because nothing had gone before them.



However, that was nine years ago. I would challenge Mr Fernando to play those games again on the Commodore, and compare them with a good PC game – and there are plenty of them.

I am now bored playing Elite with slow, jerky line vector graphics, and would rather play Wing Commander and Chuck Yeager's Air Combat with fast, smooth full colour graphics. Recently I spent hours on end completing Prince of Persia and Bard's Tale 3, and both captivated me.

I agree that budget is £1.99 and full price is anything above a tenner, but when Chuck Yeager is 10 times better than Elite, then I am willing to pay three times as much.

I also agree that graphics and sound at the loss of playability is a tragic mistake to make – which is why I don't buy Sierra games any more – but when companies like LucasFilm can produce both, where the great gameplay is supplemented by excellent graphics and sound, I'm not complaining.

And give me a hard drive over a cassette any day.

Joseph Pepper
Radyr
Cardiff

Hooked on games?

I enclose some comments on computers and health (with regard to Quit, Issue 3). From Dorland's Medical Directory:

- Addiction: Physiologic or psychologic dependence on some agent (eg alcohol, drug), with a tendency to increase its use.
- Agent: A person or substance by which something is achieved.
- Obsession: An unwanted idea or impulse that persistently intrudes into consciousness.
- Compulsion: An overwhelming urge to perform an irrational act or ritual.
- Habit: An action which has become automatic or characteristic by repetition.
- Fixation: In psychiatry, the cessation of the development of the personality at a stage short of maturity.

These definitions are rather academic. To describe the pathological use of computer/arcade/video games, and by that I mean the usage to the degree where there is clear damage of the individual's life (marriage, school work, social contacts, exams, etc), obsession or compulsion, are probably best. Neither is perfect since you could argue that the act is neither unwanted or irrational. It is probably however irrational to jeopardise a marriage, relationship or career in the quest for top score at Tetris! Compulsive computer gaming would be my choice of term.

As for other health effects, in my brief look at some recent references, there seems to be the the following main areas of concern:

- Behaviour problems arising from pathological use of video games – probably the most worrying area although only in a minority of computer gamers does the problem reach this degree.
- Seizures in a small number of susceptible individuals. This is not really the fault of computer games.
- Electromagnetic fields and pregnant operators – no good evidence that the unborn baby is at risk. Does seem to affect mice!
- Eye symptoms – plenty of evidence that short sight, eye strain and headaches can be caused by hours in front of the screen, particularly if brightness, contrast, etc, is not right. Moral: take a break, and set the screen correctly.
- Skin complaints – no evidence that rashes, etc, are due to VDUs.

I hope this is of interest, if not help.

Ian J. Kenney
Brighton

A matter of detail

With the recent influx of flight simulators, it has become apparent to us that the standard of cockpit graphics on modern day aircraft is appalling. There are some exceptions – Red Baron, Gunship 2000 and Chuck Yeager's Air Combat.

Perhaps the worst is Flight Sim 4.0, and the forthcoming Birds of Prey looks just as bad. The instrument layouts on the computer are totally different to the actual aircraft, with many instruments and controls missing. Other bad games in this respect are F-117A, F-15 Strike Eagle II, Jetfighter 2, and MiG29 Super Fulcrum.

With VGA now standard on most machines we think that the cockpit instruments could easily more accurate to the real-life counterparts. The customer has to pay around £40 for a new game nowadays and for this much we should get better manuals and attention to detail.

Matt Lane and Rob Love
Lichfield
Staffs

Price sensitive

I am 13 and cannot afford to buy full price games so I have to wait until they are re-released at a budget price. There are quite a few budget games which are good – Xenon II, Indiana Jones and Populous – buy most are, to say the least, 'elderly'.

It would be helpful if PC Review reviewed budget games because as I buy my games mail order all I know about them is their name on a price list.

J. Watson
Bristol



We do look at budget games as they come out, but tend not to devote reams of space to the re-releases. Keep an eye on the Games That Got Away page for a checklist of titles each month.

Smashed windows

I was stunned by the standard of your cover disk featured in issue 3 and its highly readable contents. For the first time I read a computer entertainment magazine thoroughly.

I don't think the criticism by Peter Tetley was too sensible. As a computer consultant, he should know that all games – except some shareware titles specifically written as Windows 3.0 programs – are designed to be run under DOS. Windows will drop you out of DOS and let you run them in full-screen mode while it is still resident in memory.

It is possible to set PIFs and run some of them in a Window in Enhanced mode but the result is not very satisfactory. Some get away with it because they are not hardware intensive. But highly technical software,

like simulations, may crash.

The fact is that in years to come, Windows should be strictly be running programs with Windows capabilities but not acting as a shell to run DOS programs in a prettier fashion.

Mr Tetley should also realise that to write games in 32-bit mode is a killer, and if you want 256-colour games to run within Windows, it would require even higher specification than his Tandon 386/25. At least he has to upgrade a SVGA card withe extra chips and special Windows drivers. But you have to find someone to write that game for a start.

Believe me, DOS 5.0 and Windows 3.0 is not the best operating system. Until the industry is standardised we are all stuck. This is down to the manufacturers, not the publishers, Mr Tetley. I just can't imagine the kind of games he's playing. Buy a more expensive piece of software instead of purely shareware titles and he will see the difference.

A lot of shareware titles are damn fine but to finance an enormous game project requires a lot of money and people. Most freelance programmers are just not up to it. If you want to get more out of a game, you simply have to pay more.

Danny Hui
Lenton
Nottingham

Over protective?

I feel even more strongly about copy protection than Mr Tetley (issue 3). Having been caught out in the past where 5.25" key disks would not work on my portable, or other protection schemes rendered software unusable after a restore following hardware problems, I will simply not buy over-priced software to put up with this type of irritation. like a number of the correspondents to this and other magazines, I blacklist companies whose measures I cannot live with.

When I upgraded my machine earlier this year, I just restored all software and data on to the new machine using a back-up program (Central Point Backup – part of PC Tools), and carried on as before, only faster and with more free disk space.

However, it was necessary to set-up the 5.25" drive as drive A to cope with my few remaining products which require a key disk. This causes me considerable inconvenience with packages that will only install from drive A (DR DOS 6, for instance).

While wholeheartedly disapproving of pirating software, those of us honest to pay for what we use deserve not to suffer to the degree that is still common. The latest innovation from some software houses is to ask the user to 'register' his name or company when installing software and this is written onto the original source disk. This greatly increases the risk of infecting the source disk if the target machine has a memory-resident virus present.

I have been happy with some of the sensibly priced (relatively) software I use regularly, such as Campbell's Masterfile (database), Tasman's Tasword (WP) and a host of (registered) shareware packages.

Pete Biss
Luton
Bedfordshire

Point of fact

The answer given to Dave Cheam (Q &A November 1991) concerning DOS 5 on an Amstrad 8086 doesn't make one point clear.

You state that one of the advantages of DOS is its ability to load device drivers and TSRs in upper memory. This is true – if you have hardware which can do memory mapping, ie a 386 or better. This is precisely not the case on his existing 8086.

DOS 5 should run on a 8086 – I haven't tried it – and there may be other advantages in doing so, but high-loading isn't one of them.

Giles Pallister
Hanwell
London

Sheer frustration

I must express my disappointment and frustration at the new cover disk menu and to ask for some help. I have been unsuccessful at getting any of the past four cover disks running – namely Pit-Fighter, Powermonger, Lemmings and Gods.

I have an Amstrad dual drive 1640 and no hard disk (is this essential?) I followed your instructions carefully and have run up against the following problems:

A) I cannot get disks to decompact onto a blank disk.

B) I run into Write Protect error messages.

C) If I copy your disks first I find that I get caught in a loop. The program keeps going through the decompacting process and I never reach the game.

D) Finally, I took the Write Protect off the master disk and things went a little better until I saw the message that the game was too big for my machine and I had lost the Typing Tutor! Try as I might, I cannot get through to any to any of the games.

Can you please offer any advice – simple instructions, please – for use on my machine?

Mrs L Smith
Swindon
Wilts

Demo disappointment

Being a keen Lemmings fan I especially looked forward to play the four new levels enclosed on the demonstration disk of issue 3. I also thought I would try my hand at Gods on the other disk. Unfortunately, neither of these disks would run on my machine.

I own an Amstrad PC1640 DD with a 16-colour high resolution EGA monitor. I have two 5.25" disk drives and a 286 processor. Yet I was unable to decompact the games onto another disk to load them. The question is: why?

Do you need to own a hard disk to load the games? If so why isn't this fact clearly displayed on the cover of the magazine? If you can run the games off a floppy disk drives, where are the instructions to do this? They are certainly not with the rest of the cover disk information. Not being able to use the demonstrations has left me disappointed.

R.N. Weeks
St Albans
Herts

PC review REPLIES

There is no reason why you shouldn't decompact the Lemmings/Gods cover disk demos to another floppy disk drive, simply by typing N to the on-screen query "Is the directory C:\WHATEVER OK?", and replacing it with your choice (probably B:\WHATEVER in this case). We've done it ourselves in the office hundreds of times. However, that having been said, we have had a few queries from readers on this point, all of whom have dual floppy Amstrad PC1640s. At the moment we're not sure why this should make a difference, but we are investigating and as soon as we can make the necessary modification, we'll let you know.

Gung ho and action-crazed

If PC Review is The Complete Guide to PC Entertainment why is there only about one arcade game, three sports simulations and no driving games and so many boring, intellectual strategy and role-playing games? I know this is because not enough are made but why review some old classics like Prince of Persia and Rick Dangerous 2 for us gung-ho, action-crazed, speed demon sports fans. You could also review budget games.

James Hasson

PC review REPLIES

We review as many of the latest games as we have space for each month, and we do try to come up with a representative selection each time, based on what is available. As for retrospective reviews, we covered 100 top titles in our Issue 1 and Issue 4 supplements, and from next month, you'll find this section of the buyers' guide expanded substantially.

Sticky problem

I am responding to D. Crabtree of Leicester, and his problems with joysticks. I use the Soundblaster joystick port with a Konix Speedking joystick and have also experienced problems. Not, I should point out, with the Soundblaster which is excellent.

The problem, which may be the same with the games he mentions, is the way the game uses the joystick port. A lot of games either come from Atari/Amiga conversions or are developed with them in mind. These machines use digital joysticks. The thing about this being you only need to sense if the joystick is 'on' or 'off' in a particular direction. To do this with an Analogue joystick is slightly more difficult as they return value not 'on' or 'off'. therefore, to work in the same way you must give values to 'on' and 'off'.

The problem comes if your joystick is not 'balanced' – ie the centre value does not occur when the joystick is centred. This results in a change of value for 'on' compared with 'off' not being great enough in some directions. Thus the joystick won't work in some directions.

I cured this by writing a program to constantly return the values and then adjusted my joystick to give values roughly halfway when it was centred. This, however, requires knowledge of BIOS and disassembling the joystick if the centre adjusters are inside.

Perhaps more software houses should include joystick calibration, like Microprose Soccer. This allows the game to set its 'on' and 'off' values with the joystick being used. If not, perhaps an article on how joysticks work would people to cure problems themselves.

M.J. Endacott
Totton
Southampton

On the cards

I am writing to represent all the owners of PS/2 30 owners with an MCGA monitor card. First of all, when reviewing games, in the Tech Spec box you do not include MCGA format.

For example, I was reading the review of Ultima VII, as I was interested in buying it, but did not know whether it would support my card. It was only when reading an advertisement that I found it did. Also with reference to cover disks. Only one game – Faces – actually worked in MCGA, while all the others caused just caused the screen to flash an irritating colour. Please can you include this format on future disks?

Jeremy Pallot
Barnes
London

Granted, Jeremy. From now on, we'll make sure we include MCGA compatibility where applicable in the Tech Spec notes, and on the cover disks.

Fair exchange?

I read your interview with Electronic Arts' MD Mark Lewis in the January edition with great interest. I was particularly pleased to hear that the company offered a cheap way of repurchasing games when you changed to a different format.

Having just upgraded from an Amiga to a 33MHz 386 with 4Mb RAM, 1Mb SVGA

SCREEN TEST COMPETITION

Many thanks for an extremely healthy postbag for this competition in which we asked you to identify VGA screenshots in order to win a Philips VGA monitor or copies of Deluxe Paint Enhanced. For administrative reasons, we're going to announce the winners in the next issue of PC Review, rather than this issue as promised. Watch this space!

PC Review Readers' Panel

PC *Review* is in the process of setting up a Readers' Panel, with a selection of readers who have a task that is short on glamour but long on responsibility.

This is an ideal opportunity for anyone who wants to have a real say in shaping the content of the magazine. Readers' Panel members will be asked to read the magazine in depth and submit their own opinions, thoughts and suggestions about coverage past, present and future on an on-going basis.

In order to attract a representative sample, we're looking for readers of all ages, with varying degrees of computer literacy and PC experience.

Initially we're setting up our first panel culled from those who have already had some involvement in the magazine through letters written, and inquiries made to the office and we're about halfway through.

If you feel strongly that you would like to be involved, write to Readers' Panel, PC Review, EMAP Images, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU, on about one side of A4 explaining why you think our panel needs you. Don't forget to add your own name and address and a phone number where we can contact you.

Please don't write in for this if you just have one specific point to make – that's what the letters page is for. We're looking for readers who are prepared to take some time regularly answering particular (and not so particular) questions about the articles and reviews in the magazine as a whole.

However, we will report regularly on what the panel thinks, and we will be ringing the changes every three months or so, so if it turns out you think our panel is getting it all wrong, you will have a further chance to participate in the future. This is your magazine. We really care about and take notice of your views and opinions. Together we can make PC Review even better.

We look forward to hearing from you!

card and monitor and a 112Mb hard drive, I am a little short of cash! As I still possess numerous titles for the Amiga, EA's Software for Life scheme as described by Mr Lewis seemed perfect as I did not want to spend huge amounts on buying games I already had. However, when I phoned EA to take advantage of the offer I was given details that were very different to Mr Lewis's version.

Firstly, I was asked to return the original software. While this is a perfectly acceptable way of stopping people abusing the scheme, it totally contradicts Mr Lewis's words "and we won't even ask for the first software back."

Secondly, he claims that "you only have to pay us the difference between the two prices." I was going to be charged half the PC version's price plus £1 for postage which would amount to considerably more.

Either Mr Lewis is misled himself or he is purposely misleading the public.

While adverts are closely scrutinised by an independent agency, interviews – used by interviewees for free publicity – are not. It is therefore up to you lot, the interviewers, to stop them misusing this predicament.

This, however, is the only fault I can find in an otherwise unblemished magazine. Keep it up.

Nicholas Gibson
London W11

PC review REPLIES....

We phoned Electronic Arts for clarification on this point. Unfortunately, we gather the rules concerning the Software for Life scheme were updated and made tighter between our interview taking place and publication.

What a bind

I have just ordered my subscription to PC Review and wondered where I can keep all my issues safely without getting bent edges etc. In certain magazines you can send away for a binder. Have you got binders?

Andrew Self
Solihull
West Midlands

Not yet, but they should be available in the not-too-distant future.

PC Review welcomes letters on any subject under the PC sun. The editor will chop them to fit the space if need be, and we'll assume letters are to be considered for publication unless you specifically state otherwise. Send all correspondence to Letters, PC Review, EMAP Images, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. If you have access to CIX (Compulink Information Exchnage) you can send your letters to our mailbox – our ID is pcreview.Star Letters win software prizes!

ON THE SPOT

Every month (or as near to it as we can make everyone's schedules fit) we visit one of 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, why PC games are so expensive (you might as well, everyone else asks that). 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 arranging our visit to Sierra, home of the King's Quest series and associate of Heart of China/Willy Beamish author Dynamix. This On the Spot visit has been heavily over-subscribed. However, you can still apply for a Sierra trip, since we almost certainly try to do a second one later in the year.

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, EMAP Images, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

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

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Address.....
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Daytime tel no:.....
Evening tel no: (leave this blank if you prefer)
.....
Age: Under 21 ❑ 21-35 ❑ 36-50 ❑ Over 50 ❑
Which company would you like to visit?
Domark ❑ Mirrorsoft ❑ Virgin ❑ Mindscape ❑
Microprose ❑ Sierra ❑ Other (if applicable) ❑
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Any particular reason for your preference(s)?
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Send this completed form, or a photocopy, to On the Spot, PC Review, EMAP Images, 30-32 Farringdon Lane, London EC1R 3AU.

PC Review 1992

PC review QUERIES Q&A

Bemused, bothered or bewildered about the mysterious workings of your PC? Confused by hardware options? Stricken with software seize-ups? Whatever the problem, share it with Q&A, and we will endeavour to help.

COVER DISK DEPRESSION

PC review Q When I tried to load the Gods/Lemmings/Gallery disk from the January issue, I was disappointed that it didn't load. I have an Amstrad PC2086/30 with EGA graphics – should the disk work on that format? The problem seems to be that after decompacting the game I can't load it as whenever I give the command, it just decompacts again.
Also, how do you log on to C:\GODS (C:\LEMM or C:\SHOW) when the prompt has to be A: for the disk to load in drive A?
Jack Murray
Melverley
Shropshire

PC review A **The idea behind the cover disk's decompaction programs is that the files are taken from the cover disk and decompacted on to a second disk – either a hard drive or a second floppy drive (but see also the Letters page, this issue). If your machine is a PC2086/30, you should have a 30Mb hard disk drive.**

After you select the program you wish to decompress from the menu screen, you should get a line asking you if the directory C:\GODS (or whatever the appropriate name for the program is) is OK. This means that the compressed files on the disk will be copied in uncompressed form to the directory C:\GODS. From your letter I would guess that barring a faulty disk, you are either copying over all files from the cover disk to your hard disk, so that the original compressed file itself ends up on the hard drive, or, having successfully installed the program, you are trying to run it from drive A: (as implied in your last sentence).

While you need to install the cover disk from drive A:, once the files have been decompressed and transferred, log on to the appropriate drive and directory by typing

C: [return]

followed by

CD GODS [return]

(or CD LEMM or CD SHOW, according to your examples above), and run the program from there.

Using the LEMM directory as an example, if you type DIR to produce a listing of all files in C:\LEMM, your screen should show the following:

These are the files resulting from correctly decompacting from the original cover disk.

GO FASTER

PC review Q At last, I finally managed to persuade my parents to buy me a PC for Christmas, but now I am upset already. I have an Epson EL2 with a 40Mb hard drive. This has an 80286 processor, but for some reason they have made the cpu speeds 6.7MHz or 10MHz Please tell me how to rectify this up to 20MHz or 30MHz.
M Clements
Sherston
Wiltshire

I am using a ICL DRS M30, with VGA and a 20 megabyte hard disk. It has a NEC V30 which I think runs at about 10MHz. I would like to add an accelerator card, but will it work in an XT and will I be able to fit an AT expansion slot? Will it make an improvement to the overall speed, will it boost it to over 25MHz? Will there be a 66MHz P5 or a 66MHz i486DX accelerator card in 1992?
BC Jackson
Crew

PC review A **Ok, some explaining of terms, XT refers to the IBM PC XT which was the first PC with a hard disk (the XT stands for eXtended Technology). AT is Advanced technology which refers to the first 286 PC – it has been hijacked by some manufacturers to mean 386 and 486 too, but it's best to avoid that usage.**

The AT had a 16-bit bus compared with the PC XT's 8-bit bus, which means that the AT bus is faster because it can carry data 16 bits at a time. The PC's (XT or otherwise) 8-bit bus as a rule of thumb won't take AT cards (though, just to add confusion, some do) because they are slightly bigger and need a 16-bit connector. Therefore an accelerator card that fits a 16-bit slot is different to one for an 8-bit slot.

Sota (distributed by CTS 0235 559944) does a 386SX card running at 16MHz for the PC (8-bit) bus, which will allow you to add memory to it that can be used as Extended memory. But that's just about as far as you can go. The AT bus is a different thing altogether and you won't be able to run AT cards in your machine.

Though the speed of the chip is important it is better to have a more powerful chip so don't just go for the megahertz rating, so in ascending order you go for 80286, 386SX, 80386DX, i486SX, i486DX. As for future trends; the P5 you ask about is the i586 and is likely to be around in the next couple of months (though not generally available until a fair while later), and it'll probably be clocked at about 20 or 25MHz. The 66MHz i486DX will be here soon as an upgrade to 33MHz 486DXs, and neither of them are likely to be appearing as accelerator cards for anything less than a 16MHz 386DX.

Meanwhile, Epson isn't being that stupid.

EXPANDED MEMORY

PC review Q I own a 286 with VGA and a 40 megabyte hard disk and up until recently I could run just about any game on the market. But just recently after purchasing Wing Commander I discover I cannot run the game to its full potential. I found it needs Expanded memory to run, I only have Extended configured on my machine. After trying three different memory managers none seemed to run on a 286. I phoned up Mindscape (the UK distributors) and they were unable to help me. My question is: is it possible to get an expanded memory manager for a 286 and why can't people who make games have them support Extended memory?
Colin Franks
Burpham
Guildford

I have a 286 with 4 megabytes of RAM. I know that if I had an 80386 this could be addressed as expanded memory and used with Games such as Wing Commander. Can I address my extra memory as expanded with my current processor? I have heard that an accelerator card will speed up my machine and give me the facility to change the memory.
AG Combes
Bockleton
Worcestershire

PC review A **Most, if not all 286, 386 and 486 PCs sold these days that have extra memory have it configured as Extended memory.**

Extended memory is usually installed on the motherboard (that is, on-board) and is literally an extension of the standard memory (because the memory

WING COMMANDER TROUBLE

Has anyone out there managed to get Wing Commander 2 running on an Amstrad PC2386? I've tried every possible CONFIG.SYS and AUTOEXEC.BAT, I've stripped out all unnecessary expansion cards so that the machine is exactly as supplied and I've upgraded to DOS 5 but with no luck.

I've been running Wing Commander I with no problems. I've been in touch with Mindscape and although they have been very helpful, I still can't get it to run.

The game seems to install OK but as I try to run it I get the messages 'Loading Wing Commander2 ... Expanded memory detected ... Expanded memory fully used', then the machine locks up completely. I would be grateful for any suggestions.

Robert M Foulger
Epsom
Surrey

After being bounced around Mindscape and waiting for half a lifetime for their hotline to answer – (0444) 239600 – I was told that it was a problem with the way the 286 works and that the only way out was to upgrade to a 386SX. Which didn't really answer the question. Well that's not good enough for PC Review so we decided to go the whole hog and sod the phone bill – I called Origin (the company which produces Wing Commander) in the US.

Having got no joy with their hotline I was eventually put on to a programmer who could answer my questions and it is very simple. The sound part of Wing Commander II runs in Expanded memory while all the other stuff runs in Base memory. The 286 the memory manager software that converts on-board Extended memory to Expanded memory is a large terminate and stay resident (TSR) program, this program uses base memory to live in and, to put it simply what's left isn't enough to run the main Wing Commander program.

The best solution to the Expanded memory problem would be to buy a card like the AboveBoard from Intel; the chaps at Origin say some cards aren't compatible so you should only buy if you have a guarantee of compatibility. This has all the mechanics for using Expanded memory built on-board. The down side of this is you cannot use the on-board memory of your 286.

Possibly the simplest solution would be to fit an accelerator card. This will allow you to use the on-board memory and give you the 386 memory mapping capability. They cost on the region of £300 and are relatively easy to fit.

Most modern 286s run at a speed of 12MHz or 16MHz, with only a very few tweaked up to 20MHz. You can buy an accelerator board, which will cost around £300 upwards. Before you rush out to buy one, however, check the existing 286 processor inside the machine (either physically by switching off the power, disconnecting the PC from the wall socket, and unscrewing the screws holding the lid on the casing – usually about five or six screws, or by picking up the phone and asking Epson). Note that opening up the PC will invalidate your warranty, so calling Epson on (0442) 61144 is a safer first step. What you are checking for is that the processor is not soldered into position on the motherboard. If it is, you're stuck. If it isn't, an accelerator board should be feasible, and will provide you with a new 386 processor and speedier machine. Fitting it is not perhaps an operation you should attempt yourself.

STARTING FROM SCRATCH

I am the proud owner of an Amstrad PC2086, I am 11 years old and I would like to ask some questions. What is an AdLib or a soundcard? When the space in your hard disk runs out what do you do? Can you get the game Cable for the PC? About how much do modems cost?

Pooya Youssefi
London NW3

A soundcard, or soundboard is a board with circuitry which fits into one of the spare expansion slots inside your PC's casing and which replaces the beeps of the PC's built-in speaker with music and sound effects – provided the software you use it with is programmed to work with that particular soundcard. An AdLib is one make of soundboard and one of the main ones supported by software writers. See this month's First Steps for more on soundboards.

When you run out of hard disk space, it's time to delete those files and programs which you have finished with in order to make some more space. If you are fabulously rich, or all your files are absolutely essential, you may feel it's worth buying another hard disk.

As far as we know, the game Cable is not available for the PC. Modems start at around £100, if you shop around, with faster V32 models at about £300 upwards.

JOYSTICK WARNING

In issue 3 it was suggested standard digital joysticks could be used with the Amstrad PC1512 and PC1640. This is supposed to be possible as the joystick causes keyboard codes to be generated so if a game can accept the arrow keys, it will work. In practice, the joystick will not work with most games. Each key has a key-code and these generate key-token codes. The joystick switches generate different codes to the keys but software translates it as the same. Amstrad programs read the key-token codes and the joystick works, but on many games only the key-codes are read. Because the key-codes for the joystick are not the same as the actual keys, the joystick is ignored.

Peter Chow
London

addresses continue in sequence). These processors can access this memory in their native mode (called protected mode) but not running under DOS which has a limit of 640 kilobytes: this is Base memory.

So all the memory you have above 640 kilobytes effectively sits empty. Because DOS needs to have a bit of memory for itself and any other bits and bobs to run your system (like mouse drivers and keyboard drivers etc) that 640 kilobytes is eaten into, and this is when programs complain of 'insufficient memory'.

DOS 5.0 goes a long way to fix this and allows you to load drivers into an unused bit of memory just above the 640 kilobyte mark.

With the correct driver though the RAM above the 640 kilobytes can be accessed as Extended memory and used with programs like Windows. And, you can convert this extended memory to look like Expanded memory using a similar driver.

Expanded memory was developed by Lotus Intel and Microsoft for the 8088/8086 (hence its name, LIM Expanded Memory Manager) and relies on some quite complicated juggling of standard memory because it isn't a continuation of the base memory and, as such, makes life a bit difficult.

But, because large number of machines being used – especially for games – are 8088/8086 based, games manufacturers tend towards the LIM EMS standard.

On a 386 or 486 you can convert your Extended to Expanded without too much trouble because a lot of the mechanics to do it are on the processor chip.

However, on 286 machines converting the Extended to Expanded is more difficult because the memory mapping (the 'reworking' of the memory addresses) has to be done in software.

Don't forget if you have any answers or ideas to help other PC Review readers, drop us a line and we will publish them. Send your letters to Question and Answers, PC Review, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. If you have access to CIX, the Compulink Information Exchange, you can send you query to us there – our ID is pcreview.



The original Lawrence of Arabia?

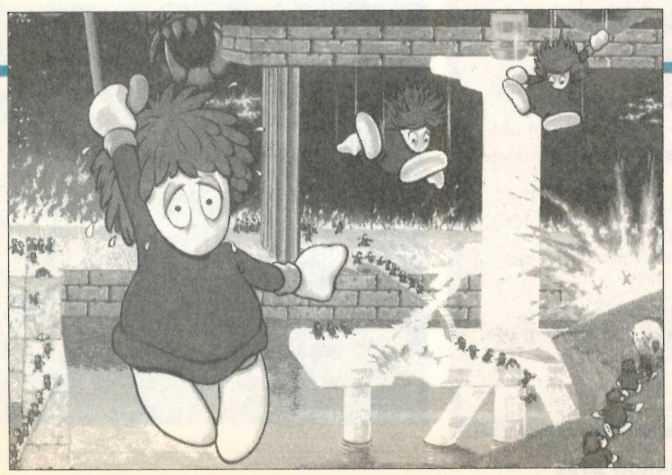
When we asked for 'interesting' postcards on which to stick your competition entries, it was only to brighten up our mailbag, you know. And we said 'interesting', not 'smutty'. We've had postcards from nudist camps, and 'saucy' postcards that would have Donald Macleod, pioneer of the genre, turning in his grave. Anyway, we rather liked this one from Peter van Amelrooy in Holland for the Christmas Software Bonanza competition. On the reverse of the card there's a short synopsis of that seminal film Eighteen and Anxious, which concludes, "At 93 minutes, the Lawrence of Arabia of teen-problem pics". (Eh?)

Gongs ho!

The computer games awards season is truly upon us. As your votes come in for EMAP's very own Golden Joystick accolades – arguably the ones which count most since they are voted for by the people who actually buy and play the games – the first set, the curiously named Indin Awards, voted for by various trade luminaries, are already in the can.

So the following titles can notch up their first gong of 1992. The year in question is in all cases 1991.

Budget Game of the Year: Xenon II
Adventure Game of the Year:
Secret of Monkey Island
Simulation of the Year: Formula One Grand Prix
(should be out on PC in the next three months)
Technical Merit Award:
Jimmy White's Whirlwind Snooker
(also eagerly awaited on PC and due out in spring)
Developer of the Year: Bullfrog
Software House of the Year: Electronic Arts
Game of the Year: Lemmings



Gamesmaster Goof

While we are very impressed that there is finally a TV programme exclusively devoted to video games, we are less impressed by a fax that the producer, Hewland International, recently sent to our offices. It very sweetly thanked our colleagues, Julian Rignall of Mean Machines, and Tim Boone of C+VG, for appearing on the show and went on to express the opinion that IPC's computer magazines were the best in the field. IPC? Shurely shome mishtake.

Now we are five ...

With a grand total of four issues under our belt, it's about time to roll out the PC Review back issues service. If you're missing any of our previous editions, you can order back issues from the following address:

PC Review Back Issues Department
PO Box 500
Leicester
LE5 0AA

Each issue costs £3.95, including postage and packing, and you should make your payment by cheque or postal order, payable to EMAP Images. Don't send cash through the post.

Please don't send your back issue requests to the magazine directly, but to the address given above. Sure, we can forward them, but it will only lead to delays and tears.

The story so far

Issue 1: Amstrad 5286 Games Pack reviewed; Civilization; Kid Pix; Tecnoplus CD-ROM drive; Tips for Eye of the Beholder, Heart of China; Top 100 Classic Games supplement (pt 1).
On disk: Faces, Blues Brothers, Music Maestro, Jokeware.

Issue 2: Bullfrog profile; PC gadgets; First Steps in MS-DOS; Readers Top 50; Ultima VII, Patton Strikes Back, Mig 29M Super Fulcrum, Pro Tennis Tour 2, Police Quest 3; Readers' Top 50 games; More tips for Eye of the Beholder, Heart of China.
On disk: Powermonger, Pitfighter, Sleuth, Touch Typing Tutor.

Issue 3: No-nonsense guide to buying a PC; First Steps – fitting a hard disk; Electronic Arts On the Spot; Secret of Monkey Island 2, Powermonger, Cadaver, Bard's Tale Construction Set; Tips for Savage Empire, Immortal.
On disk: Lemmings, Gods, Gallery.

Issue 4: Protect yourself from viruses; First Steps – MS-DOS; Miracle keyboard; Guest on CD-ROM; Falcon 3, EOTB 2, Chessmaster 3000, Gods, Advantage Tennis; Tips for Conquests of the Longbow and Might & Magic III; Top 100 Classic Games Supplement (pt 2)
On disk: Fingerpaint, Moraff's Superblast, Gallery.



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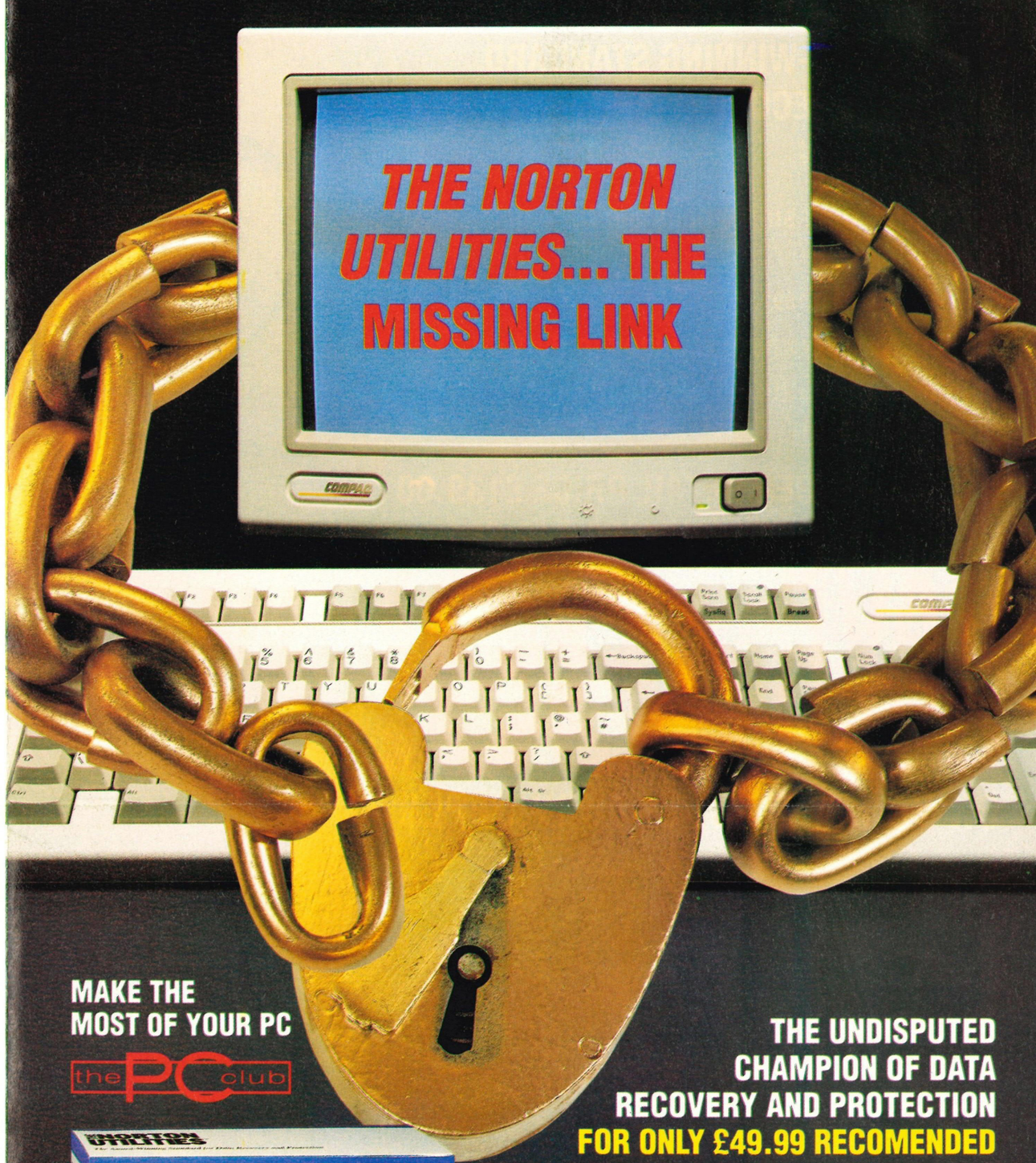
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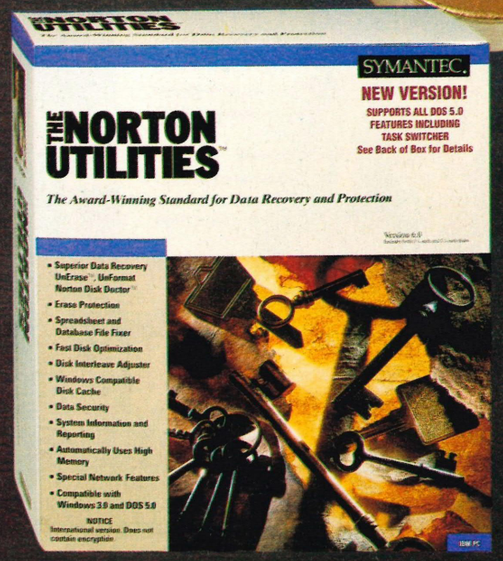


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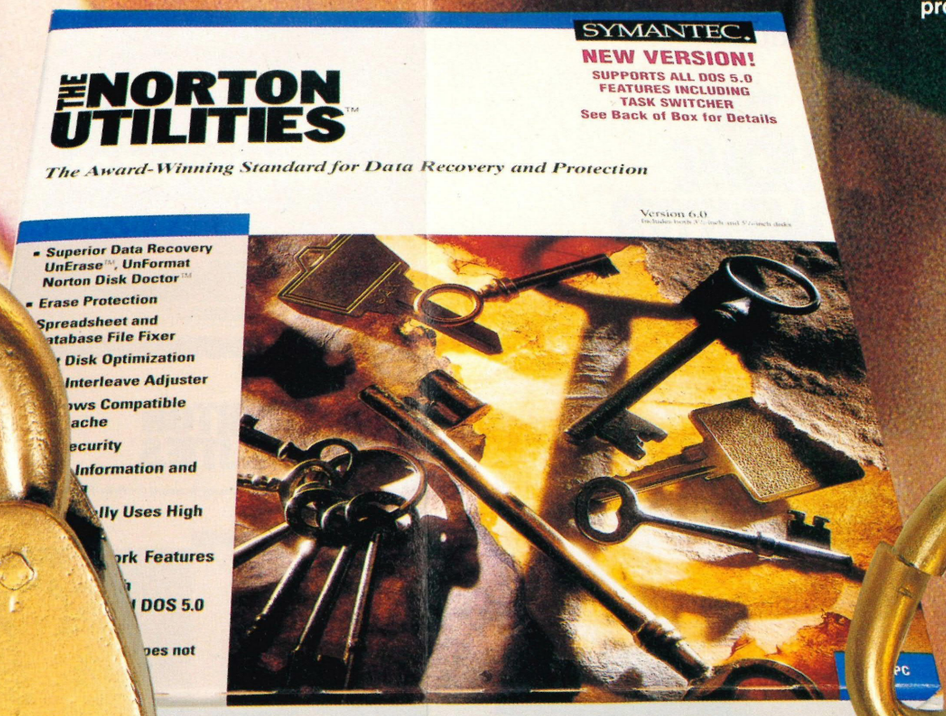
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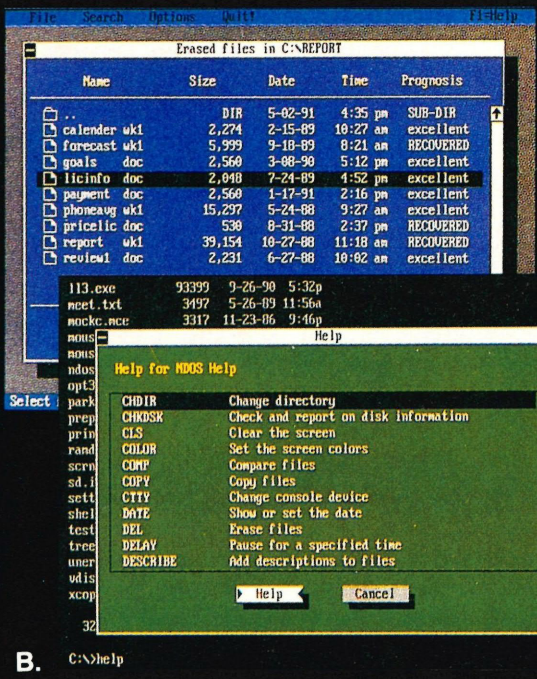
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SYSTEM REQUIREMENTS
- DOS 2.0 or higher with special support for DOS 5.0
- IBM PC XT, AT, PS/2 and 100% compatibles
- 512K memory
- Mouse support
- Hard Disk recommended
- The Norton Utilities support large hard disks using DOS 4.01, DOS 5.0, DR DOS 5.0, Compaq DOS, and Zenith DOS.

the PC club

The Home Computer Club, P.O. Box 199, Swindon SN3 4BR



A.

B.

A. Norton's state of the art UnErase program makes successfully recovering erased files easy. Support for Network drives and new DOS 5.0 Delete Tracking feature.

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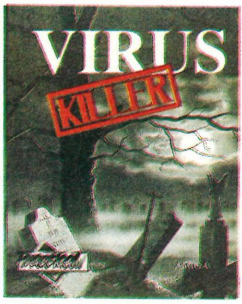
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