ISSUE 1 SPRING 1990 £1.50

PC Leisure

The complete guide to PC entertainment

Dial-A-Data

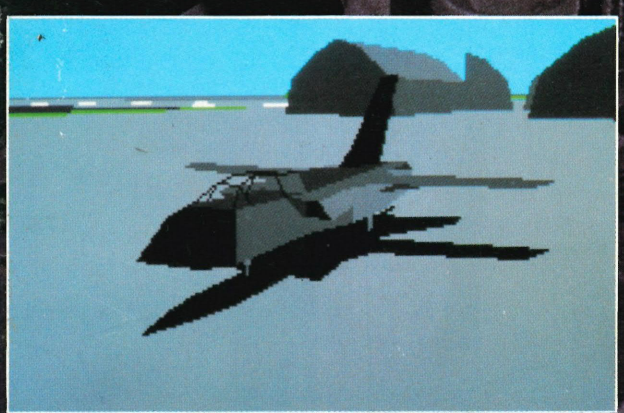
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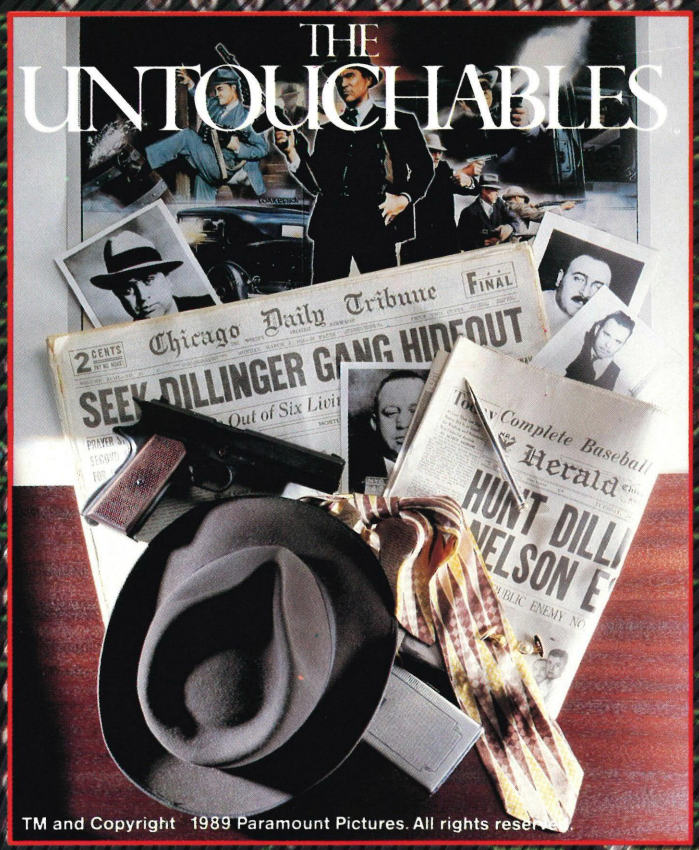
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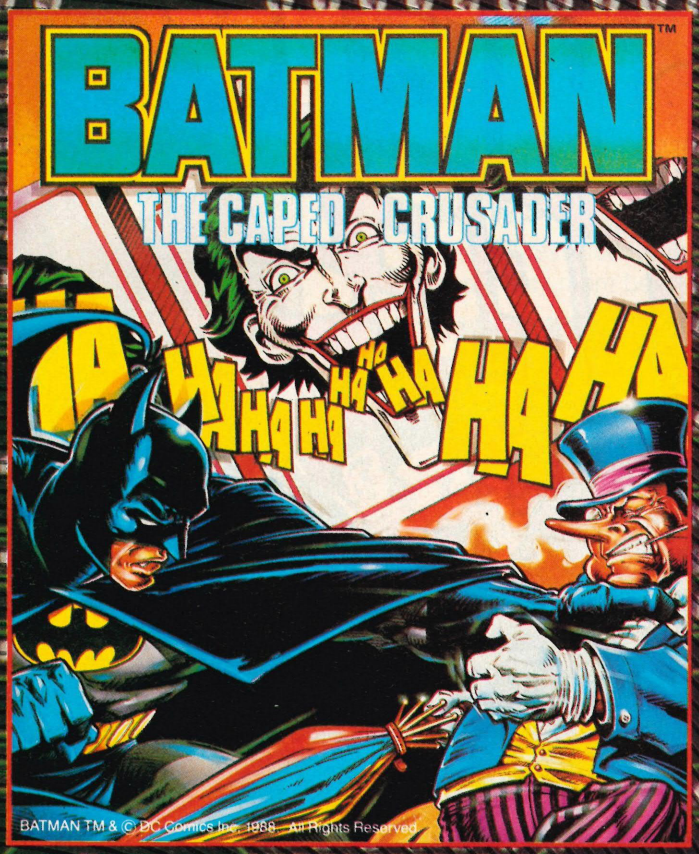
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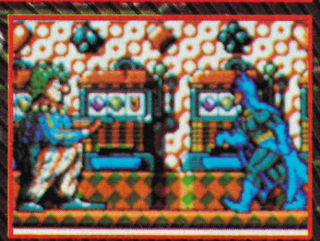
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PC Leisure

SPRING 1990

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PC Leisure is published quarterly by EMAP Business And Computer Publications; Typesetting and artwork by Digital Graphics, 20 Bowling Green Lane, London EC1R 0BD and Last Word, 90-92 Pentonville Road, London N1 9HF; Colour Origination by Balmoral Graphics, 190a New North Road, N1 7BJ; Printing by Southern Print, Factory Road, Upton, Poole, Dorset; Distributed by EMAP Frontline Ltd.

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If you've made it this far, then you're either a dedicated reader or a hard-working solicitor - either way, here's a quick competition to reward your efforts: because this month's cover feature involves aeroplanes, write the name of Charles Lindbergh's Atlantic-crossing vehicle on a postcard and send it to PC Leisure Tester, EMAP, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU to arrive no later than April 20th 1990. The first correct entry out of the hat will walk away with a copy of Electronic Arts' Indianapolis 500 (so don't forget to state disk size on your entry). And finally, a special thanks to Matt Barnes for holding this production together... take a bow Matt.

What's this? Readers' letters in a first issue? Well, we've got a small confession to make: this isn't, strictly speaking, the original PC Leisure. Way back in the dark distant days of November 1989, our sister magazine What Personal Computer carried a free copy of our `dummy' issue. And this is what the readers thought...

Dear Sir,

My reason for purchasing PC Leisure was because I was excited at the thought that there would be a PC Magazine that would cover all the many ways in which the PC can be used. However I was very disappointed when I realised that it was going to follow the same pattern as all other computer magazines: that is, a heavy emphasis on games packages and paying lip service to all other notions of leisure.

I have to say that I love my PC and spend a lot of time on it. I also spend a lot of time teaching my kids to realise its potential as an all-round tool to enable them to improve on all the things that they are doing with their lives. They consequently enjoy `playing' with Harvard Graphics, Printmaster, Genealogy packages, Statistics packages etc. In turn, they can also teach me a thing or two about educational and shoot 'em up games (which actually bore me to death).

There was nothing in your magazine about music. I have been waiting longingly for some reviewer to speak in Layman's English about how to use a PC with a keyboard and what software to purchase. It seems I must wait in vain.

Don't misunderstand me, this is not a totally negative comment - there is some hope for you (and I suppose you've got off to a reasonably good start) but please, please, please do not get bogged down with concentrating more than 50 per cent of your magazine to games. The PC is worthy of more.

Karen E Burton
Senior Research Psychologist
Newcastle

Dear Sir,

This is just a quick note to go with my questionnaire. A PC games magazine has been needed for a long time. It is especially good that people from such another good magazine (The One) have decided to write it.

I hope that this magazine will start to come out monthly and be much bigger. I think you should use The One's mark scheme as it gives you a much better idea of what the game is like, as the five stars system is much too small a scope. I hope that reviews will be much longer.

I am sure most of the people who would buy PC Leisure would not really want any other kind of programs except games in the magazine. It might also be a good idea to have a disk on the front cover of the magazine with demos of games on it.

I look forward to seeing PC Leisure on sale, so do not keep us waiting too long. I for one would definitely have a subscription.

Michael Brannan
Biddenham
Bedfordshire

I suppose that just goes to show that you can't please everybody all of the time. It also shows the diversity of uses that the PC is put to in the home, and that the machine needn't be dedicated to any single use. PC Leisure intends to be split down the middle between coverage of games and coverage of other non-business software - unless of course you want it a different way. Any ideas?

Dear Sir,

Congratulations and pats on the back all round. At last a magazine recognises that a PC is more than a business tool. I've filled in your questionnaire but felt I had to drop a line about gaming on PCs.

I bought my 286 AT back in the Spring to perform a number of functions, but with two children I recognised that there would be demand for games etc. Guessing this in advance I bought a VGA screen and both 3$ and 5% inch disk drives to cover all eventualities. A games card and port were already standard in my Viglen and eventually I found a store that could supply an IBM-compatible joystick, a snip at ú25.

It works, in fact it works too well and is far too sensitive. Just a touch sends it spinning across the screen.

I mention this because a pal who has completely different equipment told me that he'd had a similar experience with his joystick.

I brought up the subject with the Viglen people at the Computer Shopper show. The gentleman there shook his head and confirmed that it was a problem and that was that.

Would the answer be to buy the package that you feature that allows for a conventional joystick to be used? So how about reviewing games cards and joysticks? A number of my colleagues and friends have been impressed with PC Leisure and I look forward to the next edition. When will it be out?

Roger Filler
Welwyn Garden City
Hertfordshire

Joystick problems and other difficulties faced by those wishing to begin gaming on their PCs will be covered in later issues.

Dear Sir,

As a regular reader of What Personal Computer, I was taken by surprise by the appearance of your `free' magazine just before Christmas. But happily it was a pleasant surprise, as I was delighted with the mix of games and `serious' leisure items.

One word of warning though, What Personal Computer succeeds in avoiding patronising its readers - without falling into the trap of speaking in jargon. However, in your first issue, I stumbled along despite the use of such nonsensical terms as `Role-Playing' and `coin-op'.

Please try to remember that we're not all steeped in the computer games culture and that some of us need to be introduced more gently than others.

George Rigby
Leominster
Shropshire

Dear Sir,

I would be grateful for your advice.

I am a retired airman, instructor and lecturer in applied maths and am planning an initial training course (in further maths that is) for students who wish to join the RAF.

The students have expressed a wish to have some flight simulation programs and it seems a good idea. We have already used the 737 Simulator, but it is rather basic.

It seems there are sophisticated simulations such as F-16, F-15, F-19 Stealth and the boys (and one young lady) are enthusiastic. They will diversify the grind of maths and physics and give a point to these subjects.

I plan therefore to buy a computer which will access such programs. However, it must be used on the domestic TV so that students can use the computer in their own homes on a rota basis.

Good graphics are essential for teaching purposes. A joystick seems to be called for as well. I have been looking at Amiga 500 and Atari ST.

However you will probably have other ideas. I could probably spend up to ú600 - ú700 since I can use a computer for other purposes. Incidentally this is written on a PCW 9512 since I am a writer and journalist.

In anticipation of your help, many thanks.

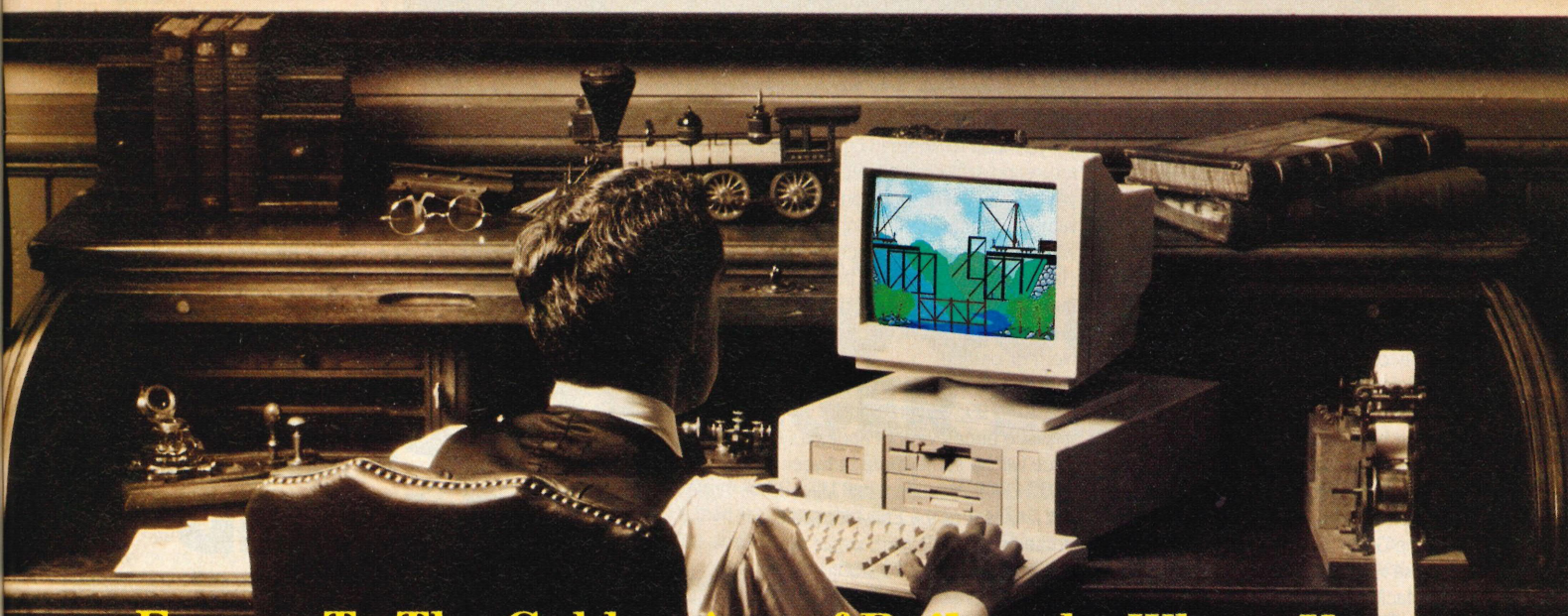
Thomas Kennedy
Tamworth
Staffordshire

While the Atari ST and Commodore Amiga are both perfectly adequate for their own specific uses (they're both excellent games machines, and the Amiga is excellent for video applications and the ST for MIDI and other music purposes) neither offers the versatility, which PC owners take for granted. Apart from the PC's almost limitless expandability, the range of software is greater than for any other machine - especially in the flight simulator department (check out the `Which?' feature beginning on page 29). There's a mini price war happening out there at the moment, with a lot of `AT' machines falling into the price range that you mentioned - so there's no better time.

If you feel the need to exercise your right to reply, address your contribution to: Letters, PC Leisure, EMAP, 30-32 Farringdon Lane, London EC1R 3AU.

Sid Meier's

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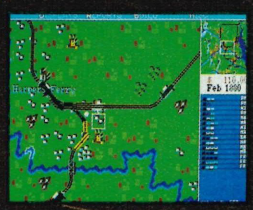
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COMPACT CASE

CD-ROM is the hottest thing around for PCs at the moment. Suddenly everyone has stopped talking about how CD-ROM is about to take over the world, and started to do something about it.

A CD-ROM device is generally quite happy to play either audio or digital (software-programmed) CDs - although playing Vivaldi through your PC's speakers is hardly to be recommended. But the CD software disks look identical. A compact software disk will give you 500Mb of storage space, and can store text, images, and sound.

So far, the applications available on CD have tended to be fairly specialised and custom-made to suit a particular customer or trade - how interested are you, for example, in a full set of UK postcodes, British Airways flight training manuals, or a manual detailing the working parts of Renault cars?

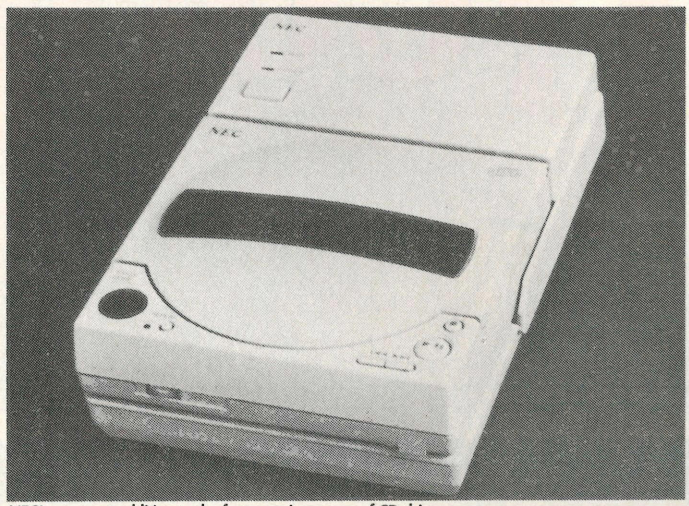
However, recently announced applications veer more towards the mainstream. Mirrorsoft, which is now publishing the *Guinness Disk of Records* following the closure of its sister-division Pergamon Compact Solution, says that the PC version of the best-selling annual made compact disk should be ready within the next six months. However, if you want to see what a CD version of the Guinness Book of Records looks like now, you'll need an Apple Macintosh.

Cinemaware's CD versions of its successful 16-bit computer games, such as *Defender of the Crown* and *It Came From the Desert* are also published by the Mirrorsoft stable, which imports them from the US.

Encyclopaedias are a popular CD application, if only because it looks so impressive to be able to pack all those hardback volumes on to a single compact disk. It's hardly surprising, then that the giant *Encyclopaedia Britannica* is getting in on the act with the release of the *Compton MultiMedia Encyclopaedia*, which UK company Universe is hoping to distribute here this spring.

The big enhancements of the computer-based reference works over the books are the abilities to include sound - whether speech, music, or sampled noises - moving pictures, and also the database-type functions which are incorporated.

Thus, with Compton's MultiMedia Encyclopaedia, you can call up a rotating globe and point to the country you wish to zoom in on and read more about. You can select words you are unfamiliar with and along with a dictionary definition, the disk will give you a human voice pronunciation. You can 'search' throughout the encyclopaedia to call up and reference all occurrences of any one word or phrase.



NEC's compact addition to the fast-growing range of CD drives.

Compton's is going on sale in the US for $799; Universe hasn't finalised prices yet but hopes its UK price will be somewhere between £500-£800. Sounds a lot? Maybe, but a full set of the Encyclopaedia Britannica in book form would set you back well over £1,000.

As well as software, hardware manufacturers are also getting in on the act. The education sector is particularly active here, with monitor manufacturer Microvitec bringing out a PC with an integral Hitachi CD-ROM drive for use in schools and colleges, and Acorn selling a version of its Archimedes machine with a CD-ROM drive. Low-cost PC manufacturer Elonex will also put a CD-ROM drive in any of its PCs if the customer requires it.

Philips, which has pioneered CD-ROM and interactive CD-ROM (CD-I, which is essentially an extension of the concept, allowing cinema-style applications) in a joint venture with Sony, sells a version of its Proline PC-AT with its own CD-ROM drive built-in. This machine also has the conventional floppy disk drive and 40Mb of hard disk space, so it's perfectly functional with current data storage standards. A new version of this machine with a faster CD-ROM drive is due out this month, and Philips is due to announce a version of the machine suitable for use on a PC network.

Contacts: Philips Interactive Media Systems (01) 689 2166; Universe (Compton's) (01) 371 9497; CD-ROM User Group (0792) 844370; Microvitec (0274) 390011; Elonex (01) 965 3225; Mirrorsoft (01) 928 1454.

THE PC LEISURE NON-BUSINESS CHART

Month Ending February 1990

1 **Kosmos Language Range**
Kosmos
2 **Fun School 2**
Database
3 **Mavis Beacon Teaches Typing**
Mindscape
4 **Answer Back Series**
Kosmos
5 **Where Is Carman Santiago?**
Broderbund
6 **Deluxe Paint II Enhanced**
Electronic Arts
7 **Cartooners**
Electronic Arts
8 **Zing**
Mindscape
9 **Vidi PC**
Rombo
10 **Perspective Junior**
Three D Graphics

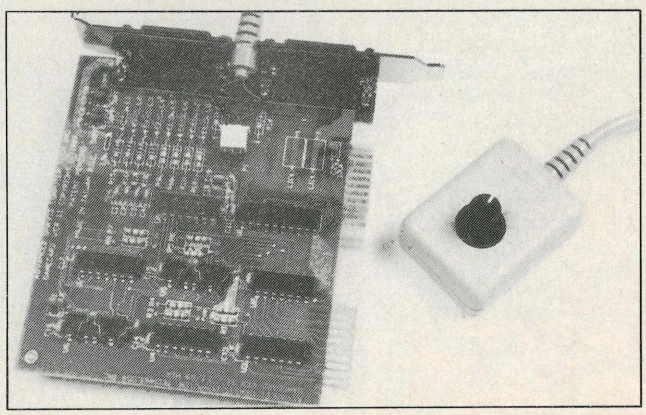
Compiled exclusively for PC Leisure by Software Circus Ltd, The Plaza On Oxford Street, 120 Oxford Street, London W1N 9DP. Telephone: (01) 436 2811.

THE SPEED OF THE HAND

One problem caused by the variation in speed between different models of PC is that it's often difficult to find a joystick which responds accurately to the speed of every game.

However, the Eliminator Game Card from Gravis (contact RC Simulations on (0272) 550900) promises to cure that by means of a connected dial which optimises the joystick for use with any machine speed from 4.7 to 33 Mhz. A US import, the card comes complete with two joystick ports and retails for less than £40.

Another Gravis product which has just made it to these shores is the Analog Joystick. Equipped with three fully-adjustable fire buttons and a variable tension shaft, the stick is available for less than £50, once again from RC Simulations and also from London-based Software Circus, (01) 436 2811.



The adjustable Eliminator Game Card from Gravis.

THE PC LEISURE ENTERTAINMENT CHART

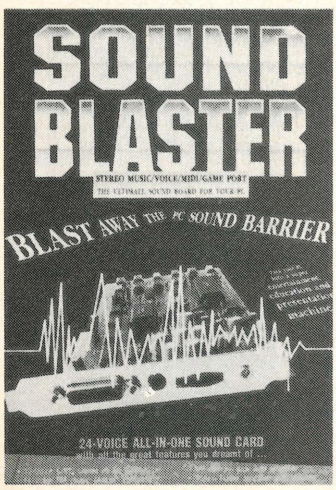
Month Ending February 1990

1 **Flight Simulator v4.0**
Microsoft
2 **Chessmaster 2100**
Mindscape
3 **Populous**
Electronic Arts
4 **688 Attack Sub**
Electronic Arts
5 **Indianapolis 500**
Electronic Arts
6 **Leisure Suit Larry III**
Sierra
7 **The Colonel's Bequest**
Sierra
8 **Bridge Player 2150**
Oxford Softworks
9 **King's Quest - Triple Pack**
Sierra
10 **Hero's Quest**
Sierra

Compiled exclusively for PC Leisure by Software Circus Ltd, The Plaza On Oxford Street, 120 Oxford Street, London W1N 9DP. Telephone: (01) 436 2811.

ANOTHER SOUND IDEA

Yet another sound enhancement add-on to arrive on these shores is Creative Labs' Sound Blaster, an upgrade on its previous board, the Game Blaster. Boasting AdLib compatibility, a built-in microphone socket and amplifier (which works with a standard microphone), joystick port and MIDI interface, the Sound Blaster is available from Software Circus at a cost of £179.95. More details on (01) 436 2811.



It's a blast...



This machine could help you to see more of your dealer, with Amstrad's new on-site warranty.

AMSTRAD GOES FOR STRONGER SERVICE

If you're thinking of buying an Amstrad PC, you may find yourself shelling out more than you bargained for - but seeing a little more of your dealer.

Amstrad is putting prices up on part of its range, to help pay for its new support scheme, which, according to the company's UK MD Barry Young, is: "the start of a new era for Amstrad dealers, distributors and users."

In the past, one factor which has helped to keep Amstrad's prices down is that its warranties have not been as generous as those from other manufacturers. From the beginning of April, however, every Amstrad PC will come with a free 12-month `on-site' warranty. If your PC gives you any problems, you can call out an engineer to repair it - you don't have to package it up and send it off anywhere.

Although the on-site side of the support deal is free, you may find your dealer asking you to pay a service charge. This is because Amstrad has given dealers a choice: on top of the basic warranty (which can either be one that Amstrad has set up with Dictaphone, or the dealer's similar scheme), Amstrad outlets are entitled to charge for extra services - perhaps guaranteeing to mend your machine within a time limit (usually 48 hours).

So if you do find yourself being asked to pay a service charge when you buy your Amstrad, check carefully what those extra benefits are.

The price rises amount to £50 on top of the list price for the PC1640 range and ú50 extra on the 14CD (14" colour monitor) configurations of the PC2000s. All take effect from the beginning of April.

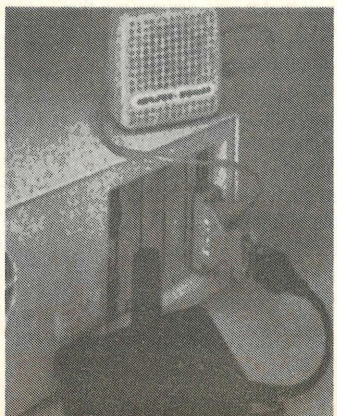
UNDERGROUND SOUNDS

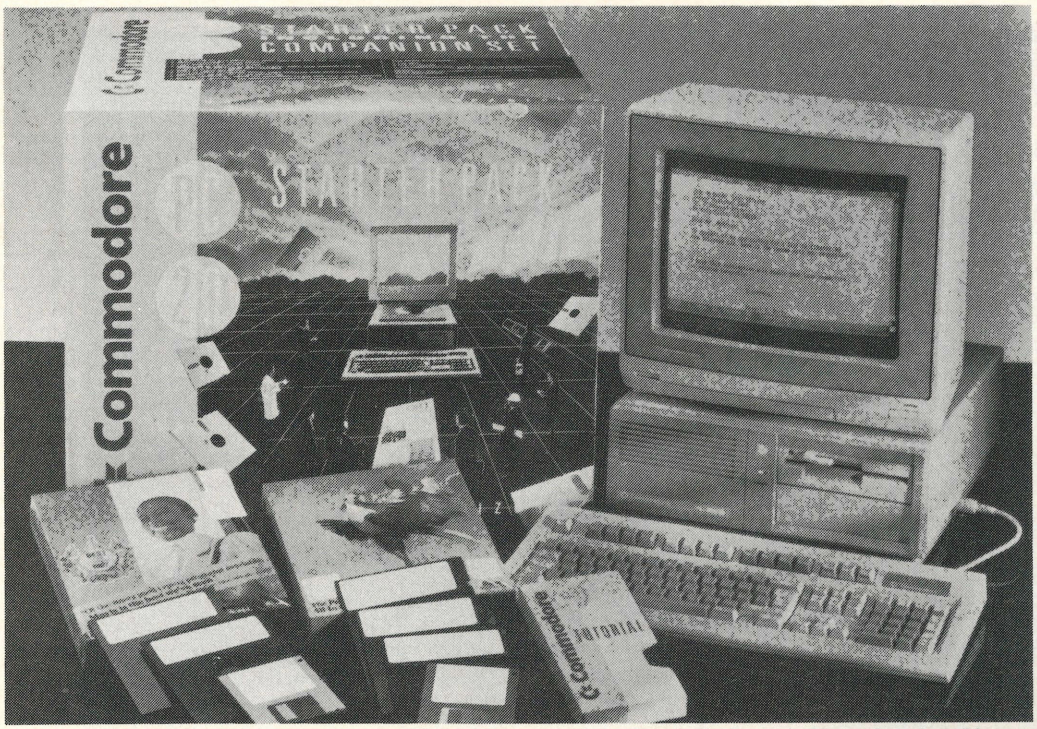
One of the all-time classic computer games, *Dungeon Master*, will finally make it onto MS-DOS by this Summer.

And if you snap up an early copy, you may be able to get hold of the special limited edition which comes complete with a little extra, so that you get all the benefits of DM's atmospheric sound effects, rather than that tinny little beep you would usually associate with your PC.

Remarkably, this add-on also features a built-in joystick adaptor. But by far the most philantrophic aspect is that FTL is placing the code reqwuired to drive the system in the Public Domain, so that other companies can also release product which makes use of it.

There's no firm release date fixed as yet, and no pricing details, but if the other 16-bit formats are anything to go by, PC Dungeon Master will be well worth the wait.





Commodore Starter Pack: the PC20 has a hard disk, single floppy drive, mono monitor, software and video starring Tim Brooke-Taylor - all for £920 (VAT inclusive)

COMMODORE PACKS UP ITS TROUBLES

Hardware giant Commodore has run into a hitch with its TV-advertised PC Starter Pack: a bundle which comprises various configurations of its 'entry level' machines (the PCs 10, 20 and 30), and is intended as an introduction to PC computing for the computer novice.

An integrated word processor, database and spreadsheet, *The Secretary Bird*, and a typing tutor, *Mavis Beacon Teaches Typing* (both from The Software Toolworks), have been included with each machine, along with a training video featuring Tim Brooke-Taylor.

And according to Commodore's publicity, this would come: "In a single box costing less than £550 (exclusive of VAT)." However it wasn't until the package had been released that it was discovered that the PC10, which was never really at the cutting edge of PC technology, was just a touch underpowered to cope with the packaged software.

The integrated Secretary Bird suite couldn't be used as an integrated package at all, but only one module at a time in the PC10's single 5.25" disk configuration, while Mavis Beacon needs two disk drives to be present (one of which could be a hard disk).

Commodore now says that single drive PC10s are only being sold to dealers who specifically want to install their own hard disk, and none should reach the end user unless they either have two floppy disk drives or a hard disk. Check before you buy, but if and if you have bought a Commodore Starter Pack with a PC10 with a single 5¼" drive, you'll find Commodore on the end of a phone on (0628) 770088.

By the way, that publicity now reads: "In a single box costing less than £600 (exc VAT)" - a dual drive PC10, that is.

WHEEL OF FORTUNE

Ploughing through software manuals is a laborious business at the best of times, but when you just want to check the exact wording of a single command, it's a downright waste of time.

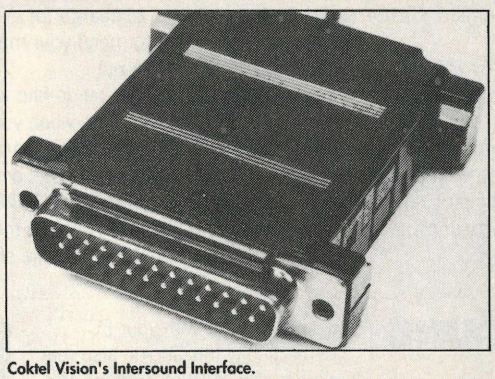
This is where Wheel Ease comes in. Devised by a Canadian company and distributed in the UK by Robert Maxwell's Mirrorsoft, Wheel Ease is one of those devices which will probably prompt the age-old thought: "now why on Earth didn't I think of that?"

The Wheel Ease is basically a circular slide-rule, with a plastic circle laid over a larger circle and a window cut into the smaller of the two. The descriptions of commands are written on the edge of the large circle. Line them up with the inner circle's window and there's your command syntax!

Never again will you be unable to find the relevant chapter in the manual, and with Wheel Ease, your eyes can't jump a line so that you lose your place or misread the instruction! It can't, however, prevent you from mistyping the command incorrectly in the first place.

Wheel Ease is available to shed a little light on MS-DOS (a godsend for anyone plagued by the dreaded 'bad command or filename' prompt) and *Flight Simulator II* as well as many of the better known business packages, with more 'titles' to come over the next few months.

More details are available from Mirrorsoft on (01) 928 1454.



Coktel Vision's Intersound Interface.

SOUND WINNER

PC sound is advancing in leaps and bounds, thanks mainly to the proliferation of internal boards such as the AdLib and Roland LAPC-1. But cheaper devices, which take advantage of the PCs existing architecture are now also beginning to see the light of day.

One of these is the Intersound device, developed by French software publisher, Coktel Vision. Although this product is only supported by four of Coktel's own products at present - *Asterix*, *Skidoo*, *Paris-Dakar 90* and *ESS* (the European Shuttle Simulator) - the developer is hoping to interest other companies in making use of this hardware.

The intersound is available at a cost of £25 from Active Sales And Marketing, phone (01) 384 2701 for further details. However, if you want to get your hands on one absolutely free, answer the following question and send it on the back of a postcard to: Coktel Sound, PC Leisure, EMAP, 30-32 Farringdon Lane, London EC1R 3A, to arrive no later than Friday April 20th.

Question: The Eiffel tower was designed as a replica of a similar construction in Blackpool - true or false?

The package, games and Intersound, is worth £100 - and there are five on offer, so get those old brain cells whirring. One word of warning though, the software is only available on 5¼" disk, so 3½" users will have to content themselves with the sound device only.

WIN WITH LARRY



For the man who everything...

Sierra's lovable rogue, Leisure Suit Larry, returns to PC screens this month in his third adventure: *Polyester Patty In Pursuit Of The Pulsating Pectorals.*

To mark this awesome event in the gaming calender, Activision (Sierra' British distributor) is giving away a whole host of Brylcreem goodies - including shower gel, talc, shaving mirror, T-shirt... the works - so that three lucky readers can look and smell like the King Of The Lounge Lizards himself.

A further 15 runners-up prizes are also on offer in the shape of lovingly stitched silk boxer shorts in a whole host of colours and styles.

To get your hands on (and your legs into) these desirable accessories for the man about town, simply answer the following question and send it on the back of a postcard to: Smell Like Larry, PC Leisure, EMAP, 30-32 Farringdon Lane, London EC1R 3A, to reach us no later than Friday April 20th.

Question: Which of the following celebrities has not been seen `around town' with Pamella Bordes:

1) Colin Moynihan
2) Andrew Neil
3) Larry Laffer

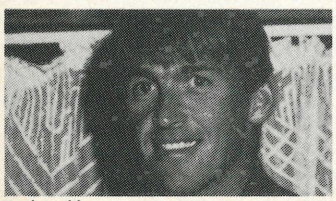
The rules are simple: anyone can enter (as many times as they like) as long as they don't work for Activision, Sierra or EMAP - and the editor's decision is, as always, final.

GRANDSLAM KOPS IT

Grandslam's ambitious *Liverpool* computer game project has run into problems, and it looks as though the PC version of the soccer game based on the Anfield players, which was due out around last Christmas, will now creep into the shops just in time to see the lads playing it out for the Championship.

The first programming team employed by Grandslam went bust, and after a second team had attempted to carry on the work, Grandslam itself decided that the only sensible course of action was to begin all over again - with a third team of programmers.

"We've now decided to go all out for a quality game rather than just something to go with the licence," said Grandslam's Steve Constable (surely he can't mean that the company didn't start out with this in mind?). Liverpool fans can find Grandslam on (01) 655 3494.



Pool: problems

SILLY SOFTWARE PLAYS FOR LAUGHS

It sounds like the computer equivalent of the shaggy dog story: "There I was, minding my own business, when all of a sudden, this mole popped up in the middle of the screen." Or, "Letters and words that I'd typed simply disappeared." It's the sort of thing that only happens to other people - or is it?

It's more likely to be one of a set of software generated practical jokes which have recently been released on the unsuspecting public. However, unlike the plague of viruses which probably inspired this idea, it's an amusing (to everyone except the victim, of course) and ultimately harmless piece of sabotage.

For £19.95, you can enliven the office no end and irritate the hell out of everyone you know, with a *Jokeware* disk from Hi^Jinx. Pop the disk into the drive, type in the name of the joke you wish to run, remove the disk and look as casually innocent as possible for 10 minutes, after which time the fun starts.

Examples of the jolly japes available are:

- Snapper: 'eats' words from the screen at random intervals.

Machine: provides a blast of 'machine gun fire' every time a key is pressed (this actually sounds more like a small insect trapped in the disk drive).

- Phone: imitates the sound of a phone ringing at every keystroke.
- Flasher: an on-screen character begins to flash at random- then another one. And then another...
- Rude: spurious words of a very mildly taboo nature appear on screen after a random number of times the word 'the' is written (cf Sarcasm and Hal, the latter of which asks pseudo-intellectual questions).

In the latter, there's an audible warning that something untoward is about to happen, so it's fairly easy to weed out the instances of 'bum', 'bottom', 'tits', 'bonker' and 'condom' (well, we did say they were only mildly taboo).

Hi^Jinx is at pains to point out that its hoax programs do not alter or damage data stored on disk. The programs are loaded into RAM, their effects last only 10 minutes and afterwards a message is displayed on screen explaining what has happened and whether any data will have been changed.

However, you may find that when used with programs which access disks between operations (for example, some games, or a word processor such as Borland's *Sprint* which periodically saves your work to disk) won't run the jokes which change your data. The rude word generator is one of these.

Think of the thousands of possible victims: the 'management', the guy next door who comes round to hog *Flight Simulator*, the bore down the road who keeps telling you how much more powerful his PC is than yours...

Contact Hi^Jinx on (0494) 433976 for more details. The examples above come from the company's first Jokeware disk - a second is due out any day now.

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Flight Of The Intruder takes you into the deadliest air combat environment the world has ever known – the skies above North Vietnam.

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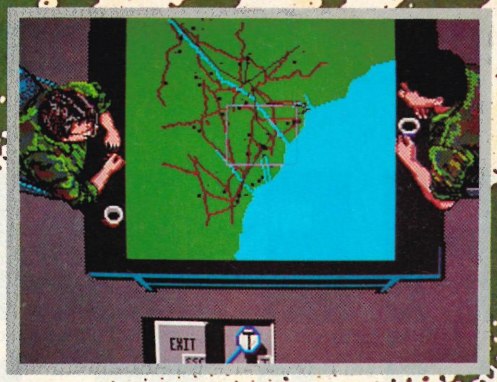
Only team work will get you back alive. The "IRON HAND" flights must destroy or suppress the surface to air missiles whilst Combat Air Patrol aircraft circle high above the strike force looking out for enemy aircraft. Finally, the strike aircraft must find and attack the target braving a hail of small arms and anti-aircraft artillery fire at low level. Individual survival is not the only measure of success, it is the success of the mission as a whole that counts – there is no place for seekers of individual glory.

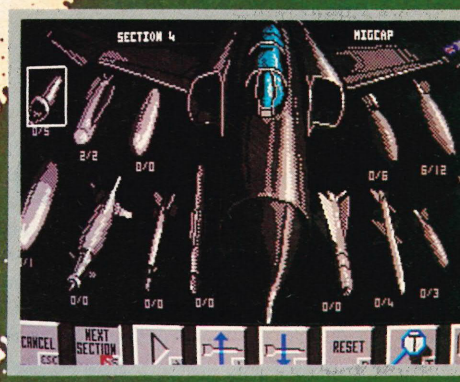
Enemy aircraft featured are the nimble MiG17 and the more advanced supersonic MiG21, capable of out turning any USAF aircraft.

Flight Of The Intruder takes you into the real world of operational flying and mission planning.











FEATURES

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THE DREAM THAT WILL COME TRUE

Multi-media – the marriage of Compact Disc technology to existing PC hardware – is set to cause the biggest revolution in home entertainment since the introduction of black and white television. Ed Henning investigates.

That phrase 'multi-media' just keeps cropping up. It's said to be the most important trend in personal computing during the next few years, and will have a major impact, not just on the business use of PCs, but also the domestic and entertainment worlds – even down to the level of games – and it's already happening.

So what is it? I don't intend just to give a list of the kit that you can go out and buy tomorrow, although I will mention some of the things that are available now, but I'll also try and explain here just what multi-media is, and where it might lead to in the future.

One thing to remember is that what's expensive today and only relevant to a few users, soon becomes cheap and available to the majority. Three years ago, anyone buying a 386 PC was considered a 'power user', but now a 386 is just about the standard machine for business use, and costs less than the original PC did. Nowadays a 'power user' is more likely to have a 486.

So, the technology funnels down, starting off expensive, and ending up becoming run-of-the-mill and affordable. My original PC set me back more than 3,000, but you can today buy an equivalent machine that fits in a pocket, has more memory, and costs just a couple of hundred quid. What price a 386 with VGA graphics in five years time? Even more extreme, the first electronic calculator I used in the early 70s cost about £5,000, and yet these are now actually given away.

In keeping with this tradition, most of the kit involved in multi-media is expensive at the moment, but it will surely fall in price. An interesting fact is that some companies in the business are deliberately intending to bring out equipment at consumer-level prices so that they are initially available for both home and business use.

A personal computer uses several technologies, the main ones being the chips and processors themselves, disks for storage, graphics displays (and the adaptors that drive them) and memory to go inside the machine and hold your programs. As these became available 10 years ago, and reasonably priced, the PC became possible.

The point about multi-media is that these things have themselves advanced, and become much cheaper, and that some new technologies are also appearing.

The advances are these:

- PCs are now much faster and more powerful.
- Graphics have much more detail and many more colours.
- Memory is very much cheaper than it was.
- Large hard disks are relatively common, making storage and retrieval faster and cheaper.

In the world of computing, we have moved from the original mechanical calculation devices, through electronic and finally into digital electronic devices, from big mainframe computers down to PCs.

In certain other areas, there is also a move towards digital processing – in which information is managed in the form of individual bits, which can either be 'on' or 'off'. Hi-Fi systems started off as analogue devices – where information was handled as a constantly varying voltage. But now with the coming of CDs



Christine Brinkley meets Grecian architecture through the wonders of Autodesk's *Animator*.

and DAT (Digital Audio Tape), Hi-Fi systems are turning digital. Of course, the final output into loudspeakers still has to be analogue, but the main processing is digital.

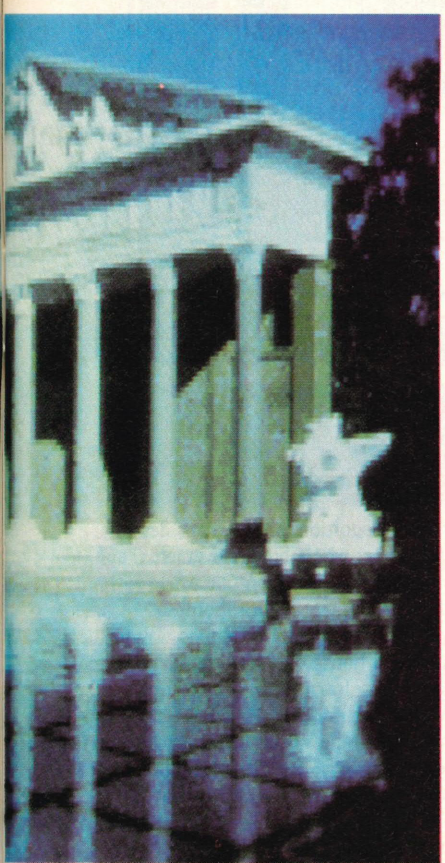
Video is also currently analogue, but is also headed towards digital forms of processing, and it is likely that in a few years time digital may well become the predominant form of video processing.

So, the video and audio worlds have moved towards the same type of technology that's used in computers, and personal computers have become powerful enough to be able to handle the massive amounts of information used in video and audio.

What's it got to do with video and multi-media? For a start, it enables you to create just the sort of animation that many people would like to record on tape or video-disk for training or presentation purposes. Plus, it can also incorporate video images, and has techniques built into it for handling the vast number of colours (this is called a palette) out of which a PC's 256 colours are chosen.

At the moment it can only use single images, but this is simply because there is as yet no cheap method of getting a video sequence into a PC – the hardware Animator needs just isn't made yet – but it won't be long.

Another product announced recently is IBM's AVC (Audio Visual Connection). This is a software product, but with two pieces of hardware to work with it. One of these is a board for capturing still video images into a PC. You set up a camera linked to the board, and the picture can be captured on the PC's disk.



The other board is an input and output board for stereo sound. It can take in sound and store it on disk, and this can then be edited, mixed, etc, and then played back out through the board to loudspeakers. The software gives you control over all this, and lets you mix text, high quality sound and still video images into presentations that can then be run on the PC.

For example, the going rate for a decent display with a modern business PC is a screen resolution of 640x480, with 256 colours displayable on screen. This means that the picture will be made up of a rectangular mass of dots (pixels) – 480 lines down the screen, each of 640 across.

British television isn't far away from that. Admittedly the number of colours displayed is effectively infinite, but there are 625 lines going down the screen. Working across the screen the resolution depends on the manufacture of the tube, and the number of dots that go to form each line, but for a decent system that number is around five or six hundred.

The resolution of modern PC graphic systems is therefore more or less equivalent with television, and the number of colours is also actually very good. 256 may sound a long way off infinity, but those 256 colours are selectable (by software) from a very much larger number, and the results are surprisingly good. Modern PCs can therefore display a picture that compares well with broadcast quality television.

What about handling the information in video and audio? Video is much more difficult to process than audio because of the vastly greater amount of information, so if you can handle that, you've got audio licked. With video you are talking about images that need to be roughly a megabyte (one million bytes, equivalent to two or three average sized books) in size, and displaying them at a rate of 25 a second.

The main problem is just what do you store them on? The way around this is to compress the image. Between one image and the next, there are relatively few changes, and so all that is necessary is to develop a method that allows you only to store the changes between each image. You can go further, by realising that as you go down the lines of an image, for the majority of scenes the changes between one line and the next are also small compared to the whole line, and so only these changes need to be stored.

Using methods such as these, a compression ratio of over a hundred to one can be achieved, so that a modern audio CD could hold just over an hour of full-motion video, with sound, instead of the approximately 30 seconds it could hold uncompressed.

With compression, you can use modern large hard disks or optical drives such as CD-ROMs (which are basically standard CDs which replace disks as information storers) to hold video for processing. The problem of course lies in actually performing the very complex compression and decompression. There are several companies working in that direction, but the leader is certainly Intel with its DVI system.

My original PC set me back more than £3,000, but you can today buy an equivalent machine that fits in a pocket, has more memory, and costs just a couple of hundred quid.

DVI stands for Digital Video Interactive, and really means the set of micro-chips Intel is developing that will be able to perform the complex task of compression and decompression. The main idea is to be able to decompress the images from a CD-ROM and pass them into the PC for display in real-time – in other words, at the full speed of 25 frames per second. Although CD-ROM is likely to be one of the first ways used to store images, they could actually come from anywhere – a hard disk, across a network, and so on.

Apparently these chips are just about ready, and quite soon now we will see boards that can be plugged into a PC to take advantage of this technology. And this is one technology that's not only going to be aimed at business users. To quote from an Intel document: 'By 1990, Intel expects to bring DVI technology to the price levels demanded by consumer applications.'

Other types of video boards currently available include VideoLogic's DVA-4000. This mixes video input (usually from a laser-disk) with computer-generated graphics on the same screen, and gives the ability to control the video source. This is used in interactive video applications such as training and sales presentations. The sort of thing where you look at a screen, touch something on it, and you are taken to the next topic.

But what Animator needs is a video capture board that works similarly to IBM's audio board. The ideal would be to have one board that could do four things: capture single video images, capture moving video sequences, mix video output and computer generated images and text on one screen, and, convert

Step inside your PC with another Autodesk innovation: *Cyberspace* (see overleaf)



any computer image into a video signal for output.

We should see such a board, or something close to it, late this year. Eventually sound will be incorporated into the same device, and then you'll be able to mix video, sound and computer text and graphics, all under PC control, and record the finished results on tape. Multi-media computing will then lift off like a Saturn V rocket.

But audio and video are not the only technologies that have been moving into the digital age. Telephone systems are becoming digital, watches already are, as are electronic games. Also using digital methods are calculators, washing machines, car control systems, cameras, heating systems, and even wretched answering machines. Have you ever rung a major company in the U.S. and been passed from one computer to another, desperately wanting to be put through to a human being?

The biggest advantages of digital technology are its accuracy, level of control and 'programmability', and the ability to use error correction and other techniques. The same physical chips can be used for varying technologies, and – perhaps the main long-term benefit – conventional computer technology can be used for processing and control.

So multi-media computing will consist of bringing all of these divergent technologies together, under computer control. That doesn't just mean connecting your digital watch up to a PC (although there is already a system which allows you to do just that) – the most important technologies are video, sound and telecommunications, but the possibilities are there for bringing many other things together.

Imagine a system where you could direct a radio device plugged into your PC out of the window towards your car's on-board computer to off-load last month's mileage and fuel consumption. This data could then be loaded into a spreadsheet so that you could work out and send in your expenses (over the phone directly to the company's mainframe, of course). And while you're at it, you might as well run a full check on the car's tuning and wear and tear, before being ripped off by taking it down to the local car dealer for a service.

That may not be as far fetched as it seems. Just about a year ago, I was discussing with someone from IBM about being able to have a full television display in a window on a PC screen, complete with sound and the ability to switch channels. We mused that this was some years in the future. Well, I saw it in January for the first time, from a company called VideoLogic, and all the electronics sat in just one PC – you just plug the aerial and speaker cables into the back.

How useful is that? Well the first customers are likely to be share dealing rooms where several screens are often in use, one of them running a television display, for catching the News, or even just for in-house notes scribbled up on a white-board in front of a camera.

But in the home? Who would want to sit the family down in front of a PC in order to watch Dallas? I'm not suggesting that the TV will become integrated into the PC, or even the other way around, but they could at least be connected meaningfully, or both evolve, together with the Hi-Fi system, into a totally new set of equipment.

But before pondering more about the future, what is available now? An interesting software product came out from Autodesk last year called Animator – and for just two hundred pounds. It produces what are called flics – animated sequences of images. It includes sophisticated drawing functions, together with such niceties as inbetweening. That is the cartoon drawing technique where you draw an object in one position, then in the position you would want a few frames later, and the computer works out all the frames in between.

It also has the ability to combine flics in various ways. One example is the sort of television technique where one image disappears by twisting around and disappearing into a corner, revealing another underneath.

One aspect that I have only touched on is graphics generated by the computer. This is also leaping forward dramatically, and the current trend, that will be fully established during 1990, is for so-called photo-realism. You can now create 3D solid images on a PC, and combine them into animated sequences, but photo-realism implies adding texture and other qualities to the images to make them much more life-like.

Just about a year ago, I was discussing with someone from IBM about being able to have a full television display in a window on a PC screen, complete with sound and the ability to switch channels. We mused that this was some years in the future. Well, I saw it in January for the first time...

This takes a lot of processing power, but we're looking into the future, and that power is getting cheaper all the time. Combine photo-realistic sequences with real video, and the effects that can be created are limitless.

With such realistic computer-generated images becoming possible, the next step is to involve the human more deeply in the simulated world. I don't mean to the level of Tron, but not far off.

Autodesk is developing a set of equipment called Cyberspace, and the language used speaks of a 'virtual reality'. There are two main components – a Dataglove which fits over the hand and senses the position of the fingers, and a stereoscopic display built into a helmet. This senses head movements, so that the computer generated scene can respond when you turn your head.

So, you could appear to be in a computer generated room, turn your head to see a cup, and then reach out with your hand to pick up the cup and pour out the liquid it contains. A computer generated dream-world, under complete programmable control.

Add to that true video, stereo sound, voice recognition, and perhaps devices that detect whole body movements, and you could be in a Tron-like world without the pain of laser vaporisation!

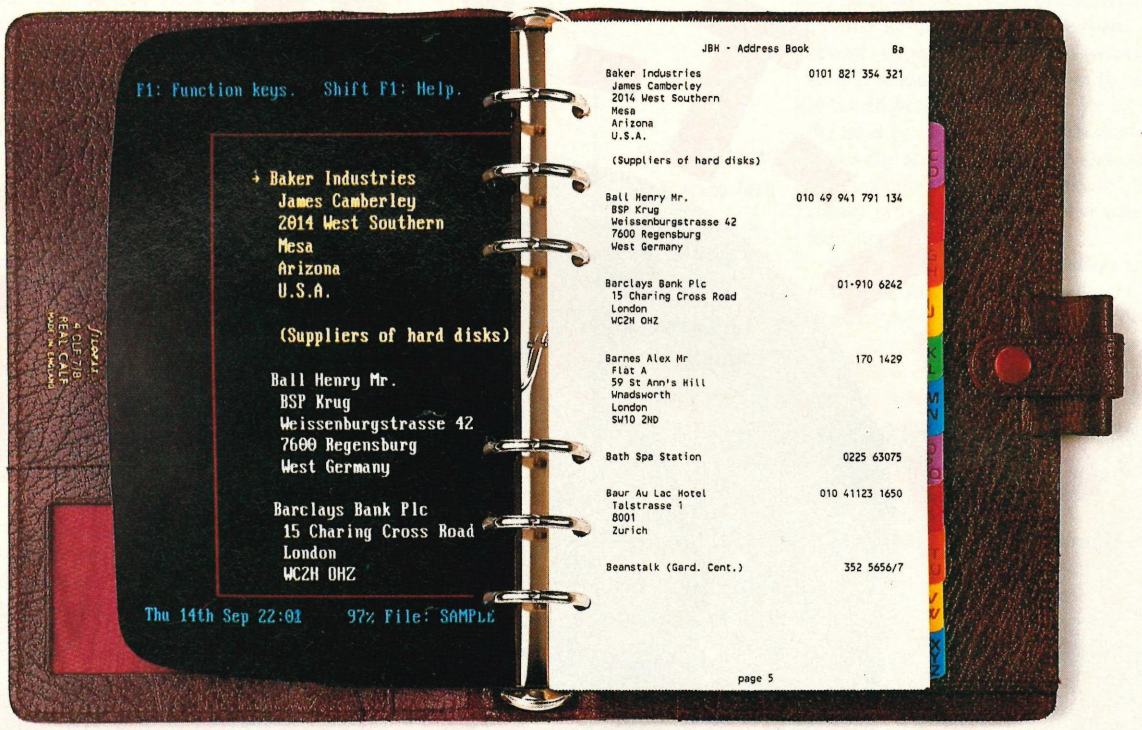
It would certainly be a good way to see around a house that you are planning to have built, learn to drive a car or fly a plane, design a complex engineering model, or take a walk inside an amoeba to learn how it works. The possibilities are as endless as the richest of dream-worlds, and the games are going to be absolutely bloody stunning.

See you there...



And now, the news: VideoLogic's TV in a window.

Portex



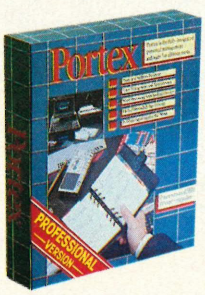
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T-T-T-THAT'S ALL FOLKS



Bouncing bunnies, wicked wolves and wily weasels fill the screen as Electronic Arts lets loose an animation package with a twist. Rob Beattie has a doodle and wonders if you can tell what it is yet...



In recent months there's been a resurgence of interest in cartoons and animation. Roger Rabbit and Baby Herman led the way, while, more recently, cinema audiences up and down the country have been 'treated' to baby dinosaur romps, re-issues of Goofy (currently running alongside Turner & Hooch) Don Bluth's All Good Dogs Go To Heaven (see elsewhere on these pages) and Oliver & Co, Disney's re-telling of the Dickens classic with Billy Joel and a pack of dogs.

And now, if you fancy having a go at producing one of these animated masterpieces for yourself, Cartooners, a £24.99 program from Electronic Arts could be for you. It won't turn you into the next Uncle Walt overnight, but for that amazingly low price it includes a whole bunch of options and possibilities that make it better value for money than 99 per cent of standard PC games.

The basic idea is simple: the program is an animation jigsaw comprising a series of backgrounds and a whole pantheon of characters, or 'actors', to place upon them. The backgrounds remain static while you move the characters across and around them as you run through your story, adding speech bubbles and special effects as you go.

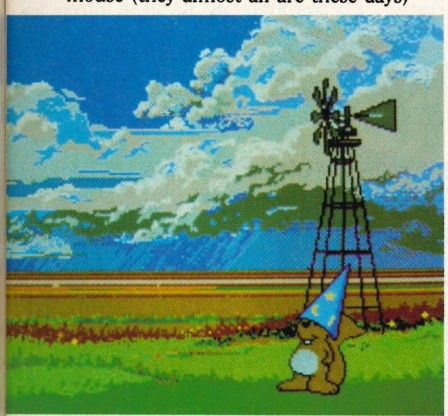
Because the backgrounds don't actually

move (although you can chain a number of backgrounds together to make a movie which contains a number of 'scenes') Cartooners has more in common with a comic or a movie storyboard than a genuine movie.

It's also worth bearing in mind that the program is two dimensional, so while characters can move from left to right, up and down, down right, down left, up right and up left, they can't actually move forwards and backwards into the screen. That kind of graphics action is way too sophisticated for a program like this.

To run Cartooners, you'll need at least 512Kb of memory (but that's standard on 90 per cent of machines anyhow) and a colour screen – any kind will do, although, as always, VGA produces the best results. It's sensibly not copy protected and is dead easy to install.

Three words of warning though: first, you must have a Microsoft-compatible mouse (they almost all are these days)



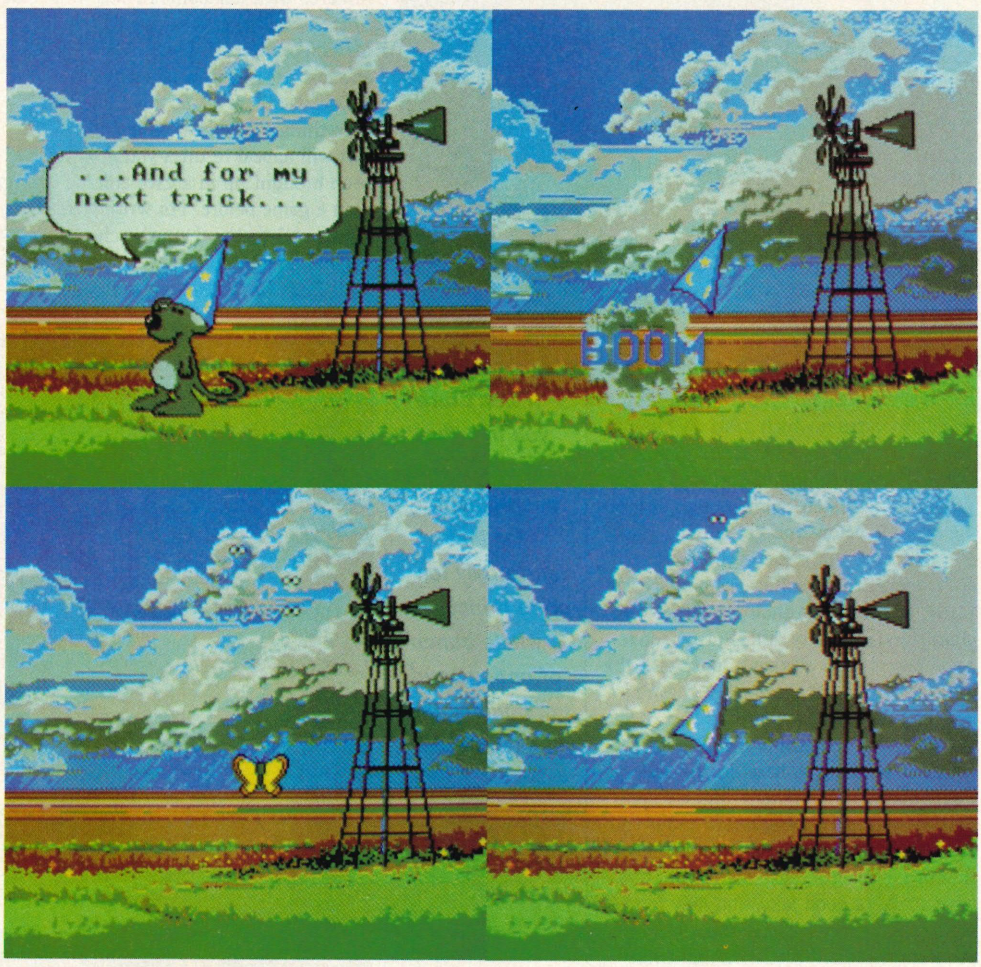
otherwise the program will simply not load; second, I found the performance a bit weak-willed on my run-of-the-mill 10MHz Epson AT–compatible – though that may be because its hard disk is blessed with a response time slower than Manchester United's back four. Those of you with 8088/8086-based PCs may find things even slower. Finally, this is definitely an experience for younger children (it even says so on the back of the box) and unless they're extremely refined, older kids are going to find it duller than dog food. For the young (and young at heart) however, it's a real treat.

The best way to find out what Cartooners does is to stumble through a short animation that combines as many of the available bits and bobs as is possible. The tutorial booklet isn't bad, but it could do with a few more illustrations to help you find your way around. Overall though, the Producer's Manual (as it's wackily called) is fine, and the Look and Play version for the kids is even better.

The tutorial's cast of characters gives the game away: the lead is played by a bunny, ably supported by twin squirrels. Basically this is a nice world where bunnies hop and squirrels sort of bustle along and have twins and eat each other's nuts and do the things that squirrels do. If you want to take this 'so clean they'll make your teeth ache' cast of characters and do nasty things to them (or make them do nasty things to each other), that's entirely up to you, but this is a family show, so can you sit down at the back please and take your feet off those chairs...

Cartooners uses pull down menus, rather like some of the latest Windows business software. There are two bars – at the top and the foot of the screen – from which all of the main features are controlled. Some you can short-cut to with a single keystroke, others you point and click at; most commands will also accept a double click rather than always going to the OK box.

For a program that costs less than Bed & Breakfast for two in Rye this is packed full of fun and adventure.



One of the many 'ready-made' animations, Magic Trick, is a fine example of the program's capabilities – where *did* that squirrel go?

The bottom of the screen houses the transport controls – Rewind, Fast Forward, Play and Record as well as a Frame Counter (Cartooners animates by individual screen frames) Marker, Eraser, Balloon Writer and Loop control.

So, first you load in your static background, then you skip up to the Actor choice on the top menu and choose a character. If you one you want is not there, you can opt to Add An Actor and you'll get a list to choose from. Some appear pretty bizarre at first – a bush? – but once you get into the swing of things you start to see all sorts of possibilities in this smart and snazzy little program.

Finish 'casting' and then you need to decide what you want your characters to do. Each one has certain characteristics – bunnies jump, androids roll forward, advisors appear and disappear, weasels kind of weasel along, butterflies fly, and so on. In between, characters get hit on the head by baseballs, asteroids shoot across the screen and explode and barrels fall uncomfortably from the sky to clobber cheeky little cats as they slobber over their next free meal.

Basically this is a nice world where bunnies hop and squirrels sort of bustle along and have twins and eat each other's nuts...

To complement the action there are all manner of speech balloons (different shapes indicate anger, fear, whispering etc), you can move actors backwards and forwards so they can move behind or in front of each other, there's sound support for the Ad Lib, CMS and Roland MT32/LAPC1 boards, rolling credits at the end of a movie, some editing, and reasonable replay options.

And just think, while you or the kids are playing Cartooners, you're actually learning some valuable lessons about how business software works because the interface is so close to things like Windows and GEM (an educational game? Yuk!).

You get the idea. For a program that costs less than bed and breakfast for two in Rye, this is packed full of fun and adventure. The backgrounds get a bit samey after a while, but you can always import new ones if you've got Electronic



Props and special effects combine for extra comic value.

Arts' Deluxe Paint II (you'll need the enhanced version which costs £99.99); indeed, it's only the characters themselves that dictate the limits of Cartooners and if you mix and match them enough, it'll be a long time before you get bored.

In the end, that's the trick to Cartooners. The graphics are pretty basic really, and taken on their own, the characters are pretty dull. But an active mind can change all that... and that's the missing ingredient Cartooners doesn't supply – imagination. If your idea of a good game is something like Xenon II then you're going to hate, loathe and despise this.

It's absolutely for beginners and if you leave the kids to it, Cartooners will help them to develop a sense of storylines, what makes a good joke, and how to make characters relate to each other. It's a program that more than one can tinker with, and busy parents can pack the kids off for an hour and only have to spend a minute watching the results. Good deal huh? It's also the kind of game that will turn the girls on as well as boys which is rare and to be encouraged. And no-one need get hurt.

The bush, by the way, is for characters to hide behind.

It won't turn you into the next Uncle Walt overnight, but for that amazingly low price it includes a whole bunch of options and possibilities that make it better value for money than 99 per cent of standard PC games.

PRODUCT: Cartooners
SUPPLIED BY: Electronic Arts
CALL: (0753) 49442
PRICE: £24.99
VERDICT: For the price, it's brilliant – but for younger kids only

HEAVEN SENT?

I've got a lot of time for Don Bluth. He was one of the guys who left Disney after he felt – quite rightly – that the standard of animation was starting to go down the toilet. His first independent feature was The Secret Of NIMH, based Robert C. O'Brien's excellent children's story, and, more recently, he's scored with All Dogs Go To Heaven.

So when I heard that a game of the film was available, I jumped at the chance of taking a look – especially as having tinkered with Cartooners I was interested to see how the 'experts' would handle cartoon animation. I was in for a shock... and not necessarily a pleasant one.

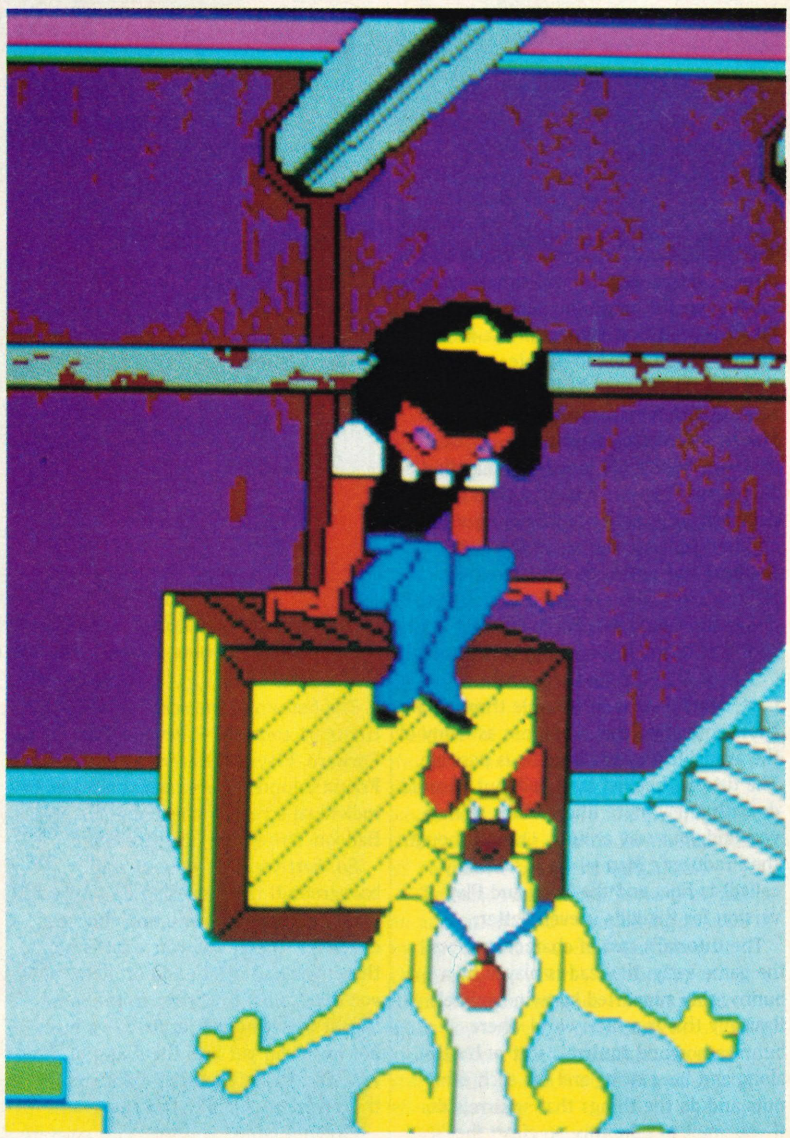
Because there's a positive side to everything I'll be charitable and say that this will appeal to ultra-young kids who've been brought up in a cave and have never seen a game before. I'm writing this at home, and that's where the charity begins. And ends.

All Dogs Go To Heaven is a collection of 10 arcade/strategy games loosely based on the film's plot. The gap between each is filled by a short narrative which leads you into the next scene and you can pick one of the three available levels depending on how confident you are of your skills.

I wouldn't bother, because this is the most risible collection of tripe I've ever seen. Whoever put All Dogs Go To Heaven together should be sent into a quiet room with the corporate revolver from where they can go on and pursue their careers on a higher plane.

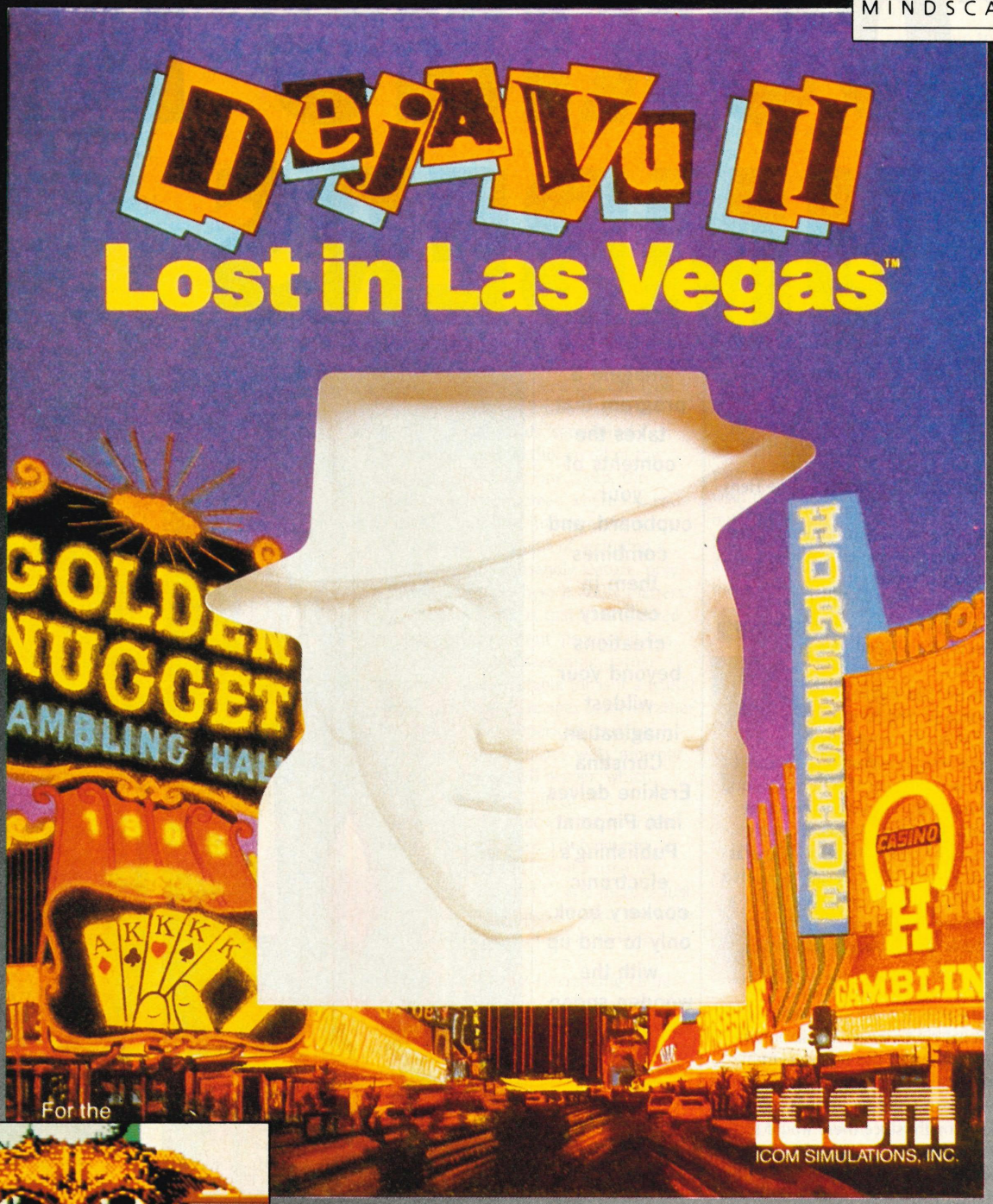
To give you an idea of how rough it is, I won two of the games (dogfight and finding the house on Maple Street) while I was talking to someone on the 'phone. It only supports up to EGA resolution which means the graphics are pretty evil. The animation's awful (Cartooners is smoother than this) the game feebly rips off 'problems' like the Towers Of Hanoi, Hangman and even throws in that real old timer where you knock down a wall by batting a ball at it. To add insult to injury it takes up nearly two megabytes of disk space.

I hear the film's good.
The game isn't.



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COOKING BY NUMBERS

Imagine a program that takes the contents of your cupboard, and combines them in culinary creations beyond your wildest imagination. Christina Erskine delves into Pinpoint Publishing's electronic cookery book, only to end up with the wooden spoon.

At first sight, Bon Appétit appears mouth-watering. It's a cookery management program stuffed with nearly 200 recipes, some of which sound truly delicious. How about Strawberries Romanoff, King Pao Chicken, Game Hens in Cognac or Satin Scallops? And better still, all of these adhere to Erskine's First Law of Cookery: no-one ever ruined a dish by pouring alcohol into it.

Unfortunately, Bon Appétit is quite close to being the most irritating program in the world. It's a Good Idea gone horribly astray.

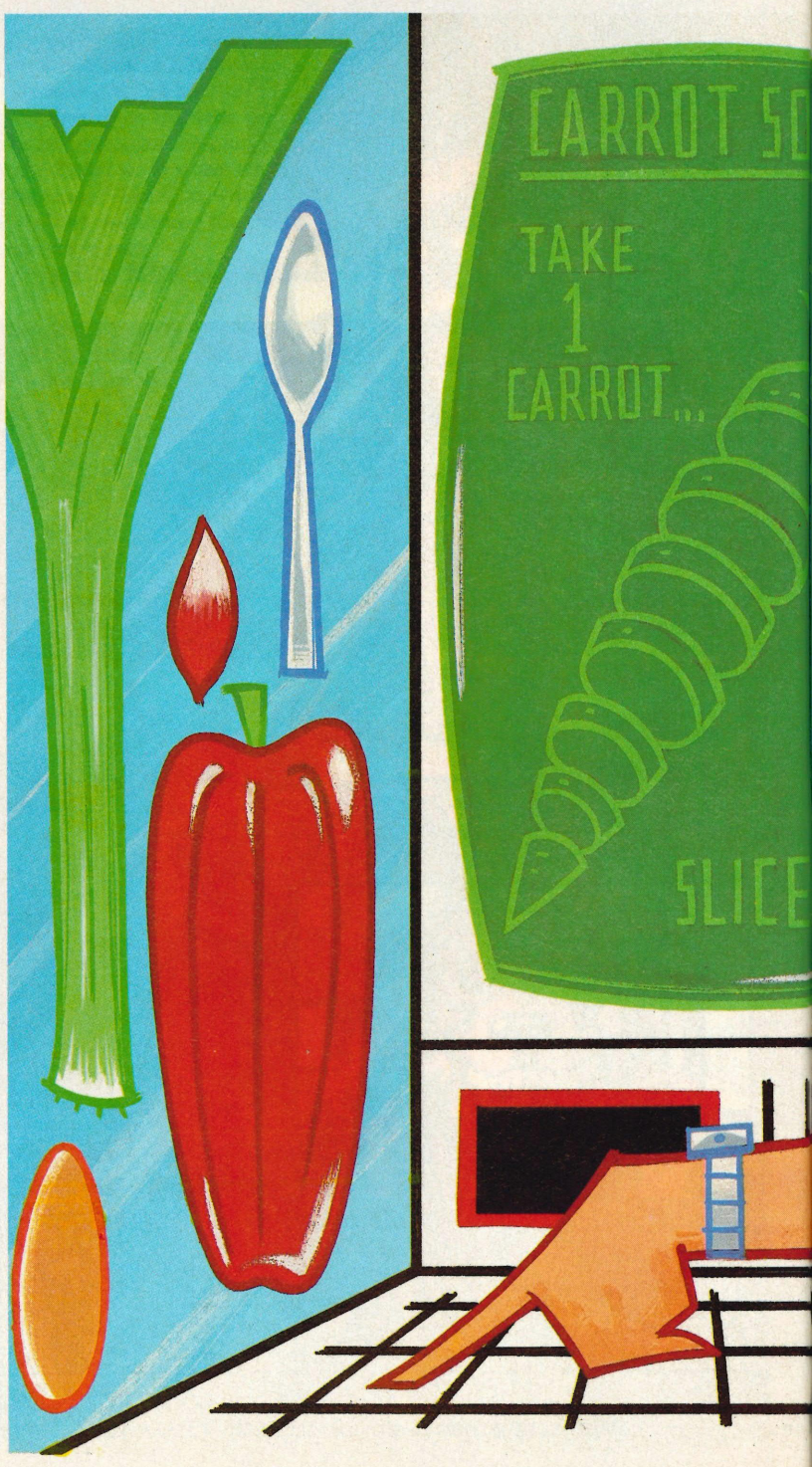
Cookbooks, like software manuals, should come in ring-bound form, so that they lie flat on the work surface leaving both hands free. However, a ring-bound cookbook is even rarer than a ring-bound software manual – especially now that most cookbooks read like novels, with lovingly crafted tales of mushrooming at dawn in the Ardeche, or dropping in on a family of 12 in the Malay peninsula for a lunch entirely comprising ingredients unobtainable anywhere west of Kuala Lumpur.

Thus you can see Bon Appétit's immediate potential. All you need is a conventional ring-binder, a hole punch and the print-out of the Bon Appétit recipes. And there are no fond tales of mushroom-gathering and Thai banquets to wade through, since these would just use up valuable disk space.

However, in this format, Bon Appétit doesn't offer that much over a conventional recipe book. And while the recipes stay in the computer, they are presumably not in the kitchen.

Where Bon Appétit has to score to be functional is in the Recipe Management department. The idea of opening the fridge and entering the names of the food you find into the program (that is, those items without obvious fur and which are still the same colour as when they went in) and lo, a series of delicious recipes is presented for you is, well, like a dream come true.

Indeed, it is. Frankly, any program worth its salt would flash up 'Go to Pizza Express' as soon as it had processed the contents of the fridge chz Erskine – typically, half an onion, a couple of bottles

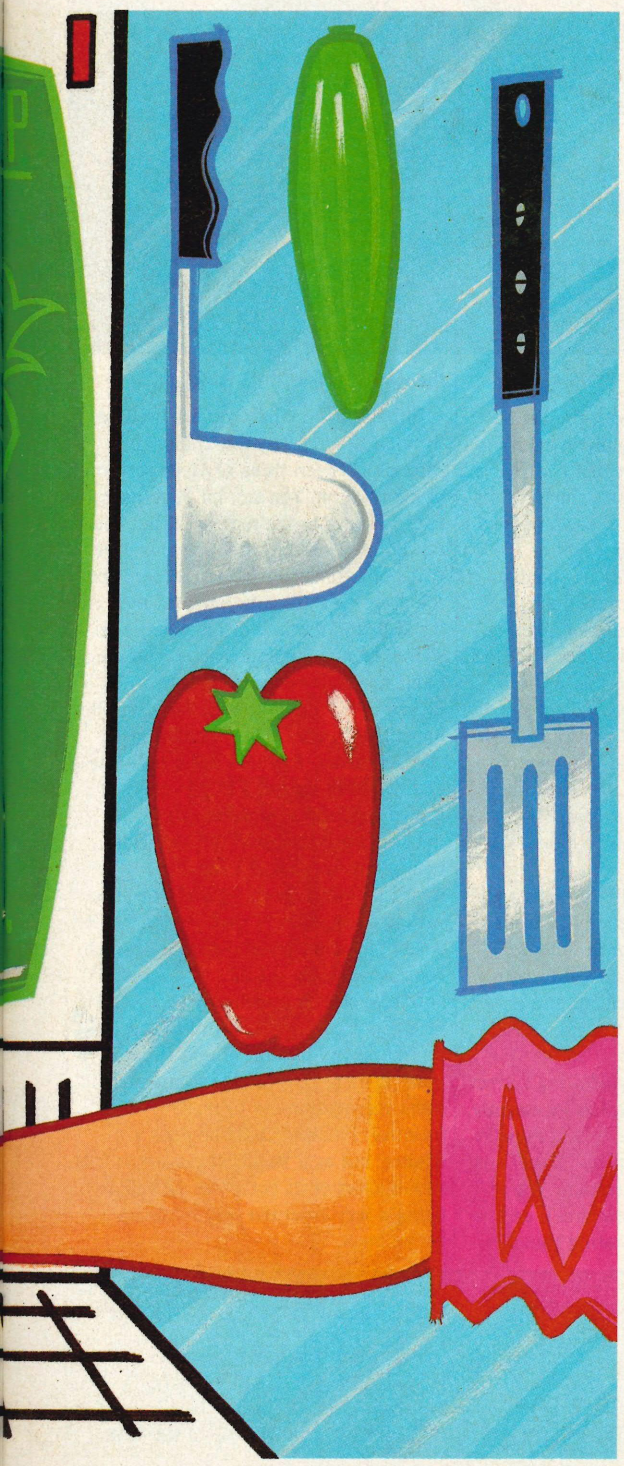


of Beck's, half a tin of Kattomeat and a few dead fish donated by the fly-fishing sector of the household.

However, in the interests of science, Bon Appétit, and PC Leisure, I searched in some hitherto unexplored corners and managed to come up with quite a respectable list. So, wading straight into Bon Appétit's ingredient selector screen, I asked it to make some culinary suggestions using 'onion', 'peppers' and 'cheese'.

This function undertakes to find those recipes which use all of the ingredients you stipulate, so you need to be realistic in your aspirations... the dead fish would have to wait for another mealtime.

The sentence in the Definition of Cooking Terms which reads 'Poaching: Cook in liquid just below the food point' (sic) is just plain bewildering.



A quick Ctrl-C, and the program does its search. There are 52 recipes which include onion, 71 incorporating peppers, and 'none at all' which use cheese. This came as something of a shock. Having checked that I hadn't been landed with some kind of special dietary disk, it dawned on me that you need to input each ingredient exactly – at least, you're allowed to waver between 'onion' and 'onions', but simply looking for an ingredient which includes cheese in its name isn't good enough.

A CHEESY PICKLE

Bon Appétit has a 'wildcard' facility, in that when you are looking for ingredients, recipes, and classifications you can type '* cheese', and it will throw up any ingredient which reads 'something cheese'. You can use this on all of the search screens except one... yep, the ingredient selector screen where I'm so desperately trying to find something to cook – what's the point of including a perfectly good user-friendly feature, only to exclude it from where it really matters?

The next problem is that having asked the program to root out 'peppers' it has included pepper the seasoning, rather than pepper the vegetable (or is it a fruit?) – I thought that 71 recipes seemed rather a lot. Since it's an American program I thought it might be happy with 'pimento', but in fact, it was 'bell pepper' which produced the desired effect.

Meanwhile, the cheese is more or less identifiable as cheddar. Try typing in Cheddar Cheese, and yes, it's used in seven recipes. Hit Ctrl-C, and there is just the one dish which uses all three from the original specification, California-style Peppers.

However, the cross-referencing could still be improved. For example, pretty well anything (in this program, anyway) which uses mozzarella can use cheddar instead, and it would be a definite improvement if the final recipe list could say 'See Also Cheesy Skillet Lasagne' (yes, there really *is* a dish called Cheesy Skillet Lasagne), having cross-referenced on 'cheese', even if some, such as the Bleu Cheese Apple Slaw (sic) would be obviously unsuitable.

In fact, cross-referencing is pretty well non-existent. For example, the recipe for the Crisp Cheese-topped Fish specifies using sole, but marks this with an asterisk and notes at the foot of the recipe that you could substitute cod. But if you ask for recipes which use cod, Crisp Cheese-topped Fish is nowhere to be seen.

TEA FOR TWO

The recipes themselves are presented on two quite separate screens, one for the ingredients and measurements, one for the instructions. Two options are presented at the foot of the screen: one to toggle between the ingredient and instruction screens, one to access other functions, such as changing the number of servings (this will simply multiply or divide the given quantities).

The program can cope with up to 299 portions, although the manual rather endearingly reminds you that if you cook for over 200, you are required to register with the State Restaurant Board. You can also print out the recipe, a simple enough process (assuming your printer or chosen emulation appears on the rather short printer options list), but one which is accompanied by all sorts of hideous beeping which it seems impossible to avoid.

The process can be further refined by asking the program to come up with suggestions for a dish of a certain type: ie, a starter, soup, pasta dish, Italian recipe, etc, using the ingredients you stipulate.

As well as coming up with menu ideas, you can also use Bon Appétit to compile your shopping list. Choose the dishes you wish to cook and ask the program to print out a list of ingredients required – and how much of each. If both your starter and main course, say, use butter, each measurement of butter will appear separately but under the single heading, 'butter'.



You might prefer just to browse through the 191 recipes included in the program – which incidentally, are completely different from the recipes mentioned in the manual. This is somewhat confusing, since there is a mini-tutorial in the manual which goes into some detail on the potential of the Double Chocolate Torté, which of course proves to be non-existent in the program.

There are also separate indexes for ingredients and 'recipe classification', which you can look through, and select items from in order to give you ideas for your dishes.

For some reason, the main recipe index is unsorted when you first load the program and you must reconfigure the system options (a separate menu) in order to get the list into alphabetical order. You can select any of the 191 to see the ingredients and instructions either by typing the name in, or pointing with the cursor.

The recipes can be modified – to substitute more familiar ingredients, perhaps, although it's too much to ask

A ring-bound cookbook is even rarer than a ring-bound software manual – especially now that most cookbooks read more like novels, with lovingly crafted tales of mushrooming at dawn in the Ardeche.

The program can cope with up to 299 portions, although the manual rather endearingly reminds you that if you cook for over 200, you are required to register with the State Restaurant Board.

that you do a global Search & Replace to turn 'zucchini' into 'courgettes'. You can also add your own concoctions, a facility which could be truly useful judging by the number of scrawled recipes that get lost down the backs of drawers in kitchens everywhere.

FOOD FOR THOUGHT

Unfortunately, while all this sounds promising, many of Bon Appétit's features and functions are only implemented sketchily (as with cross-referencing, above).

There are none of the nifty short-cuts such as being able to hit the initial letter of a menu item to take you straight to it. Okay, this isn't essential, but it's becoming increasingly common and it's always much more helpful when you start using a program if some commands seem familiar.



Which leads me to another example: one of the effects of the widespread use of Wordstar for word processing means that most WP packages support the best known of Wordstar's rather arcane commands, such as Ctrl-T to delete the current word, and Ctrl-Y to delete the current line. Sure enough, if you hit Ctrl-Y during Bon Appétit, you'll delete the whole line, but if you try Ctrl–T, you'll just get beeped at.

Furthermore, the presentation throughout is appalling – right from the opening screen, which looks like a mistake.

The early-1980s look of the program continues throughout: there are even spelling mistakes. 'Forground' (when customising screen colours) is just about forgivable, but 'Stri-Fry' is ridiculous, and the sentence in the Definition of Cooking Terms which reads 'Poaching: Cook in liquid just below the food point' (sic) is just plain bewildering.

On the general purpose Help screen, you are directed to the delights of the F6 menu: 'where you will find valuable information about nutrition, calories, cooking terms, measurement tables, etc.' Well, there's certainly a glossary of terms and a measurement table, but there's nothing about nutrition and I don't think the word 'calorie' is ever mentioned.



RIGID COLUMNS

In the recipes themselves, the list of ingredients is laid out rigidly in columns headed Quantity, Measurement, Preparation and Ingredient, which means that you can be directed to use 'one med peel seed dice tomato', so a spot of decoding is necessary. This is a doubly unfortunate example, because once you have found your med peel seed dice tomato, you'll be puzzled to discover that it plays no further part in this recipe, which is for Fresh Asparagus Timbales.

In a program which is chock-full of irritating glitches, and old-fashioned presentation, it's difficult to determine just which are the most awkward aspects, but the Top Three has got to look something like this:

- Number Three: the F-key options are inconsistent. In most menus F10 takes you to the main menu, but in others, it calls up the Help screen. When browsing through the recipe, ingredient and classification indexes, F10 acts as a Page Down key.
- Number Two: In the windowing system the highlighted option flashes incessantly, unless you stick with the default grey on black display (the manual says it will only flash with a selection of colours, but I found it doing it the whole time), and is quite easily the most irritating thing in the world – apart that is, from...
- Number One: When you are browsing through the indexes, you are looking through between three to seven screenfuls of information. You can hit PageDown (or F10) to move to the next page, but you cannot move back to the previous page.

It's one thing to whinge and carp about the program's presentational failings, but it's also true that the dishes themselves sound, by and large, delicious (and the California-style peppers were great). Picked by editors of the US magazine Bon Appétit, they are, as you would expect, very American. By this I don't mean steak and hamburgers, but a huge variety of ingredients and lots of flavours imaginatively combined in the recipes, taking into account the requisite American sweet tooth. Indeed, the sheer variety of ingredients used in Bon Appétit would put many general purpose British cookery books to shame.

Bon Appétit is undeniably an excellent idea and it does work, if you accept its limitations. With a bit of updating to make it more comfortable to use and some reprogramming to make it more intuitive, Pinpoint could be onto a winner, but as it stands at present it falls rather short of its potential. As well as being a very expensive way to obtain a recipe book.

PRODUCT: Bon Appétit Electronic Cookbook
SUPPLIED BY: Software Circus
CALL: (01) 436 2811
PRICE: £44.95
VERDICT: Nice idea, but the implementation leaves a poor taste in the mouth.

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TRIAL BY TELEPHONE

There are mountains of free PC programs out there, but just how does one go about dipping into this 'public domain'? Robert Browning examines the comms route and discovers that software can be just a call away.

The most common route to obtaining Public Domain and Shareware software (simply because it is the most accessible), is via the mail order adverts in computer magazines. The larger Public Domain (or PD) libraries, often tout for trade by offering disks of software at a variety of prices. But postal distribution of software, for money, is a relatively new approach brought about by the explosion of PC users. The traditional means of distributing Public Domain software, particularly in the United States, was via the public phone network. However, on this side of the pond that means tangling with British Telecom.

The history and evolution of Public Domain libraries is that they came to exist because the librarian made a hobby of collecting thousands of programs from the hundreds of programmers who wrote them, and that the software so collected was as freely available to other computer enthusiasts. Sadly this somewhat Utopian state of affairs has long since past. Now that there are many more takers in the market, those with the software invariably want to charge those seeking it, even if they still use the traditional phone route to get it.

The costs of getting software via the phone (the mechanics of which I will deal more precisely later) can vary hugely, but many software hunters feel that being able to grab software directly has the advantages of immediacy and intrigue. And using a modem is more than just a delivery system, you will find that being able to communicate with hundreds of computers in the UK, and thousands across the world, is often a reward in itself.

So what do you need to enter this previously uncharted territory? The most important gadget, after your trusty computer of course, is a thing called a modem. The boring bit about modems is that the word is a perversion of MODulator DEModulator – the more interesting point is that they allow you to connect your computer to any other similarly-equipped computer anywhere in the World. Well, anywhere where there's a phone handy anyway.

Modems are necessary because the people who run public networks, like British Telecom, aren't at all keen on you connecting your computer, via the serial port, directly to their wires. And anyway, it wouldn't work very well since there is a limit to the distance a voltage from a serial port can travel, the phone lines are designed to transmit sound and the sound is re-amplified at distances between the connected phones.

Sound is what modems are about. They accept the signals from your computer's serial port and translate these into pulses of digital sound: in effect a series of pips and squeaks, something like the noise which could be heard when you played an old-fashioned computer games cassette in a tape recorder with the volume full up. It's cacophonic and unintelligible to the human ear, but to another modem that electronic gibberish is music.

As with everything computerese, there are many different flavours of modem. But to keep things simple, and to guide you along the most hassle-free, cost-effective route, we will only concern ourselves with a particular type of modem, known across the world as Hayes-compatible.

Hayes compatibility describes the way in which you, or the software you are using, issues commands to the modem. Just as you can tell a printer exactly what to do, or how to behave by sending a series of escape commands, so you can control a Hayes-compatible modem. The Hayes command set consists of a series of instructions for the modem to perform certain tasks such as dialling a particular number, hanging up the phone or switching to 'auto answer' mode, each command being preceded with an attention command, simply 'AT' sent from the keyboard. Hayes compatibility is the most widely recognised command structure in the computer world, with software on all computers being able to work with it. Buy a Hayes-compatible modem and you should easily find software to match, and have few problems getting it up and running.

Physically, modems come in three different forms. First there is the type known as acoustic couplers. Acoustically coupled modems were really big only about six or seven years ago. For one thing they were cheap and, most importantly, they didn't upset the likes of British Telecom who, in those days, were convinced that connecting a computer to a phone line was not something the general public should be allowed to do. But acoustic couplers had to fit directly onto the telephone handset using rubber cups over the ear and mouth pieces. If you had a designer telephone there was practically no chance of getting the two to come together. In any event the effort wouldn't necessarily be worthwhile – the devices tended to be unreliable in use with

the modem at the other end of the phone trying to translate not just the noises being made by your modem, but any other noise which percolated into the mouthpiece – the dog barking, television sounds or the baby screaming. For peace of mind, avoid acoustically-coupled modems.

Directly wired modems are where the real action is. BT has compromised on its initial paranoia by allowing us to use modems which they have approved. Now, instead of trying to stuff the telephone handset into the rubber cups you can just plug the modem into the phone socket, as if it were another telephone – altogether, a much more civilised arrangement.

IBM computer users can choose between two types of directly wired modem: internal or external. The internal type simply fits inside the computer as a card, filling an empty expansion slot. The external modem, or standalone, comes in its own box and is connected to the computer via the serial port. The advantage of the former is that they don't clutter up the desktop and are invariably slightly cheaper. However, unlike the standalone modems, they cannot be used on any other type of non IBM-computer, and they don't have indicators built in which allow the user to monitor the activity of the modem, something which can be very useful if you are having trouble connecting to a particular service.

Most people prefer to use external modems, particularly if they are likely to move from one computer to another. And if you're using an advanced IBM clone with the new Micro Channel architecture you will find that internal modems are few and far between, and very expensive, so the external option looks even more agreeable. The only disadvantage of this route is that a standalone modem will tie up a serial port, something of a pain if your computer has just the one port and it is being used for a mouse or printer. But even in this situation it is preferable to simply add an extra serial card at little expense.

The capabilities of individual modems vary hugely. The single most important aspect of any modem is the speed at which it operates, measured by something called a Baud rate. Very roughly, a modem than works at 300 Baud sends 30 characters a second down the phone line, while a modem working at 1200 Baud sends 120 down the line. Clearly it doesn't really matter how Baud translates into speed, what does matter is the difference in speed. If you are using a 300 baud device it will take four times longer to send or receive a file than if the modem was working at 1200 Baud. At 2400 Baud the difference is even more noticeable and the practical effect, saving time on the phone line (and consequently money paid to BT) is even more marked. Clearly, by buying the fastest modem that you can afford will pay in the long run. These days 2400 baud modems are widely available at can be bought for as little as 150. In short, if you buy anything less than a Hayes-compatible 2400 baud modem you must be barking mad.

Now that you have the modem, what about software? The vast majority of modems come with some sort of free software bundle which is always superficially attractive. But the danger is that the software will not be brilliant and probably not have all of the features which make comms such fun. You should make sure that whatever software you finish up using regularly supports a number of file transfer formats. Simple ASCII send and receive is essential and standard in pretty well all comms software. But ASCII cannot be used for transferring program files – this operation needs an altogether more sophisticated protocol, so make sure that your software can use the very common Xmodem. A better and more reliable format goes under the name of Sliding Windows Kermit. It is also vital that your comms software supports a peculiarly strange UK screen format for displaying the colourful and dynamic screens found on Telecom's Prestel service, vital if you want to have access to the most widely used of all hobbyist bulletin boards, Micronet. This feature is called Viewdata format and is very different to the normal flat and colourless screen emulations offered by the vast majority of bulletin boards. In general Viewdata is well supported by English comms software like Malcolm Messeter's excellent Transend program. Some American comms software such as Mirror and Procomm have had the facility added, but in general such a format is not supported by software from over there.

One other important software feature is the ability to create script files which can be thought of as macros similiar to those used in Lotus or Wordstar. Script files allow you to train the software to learn about the bulletin boards you access, and the procedure you use to get logged onto it, including passwords and access names. Script files save time and that's important when your computer is on-line burning telephone time. Most software offers some sort of script file system but the smartest and easiest to use have an 'auto-learn' facility which avoids the need to learn any complex pseudo programming commands and generally makes the whole process very easy. Mirror offers auto-learn, as does Transend.

Actually getting on line to a bulletin board can initially be a frustrating experience. Your first reaction is bound to be along the lines of utter incredulity that people use such systems at all. But patience and perseverance will win through. The most obvious point, but the one which people tend to overlook in their haste to get connected, is matching the protocol of the computer system you want to talk to to your software. The protocol is the speed of the system, word length, parity and stop bits. Commonly you will see such a protocol expressed as 8,n,1 which simply means you must set your software to 8 bits per word, no parity and 1 stop bit. Get used to checking that before you try to log on and you'll be most of the way there.

Actually getting on line to a bulletin board can initially be a frustrating experience. Your first reaction is bound to be along the lines of utter incredulity that people use such systems at all.

Choosing a bulletin board is a matter of trial and error. Always start by looking for local boards to minimise the phone costs, only regularly use Bulletin boards which are accessed thorough a national network at local rate, such as Prestel, or those which have particular strengths. It's always best to become an expert on home ground. These days most boards limit the amount of time you are allowed to spend connected. The time allowance can invariably be extended by joining the board and making some sort of donation towards the running costs. Protocol-wise, it's best to remember that the vast majority of bulletin boards provide an excellent service and many hours of amusement, but that someone somewhere is spending a great deal of time and money providing the service. Remember, particularly with private boards, that you are a guest on someone else's computer and when you find a system you like a small contribution is only polite.

Those services which make a financial charge for the board, by billing you for the time spent should be avoided unless they are national systems run professionally. Such systems include Prestel, Telecom Gold and CIX.

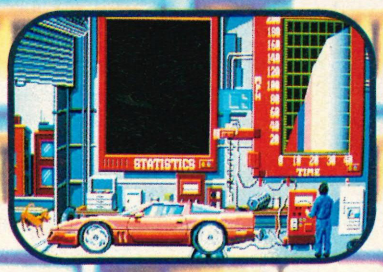
Modems are necessary because the people who run public networks, like British Telecom, aren't at all keen on you connecting your computer, via the serial port, directly to their wires.

Once you're connected to a system it's up to you. The format of bulletin boards varies widely depending on the type of software that they use but once again perseverance will help you understand that common general structure. Many experienced users prefer to log on and mooch about, but if you're new to the game this can be expensive and only marginally productive. The best advice is to find the file with the board's documentation and download that, so you can read it at your leisure. If your software has an option to spool everything that appears on screen to a disk file then use it, so once again you can review what went on and be better prepared for the next session. Once you're familiar with a layout it's easy to quickly locate messages and files. The number and range of software titles available is staggering more than enough to keep you occupied for a very long time to come.

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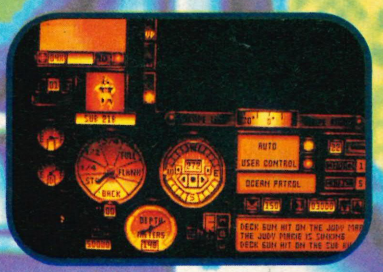
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REACH FOR THE SKIES



Flight Simulators have reached such levels of sophistication that it's become increasingly difficult to decide which one to splash out on. A veteran of countless hours in the clouds, Declan McColgan takes to the skies in 10 of the best and gives us some of his observations.

More years ago than I care to remember, the first simulation I ever flew on a PC was an early version of Microsoft's Flight Simulator. In those days, games boards had never been heard of, Hercules was the 'graphics' standard and nobody – but nobody – had a joystick (such accessories were considered to be strictly for the kids).

But up until v3.0, Flight Simulator was no great shakes anyway, mostly because the hardware in those days was no great shakes. Its main claim to fame was that it was an acid test for IBM compatibility; if your PC wasn't absolutely 100 per cent compatible then Flight Simulator would fall over. That's how I first came into contact with it, trying it out on an early Bondwell PC... it crashed.

Nonetheless, Flight Simulator has become the standard by which others are judged, and has been vastly improved the recently launched v4.0. Unfortunately, it's no longer any use as a test of compatibility – these days it'll run on just about anything. Its split-screen format – bottom half instrumentation, top half HUD (Head Up Display, a windscreen with information electronically projected onto it) – external views and access to various flight and simulation controls through drop down menus are familiar today on dozens of flight packages.

There are 10 packages in this round-up, or 11 if you count both versions of Falcon. In one or two, the emphasis is strongly on flying the airplane. Just staying airborne is difficult enough, and usually there are various stomach-turning manoeuvres to be performed. In most, however, the challenge lies in playing the game well, and achieving a set of objectives in an airplane which isn't too difficult to fly.

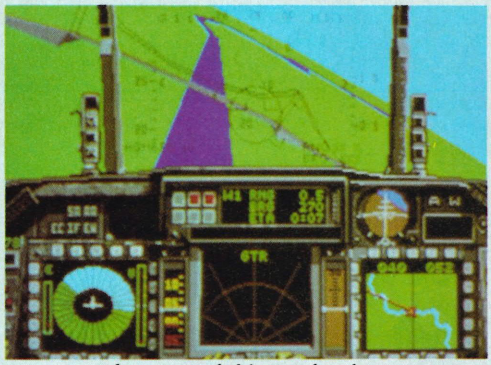
Only two, Blue Angels and Chuck Yeager's Advanced Flight Trainer, don't allow you to shoot at anything (even Flight Simulator contains an option to fight it out with would-be Red Barons over the trenches in World War I). All the others involve putting the fear of God into the Russkies, Gadaffi or various other dastardly regimes around the globe.

Each package was tested on a spanking new Elonex 386SX/B with colour VGA, 40Mb hard disk, 1.2Mb 5¼ inch and 1.44Mb 3½ inch floppy disk drives, a megabyte of main memory and a mouse – but no joystick. What this means that if any of the packages run slowly or look poor on my machine, they won't run fast or look good on anything.

And so, in no particular order, roll back the hangar doors and here they are...

F-16 COMBAT PILOT

This is one of the most realistic flight 'n' fight simulators of all – and consequently one of the most difficult to master. The F-16 Fighting Falcon is a light, fantastically manoeuvrable fighter/striker that can go like the



clappers, and this speed and manoeuvrability is well captured in this simulation.

The software is supplied on both 3½ inch and 5¼ inch disks. You also get a 100-odd page black and white manual, a card with a summary of the main flight controls, and odds and sods of bumph about registration, T-shirts and such like.

The software is copy protected using what's known as a key disk. What this means is, even if you're running it from a hard disk, the program won't load unless the original floppy disk is in the drive. I don't have any problem with this – after all it means you can play it on as many different machines as you like (i.e. you can play it all day at work and all night at home) and there's no messing about with de-installation routines or any of that sort of nonsense. But I would have thought that this was enough copy protection... far from it. When the program loads you also have to type in a word chosen at random from the manual. Both forms of copy protection are used widely in leisure software of this nature, but this is the only instance I know of where both are employed in tandem and it's nothing but a nuisance. Surely if you have the original disk you'll also have the manual and vice versa!

You begin your career as a Rookie, undergoing training in the arts of take-off, landing and so on – none of which is by any means easy. Anyone used to bagging a dozen MiGs in, say, F-15 Strike Eagle will be brought down to earth by F-16; if you're good you might get four – eventually.

There are five different types of mission, air-air interception, offensive counter operations, deep strikes behind enemy lines, battlefield close air support and reconnaissance. There's also a 'Gladiator' mode where you and your worst friend (or best enemy) can fight it out head to head. Carry out one of each type of mission successfully and you can graduate to Operation Conquest, a complete mini-war with you in command of an entire squadron.

Where all this action takes place is unclear – it's a kind of makey-uppy land, but there are plenty of mountains, rivers, roads and so on. There are quite good weather characteristics as well: you can climb through and above cloud cover, for instance, and if there's any wind about it will have a perceptible effect on your plane.

Other elements that will have a perceptible effect include the realistic ack-ack fire and the usual missiles and enemy planes, there's even a couple of helicopter gunships to avoid. Landing can also be particularly difficult, especially if you've been shot up a bit.

The graphics aren't great though, and flying is fairly difficult (there are so many controls to look after). This is not helped by the fact that the picture is quite jumpy (slow frame rate, I believe it's called). Also, while you can look around from inside the plane, you can't look at the plane from outside as you can in most of its competitors.

Otherwise, this is a quite challenging and difficult, and there are a number of unusual features and a huge variety of missions. Unfortunately, the documentation's terrible; it took me ages to figure out some of the controls and I wasn't helped by an index that was about as comprehensive as the Wall Street Journal's coverage of the Football League.

PRODUCT: F-16 Combat Pilot
SUPPLIED BY: Digital Integration
CALL: (0276) 684959
PRICE: £24.95
VERDICT: Realism at the expense of accessibility.



FIGHTER BOMBER



We're in with the Italians on this one, as half of the meagre ic documentation is in Italian, half in English. Not to worry though, Fighter Bomber is one hell of a simulator.

Once again the copy protection comes from a key disk, which is accompanied by the manual (which is pretty poor as I've already said), a control summary card and loading instructions. It will trot rather than run off a floppy, but can easily be installed.

Fighter Bomber is nothing if not different. You can fly one (or all) of seven different aircraft: two Tornadoes (UK and German) a MiG 27 Flogger (you may have shot down one or two in your day but have you ever flown one?) a Saab Viggen, an F-4 Phantom, an F-15 Strike Eagle and an F-111F fighter bomber. You can choose your opponents too: the selection comprises an F-14 Tomcat, an F-16 Falcon, an F-5 Tiger II, a MiG 29 Fulcrum (as seen recently at Farnborough), a Mirage 2000, a MiG 31 Foxhound and an SU 27 Flanker.

The game is based on a real-life annual bomber competition held in the States – the Curtis E. LeMay Trophy. What you do is simple: just master the aircraft of your choice and fly, sequentially, through the series of missions to win the award.

There are five initial options: Free Flight (basically do what you like and learn to fly the crate), Qualification, Tactical, Strategic and Offensive. In all except the first there are eight bombing missions, varying from annihilating a farmhouse to attacking enemy armour and installations. All the while there are enemy planes popping up which are very, very good (the idea being that they are being flown by people as eager to win the trophy as you).

The aircraft are easier to fly than in, say, Flight Simulator or Yeager's AFT, the frame rate is much fater and the whole simulation rolls much more smmothly than, say, F-16, but getting on a bogey's tail is very tricky. Even when you attacking a ground target you have to be pointing directly at it before your on-board tracking computer will become aware of the fact that it's there, which can hardly be called realism as most aircraft's computers these days pick up targets long before you can actually see them.

When it comes to the flying environment, Fighter Bomber is easily the most realistic, Flight Simulator and its Golden Gate Bridge notwithstanding. The arena is in Montana, Wyoming and North and South Dakota and the detail level is

Military Aviation Fact 1: The Lockheed SR 71 Blackbird holds records for both altitude and speed (at over 90,000 feet and 2,190mph respectively) despite being 25 years old.

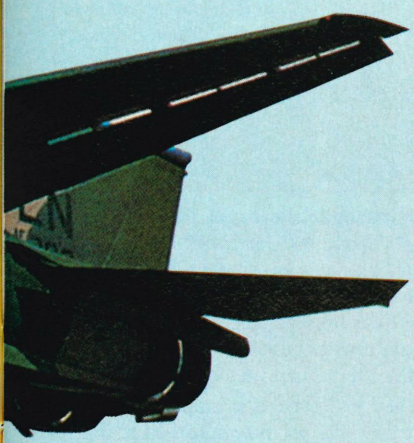
incredible: painstakingly reconstructed cities, towns, roads and mountains – even Mount Rushmore (you know, the one with the four heads carved on one side). When you get through the 32 pre-determined missions you can begin to design your own, so the possibilities are, literally, limitless, and you can fly where you want within this fantastic world. See the American mid-west without paying the fare!

Fighter Bomber is great fun. There are innumerable views of your own aircraft with full panning and zooming, you can click on an area of the map and get a full 3D view of the place. There are hangars to park in, and runways that seem miles long so even someone with my indelicate skills can get down relatively safely. Now that I like!

PRODUCT: Fighter Bomber
SUPPLIED BY: Activision (UK)
CALL: (0734) 310003
PRICE: £34.99
VERDICT: For those with a competitive streak.

GUNSHIP

Gunship is an oddball among these simulators and it took me a while to warm to it. That's because it's a



simulation of a helicopter, an Apache AH-64A in fact, the world's most expensive and high-tech chopper.

The package includes a keyboard overlay to help with all the unusual commands, a technical supplement and a typically detailed and thorough Microprose manual. And you're going to need it, as flying a helicopter is a very different proposition to flying a jet aircraft. For one thing, it doesn't go forward when you raise it into the air, and you can't high-tail it out of a hotspot as quickly either.

These different aerodynamic characteristics added to unusual weaponry means it takes a while to get up and going. But once you're able to move around and land the thing, you can proceed. In every other respect Gunship is very similar to the other Microprose simulations, F-15 Strike Eagle and F-19 Stealth Fighter: there are four theatres of war – South-East Asia, Central America, the Middle East and Central Europe, each progressively more hairy. Style Of Flying and Reality options further increase the difficulty.

A Training Camp in the US provides a fifth location, but there's little visual difference between each area. The opportunity for creating difficult missions flying along gorges and canyons as helicopters are supposed to do has been lost, and the quality of the opposition's troops and weaponry is the only real difference between the theatres. Compare this with the real geography found in Microprose's other simulators and Gunship is a bit of a let-down. Furthermore, there are no external views of the Apache at all, and the maps aren't up to much. Add to that the fact that the version of the software I had did not support VGA and you're left with a fairly good simulation that could have been much better.



PRODUCT: Gunship
SUPPLIED BY: Microprose
CALL: (0666) 504326
PRICE: £34.95
VERDICT: A disappointing variation on the theme.



NEVER IN THE FIELD OF HUMAN CONFLICT...

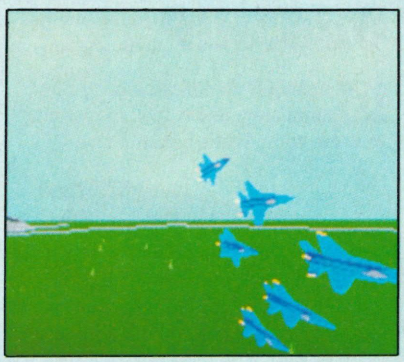
Fifty years ago, Winston Churchill's 'few' made what turned out to be the single greatest contribution to Hitler's downfall in Western Europe. Just over 600 RAF fighters took on the might of the Luftwaffe – which amounted to more than 2,400 aircraft – and won. Their Finest Hour: The Battle Of Britain, isn't strictly speaking a flight simulator, but it is an historically accurate and compulsively entertaining strategy game which includes enough elements of flight to keep any budding ace happy. Developed by Lucasfilm Games (a part of George Lucas' multi-media entertainment corporation), and distributed by US Gold (021 625 3388), Their Finest Hour puts you in the cockpits of eight vintage aircraft from both sides of the divide and includes a training programme, eight historically accurate missions and a custom mission designer. Fact freaks' appetites are also sated by the inclusion of combat records and a 200-page manual. A nice touch is that the programmers have not sacrificed everything before the great god of authenticity. It may not fit into the program's context, but the film and review feature which allows any mission to be reviewed frame by frame adds enough to the proceedings for this small piece of futurism to be ignored. In fact, Britain's cigar-chomping wartime Prime Minister could almost have been referring to Lucasfilm's programmers when he said: If the British Empire and its Commonwealth last for a thousand years, men will still say: this was their finest hour.

Military Aviation Fact 2: Britain's highest-scoring Ace of the First World War, Major Edward Mannock, only had one eye.

CHUCK YEAGER'S ADVANCED FLIGHT TRAINER v2.0



BLUE ANGELS



When I first looked at this package I gave it the benefit of the doubt, supposing that it would grow on me and get easier as time went on. Coming back to it now several months later, and having flown a fair few simulators in the meantime, my opinion of it has diminished; it's just too difficult for its own good.

There's a cassette tape supplied on which the Great Man himself explains what it takes to become a first-rate pilot, and then gives you personal instruction on your first flight (those who've read Tom Wolfe's excellent The Right Stuff will be familiar with Yeager's down-home drawl). The manual is reasonable and fairly clear, but the aircraft are still tremendously difficult to fly.

I believe the problem stems from Yeager's close involvement in the creation of the package. The simulation is too close to the real thing, too life-like and hence it's unnecessarily difficult to stay in control and in the air.

If you can master the business of getting and staying up, there are several manoeuvres to perform, races to run and formations to fly in. Training and instruction for these is carried out over a six day course.

There are no fewer than 18 aircraft to choose from, from Sopwith Camels to Supermarine Spitfires, and from F-16s to the Space Shuttle and experimental aircraft like the Bell X-1. The graphics are good, there's lots of good scenery and the simulation rolls smoothly, but some of the aircraft are very gaudily coloured. Take, for instance, the P-51 Mustang, resplendent in yellow and pale blue. There's a multiplicity of views and angles with panning and zooming, and each aircraft's characteristics are faithfully depicted. Don't try your hand at the X-29 immediately after you've got the hang of the Piper Cherokee – they're very different propositions.

However, my two original complaints about this package still stand: there are only three interiors for 18 planes, and I can't see the point of flying around in a Spitfire without any Messerschmitts around.

Military Aviation Fact 3: In the Second World War, Major Eric Hartman, Ace of Aces, scored 352 victories – an incredible 272 more than the Bloody Red Baron.

PRODUCT: Chuck Yeager's AFT v2.0
SUPPLIED BY: Electronic Arts
CALL: (0753) 49442
PRICE: £29.99
VERDICT: Not one for the trigger-happy.

Nothing to shoot at in this one either (bloodthirsty, aren't I?). When I started playing Blue Angels I initially liked it more than Yeager's AFT, but not by the time I was finished. This one's too simple. All you need to be able to do is steer and hit the afterburners and brakes.

When you install this simulation on your hard disk you'll be surprised to find only three files – don't ask me how they do it but three files is all it takes. Certainly, there's not a great deal to the game in terms of what you do, but there are quite a lot of options about how you want to do it.

The Blue Angels are the naval equivalent of the Thunderbirds, which are the US Air Force's answer to the Red Devils. They fly F-18 Hornets at air shows, performing Split-S's, Opposing Horizontal Rolls, Solo Tuck-away Crosses and such like. The idea in this simulation is that you join the team and learn to do the same.

Before you start at all you can watch an airshow as a spectator in a kind of chasing plane, but although this is entertaining it's not very informative. To start learning you've got to get into what they call a

'wire frame' simulator (how about that – a simulator within a simulator!) and learn the manoeuvres by steering through squares to complete the particular turn, loop or whatever. Nobody bothers to teach you to fly; I imagine the real Blue Angels are a bit more discretionary.



The simulator's fun but it's like playing an arcade game – after a while it becomes easy. Still you can alter the difficulty level throughout the program between easy, medium and hard. And there are lots of other options: you can fly solo manoeuvres or in any position in the group – lead, slot, right or left wing and so on. A 3D cube shows you what the manoeuvre path should look like before you attempt it, and afterwards you can compare your actual path with the ideal path and repeat the manoeuvre until you get it right.

When you think you've got the hang of it in the simulator you can get into the real thing and practice your loops and turns there, going on to practising a complete airshow and finally participating in the real thing with a total of 25 manoeuvres.

The manual is small but adequate. The graphics aren't bad, the simulation rolls fairly smoothly and there's a multiplicity of camera angles from which to admire yourself, but the level of ground and sky detail away from the airstrip is minimal to say the least. By far the main problem with Blue Angels though, is that after you've done a couple of airshows fairly well, what then?

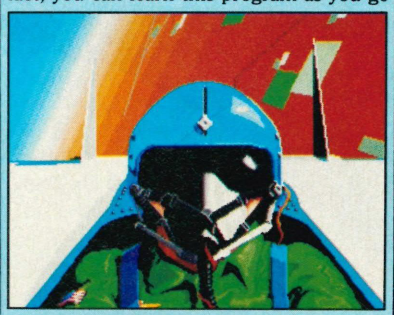
PRODUCT: Blue Angels
SUPPLIED BY: Accolade
CALL: (01) 585 3308
PRICE: £24.99
VERDICT: Clever, but ultimately limited.

F–15 STRIKE EAGLE II

The original F-15 Strike Eagle was showing its age by the time I came to look at it for the first time. The only way to load it was to put the single disk into the floppy drive and turn the computer on – the disk wasn't actually a DOS disk, so it was pointless loading DOS. Unfortunately my computer, in common with most modern machines, loads DOS straight off the hard disk irrespective of what is or isn't in the floppy drives, so I couldn't get the simulation to run.

But not to worry, this second version is so much better that I doubt anyone would want to go for the original. The main differences are that in the original you flew against older equipment; there were only seven missions (each based on historical skirmishes, including the bombing of Tripoli in 1986) and the graphics were nowhere near as good. They couldn't have been – because F-15 Strike Eagle II is easily the best-looking simulator anywhere in the known universe.

There's no place in F–15 II for the finer points of air tactics and simulation niceties; just find out what the mission is, put the pedal to the metal and if it moves shoot it. Once the job's done, hit the afterburners and split for home. Getting airborne and into the thick of things is achieved with the minimum of fuss. In fact, you can learn this program as you go



along, because everything's fairly simple and straightforward.

For your hard-earned shillings you get the key-disk protected software, a laminated card with all the basic fight, flight and simulation controls, a technical supplement to help you get it up and running, loads of bumph, a really good manual stuffed with dogfighting tactics, tips and advice about the enemy, and full colour maps of the four theatres of war – Libya, the Persian Gulf, Vietnam and the Middle East.

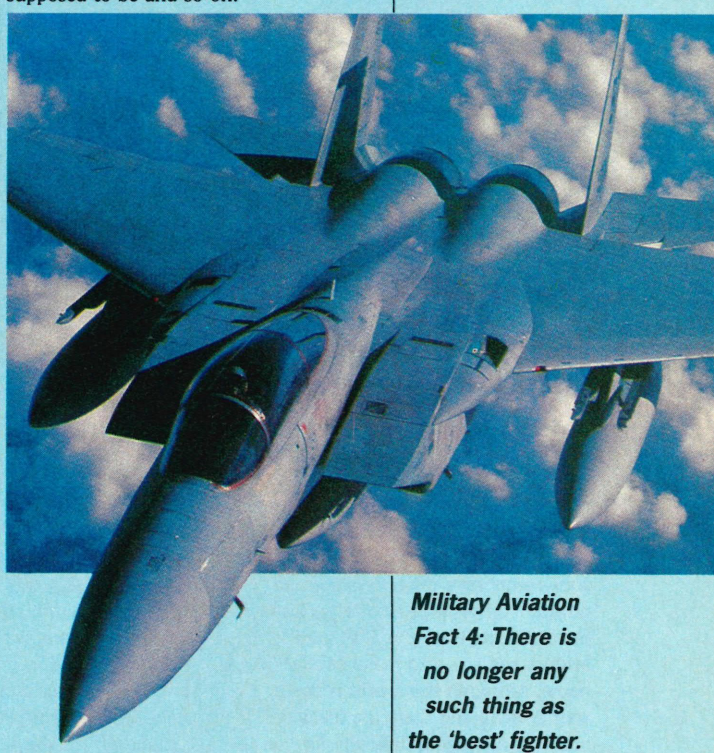
These theatres are ranked in order of difficulty and four further levels of difficulty are added depending on whether you're a Rookie, Pilot, Veteran or Ace. Missions always consist of attacking two enemy ground targets and the armament of the F-15 is always the same. But dogfighting is the real meat and potatoes of this game, because there's always loads of bogeys on the way who, for whatever reason, seem to want to kill you.

True, there's no panning and zooming on the external views, but the tactical and reverse tactical options let you look past your jalopy towards virtually anything and from virtually anything towards your plane, so you can watch yourself come in to land from the tower or follow an enemy MiG as he blows you to kingdom come.

There's also a Director mode which automatically cuts to show you events as they happen, such as an enemy plane taking off or a SAM site getting what for from one of your missiles. This can actually be a bit dangerous when things are busy though; on one or two occasions I've been just about to give a MiG a sidewinder up the manifold when I've found myself looking at a missile boat doing its stuff 50 miles away.

The tougher the mission and the more targets you destroy the more points you get and the more promotions and medals you earn. If you crash you die – and if you're hit often enough crashing becomes inevitable. Bail out three times and they ground you with a desk job, ending your career as a fighter pilot.

There are one or two shortcomings, the most annoying of which is that the satellite map doesn't show enemy aircraft – these are only picked up on the tactical display. But the world you fly in is real – coastlines and mountain ranges are geographically correct: airports, cities and military installations are where they're supposed to be and so on.



Most of all though, the graphics are stunning – the best VGA implementation I've ever seen. The only problem is that all that detail can slow things up even on a fast machine like a 386SX, so you may have to adjust the detail level during dogfights to make the brute easier to fly. If you happen to have a super-whizzo 486 lying idle around the office, treat yourself; load up F–15 Strike Eagle II and watch it go!

PRODUCT: F-15 Strike Eagle II
SUPPLIED BY: Microprose
CALL: (0666) 504326
PRICE: £34.95
VERDICT: If looks could kill...

Military Aviation Fact 4: There is no longer any such thing as the 'best' fighter. The Tornado could not dogfight with the F-16, but the F-16 could not fly the Tornado's four and a half hour 'stand-off kill' missions.

FALCON

Being an F-16 simulation, it's inevitable that this will immediately be compared with F-16 Combat Pilot, and let by say straight away that this is the superior product.

There are two versions: Falcon caters for poor sods with XTs and CGA/Hercules graphics, while Falcon AT is for us upper-class types with ATs. Still, it only supports EGA, but why they couldn't have supported all the standards in one package is beyond me, because – apart from the graphics – they are in every respect identical.

The package is not copy protected in any way and, unusually, comes on both disk sizes with a big manual and a card showing what the various keys do.

The world of Falcon AT exists only in your computer's memory chips and nowhere on planet Earth as we know it. But there are plenty of SAMs, MiGs, bridges and so on to make you feel at home. Although this world is small, it is very detailed and there are loads of missions of varying difficulty for you to wage your own private war, wipe out hundreds of opponents, win medals and gain promotion. The level of detail is exceptional, and this is reflected in the manual which, if not aesthetically beautiful, certainly contains tons of information.

The simulator is more difficult to fly than, say, F-15 Strike Eagle II, but it's by no means impossible. You start off at First Lieutenant, with things getting tougher as you progress through the ranks: the aircraft becomes more difficult to fly – and easier to crash, enemies become harder to hit and sundry other difficulties arise such as the possibility of being taken prisoner of war if you bail out behind enemy lines.

Although the 12 missions may seem a bit limited, the later few are so difficult that you'll need to make several attempts to be successful. Also, each mission requires the use of different skills, attack techniques and weapons.

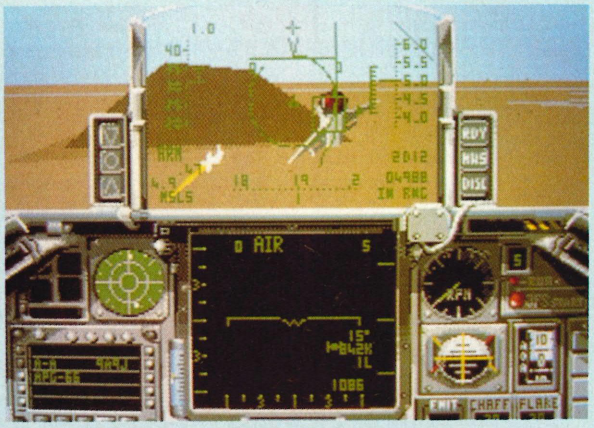
One unusual feature is the black box flight recorder which allows you to replay any MiG encounters or manoeuvres from previous missions. Oddly enough, there are only two types of MiG, the ancient but venerable 21 and the state-of-Soviet-art 29. That may seem limited but, believe me, these will give you all the trouble you can handle.

Being EGA only, the graphics aren't great (and a long way behind the dizzy heights reached in F-15 Strike Eagle II), but they're at least as good as in its main rival, F-16 Combat Pilot, and the simulation rolls very smoothly.

The ground detail can be a bit sparse at times, especially at altitude, and wherever this Falcon world is, it enjoys completely cloudless skies – at least I didn't see any – but in some senses this is probably the most realistic simulator of all, simply because I'm sure in a real F-16, hitting the target is by no means easy. So if that sort of challenge is what you fancy, this is probably the simulator for you.

PRODUCT: Falcon
SUPPLIED BY: Mirrorsoft
CALL: (01) 928 1454
PRICE: £34.99, OR £44.99 ('AT' version)
VERDICT: A good balance of rush and realism.





Military Aviation Fact 5: The world's first operational combat jet was the German Messerschmitt 262, which first saw service in 1944.

JET FIGHTER

You start Jet Fighter in the iono... er, topo... er, something-sphere, way, way up above the USA. And the camera, if you like, zooms all the way down to whatever part of the States your machine is parked in and plops you into the cockpit. Far out man. I'm waiting for the day when someone comes up with a simulator where a guy walks out of the mess, across the apron and climbs into the cockpit before beginning his mission. It can't be that hard to do.

All the action takes place over America, in your choice of an F-14 Tomcat (it's surprising that this is the only simulator I can think of that allows you to fly in a Tomcat, since they're as common as muck on aircraft carriers), an F-16 or an F/A-18.

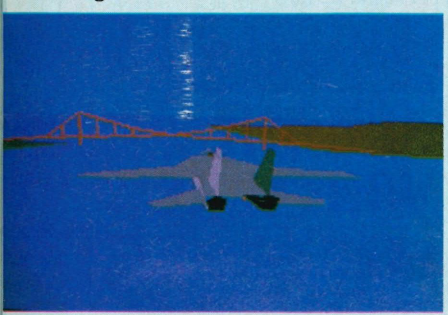
Basically, this is a good program marred by some irritating shortcomings. For a start, you have to complete four training missions before being allowed to proceed to the real thing, and you have to get the missions right. This involves landing on aircraft carriers, and performing various Immelmann rolls and such like, following a lead aircraft around the sky. This kind of thing really hacks me off; it means that you have the program for about four or five days (playing an hour or so each day) before you can get down to the serious stuff.

The other thing I didn't like was the manual. It's impossible to find anything like how to land and where exactly all the airports are. The first part of it is written like a play or TV script, with various officers advising of the situation, which means you have to read through everything to find the one scrap of information you need.

Another thing I didn't like is the copy

protection scheme employed. If you install the software on a hard disk of one computer and discover you want to run it on another, you have to first de-install from the original. It's hard to have sympathy for software publishers who cause users so much hassle in the name of preventing software piracy. And the price, for what you get, is a tad steep.

On the up side, the graphics are good (especially in California) if only EGA, the simulation rolls extremely smoothly, there are loads of external views, it's easy to fly and there are a couple of nice touches such as the ability to manually adjust geometry of the F-14's swing wings and the fact that if you eject from the Tomcat two parachutes appear – one for you and one for your navigator. There's also a real pilot's handbook for the F-14 with details about things like the exact construction of the landing gear and all the components of the ejector seat, if you're into such things.



PRODUCT: Jet Fighter
SUPPLIED BY: Software Circus
CALL: (01) 436 2811
PRICE: £39.95
VERDICT: A good arcade game, with pretensions of realism.



Military Aviation Fact 6: The F-14 Tomcat (armed with Phoenix missiles) has the greatest 'long-range knock down' capability, being able to destroy targets at distances of over 100 miles.

FLIGHT SIMULATOR v4.0

And so to the granddaddy of them all. The fourth version of Flight Simulator is a much improved product compared to v3.0, but is still difficult to fly. What you get is the unprotected software, a series of maps and charts, a 220-page manual and a quick reference card. Installation and loading is perfectly straightforward and clearly explained in the book.

This package is unusual in that it is produced by Microsoft, a company which is more used to marketing business software. This shows in the high quality manual and general packaging and presentation of the product. It's the original of the species, at least as far as PCs are concerned, and still the package of choice for purists.

Flight Simulator offers you the chance to fly a Cessena 182, a Gates Business Jet, a Sopwith Camel or a Schweizer 2-32 Sailplane in various locations in Western, Central and Eastern USA. I'm not sure if you can fly from one seaboard to the other (or right around the globe for that matter), but you can design your own plane and test it to see whether it will fly. This is not as difficult as it might sound – I managed to get one up and flying, and if I can do it anyone can – so the number of aircraft is potentially limitless.

The main cockpit layout is clear but quite recognisably Flight Simulator, and not as true to actual cockpit layouts as found in other packages. There are random weather patterns, extensive scenery (including fuel trucks) and all sorts of simulation controls governing time of day, season, whether the stars are visible and so on.

The graphics are much improved in this new version. There's better use of colour throughout and there's no denying that some of the features are very impressive. Fly over any city by night, for example; they're all stunningly lit up. Airport layouts are completely authentic, with approach light systems flashing away as you descend towards the runway. You can have local traffic around the airport and airport trucks and so on zooming about the place. Realism has even been taken so far as to show movable surfaces on aircraft when viewed from outside – in other words you can look at the rudder and so on swinging from side to side.

Then there's the entertainment. Hook up with another player via a modem and play away; fly formation in a stunt team, do a spot of crop dusting, try to land at major airports in the height of the storm (full marks to Microsoft for the very realistic lightning) or indulge in a busy dogfight over the trenches in a World War I setting.

Flight Simulator would make a fine birthday or Christmas present. It's the kind of product you can keep going back to and doing new things in. I've had it for quite a while now and still haven't had a go on the glider yet. Such variety and flexibility can only be rewarded with top marks. If only it was a bit easier to fly...

PRODUCT: Flight Simulator v4.0
SUPPLIED BY: Microsoft
CALL: (0734) 391123
PRICE: £44.95
VERDICT: As close as you'll get to the real thing.





Military Aviation Fact 7: Chuck Yeager, America's 'right stuff' test pilot flew in three wars: WWII, Korea & Vietnam.

F-19 STEALTH FIGHTER

This is a truly remarkable piece of simulation software. I've often told friends that it's worth the asking price for the manual alone, as it contains more information about the Warsaw Pact, Libya and Iran than the CIA might have readily to hand.

The F-19 is Lockheed's recently unveiled Stealth Fighter, so called because of its near invisibility to radar. In this machine you can fly in four theatres of war, Libya, the Persian Gulf, the North Cape and Central Europe, in either strike or air-air missions, with variable degrees of difficulty against variable qualities of opponents.

On top of this there are three types of war, Cold, Limited and Conventional, with different rules of engagement for each. Add to that the innumerable missions possible with VGA graphics second only to those of F-15 Strike Eagle II and offering a similar range of views and angles, and you've got the most complete fight and flight simulation package on any dealer's shelves.

The software is key disk protected, there's an indispensable keyboard overlay, the aforementioned manual, maps for the four theatres and a technical supplement.

There are so many aspects to F-19 that it's impossible to describe them all. There's the usual business of dogfighting and attacking ground targets, and there are some unusual missions, such as toss-bombing submarine pens in Northern Scandinavia, flying to secret airstrips to drop off supplies to rebels, or frequent reconnaissance missions to photograph bridges, boats or new enemy aircraft – the list is almost endless.

But the most important thing is the business of remaining undetected, particularly during cold or limited war. This makes each mission like a chess game, requiring careful advance planning. You've got to know what radar stations are along your route, how to minimize you radar 'signature' to them, what airplanes and warships you're likely to encounter on the way and what their radar capabilities are, and alter your route if need be.

Even then, you've got to try to pick the most effective weapons for the job from the biggest selection of any flight simulator, which means you've got to know how effective each is against different types of target. You're not even off the ground yet and you may well be scratching your head, but the God-send manual explains all clearly and in some detail.

Then you've got to fly the mission remembering that in most cases your aircraft is neither the fastest nor the most manoeuvrable in the air, you've got to avoid detection as long as possible – or fool the enemy into thinking you're somewhere you're not – and avoid being shot down or being forced to eject. It's not easy! At least if you're captured behind enemy lines you get your picture on the front page of Pravda.

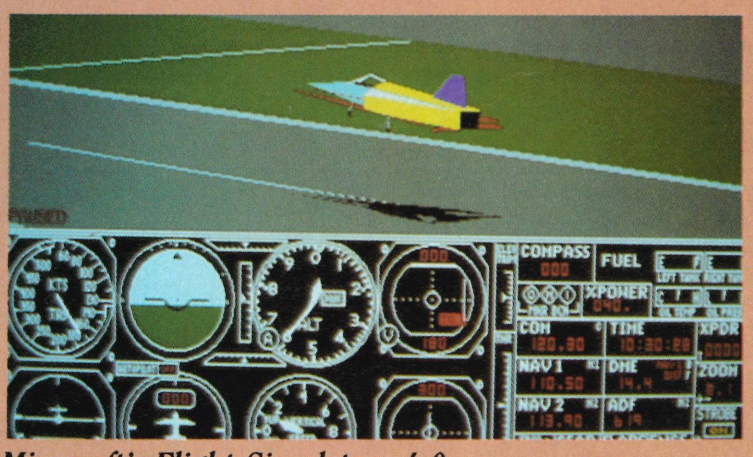
F-19 is much more than a flight simulator in the same way that the Empire State Building is much more than an office block. The depth, the challenge, the skill and subtlety required assure this package a place in the history books. the graphics alone set a new standard for flight simulators which F-15 Strike Eagle II duly improved upon, and the package is still utterly addictive and so unlike anything else available.

PRODUCT: F-19 Stealth Fighter
SUPPLIED BY: Microprose
CALL: (0666) 504326
PRICE: £39.95
VERDICT: For those who like a little thought in their thrust.

AND THE WINNER IS...

"Pick a winner from that lot," said the editor. "That's easy for him to say," I thought. But there are some packages which stand out, especially Fighter Bomber, Falcon AT, F-15 Strike Eagle II, F-19 Stealth Fighter and Flight Simulator. Flight Simulator, of course, is clearly the exceptional package, and given the more than reasonable price must take the Victor Ludorum (I had expected it to cost much more). From the point of view of graphics, F-15 II is the most impressive, but my favourite fighting simulation has to be F-19 Stealth Fighter. More than just a game, it's almost a way of life... In the end though, Flight Simulator v4.0 just pips it for the overall prize.

PC LEISURE CHOICE



Microsoft's Flight Simulator v4.0

Facts and figures courtesy of Tom Glenister.

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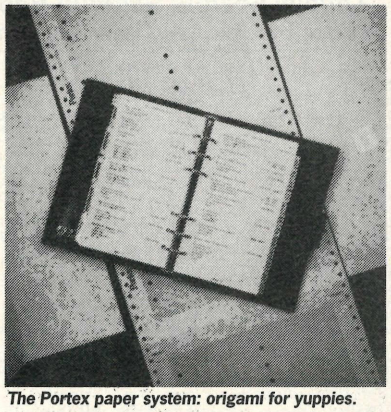
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GETTING YOUR FAX RIGHT

It was once a symbol of yuppie materialism, but even in these tighter-belted times the Filofax is everywhere. Christina Erskine examines a couple of electronic accessories which could put even more organisation into your personal life.



The Portex paper system: origami for yuppies.

Every January, 17 million Filofax users realise the single most useful aspect of loose-leaf personal organisers: you don't have to transcribe all of the addresses and phone numbers into your new diary, and you also don't have to avoid this laborious task by maintaining separate diaries and address books.

Anyone who had decided that a personal organiser would be efficient in the first place, would be easy to convince of the additional benefits of keeping the information on computer: you have a full back-up should the original be lost; it's easily updatable (have you realised what a drag it's going to be to manually substitute 071 or 081 for each of your London contacts); and it's all properly sorted in alphabetical order.

A number of desktop organiser programs support the printing out of information on Filofax-compatible paper, but the two best-known are Showerings' Portex range and Kempston's Daatafax, both of which include a free wad of the appropriate paper. However, the comparisons virtually stop there.

Daatafax is concerned with Filofax output as an end in itself. It's easy to understand and simple to use - you simply type in your data, print it out, clip it into your book and then forget about it until you need to update something.

Each of the two versions of Portex (Personal and Professional) has a dual purpose: as a desktop organiser program - with a multitude of facilities designed to make life easier - and for generating output for your Filofax. Portex Professional also has a `pop-up' feature which means you can access it from any other application with a single keypress. It's an altogether bigger program - in fact it may well be too big for your purposes.

Daatafax runs under the GEM operating system rather than MS-DOS. So if you don't have this on your PC, buy the `IBM version', which includes GEM. If you already have GEM installed, you can get the `Amstrad version' (since Amstrad PCs all come with GEM) for £20 less.

GEM attempts to provide PC users with a graphical front end similar to that used on the Apple Macintosh, with icons (pictorial images) depicting your files, lined up on-screen ready for you to point at using a mouse and pointer.

Point at Daatafax and it opens to confront you with a set of icons on the left hand side to represent the type of files available: a diary, calendar, address/phone book, notepad and picture files.

The address book allows space for unlimited lines of address, extra phone numbers for weekend cottages, telexes and fax lines, although once you fill a page, you must call up the `insert new page' icon from the left-hand side of the screen - it won't overflow automatically.

The address book is already set up with separate pages for different letters of the alphabet. It's up to you to put friends whose names begin with D in the `D' page. Once you've typed in all your D's, Daatafax will sort the entries on that page into alphabetical order. And if you want these entries to be sorted in surname order, you'll have to type the surname first, or else John Smith will come after Jane Stevens.

The notepad simply provides you with a blank screen to jot things on; the calendar can be printed out, the only modification allowable being that you can `highlight' dates in the diary module (birthdays, days off work, perhaps?) and they will be marked with an asterisk on the calendar. Picture files from other GEM applications can be imported, and printed out, although you cannot edit them in any way from Daatafax

DIARY DILEMMA

So far, so reasonable. It's an unpretentious program, but it does its job and you shouldn't encounter problems with printing out your data on either your own Filofax paper or that provided in the package.

It's in the diary section that the very simplistic nature of Daatafax loses its charm. For a start, some lateral thinking is required when you realise that the diary as set up with the program is for 1988. The manual is less than clear about how to produce a 1990 diary, largely because the bulk of the instructions for doing so are in the section which explains how to use the notepad.

In fact, assuming your computer's clock is set correctly, you must then create a new diary file altogether, which means typing a name which doesn't exist



at the file selection screen. Kempston really should either update the program or reorganise the manual on this point.

To enter your appointments and reminders, simply position the cursor and type away. The amount of space you're allowed per day depends on how you answered the questions regarding character pitch in the diary format screen when you created the file - it's too late to change it now without creating another new file and retyping everything.

Daatafax might be easy to use and, in the main, effective, but there are problems.

The first of these is that this simplicity and lack of already programmed parameters doesn't quite manage to make it flexible. While you can paste information across from file to file with the Cut, Copy and Paste options from the Text menu, there are pitfalls: if you try to paste from one column width to a narrower one - from 17cpi to 12cpi for example - it won't reformat or auto-wordwrap your entries to fit the new measure. The program will flash up `too many lines' and won't complete the operation.

Secondly, it will always operate in isolation from any other application that you have. There are no import/export facilities, although you can mark blocks of copy from, say, the address book, then open a notepad file and paste it in - but the above warning about column widths still applies.

And at £60 (£80 if you need GEM as well) Daatafax is expensive for what you get. For the facilities that it gives you, you probably don't need a dedicated program if you already have a word processor or database.

Still, if £60 seems a lot to pay for Daatafax, the £150 that Showerings charge you for Portex Professional could well make you keel over. Yet Portex probably isn't poor value for money - it's more a question of whether you need the extras. And if you don't, then Portex Personal, at £50, represents the best value for money of the lot. It lacks a number of Professional's refinements (and you don't get any Filofax paper in the package), but it does include most of the features which make Portex easy and enjoyable to use.

If all you really want is to print out some phone numbers for your personal organiser, then Portex Professional is a very large sledgehammer cracking a small nut. If however you want something that will run your life for you, it will tackle the job with gusto.

For example, let's start with the Portex diary. It automatically opens at the current date; and the Home key always takes you straight back there. You can define your diary entries to be automatically repeated (every year, for birthdays, anniversaries, the car's MOT; every three months, for haircuts, buying PC Leisure; every month, every week, every day, until a specified time). You can ask the program to `nag' you to do something, whereby the diary entry is repeated every day until you specifically tell the machine that you've done it.

If an appointment is rescheduled, you needn't type it out again, or cut and paste from the original entry. Just edit the date at the top of the appointment screen and it will reappear in its new slot.

If you have a lot to do on a particular day, so that it no longer fits your four days to a page format, Portex will print the overflow on to a separate page, print Notes on the reverse side and serenely print the rest of your entries, in the right order, as though nothing amiss had happened.

In fact, printing out your Portex documents can be something akin to performing a miracle, as the supplied paper looks fiendishly complicated. A professional origamist, or possibly Ernst Rubik, might make something of it. Measuring a standard nine and a half inches (including tractor feed margins), it's criss-crossed with perforations and messages such as `Tear 1', `Tear 4', and `Front'.

It's probably best not to ponder on it too deeply. So long as you have the printer ready to print on the side that says Front and lined up at Tear 4, it prints beautifully, every page in the right order, and on both sides of the paper if you ask it to.

This is not the standard Filofax-produced continuous stationery * , but it doesn't even seem to be a ploy to make you buy your paper from Showerings, as the program supports many different types of paper.

Portex's address book assumes you have affluent friends, with space for two addresses each and virtually unlimited telephone numbers, and it forces you to write the surname first for sorting purposes (although Professional gives you the options of displaying the first name first without altering the sort order). Addresses and numbers are automatically put into alphabetical order.

DIAL M FOR MAIL MERGE

As with Daatafax, you can `goto' entries directly, or `search' for criteria (you can't remember his surname but you need the number for the Nigel with Industrial Chemicals, not the Nigel at the ad agency: key in Nigel*Chemicals and Portex will find it). In addition, Portex has an auto-dialling facility - if you have a Hayes-compatible modem connected to a telephone, and the relevant number displayed on-screen, a keypress will begin the dialling for you. You can also make the address book act as a Mail Merge program when you create a standard letter in the notepad. By putting the field names (ie, `Title', `Forename', `Address1', etc) between angled brackets in the letter and calling up the Mail command, you can have the actual names and address replace <Forename> and <address1>. You can import and export ASCII files, either directly, or through the accompanying Portio program.

And there's more. While Portex Personal's notepad is more or less a simple text editor, that in Portex Professional has enough features to call itself a word processor. It even has an 80,000 word spell checker (which zips through your text like lightning) and you can paste in addresses from the address book.

With the built-in calculator, you can paste the result into your document with a single keypress (Daatafax uses the calcu-

* Organiser paper in a continuous feed format, with sprocketed margins and perforations to tear off each page, is available as part of the standard Filofax paper range. A double-width paper which folds over when clipped into the binder is also available. Neither are stocked in all Filofax outlets, but can be ordered (quoting the reference code COMPS, or COMPD for the double width paper), from Filofax main stockists, or from its mail order division on (01) 702 4968.

lator supplied in GEM; it pops up during a application, but isn't integrated to the Daatafax modules). You can set a stopwatch through Portex Professional - useful if you're being paid by the hour - or simply want to know how long something is going to take. You can set numbers to increment each time they are used, ie, by setting `My 21st birthday', next year, it will automatically appear as `My 22nd birthday'.

Exhausting, isn't it? If all you really want is to print out some phone numbers for your personal organiser, then Portex Professional is a very large sledgehammer cracking a small nut. If however you want something that will run your life for you, it will tackle the job competently and with gusto.

But... if you're the type of Filofax user who has the tube map, the atlas, the squash ladder updater, the golf score recorder, the list of wine vintages, etc, you may find both Daatafax and Portex a little rigid for your needs, despite the notepad facilities. True, Daatafax has a graphic import feature, but I can't honestly recommend that you try to reproduce the Inter-City network in GEM Paint.

Ditto with specifics such as keeping a record of your golf scores. Both Portex and Daatafax assume that you primarily want to maintain a diary and an address book, easily kept neat and up to date. Using the notepad in either program, you could certainly create a table to keep, for example, your golf scores, but in Daatafax, there's no way for you to save the `skeleton' of that table and have that appear as the template for each successive page (such as you get if you buy a pack of golf score paper from a Filofax stockist).

MACRO TECHNOLOGY

There is a way in the Professional version of Portex, as it supports keyboard macros, which means that you can have every key you press recorded into a macro file. When this file is called up, it `replays' your series of recorded keystrokes. So, if you ask the program to record all the keystrokes needed to create the template of your golf score table, you can replay this each time you need a new page.

All the same, if you already use one of the standard word processors, it may be much simpler to use this to create your Filofax output than to pay out for a specific program. Even when you buy a swank Filofax binder made of the hide of several extinct animals it doesn't cost more than £50, so do you really want to shell out more to put the data in it?

If your word processor has an alphabetical sort facility (as Wordperfect, Microsoft Word, WordStar and Sprint all do, for example) and you've already put a few addresses in the mailmerge section, then an address book is child's play.

The main difficulty will be in getting both the printer and the software to agree that the paper you're using is six and a half inches long, or 39 lines long at six lines per inch (top and bottom margins not included). Without wishing to scrabble around sending control codes to the printer, you can usually set it to pause after each page, so that you can check the alignment and wind it back, or forward as need be. The width should be easy enough to define on the WP's ruler line - set your right hand margin at 37 for 10 cpi print and 63 for 17 cpi print.

Producing a template for a diary is going to be laborious though. Keep month names as headers, and if you can't change headers in the middle of a document, have each month as a separate file - which will be faster to zip around anyway.

Tapping out Saturday 1, Sunday 2, etc, for each day of the year is a bind and has glorious potential for mistakes, but you can do quite a bit of block-copying and pasting. Unless it's a Leap Year (and you won't be reading this in 1992, will you?), January's template can be used again in October (knock off the 31st), February's in March (adding the 29th, 30th and 31st), and then again in November (up to the 30th only). The pattern for April can be copied in July (plus the last day), and September's can be repeated in December (again plus the 31st).

Come January 1991 you can always do a mammoth Search & Replace operation to move the days of the week one place forward, so that they match up correctly (method: say you start on Sunday. Change all instances of Sunday to Mondx and then work backwards - Saturday becomes Sunday, Friday becomes Saturday, etc. Finally, substitute all instances of Mondx to Monday). This will preserve all your recorded birthdays and anniversaries.

Okay, so you don't get all the tagging, nagging, beeping and repeating that Portex gives you, nor is the information just a couple of icons away, but then again you haven't shelled out between £50 and £150 specifically for the one application, either.

PRODUCT: Portex Professional

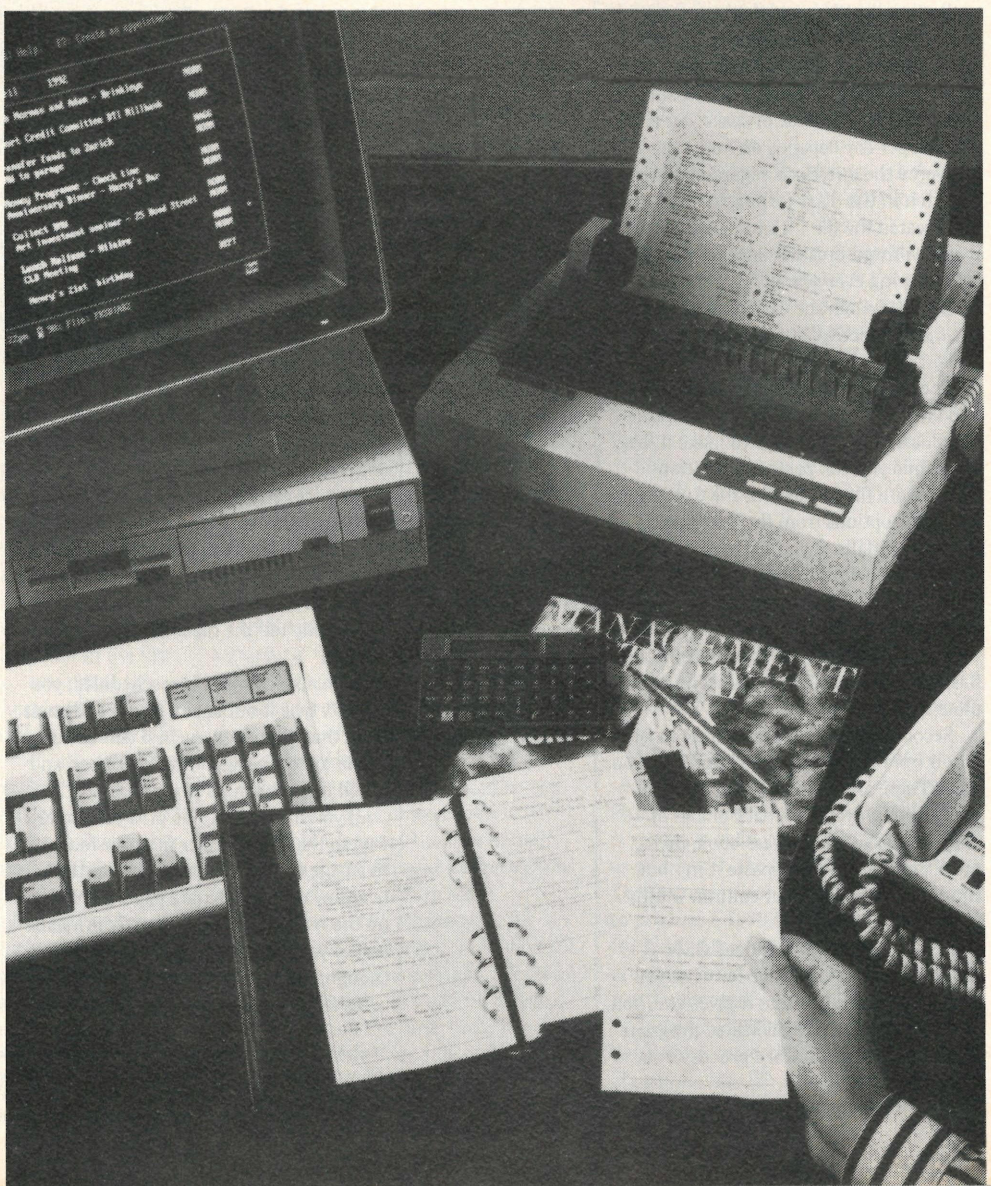
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VERDICT: High powered, easy to use, packed with sophisticated functions - but for the affluent only.

Even when you buy a swank Filofax binder made of the hide of several extinct animals it doesn't cost more than £50, so do you really want to shell out more to put the data in it?



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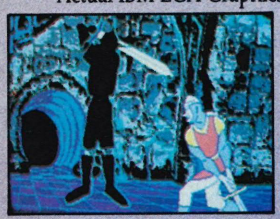


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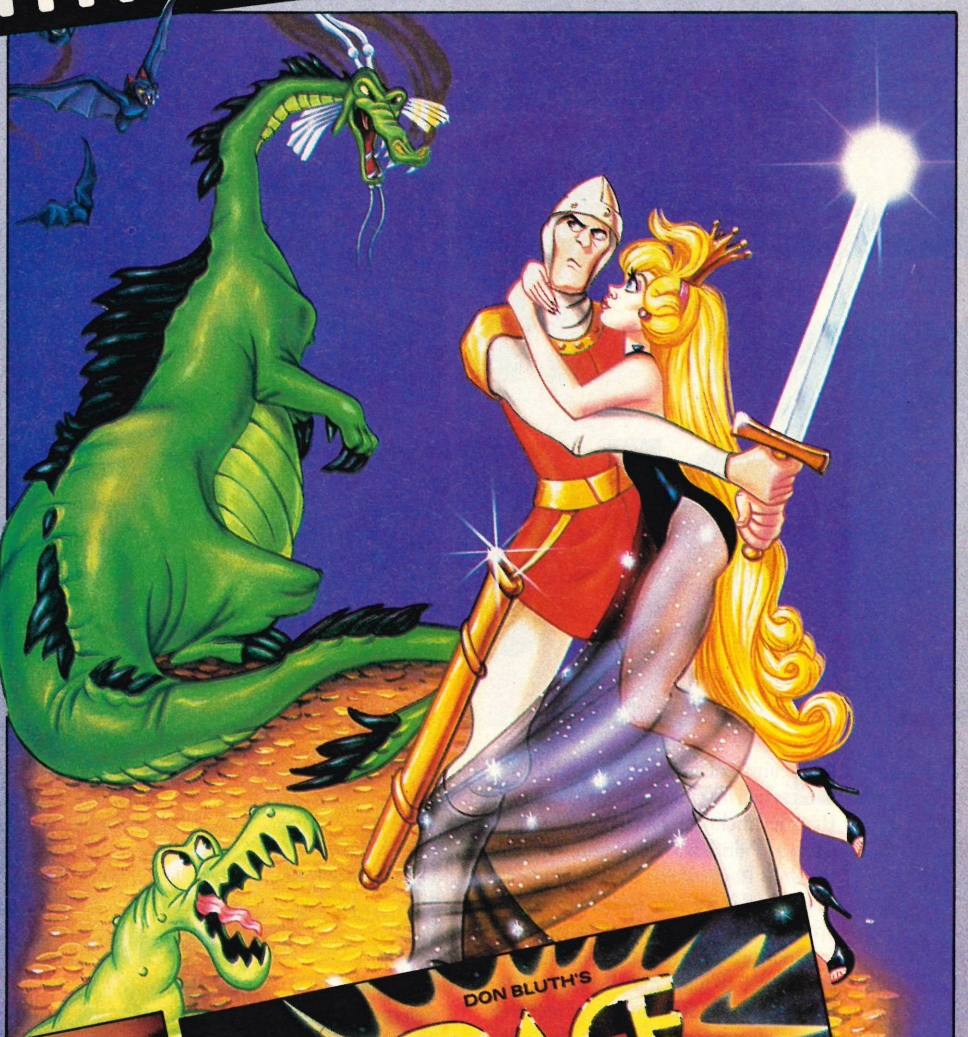




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PAINT A PRETTY PICTURE



Electronic Arts' latest paint package won't put you in the Tate, but it should produce results good enough to hang on your fridge. Alastair Swinnerton dons his beret to put it through its paces.

A couple of years ago, Channel 4 ran a series in which famous artists, David Hockney included, had a doodle with a Quantel Paintbox. The Quantel, in brief, is the Rolls Royce of the computer graphics world, and is the role model for all modern home computer art packages.

Hockney was given the Quantel pen and invited to play, and play he did. He found he could draw and paint pictures impossible with paint and canvas, and in a fraction of the time, putting light upon dark, moving whole chunks with the sweep of a pen and painting scene after scene with the enthusiasm and naivety of a kid with his first crayons. His verdict..."I want one."

In 1990, you don't have to be a Hockney, nor do you need to have the money for a Quantel system, to make similar use of computer graphics. Programs available for modern home computers range from basic artist's palettes through broadcast quality video graphics packages. What's more, they start at near-pocket money prices, and are used by the artistically literate and non-literate alike.

It has to be said that the vast majority of these are developed for Commodore's wonder machine, the Amiga, and not for the IBM and its compatibles. However, this situation is changing. The recent release of Electronic Arts' Deluxe Paint II Enhanced has shown a path that hopefully other developers will follow.

Manipulation of DPII-E and its features is really quite simple, but some of the effects that can be achieved are stunning.



As would be expected, you start with a blank screen - your canvas. Taking up a small section of the screen is a series of coloured boxes and weird-looking symbols - this is your palette and brushes. Different systems have different styles, and the odd feature peculiar to itself, but by and large they all do roughly the same thing.

You start with a basic palette of 16 colours (chosen from up to 4,096): from there you get to alter each one with something that looks like a pictorial graphic equaliser until you have a set of colours to suit your exact requirements. Clicking on one of these automatically changes your brush colour.

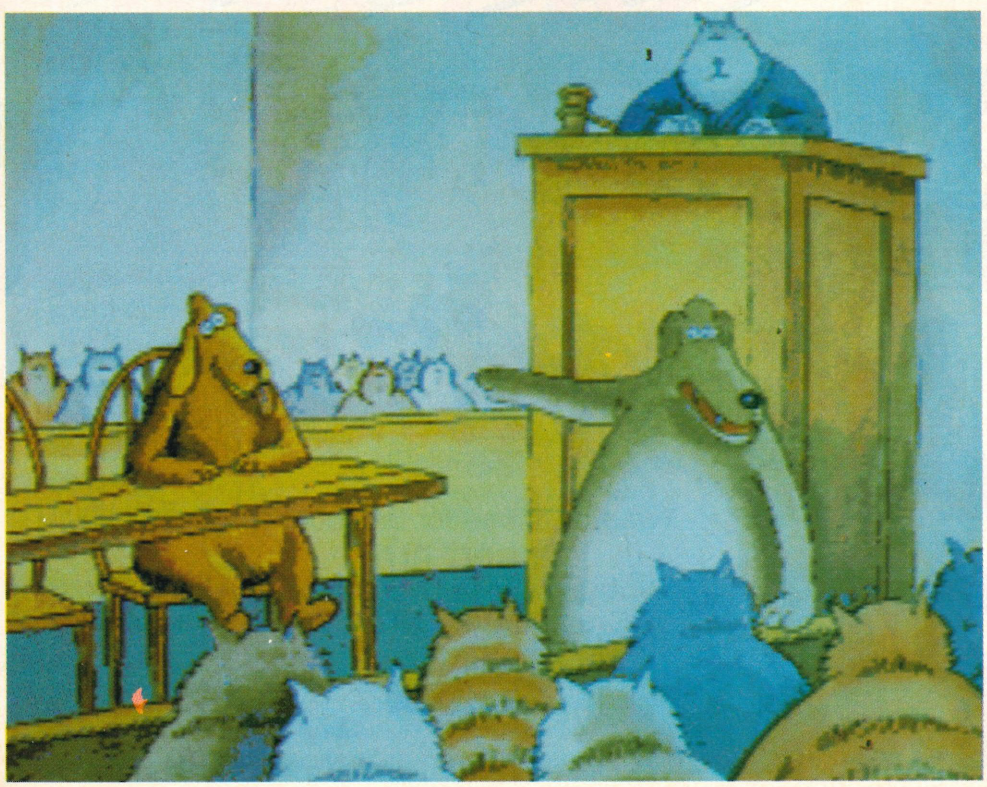
And speaking of which, this is where the fun really starts - your mouse becomes your brush, or rather, brushes. There are many to choose from, which is where the symbols come in. Clicking on these will take your single pixel, which is what you begin with, and turn it into a small circle, before expanding it to quite a big circle, or an airbrush effect, or stipples; you can draw boxes and/or irregular shapes and fill them in - you can paint the whole screen in one colour if you want.

But you can do more than just plonk the paint on - you get to smear, or drag the brush across, or even smooth a particular area down, to name but a few of the available effects - Jackson Pollock would have been proud. And that's not all: you can also vary your image in any number of ways. For example, if you want to darken your image, you can change the brush mode to `half-bright', which allows you to paint one colour on top of another and merge the two - similar things can be done with the `tone' facility.

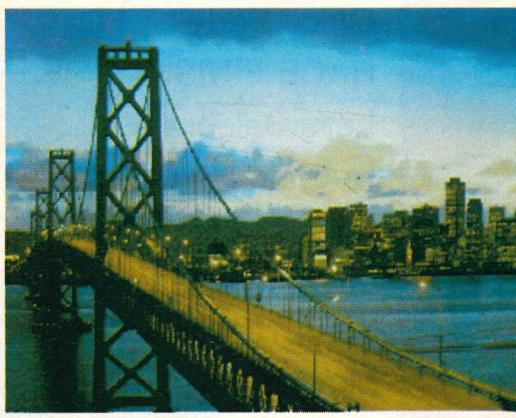
Brushes can be anything to a circle of pure colour to a cut-out piece of a home-made pattern to a sprite of Elizabeth Taylor's left eyebrow, using a `cut-out' facility (done by specifying a part of your screen and nominating it as your brush). You can pick up a section of the image and move it around - highly useful for the indecisive artist, and of course the perfectionist. You can create pretty patterns with some of them: the computer will copy every move you make on the opposite side of the screen, or in the four corners, or whatever. Remember Spirograph? You get the idea.

Then there's Perspective, enabling you to spin the image, or a part of it, round to any perspective you want; Mirror, which copies the image in reverse; Enlarge/Decrease - fairly obvious really; you can magnify a portion of your image to get a close up of every little pixel: the list goes on, and quite a way. In addition, all functions are mouse and/or key controlled.









The one thing this package doesn't do, or at least not properly, is texture mapping - the ability to `wrap' a pattern around a 3D object. This is one of the industry's most prized possessions, and now beginning to find its way into 3D games - basically its a quick way of rendering complex shapes without detailed mathematics. You design your pattern, `pick it up' as a brush, then bung it at your object and let the hardware do the rest.

I know it has had a seriously healthy plug here, but really Deluxe Paint is the benchmark by which all other paint packages are measured, and DPII-E seems to be following in the family tradition. It supports all colour graphic boards, including VGA (but sadly not Hercules), and a staggering 250 printers. Although it still has no animation (a feature surely for the next release) it does apparently improve on the paintability of version III (the latest in the series, developed for the Amiga), if that's possible. EA also has the advantage of an ever-helpful customer service department to back up its products, even if you can't spell their names.

David Hockney look out.

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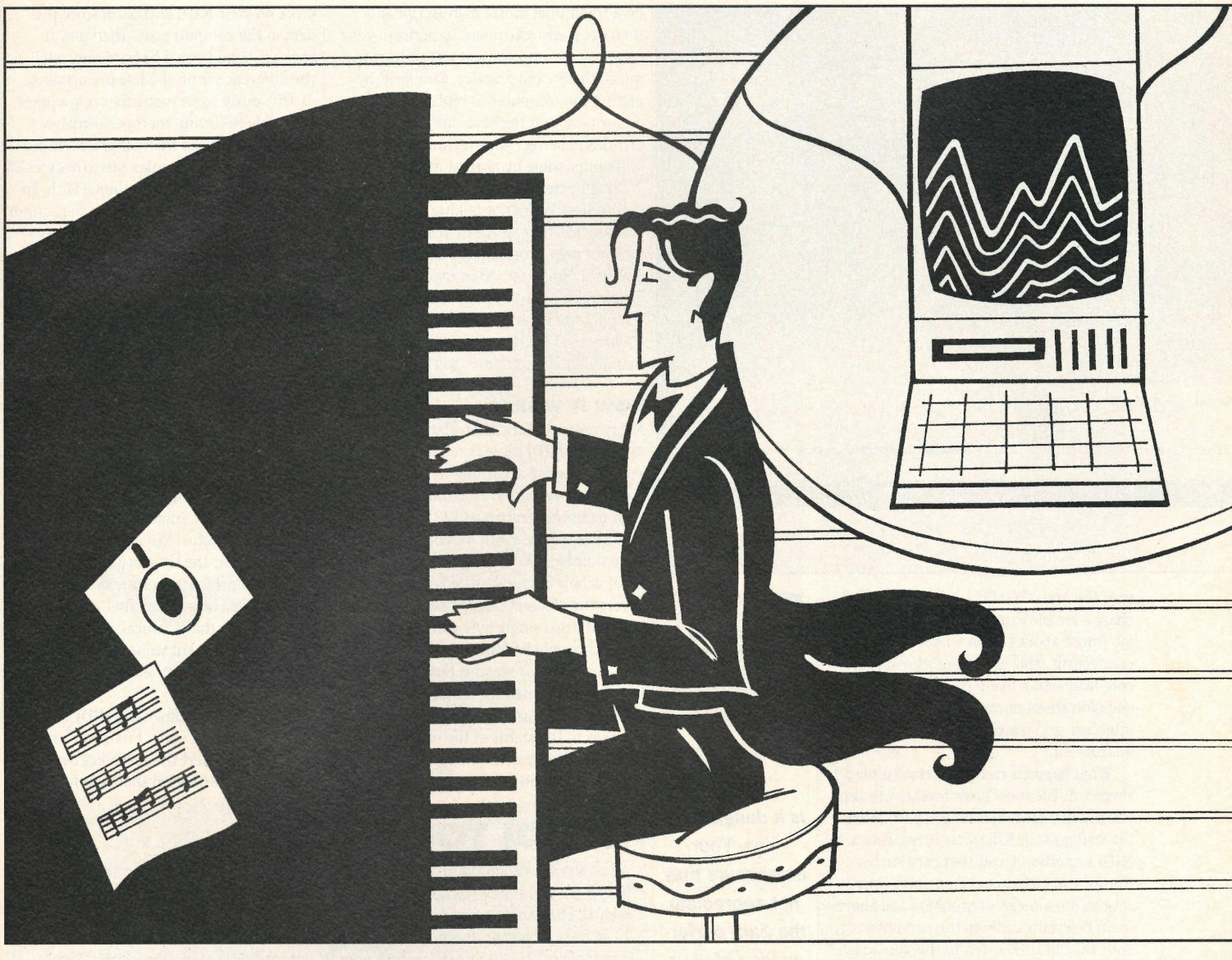


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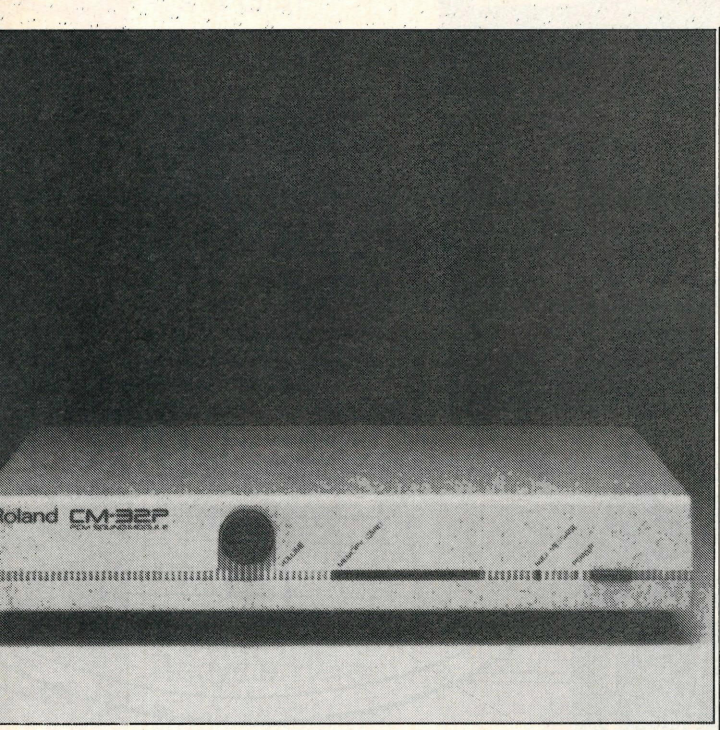
MIDI MADE EASY

MIDI means more than just music – it's a whole world of discovery, self-expression, and technological delight. And you don't even have to know how to play a single note... Steve Cooke explains.

Setting up a spreadsheet may be fun for the odd screwball, but it can't compare with having 32 orchestral musicians in full stereo, with CD-quality sound and digital reverb, all conducted by your PC and thundering through your hi-fi. That's just one aspect of the MIDI experience, and it's waiting for anyone with even the slightest interest in music... plus a computer, a simple connecting cable, and a couple of affordable widgets. Here's the full, no-techno-babble story...

MIDI stands for Musical Instrument Digital Interface. It's an industry-standard (i.e. rigorously defined and universally adhered to) method of exchanging data between musical instruments and computers. The standard covers both hardware and software, which means that not only is the data itself defined, but so is the means by which it is exchanged.

We'll discuss the data itself in a minute. The hardware consists of a MIDI interface and a connecting cable. The interface is incorporated as standard in all MIDI instruments and in some computers



Roland's CM-32P – a new version of the MT32 specially designed for complete control

(e.g. the Atari ST). PC owners can purchase a simple expansion card to do the job (more about this in a later issue). The connecting cable is a straightforward five-core lead with a five-pin DIN plug at either end. You shove one end into your PC MIDI interface, and the other into your MIDI instrument.

What happens next is, in theory, very simple. At the most basic level, every time you plonk your finger on a key (or pluck the string of a MIDI guitar or squeeze a MIDI accordion – yes, there are such things) the instrument translates your action into a series of numbers and shoves them down the cable to the computer. Your PC can then listen to the 'music by numbers' and do all sorts of things to it.

It can store it on disk and then play it back later. It can display it as traditional musical manuscript notation and print it out. It can treat it like text in a word-processor, enabling you to edit it, cutting out the notes you don't like and altering others. It can transpose it from one key to another. In fact it can do just about anything with it.

And because data travels in both directions down the cable, you can also send data from your PC to the instrument, playing stored tunes, playing ones you've made up, making your synth create new sounds and so on. And not just one instrument either: using your PC you can control as many instruments as your budget and living room dimensions will allow - simultaneously - thereby permitting the manipulation of positively indecent wodges of sound. Even better, MIDI has a system for sending different messages to up to 16 different instruments, so you can play a bass part on one synth, a drum part on your MIDI drum machine, and so on...

There are also strong educational possibilities with MIDI. You can enter notes on a traditional music manuscript and then get your instrument to perform your composition: an excellent way of learning music theory and practice. Similarly, by getting the computer to replay your own performance on the keyboard, you can spot errors and perfect your technique in a way quite impossible by normal means.

Finally, there are the sound machines themselves. We're not talking about beeps and squeaks here. MIDI instruments are now not only affordable, but also extremely powerful. Roland's LA32 expansion card, for example, offers superb sound quality, up to 32 tracks, and full stereo with reverb – add a good MIDI software package to manipulate it and there's your orchestra...

Is it dangerous? Yes. Your neighbours may not appreciate the 2am performance of your new arrangement of Bach's Toccata and Fugue for Led Zeppelin guitar (sampled), Deep Purple organ (also sampled) and Howling Shriek (brilliantly programmed by yours truly). They may take action. They might even kill you. But so what? The music comes first....

HOW IT WORKS

Every unit of information transmitted down your MIDI cable is recognised by the receiving device according to its bit pattern (i.e. its binary value). So if, for example, your computer transmits 243 followed by 48, the receiving synth module will select song number 48 from its internal memory. MIDI data is comprehensive – it not only covers the obvious things like 'note on' and 'note off' (two single byte commands, both of which would be followed by a note number), but also less obvious but very useful performance dynamics ranging from the speed and pressure with which you attack the keys to the status of the modulation wheel and the system timing signals. Sit down and play an advanced, expressive piece on your MIDI keyboard, store the data in the computer, and then play it back again and you'll be hard put to tell the difference from the live performance.

Obviously some instruments are more adaptable to having their performance dynamics digitised than others. Stringed instruments in particular carry nuances of expression that, when combined with the difficulty of actually converting the sounds into numbers, mean that their MIDI performance is not as good as a MIDI keyboard. However, MIDI can also be used to control samplers (which output 'real world sounds' under computer control) and in this way you can dramatically increase your library of effective sounds without needing to MIDI-fy every instrument. Drum sounds, for example, are particularly easy to sample and very effective when triggered by computer.

What sort of information is conveyed by MIDI is one thing – how it's actually conveyed is quite another. We'll cover MIDI data structures in detail in a later article, but for the time being the following simple explanation should suffice – and it should be stressed that you don't need to know the technical side to get great entertainment value out of a good quality, well-documented MIDI instrument and your PC.

Data travelling down the MIDI line falls into two different sorts. First, you have the numbers that alert the receiving device to the sort of information that is to follow,

MIDI TOOLS

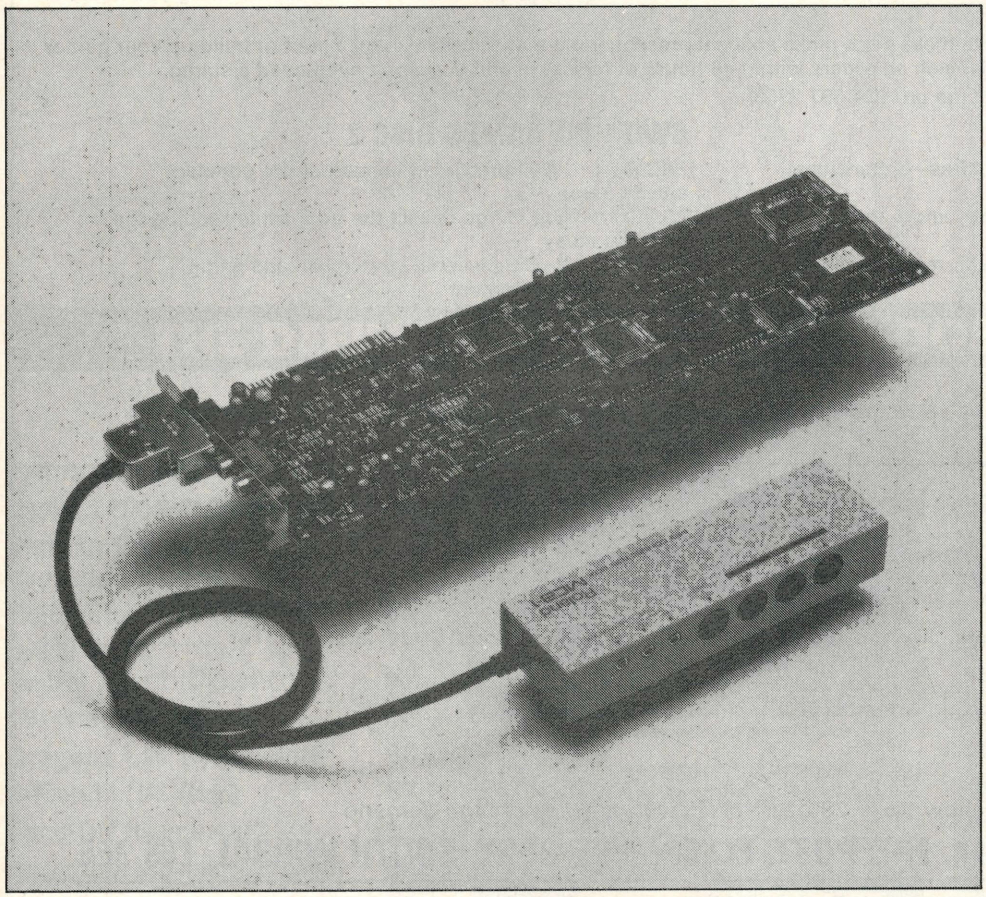
Apart from your interface and MIDI instrument, you'll also need some software. There are dozens of packages available, but typically not all packages will work with all interfaces: more on this in a later article.

In brief, however, there are several types of MIDI program. First, you have sequencers. These effectively turn your PC into a digital recording studio. They store the performance data output from your instrument, give you multi-track layering and editing features, and of course play the data back through the instrument as well.

You can also get notation and composing packages, which allow you to enter music in traditional manuscript notation and then play it back through your instrument. Some notation packages will also do this the other way round in real time, but often you'll need to store your performance using a sequencer first and then output the file to the notation program. Most sequencers have good real-time editing features.

Finally, there are programs that will allow you to make the most of your particular MIDI instrument. If you have a Yamaha DX7, for example, there are dozens of programs that not only allow you to program the synth to produce new sounds ('patches') but may also provide libraries of custom patches, extending the preset range of your synth. And of course a patch librarian allows you store the sounds that you have programmed yourself for use later – much better than having to write them down as a whole string of parameter settings. In fact some synths have performance features that are only accessible through MIDI and not from the control panel of the instruments themselves at all.

You don't have to restrict yourself to MIDI keyboards. You can also get samplers (for digitising and replaying real-life sounds), drum machines, and 'expanders' (synths without keyboard, designed especially for computer control). Many popular MIDI keyboards are available in 'expander' or module form without keys, making the availability of special 'master keyboards' used for controlling other MIDI instruments an idea worth investigating. It's cheaper to get one master keyboard, for example, and three expanders than three complete keyboard systems. Your master keyboard can also be used to drive your other MIDI equipment as well.



then you have the information itself. For example, first the computer sends the code for 'note on', then it sends the number of the note.

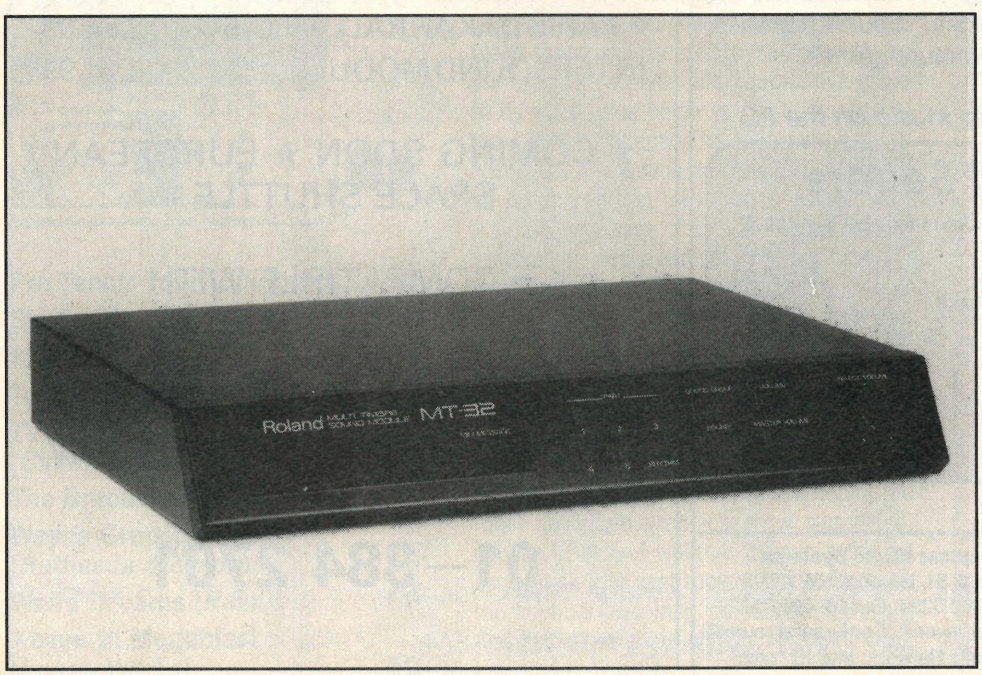
In addition, MIDI allows you to send different commands to 16 different instruments simultaneously. Instruments can either be daisy-chained together or you can split your cable (using a MIDI junction box) and run separate cables to each instrument. Alert readers may wonder how, if instruments are daisy chained together using serial data transfer, can they all simultaneously receive different instructions? The answer is simply that the data is sent so fast that the instruments only appear to be responding simultaneously. In practise, it is possible, when linking lots of units together, to detect a slight delay in the system and for that reason if you have more than three units it's probably worth using the junction box approach to lessen the problem.

These 16 channels are made possible by using part of each transmitted byte as a channel identifier. MIDI instruments can then be programmed to watch out for instructions marked for a specific channel and will then respond only to those commands. In this way you can send different musical parts to different instruments and get your whole orchestra playing together in harmony.

Despite a simple hardware specification, MIDI is a very powerful system in application. For anyone interested in sound generation and music it's probably the most exciting development since the long-playing record. PC Leisure will be keeping you in tune over the next few months, so keep listening in.

▲ You can even plug complete synth modules into your PC or cards. All you need to add is a keyboard

▼ Roland's MT-32 – a typical standalone synth module controllable by a master keyboard and /or a PC



FIVE MIDI QUESTIONS

1. Do I need a lot of money?
The best MIDI equipment isn't cheap, but we guarantee you will be amazed with what you can do with an interface costing under £75 and a MIDI keyboard at around £125. Software varies from PD-programs at around £5 (some of them excellent) to very powerful professional composition packages at £250 and upwards.

2. Do I need a powerful PC?
Absolutely not. MIDI processing demands are comparatively modest compared to arcade games. You don't even need a colour monitor. Any old dog of a PC can sing like a bird...

3. Do I need any technical knowledge?
No. If you have enough technical knowledge to depress a key on your Casio, you're OK. Naturally, as with any system, the more you know the more ambitious you can become – and if you want to get serious, future articles in PC Leisure will put you in complete command.

4. I thought the PC was rubbish when it came to musical applications. Is this true?
No. When people talk in this way, they are either talking about the limitations of the PC's internal speaker or through their hat. A MIDI-equipped PC is just as potent musically as any other MIDI-equipped computer – and a lot better than some because there is a huge range of software for it.

5. Is it dangerous?
Yes. Your neighbours may not appreciate the 2am performance of your new arrangement of Bach's Toccata and Fugue for Led Zeppelin guitar (sampled), Deep Purple organ (also sampled) and Howling Shriek (brilliantly programmed by yours truly). They may take action. They might even kill you. But so what? The music comes first....

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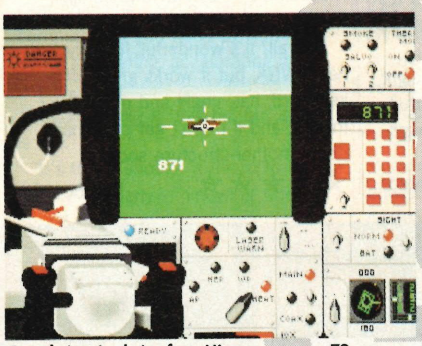
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GAME

THE DEFINITIVE GUIDE TO MS-DOS GAMING

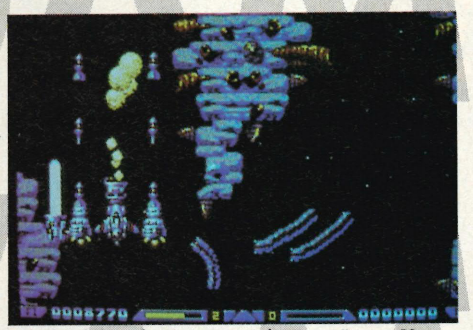
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Futuristic fighting fury in Image Works' Xenon II: page 50.



Interactive espionage from Dynamix: David Wolf, page 52.

Close the door, loosen your tie, flex your fingers and prepare to get stuck into the latest in MS-DOS gaming. We can't guarantee coverage of every game that's currently available, but what we do promise is that what's here is definitive - each game has been thoroughly tested by an expert, so the rating it receives is an authoritive guide to its worth (see below for a clarification of the ratings system). The information panel above each review is designed to condense as much product information as possible into the minimum of space. The publisher information (price and telephone number) is for those of you who have difficulty in finding the games you desire - if you can't find it, give the publisher a ring and they'll be happy to point you in the right direction. The information immediately below shows which media (disk size) the game is available on, which graphics standard it supports (the screenshot shown will depict the most advanced graphics array supported, usually VGA) and whether it uses a mouse or joystick (the vast majority of games use the keyboard as their standard controller). And that's just about all you need to know... have fun.

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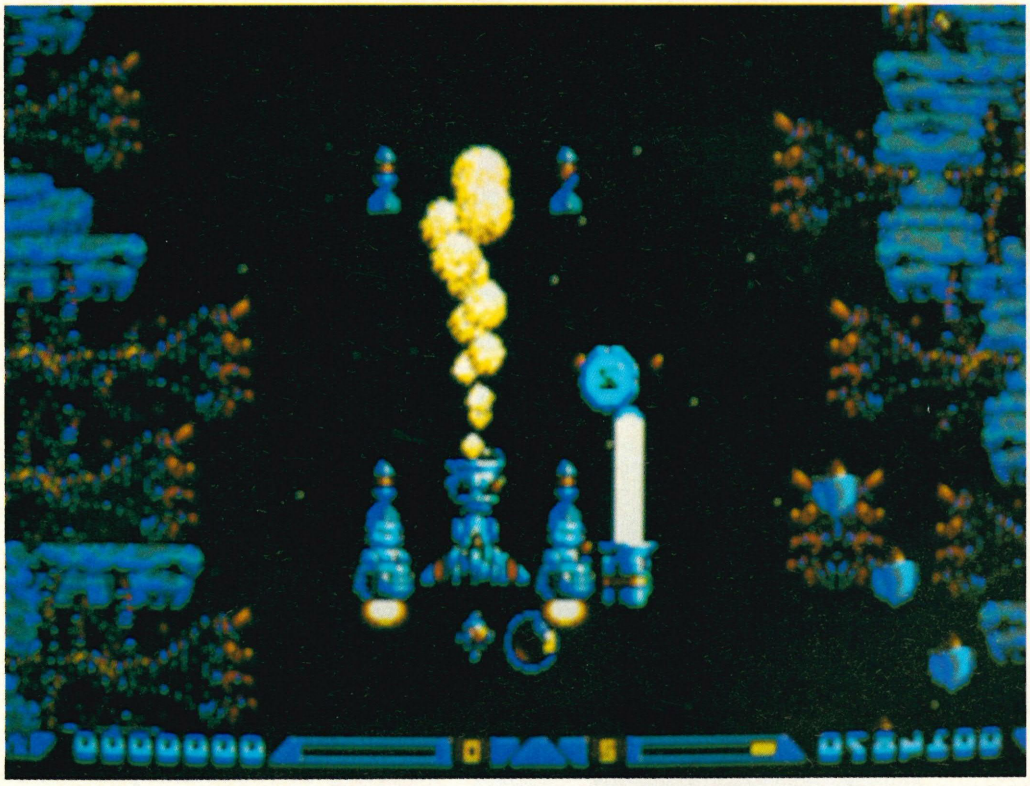
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SEEING STARS

The rating system is about as simple as it's possible to be. But for those who'd like a little explanation, here goes...

☆☆☆☆☆	ESSENTIAL
☆☆☆☆	GOOD
☆☆☆	AVERAGE
☆☆	MEDIOCRE
☆	POOR



***Xenon II*: definitive shoot 'em up action.**

XENON II

Frankly, I'm still in a state of shock. There appears to be no way to get past the huge, monolithic, living mother-structure towards the end of the second level in Xenon II, but I'm damned if I'm going to ask for a crib sheet, or nick the solution from someone else. Does that mean it's good?

Good doesn't even come into it.

Until Xenon II, 90 per cent of the PC games I've played have been typified by a couple of things — dull gameplay and dingy graphics. Even the Ed's ravings haven't been able to convince me that the choppy graphics employed by his favourite flight simulators are anything better than a kid's crayon drawing.

Until now.

Xenon II is THE fastest, best, most devastating, destructive, frustrating and complex SYKTA (Save Yourself, Kill Them All) game I've ever seen. And with a colour VGA display it makes the PC look so good you'll definitely want to know what it's doing after work...

Forget the nonsensical 'plot' — the object of the game is simple. Pilot your tiny ship up the screen between two enemy-infested canyon walls and clobber the waves of dangerous spaceship-types that come hurtling down towards you. Or sometimes up towards you. The further you get, the nastier they get... and the more often they get nasty. Then, there's more.

Occasionally, a canister or metallic pod floats across the screen. Each of these contains something useful — health, power, money, weapons, whatever, and after you break the pod seal you absorb what's inside. This of course, makes you fitter, faster, richer... and nastier.

Between levels, there's the shop where you can spend your viciously gained wealth on 'extras' like weapons that fire sideways, backwards, twice as fast or twice as often. The alien who runs the shop looks like a cross between Norman Tebbit and a giant Maine lobster, and he's a cantankerous bugger who doesn't really want to sell you anything. Persevere, offer him money, and all will be well (at least once, even if it's your first time in the shop, go for Super Nashwan Power. It's very expensive, and only lasts about eight seconds, but is so over the top that the first time you see it, you'll laugh out loud.

Once you've bought and bartered at the shop, it's on to different landscapes and worse challenges. And so it goes on until the second level — I'm told that it goes further (to Level Five in fact), but I defy any of you to prove it.

The fact that I don't really want to cheat is a measure of just how good this is. I read some games nut the other week who was bad-mouthing Xenon II and saying how predictable it was and how badly it had been programmed. Tosh on a stick — it's a marvel. The graphics easily match the best you'll see on a Commodore Amiga or an Atari ST (the current 16-bit 'big two' in computer gaming) and the scrolling has to be seen to be believed.

The colours are dark, but true, the effects are varied and exciting, and the animation (particularly of the galactic jellyfish) is fine. Best of all, the whole thing has an unsettlingly organic feel so that even when you're in the midst of this techno-flash multi-dangerous hi-voltage world, there's also a sense that you're in the belly of something large and very unpleasant. And I don't mean Brian Dennehy.

The only disappointment is the music. The original 16-bit offering included a thundering version of Megablast by Bomb The Bass, which takes the already high excitement level and turns it into something approaching a frenzy (interestingly, I'm sure that Bomb The Bass nicked part of the tune from John Carpenter's cult movie Assault On Precinct 13 — can anyone confirm that?).

Overall? It's wonderful. It really needs VGA, but it works great off a keyboard, has single and dual player modes, and if I don't get past that damn mother-structure soon...

★★★★★ **Rob Beattie**

Image Works
(01) 928 1454
£24.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✗	Joystick	✓



INDIANAPOLIS 500

Taking the most glamorous and prestigious event in the US Motor Racing calendar and simulating it on a humble PC may sound a tad over-ambitious – but the result is one of the most impressive and realistic driving games yet seen outside of an arcade.

Based on the famous races held every year in May at the Indianapolis Motor Speedway, Indianapolis (or Indy) 500 puts you behind the wheel of a low-slung lean, mean racing machine and pits you against 32 other drivers in your bid for glory – and, of course, the chance to soak everyone in champagne.

The simulation takes you through all the stages, from the initial practice and warm-up laps, through the qualifying heats to the big race itself. And thanks to the program's flexibility you can go about the game in any way you choose – either all the way from the qualifiers on, or by diving straight in at the deep end without having a single practice lap.

For while Indy classifies itself as a simulation, boasting an authentic representation of the famous track and technically accurate car performance and handling, the actual racing is really very simple stuff – and all the better for it. With the option to have all the fiddly work like gear changing handled by the computer, all you need to worry about is steering, accelerating and braking.

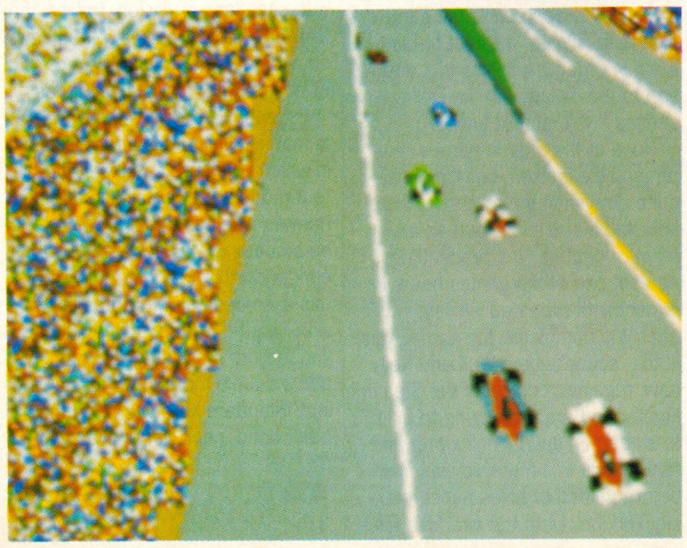
Rudimentary it may be, but easy it is not.

It's tricky enough to learn to handle the car properly – knowing when to lay off on the gas so you can get around a corner safely without compromising your position and so on – but with 32 other cars on the track all vying to be first past the chequered flag, you've really got your hands full. The computer-controlled cars aren't stupid – if anything they're more competent and less accident-prone than you at first, and they'll make you pay for any little slip-up. In your first few races you're guaranteed to spend four or five laps just trying to catch up with the rest of the pack.

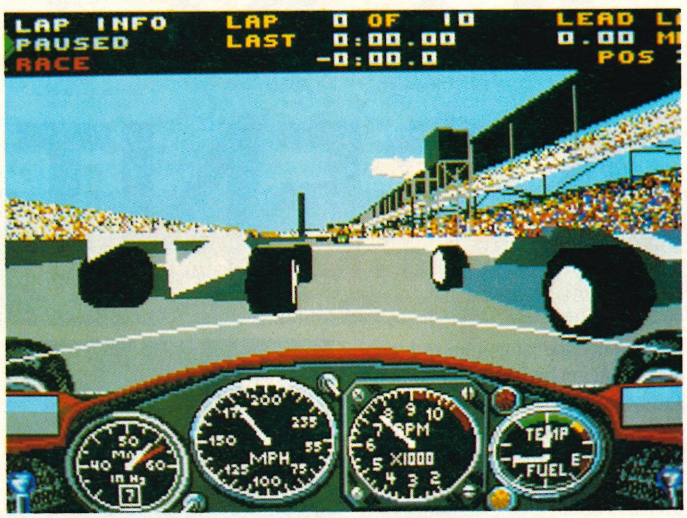
One of the great joys of Indy is crashing – this may sound strange, but it's down to the startlingly horrific way in which accidents are portrayed. At any time during the race it's possible to stop the action and play back the last 20 seconds of action – basically a computerised action replay facility. In true TV style, it's possible to view the replay from any of six angles, so you can get the best vantage point to view a particularly impressive manoeuvre or nasty wreck. You can even fast-forward and rewind the footage to watch the same moment over and over again!

This replay facility comes into its own when you decide to throw away the rule book and have some fun – it's possible to turn your car around and go round the track the wrong way, smashing into the other cars as they zoom past! This tactic, while not particularly constructive, never fails to provide bone-crunching entertainment as you strive to produce the biggest pile-ups.

But while the emphasis here is set squarely on action – either conventional or otherwise – the designers haven't completely overlooked the simulation aspect.



The replay in action.



Road racing meets flight simulation in *Indianapolis 500*.

Electronic Arts (0753) 49442 £24.99			
5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✗
Mouse	✗	Joystick	✓

There are three cars to choose from, all based on real machines, while a pitstop facility allows you to adjust almost part of your car – from the elevation of the wheels to the positions of the spoilers – to get optimum performance.

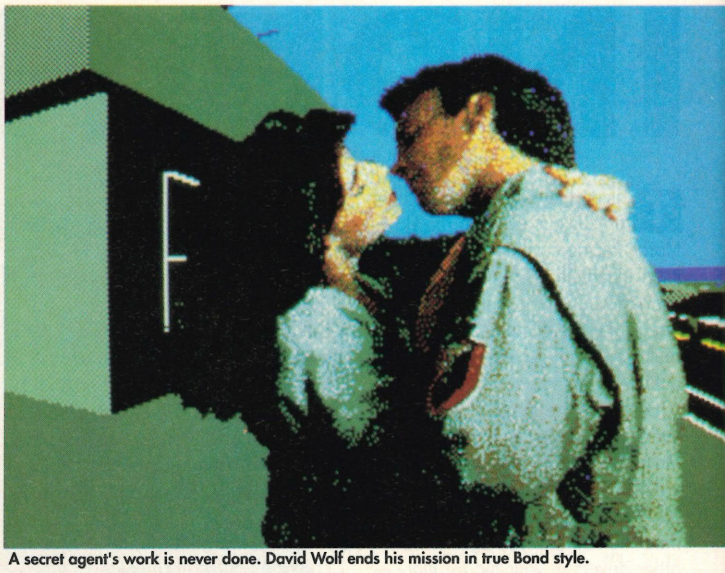
What sets Indianapolis 500 apart from the current batch of racing simulations is the awesome speed and feel, and consequently the atmosphere it generates. No racing game has ever come this close to simulating the feel of speed – forget crawling along the road as you do in so many games, here you actually feel as if you're screaming along at high speed!

Surprisingly, detail hasn't had to be compromised for the sake of such breathtaking pace – this is a real racing environment, with observation towers and grandstands packed with screaming crowds all adding to the feeling of being there. And if you've got a Roland sound card you could be forgiven for believing that you were actually there! Tyres squeal, engines roar and metal clangs on the track when there's a crash – you can practically smell the oil.

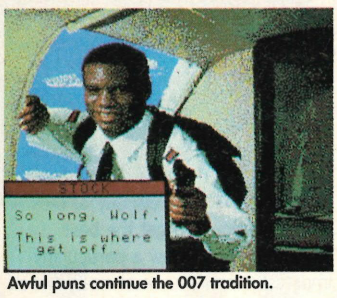
But all this comes at a cost – only those with a 286 machine (or faster) will be able to get the full effect. On less extravagant machines, the speed is greatly reduced, as is the level of fine detail, all of which detracts from the overall feel. The end result is that it's just another race game – with jerky 3D update, sparse graphics and squeaky sound. But for those of you with a computer heavier than their refrigerator, you've never seen anything like it.

★★★★★ Gary Whitta

DAVID WOLF SECRET AGENT



A secret agent's work is never done. David Wolf ends his mission in true Bond style.



Awful puns continue the 007 tradition.

When the long-promised revolution happens and compact discs become the standard storage medium for computer data then all games will be programmed this way. For this cinematic extravaganza is about the closest that mankind has yet come to producing a truly interactive movie on those electronic beasts that we like to call home computers.

As the title subtly suggests, David Wolf is a secret agent, licensed to kill for the Free World's secret police, Peregrine. His opponent in this remarkably unoriginal story of good versus evil (and elaborate plans of world domination) is one Bruno Vasto, who's ably assisted by his group of organised villains, Viper.

Dynamix
(0734) 311666
£39.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✓	Joystick	✓

That's right, the plot's been stolen almost stunt for stunt from Cubby Broccoli's gravy train, right down to the romantic interest: which in this case is provided by the gorgeous, pouting Kelly O'Neal.



Kelly's more than a pretty face though - in fact the plot revolves around her brainchild, the Super Stealth Fighter. This winged wonder has been stolen by Wolf's double-crossing friend, Garth Stock, who has taken it to Viper's headquarters. The evil empire is subsequently blackmailing the Free World to the tune of $5 billion, threatening thermonuclear war etcetera, etcetera...

Five linked arcade sequences are all that stand between you and disaster. These can be played in any order, at any one of three skill levels, and can be fast-forwarded and rewound at different speeds. However, to appreciate the game's cinematic sweep, it's best to play them in order, paying careful attention to the dialogue in the linking scenes - well, at first anyhow.

None of the arcade games is remarkable in itself, but they are quite devilish in their way and the adjustable skill levels add an element of depth to the proceedings. At least one of the games however, is worthy of repeated viewing - even after you completed the game. This is the `scene' where Wolf and Kelly have regained control of the Stealth Fighter and are attempting to fly it to safety: an enemy helicopter and tank collide in a massive explosion before guided missiles punch the sky and lock onto the aircraft's tail - get out of that one...

Like all movies, (and let's face it, that's really what we're dealing with here) David Wolf: Secret Agent depends a great deal on music for its atmosphere - and we all know what a customary PC sounds like, don't we? So, if you are restricted to the chips that were in your machine when you bought it, then poor old Wolfie's antics are going to be played out to the accompaniment of a series of scratchy beeps and whistles that sound like someone's playing a Willy Nelson tune on a gramophone in the room next door.

If, however, you're one of those people whose PC houses a fancy piece of audio equipment (like my Roland LAPC-1 for example), then prepare yourself for the aural experience of a lifetime. The Bond-esque soundtrack sweeps majestically, linking each scene and element in a near-perfect example of movie-scoring (well, almost).

Technically, the entire production is extremely slick. The mixture of digitised photography and fast-moving 3D game graphics is executed with seamless precision. In fact, the `real life' photography is often blended with the computer art to great effect - stirred, not shaken no less.

Essentially, David Wolf is a sensual marvel, which tells a familiar story in which you can participate - if only to a moderate degree. And although `games' such as this are going to be as common as acne at a Bros concert in the near future, for now this is an aesthetic treat for those with Empire State machines (and if you fall into that category you can add a couple more stars to the rating). Standard XT owners, on the other hand, need not apply.

☆☆☆ **Ciaran Brennan**

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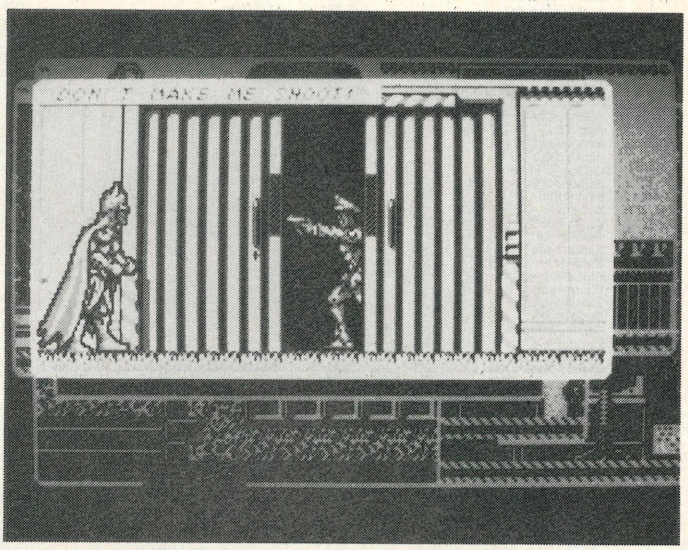
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CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✓

Don't get this confused with Ocean's interpretation of the smash movie, this earlier `officially-licensed game' is based on DC Comics' original Batman. And since only the character has been signed up, Ocean has left itself free to come up with virtually any kind of game it wants - and it's come up trumps.

Batman: The Caped Crusader is an arcade adventure in the classic tradition, with the Dark Avenger exploring Gotham City, solving puzzles and battling it out with the usual super-villains' henchmen. In fact, this is practically two games - one pits you against The Joker and the other against The Penguin. The two are identical in terms of gameplay, but the plots set them apart.

The first of the two asks you to foil The Penguin's plans to take over the world (using an army of clockwork penguins, no less!). Starting in the Batcave, you proceed through the seedier areas of Gotham before breaking into The Penguin's factory and capturing him. In the second game it's up to you to rescue Robin from the clutches of The Joker who's holding him captive at the funfair.

Both games are presented in suitably tongue-in-cheek style - it's more similar to the camp TV series than the more modern, vigilante image that the movie fostered. If you need any proof of this, just watch our for the mechanical penguins that split in two to reveal machine guns, and the Joker's henchmen who are done up as Circus clowns!

And in keeping with the comic book style, the whole affair looks like just that, with each screen held in a separate frames, complete with captions in the upper corners. When you leave one screen, the new one is overlaid like a window. A nice touch.

Most of the puzzles require common sense, but there's also a lot of exploring to be done - which isn't easy when the bad guys are always interfering. It's immensely satisfying when you solve a puzzle, but on the other end of the scale it's extremely frustrating when you come across one you can't figure out. This certainly isn't one for the trigger-happy blaster, but those who know how to use their grey matter will lap it up.

☆☆☆☆ **Gary Whitta**

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5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✗
Mouse	✗	Joystick	✗

Tank simulations seems to be in vogue at the moment, but here's one that's a little bit different... it's more an arcade-style game with added strategy than a true simulator like Microprose's M1 Tank Platoon (see page 79).

Conqueror's World War II scenario features three different game types: arcade, attrition and strategy. Beginners can get used to the controls via Auto Strategy, where the computer directs the overall movement of your tanks.

The arcade game however, is easy enough to play, but difficult to win at first. Waves of enemy tanks attack your lone steed, and speed and accurate shooting is of the essence. Survive long enough and better tanks are supplied by the Top Brass at HQ.

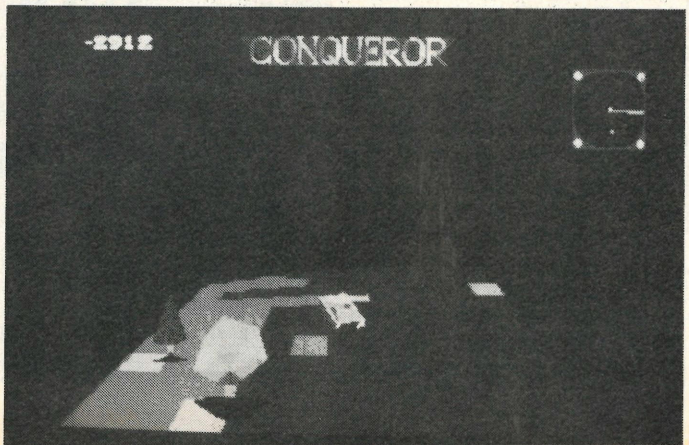
Five different tanks are at your disposal in Intermediate Attrition. Manoeuvring them efficiently enough to wipe out the enemy is taxing, as only one tank is controlled manually - the others are directed via a map.

The map has other uses - mainly for keeping track of enemy movement. However in the Strategy Game, the map doesn't show enemy tanks until one of your units gets close enough. Wiping out the enemy or gaining control of an objective for about 60 seconds are the only ways to win.

Directing the turret and moving the tank at the same time isn't easy. The angle at which a bullet hits the enemy determines its damage, so the barrel needs to be elevated and the turret swivelled accurately for maximum effect. Either driving or control of the turret can be left to a friend or the computer - which helps during combat as the gun's difficult to distinguish at certain angles.

The terrain isn't particularly varied, with only settlements and trees providing passive cannon fodder - the latter occasionally release flocks of birds! The type of terrain determines how quickly the enemy is reached. It's easier to travel by road - rivers impede progress, and slopes affect your shots.

The three mission types are absorbing and draw on genuinely different types of skill. Computer-controlled opponents have three different overall tactics and a degree of artificial intelligence, which means the strategy should work out differently every time. Simulation purists might not be impressed - everyone else is in for plenty of fun.



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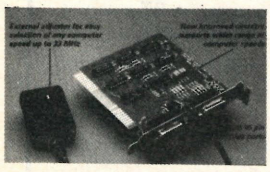


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TV SPORTS FOOTBALL

While us limies spend our Sunday lunchtimes noshing into Yorkshire puddings and watching Land Of The Giants on the box, on the other side of the Atlantic there's nothing the yanks like to do better than watch two teams of shoulderpads (players optional) battle it out in front on 100,000 people.

Although American Football may not have attracted much of a following over here as yet, it's the Number One sport in its country of origin. Football simulations on the PC are two-a-penny (or cent), none of them, however, have managed to faithfully recreate the atmosphere of the real thing.

Until now, perhaps. The first in Cinemaware's TV Sports series (which we're promised will eventually include Basketball, Baseball and Boxing) is the most successful simulation of gridiron grappling yet seen. After a simulated pre-game TV show (complete with smarmy presenter), it's onto the field.

The object, put simply, is to advance the ball 10 or more yards at a time, through a series of 'downs' or attempts, before finally reaching the endzone to score a touchdown. To do this you've got a variety of plays (set formations and routines) at your disposal, and the basic idea is to outwit the defending team so you can break through and get the ball upfield.

But it's not just a matter of calling the plays - you've got to carry them out as well. After a play is selected it's down onto the pitch to make it happen in an arcade-style sequence where you pass, run, fake, and - hopefully - slam the ball pass the goal-line. When the other team gets possession (if you fail to make the 10 yards or if the ball is intercepted), it's your job to keep the ball as far away from your endzone as possible. Once again a wide selection of plays are available.

Cinemaware
(01) 928 1454
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CGA	✗	EGA	✓
VGA	✓	Hercules	✗
Mouse	✗	Joystick	✓



Combining strategic playcalling and arcade skills perfectly, TV Sports: Football is virtually flawless. While most other simulations get lost in reams of statistics and pointless technical accuracy, TVSF concentrates on giving you a good time. Graphically it's a treat, and with a wide variety of game options (including a full league and two-player mode), it's the best Football game on the PC. Need we say more?

☆☆☆☆ **Gary Whitta**

DIE HARD

Bruce Willis trapped in a 40-story building with no shoes on, fighting an army of machine-gun toting terrorists... it hardly sounds thrilling on paper, but John McTiernan's action-packed movie was the surprise smash of last year, making Brucie even more of a household name than he already was.

Activision, who announced the signing of the licence even before the movie was released in the UK, has been beavering away on the adaptation for over 18 months, and the result is - erm, surprising to say the least.

The story unfolds with Bruce caught on the hop in the skyscraper's washroom as the terrorists seize the building, and from then on it's your (sorry, his) job to knock out all the terrorists and rescue the hostages before the time limit expires (you're intially armed only with a 9mm Beretta, but can kit yourself out with a more devastating sub-machine gun as the game progresses).

A three-dimensional arcade adventure is the best way to describe the action, with Bruce exploring the building knocking out terrorists, collecting useful objects and solving the odd puzzle. It's really a very quiet affair, except when our Bruce gets involved in a gun or fist-fight with the terrorists. In fact, there's more brainwork than legwork involved - how do you get to the roof, how can you notify the police to the situation, what use are the objects best put to?

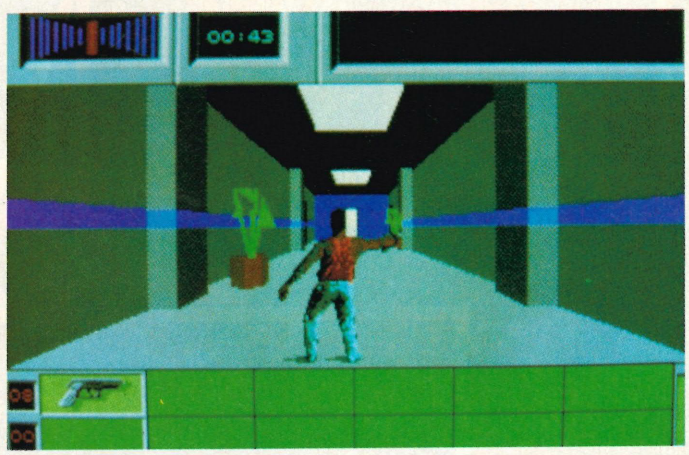
Exploring the building is entertaining enough, but the control mode hardly makes things easy - walking, diving, rotating, and drawing your gun are all fiddly affairs, and when you've got a terrorist pointing a gun down your throat you don't want to have to scramble for the G key. The puzzles can be tough at times, but those with the patience to carry on are eventually rewarded, and digitised scenes from the film help to jolly things along.

Die Hard doesn't live up to its potential - certainly not when you consider the film was ideal material to be converted - but it's an enjoyable romp all the same, and there's enough here to keep even die-hard (ho ho) games enthusiasts happy for a while.

☆☆☆ **Gary Whitta**

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VGA	✓	Hercules	✗
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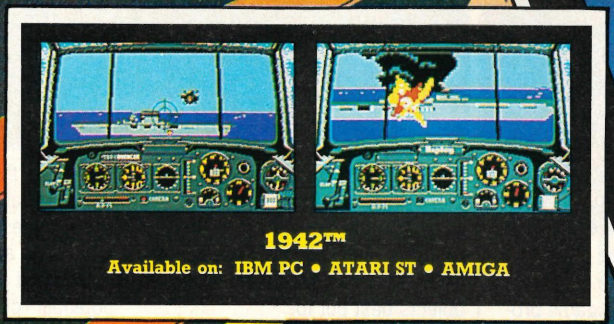
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Screen shots from various systems.

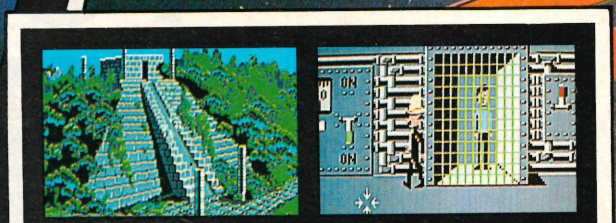
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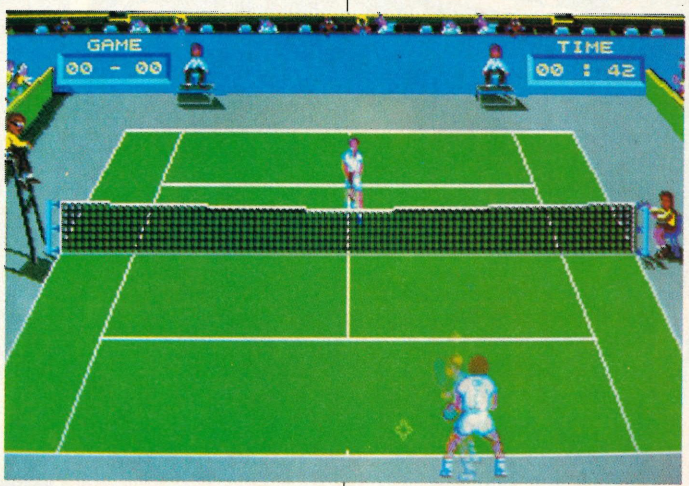
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5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✗	Hercules	✓
Mouse	✓	Joystick	✓

It never ceases to amaze me that publishers insist that we punters look something up in the manual before we're allowed to taste their wares. Pro Tennis Tour does just that: it's necessary to enter the winner of a named tournament in a particular year before you're allowed onto the court - but if this really is for the prevention of, then why is all the information gathered together in the manual? Haven't these people heard of photocopiers?



Anyway, gripe over. Once you've got it going, you can either practice, play against another human (one each on any combination of keyboard, mouse or joystick) or against a professional (the computer). There's a variety of surfaces to play on, with the view-point throughout coming from high on one end - the sort of TV shot you'd expect when a player is about to serve.

A crosshair indicates the position where your opponent's shot will land, and your position in relation to this (along with the timing of your stroke) determines your return. This can make the art of returning a ball a bit hit and miss at first, but after a while it becomes almost second nature - and if you're having real trouble getting to grips, there's always the ball-spitting tennis machine to practice against.

The animation, graphics and sound are pretty good, and the game's speed is adjustable to suit your machine, but there are a couple of important failings.

The worst of these is that, because of the screen layout, when a player serves from the top of the screen there are a couple of positions from which the ball cannot be returned - no matter how good the opposition. Find these every time (which isn't too difficult) and it becomes impossible to break service, and thus the game is rendered meaningless.

There's no denying that Pro Tennis Tour provides some challenge and entertainment, at least initially, and the option to `travel the world', taking part in different tournaments against opponents of ever-rising standards adds to the depth. Ultimately though, the fatal flaw in the gameplay mars an otherwise polished product, and the lack of opportunity to really develop your skills means that UbiSoft loses this one in the final set.

☆☆☆ **Ed Henning**

Electronic Arts
(0753) 49442
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5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✓

SKI OR DIE

Welcome to Rodney's Ski Shop, check-in point for this compendium of snow-related mini-games and options screen for Electronic Arts' follow-up to Skate Or Die, a similar package with a `boarding' flavour. But even if you already own a copy of the original program, this shouldn't detract from the enjoyment to be gained as this is different enough to provide a whole new experience.

Rodney's world is populated by cool kids, dressed to impress in gaudy Bermuda shorts and flashy goggles. Up to six of these (standing in for yourself and five friends) can `sign in' to the competition book to face off in a series of chilly challenges (however, only two can compete at once).

Of the five sub-games: the Snowball Blast, Downhill Blitz, Acro Aerials, Snowboard Halfpipe and the Innertube Thrash, only the latter fails to impress - not only because of its tedious gameplay, but also because two punky kids fighting down the snowbound slopes on inflated inner tubes hardly fits the theme.

There are two ways to play, either in Practice mode, where any event can be played at any time, or in full Competition - where the basic differences are that the events can only be played once, in a set order, and that high scores are saved to disk. Points are scored by being fastest, jumping furthest and so on - but also by the grace and imagination of your moves, so there's always room for honing your skills.

The presentation and execution is impeccable: the characters move smoothly against clear backgrounds, while the technical elements (response to joystick etc) are flawless. The program supports both AdLib and Roland sound boards (rock and roll!), and while both are used to great effect, neither is really necessary as for once the internal speaker is used to good effect.

If there's one thing which may grate on a few nerves, it's the awful American slang and humour - okay, so the program was written with Yanks in mind, but Rodney chipping in with "s'no way bro" still fails to tickle my funny bone. That aside, Ski Or Die is an enjoyable arcade romp with no pretensions to real-life simulation or technical accuracy - and as such it's a real wintry winner.

☆☆☆☆ **Ciaran Brennan**



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FORGOTTEN WORLDS

This jet-packed conversion of a CapCom coin-op fills the screen with hordes of alien soldiers: fodder for your space cannon which has been sent by the Emperor Bios, the tyrant who has laid waste to the eight dust worlds. It's up to you (and an optional bloodthirsty friend) to fly out on a wild spree of destruction, destroy Bios' army of aliens and liberate the people.

Anything that moves is the enemy in Forgotten Worlds, so the emphasis is upon sheer firepower which you can build up along the way. So much so that you can become a veritable one-man army, as you do battle against all manner of aliens - from the sub slime to the innocuous.

The player's direction is controlled in a routine way - it's the movement of his weapon that takes a little getting used to. Moving left or right while holding down the fire button sends the gun around in a clockwise or anti-clockwise direction: which is something that takes more than a little getting used to. Early attempts at fighting in this manner can have disastrous results, but given time it becomes second nature and you find yourself cavorting all around the screen.

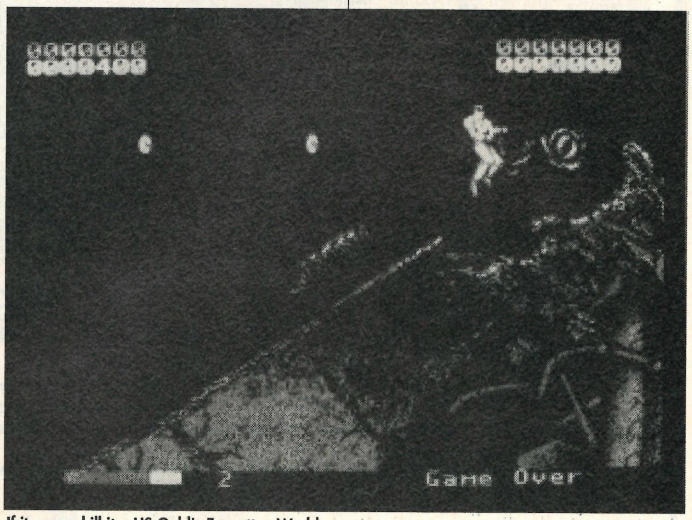
Most dead nasties bequeath a token, the size of which is proportional to the difficulty you faced in killing it. Collect enough of these and you can buy additional weaponry each time you encounter a shop. Complete with a neon sign and roomy windows, the shops stock a range of the very latest and trendiest weaponry for the genocidal man in the street. Here you can `tool up' with four-way lasers, megablasters and the like, depending upon the size of the bulge in your pockets. Well, it's how real men shop isn't it?

The action is fast and progressive, but don't bother trying to play it on anything less than a VGA monitor. It's the graphics and the colours that make the game... that and the idea that if it moves - kill it!

☆☆☆ **Garth Sumpter**

US Gold
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5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✗
Mouse	✗	Joystick	✓



If it moves kill it... US Gold's Forgotten Worlds.

HOLE IN ONE MINIATURE GOLF

This is one of those infuriating programs that comes with no installation instructions, and precious little help for the first-time player - but it's worth persevering with, as once it's going it's excellent.

There are five basic courses - Tutorial, Classics, Intermediate, Expert and Fantasy - and up to four players can take turns to get through any one of them.

Only the ball in play is visible at any one time, with each player taking it in turn to sink theirs. Each hole has a set par, with a penalty incurred if this is broken (there's a `practice' mode which allows you try again if you do fail a hole).

Each hole consists of a single-screen course: some with tunnels, mounds, pits and water. The high and low ground is shown in shading, and the ball behaves just as you would expect it to in real life, running faster down hills and bending around corners. As the simulation is quite realistic, you can genuinely apply skill in hitting the ball, and it's this that makes the game such fun, particularly with more than one player.

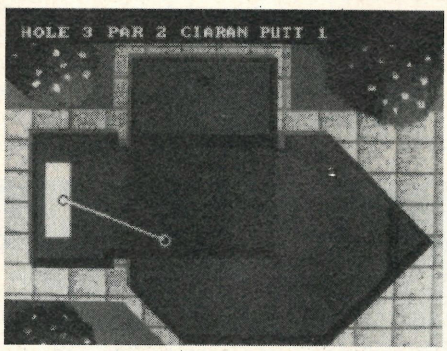
With each putt you position the ball on the starting rectangle, click the button, and then position another `shadow' ball in front of it, connected to it by a `rubber band' line, the length of which determines your shot's strength. This is a good method, but it has just one failing - using a joystick, the positioning of the shadow ball is sometimes not as accurate as the screen resolution would allow, and thus your accuracy is limited.

This is a pity, because in every other way this game is excellent and absorbing, once, that is, you've got past the abominable installation. Come on guys, smarten up the presentation.

☆☆☆☆ **Ed Henning**

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5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✗



Putt it away with Digitek.

ARTURA

Gremlin
(0742) 753423
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5¼"	✓	3½"	✗
CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✓

In days of old when knights were bold, there was no shortage of ideas for `arcade adventures' (basically, games where there was elements of action and exploration). Arthur, Merlin, Lancelot and Guinevere have provided numerous assorted sci-fi freaks, Glastonbury loonies and now (in our own era) games designers, with the framework on which to hang a tale.

In Artura, a very large arcade adventure, you play the eponymous hero, son of Pendragon. Your aim is to unite the warring ribes of Albion under your rule, but in order to do this you've got to get your royal hands on the long-hidden Treasures of Albion. Only wise Merdyn can advise you of the whereabouts of the loot... but he's disappeared. Now you learn that your evil half-sister Morgaunse has kidnapped Merdyn's gorgeous apprentice Nimue. It's your job to find her.

Morgause's castle, contains the six stolen Rune Stones you'll need to collect before you can rejoin the lovely Nimue. The castle is a pretty big place in which dead ends and mazes abound, so constructing a map would be a pretty crucial part of the gameplay: except that there's a complete map of the entire playing area included in the package. No - you aren't forced to consult it, but you'll need to be pretty strong-willed to resist...

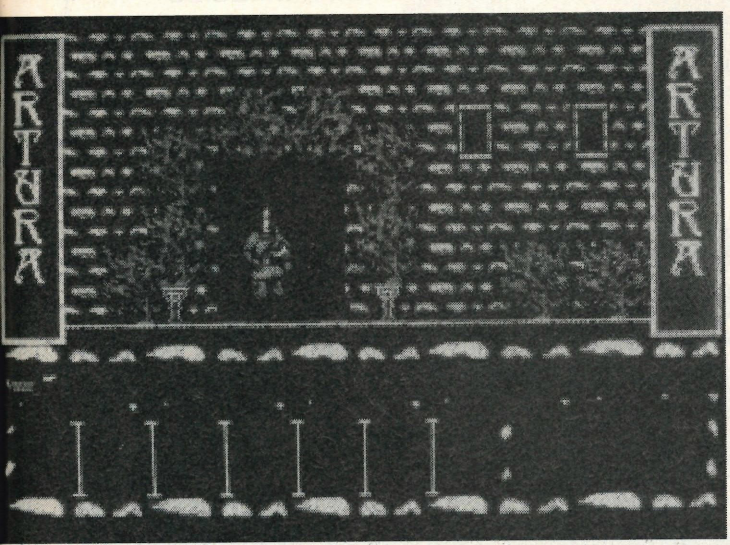
Apart from collecting the Runes, the other main element is fighting off the unpleasant creatures with which the place is throbbing. Chief among these are the sword or axe-toting heavies, who stroll back and forth across the screen. But don't worry - their bark is worse than their bite.

You yourself are a tall imposing figure in full-face helmet with fetchingly floppy plume. You are armed with an axe which you can throw in all directions, including down (a very curious sight). Creatures such as birds and rats need only one axe to disappear, but Morgaunse's muscle-men require five or more hits before they'll lie down for good.

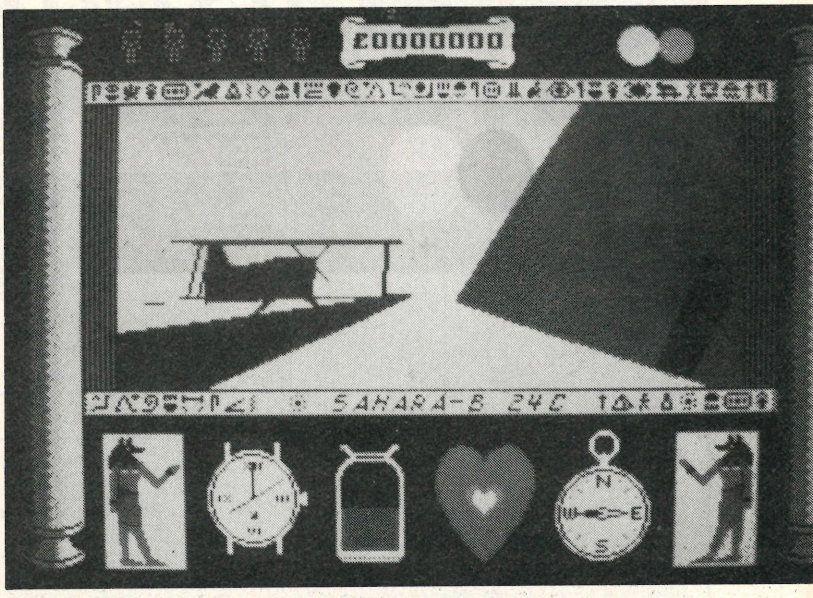
All that walking searching and fighting is, of course, an exhausting business, and you'll find your power bar can diminish fairly rapidly. Food is one way of replenishing energy and, thoughtfully, the manual includes a list of locations where you can get the stuff.

As an arcade adventure, Artura is not in the top rank. While the flip-screen graphics are pretty enough and the characters are decently animated, there is neither enough of the arcade or of the adventure to satisy those with a yen for either or both of those pastimes.

☆☆☆ **Frank O'Hara**



Arthur on the road to rune: Gremlin's Artura.



TOTAL ECLIPSE

This is the third game in a series, developed by Incentive Software and featuring the pioneering 3D movement system known as Freescape (for the record, the first two games were Driller and Dark Side). The plot sees you ditch your biplane in the desert next to a pyramid - which gives some indication as to the the plot's era, and what the game's going to involve.

You guessed it. The object is to get through the pyramid's maze of corridors to reach and destroy the shrine of the sun god Re (well, maybe you didn't guess all of it). To do this you have to maintain your water supply, collect various bits of treasure and shoot anything that gets in your way: that doesn't mean monsters, phantoms or mummys though - the destruction here is mostly wreaked against doors and bits of masonry.

It may sound good in theory, but there are problems in practice. The screen, if not indecipherable, isn't exactly stunning: a collection of sub-egyptian symbols, a clock and a beating heart (the anxiety factor) is about the extent of it. As for the 3D? Well, it's OK if you like large expanses of primary colours moving quite slowly.

So much for the graphics, but what about the action? Actually, action probably isn't the right word here as the game consists of little more than solving a series of mostly obscure `puzzles' where shooting a block or door leads to another passage opening and so on.

This is fine when the puzzles are genuine brain-teasers, but here there's too much random `cause and effect' and very little time for logical deduction. Therefore, even if you do manage to progress a little, you're not left with any great sense of achievement.

Computer games have come a long way from TV Tennis, but they've got a lot further than this. Total Eclipse is 3D exploring at its most basic: it doesn't really matter how stunning a programming routine is if the gameplay isn't there to back it up - and in this case it certainly isn't.

☆☆ **Alastair Swinnerton**

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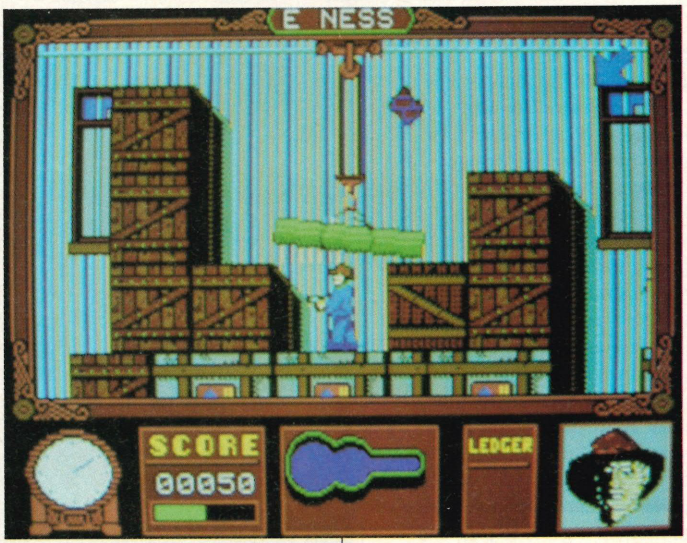
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Mouse	✗
Joystick	✓

In 1930's Chicago, one man stood above the law - Al Capone. With the police either too frightened or too well bribed to touch him, his illicit empire was invincible - almost. Treasury Officer Eliot Ness put together a band of like-minded cops, and vowed to bring Capone to justice. His squad became known as The Untouchables.

Brian De Palma's gritty movie told their story, and such was its success that now you can step into Ness' spats and raincoat and take Capone on for yourself. Four men against an army of crooks isn't the best of odds, but then you are untouchable - aren't you?

Your mission is set over six levels: completing each one takes you that bit further until you finally put Capone away. In the first you launch a surprise attack on one of his hooch factories, attempting to collect enough evidence by knocking out bad guys as they mingle with the crates of booze.

Pick up the vital info, it's off to the Canadian border and another shootout with Capone's henchmen as you intercept a shipment of `merchandise'. More death here as you blast the bad guys and their bottles of booze.



The third section takes place through a series of alleys, with Ness and his men taking out the bad guys as they appear from windows. Level Four sees you guiding a pram down the steps of a railway station (remember the film?). Then it's off to a quick shootout with the single surviving gunman as he holds Capone's bookkeeper - a key witness in his trial - at gunpoint. The final section is purely a battle for survival - Capone's behind bars, but his right-hand man Frank Nitti is still at large and it's up to you to blow him away on the rooftops of the local courthouse.

The Untouchables is the software equivalent to those variety packs of cereal - you know the ones where you get six little boxes. None of the levels is really outstanding, but they're all completely different, and together they make a winning formula - the shoot 'em up action is tough, but perseverance wins through, and it's ultimately a very rewarding experience - oh, and tremendous fun to play, too.

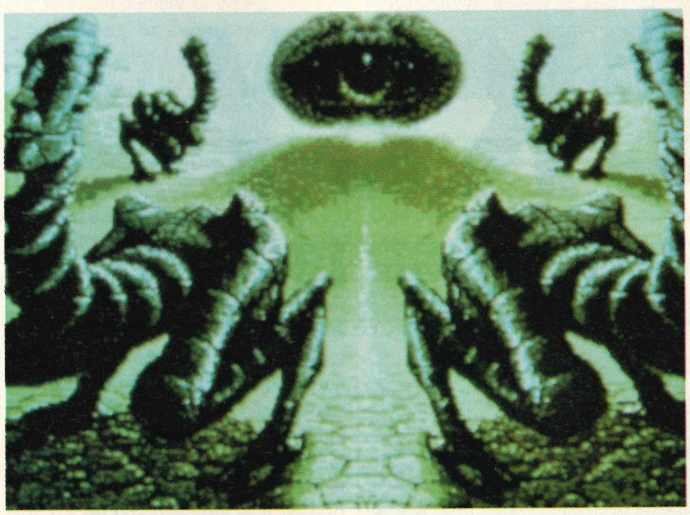
☆☆☆☆ **Gary Whitta**

WEIRD DREAMS

Rainbird	
(0666) 504326	
£24.99	
5¼"	✓
3½"	✓
CGA	✗
EGA	✓
VGA	✓
Hercules	✗
Mouse	✗
Joystick	✓

Every night you go to sleep, you dream. Fact. You may not remember anything when you wake, but your subconscious has been at it regardless. But what if you can't sleep? What about the much theorised prospect of experiencing someone else's dream?

Weird Dreams is the world's first interactive dream - nay, nightmare. It concerns the casualty of a broken heart, who is now slightly deranged and possibly terminally ill. Major surgery is the only way to save his life, and so the surgeons gather like vultures. As the life support machine blip traces across the screen, the anesthetic takes effect and he drifts off to a deep sleep... from which he may never awake.



Dropped into a giant candy floss machine, it begins... Avoiding the stick running around the edge, you eventually grasp it and are lifted clear - to a seemingly deserted fairground. Enter an enormous orb-bearing wasp who's desire to sting is second only to its voracious sweet tooth. You run for it, into a hall of mirrors, reflections distorting as you cross from one side of the room to the other. You touch one of the mirrors... and pass into another dream.

Collecting four orbs is the key to escape, but how? The weird dreams are actually a sequence of tasks, the objective of each is not always known. Using makeshift weapons to beat an assortment of bizarre beings plays a part - the problem is realising how to best go about it.

What do you do in a desert with shoals of fish in the sky and kangaroos with Easter Island Statue heads on the ground? How do you greet a mutant chicken animated in true Terry Gilliam style? Or get your kicks from a grotesque pirouetting ballerina? Then there's the man-eating roses. Oh, and a girl who wants you to play catch with her living ball.

There's nothing normal about this appropriately titled interactive nightmare. It's more of an experience than a game: the disjointed yet somehow coherent nature of the sequences and their contents serving to generate that familiar dream-like unease - especially thanks to the feeling of running through treacle. This dream is guaranteed to give you sleepless nights for many months... get it if your dare.

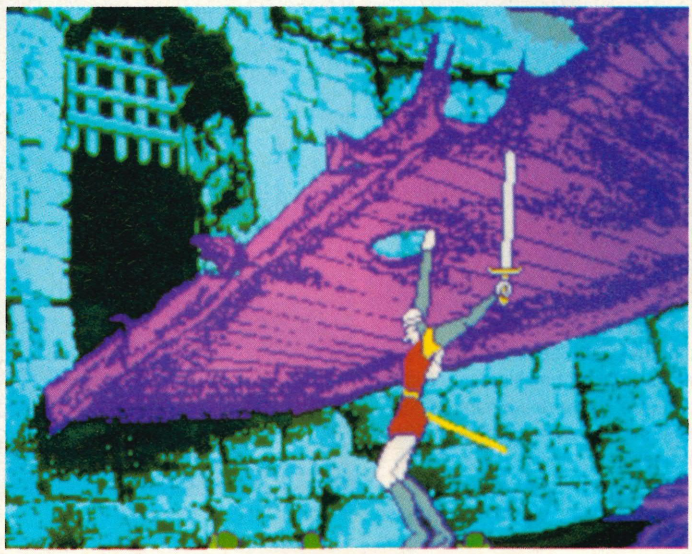
☆☆☆☆☆ **Gary Penn**

DRAGON'S LAIR

Released way back in 1983, Dragon's Lair, designed by ex-Disney animator Don Bluth, was the first ever arcade machine to employ Laser Disc technology – a bold feat at the time, as CD players hadn't even emerged by then! This innovation allowed cartoon-quality graphics and sound to be stored and played back, with the end result giving the player the impression that he or she was affecting the outcome of an adventure cartoon!

Needless to say, the machine was a great crowd-puller – for players and spectators alike – until people realised that the limitations of the hardware meant there wasn't really that much of a game to play, and interest soon waned. But even in its short time in vogue, Dragon's Lair (and its sequel, Space Ace) made quite a name for itself – so much so that it's now strutting its stuff on the PC... seven years later.

The plot is standard adventure stuff. As brave knight Dirk The Daring, your mission is to infiltrate a mysterious castle to rescue the beautiful Princess Daphne from the evil dragon Singe. Your mission is broken down into a number of scenes, each one with its own unique peril to overcome.



The nature of Dragon's Lair's gameplay means that the entire game is mapped out before you start – you just decide what avenue the story should follow at the relevant points.

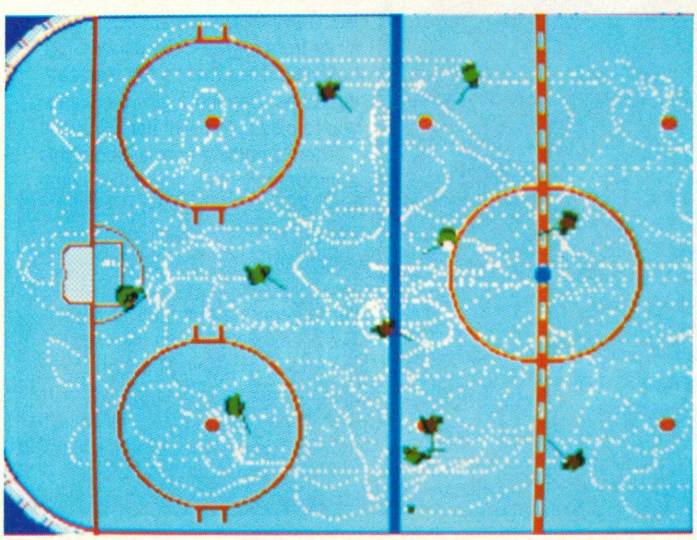
US Gold
(021) 625 3388
£24.95

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✗
Mouse	✗	Joystick	✓

For example, if Dirk's being attacked by living slime, should you go left to jump over to the stool in the corner, or right to make a break for the door? The wrong decision spells certain death. To help you, objects and exitways occasionally flash – more often than not this is a prompt telling you where to go, and should be followed quickly – but beware, there's a few red herrings in there to put you off.

Along the way, you can expect to

WAYNE GRETZ HOCKEY



Big Wayne, or The Great One as he's popularly known, is one of that rare breed, an all-American hero who has been lionised at least partly for his ability to beat the living crap out of other people. Those of you who've seen Norman Jewison's futuristic thriller Rollerball will recognise the modern US game of ice hockey in there somewhere, and Mr Gretzky, it seems, is one of the game's great exponents.

And this, his endorsed simulation, is real quality stuff, from the opening screen credits where a player sweeps down the ice towards you and whacks the puck realistically through your screen, it's evident that the boys from Bethesda Softworks have put in a lot of work. But don't take my word for it

Bethesda Softworks
(01) 384 2701
£24.99

5¼"	✓	3½"	✗
CGA	✓	EGA	✓
VGA	✓	Hercules	✗
Mouse	✓	Joystick	✓

– the US Software Publishers' Association liked it too – in fact that August body voted it Simulation Of The Year.

Like most sports simulations these days, the list of options is almost endless. Each player is rated in 11 areas of skill including puck control, skating ability, and – of course – aggression. You can play the game straight or with a friend – though how friendly you'll both be after an

come up against everything from magic suits of armour and mutant Boa Constrictors to giant marbles and fast-flowing rapids – the final scene (if you ever get there) pits you in single combat against the mighty Singe to decide Daphne's fate.

While certainly a visual feast (even with the PCs limited colour palette, it's still like watching a Disney cartoon) the level of interaction in Dragon's Lair is by far it's biggest fault. As in the arcade, much of the time is spent sitting back and watching the set-pieces, and the only skill is in finding the correct movement key to press and the appropriate time to do it. You end up watching Dirk succeed or die, rather than influencing his progress.

Because of the simplistic trial-and-error gameplay, as soon as you've learned what to do and when, you can practically complete it blindfolded (and this is no exaggeration – a blind New York gamesplayer has completed the arcade version purely by listening to the sound effects!). This may be great fun for an hour or so, but after that it's only real use is for impressing your friends and relatives when they drop by.

★★★ **Gary Whitta**

ZKY

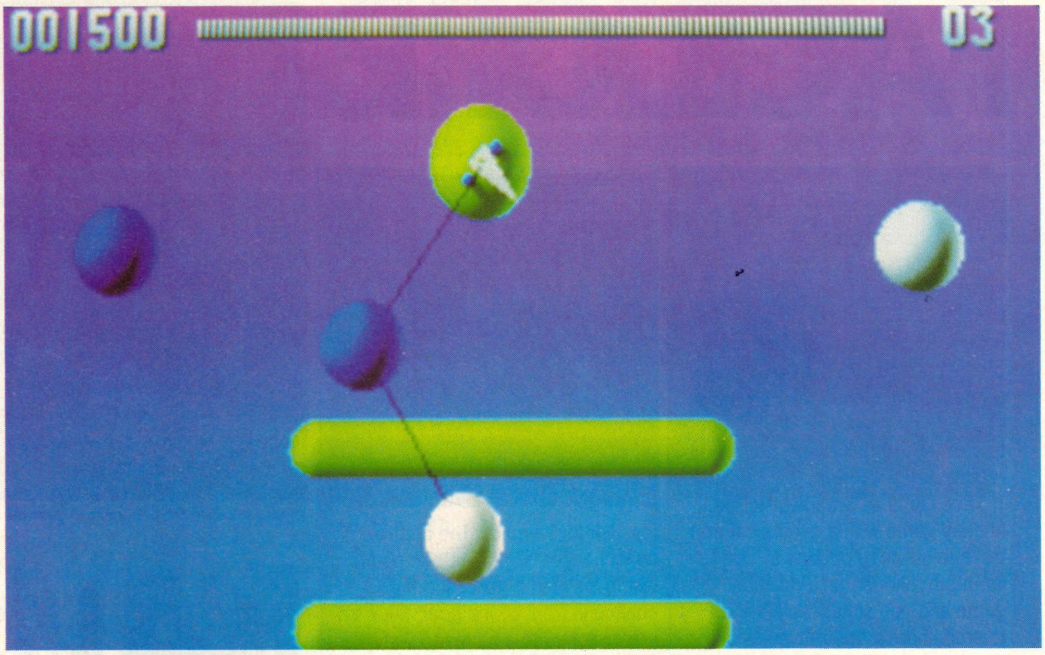
hour of this blood-thirsty action remains to be seen.

All of the action is seen from above so you get a clearish view of what's going on. My only gripe is that when you track across the ice rink, it all goes a bit juddery which makes WGH uncomfortable to use for long periods at a time.

That said, the game is a fine example of its type. There's good Microsoft mouse support, excellent set-up options which allow you to design your own team in your own colours, set up practice routines, choose from multiple levels of difficulty (violent, very violent, fantastically violent) replay the action, set the game length, and so on. The presentation even includes a sweeper which cleans the skatemarks from the ice between quarters – how's that for realism?

But hey, enough of my yakkin' – let's make like a hockey player and get the puck out of here.

★★★★ **Rob Beattie**



E-MOTION

If seeing a wholly original game released is like finding a fiver in an old coat pocket – then E-Motion is like finding a tenner. But at first it doesn't even look like a game, and it's only when you see it in action that you realise just how clever it actually is.

The concept is simple: you control a coloured ball on a screen which contains a number of similar, free-floating, balls. The object is to make the other balls disappear by pushing two of the same colour together so they disintegrate. When they've all gone, you progress to the next screen. Easy? Don't you believe it.

In the world of E-Motion, inertia rules – you can't just shunt spheres around – they have to be nudged, and when they move, they sort of 'float' until all the momentum is gone. And your ball is subject to exactly the same laws. Imagine juggling in zero-gravity...

The spheres have to be treated carefully – push one too hard or in the wrong direction and it may bump into a sphere of another colour, creating a small pod in the process. Collect this pod quickly and it awards extra energy, but left alone it grows into another full-scale sphere and only adds to your problems.

Oh by the way, the spheres themselves are unstable, and if they're not disposed of quickly, they explode, causing you serious energy loss – and often death. It doesn't sound quite so easy now, does it?

And it gets worse.

On many of the 50 levels there are immovable barriers and obstacles that you have to work around, and, even nastier, some of the spheres are attached to one another by elastic threads, so where one goes – the other goes too. It's like trying to drive an articulated lorry blindfold.

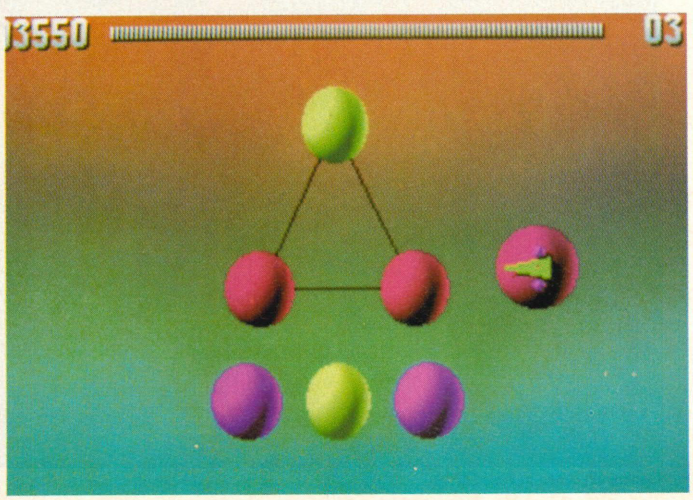
If you really want to get frustrated you can team up with a friend and work simultaneously to rid the screen of the spherical menace, but you'll probably just get in each other's way. Thank heavens for the serene bonus levels that appear every now and then, where the objective is simply to collect as many pods as possible within the time limit.

E.Motion is a rare gem with no fancy gimmicks or flashy presentation – it's 100 per cent gameplay – and what a game! Buy it and believe it.

★★★★★ **Gary Whitta**

Readysoft
(0268) 541126
£44.95

5¼"	✓	3½"	✓
CGA	✗	EGA	✓
VGA	✓	Hercules	✗
Mouse	✗	Joystick	✓



FACE OFF

Ice hockey is no game for gentlemen. You've all seen those five-minute clips that TV producers use to fill time between Saint & Greavsie and The Fall Guy on Saturday mornings (the ones where mass fights break out on the ice and players slam each other into the side walls), well now Gamestar is giving you the chance to put your skates on and join in the rumble.

Face Off is an arcade-style ice hockey game with a number of control and strategy options to add to its depth: choose an Exhibition game and you simply select the teams, choose the skill levels and take to the ice, whereas entering a League involves buying teams, allocating players to the three squads, making plays to incorporate at key times on the pitch and buying and trading players before you ever see the rink.

Even when you've made it to the ice there are still more options. At the beginning of each game, and after each goal, you select which player (or players if two of you play as team-mates) to control. The rest are computer-guided and have a fairly erratic intelligence - sometimes they respond well to your actions and sometimes they leave you in the lurch.

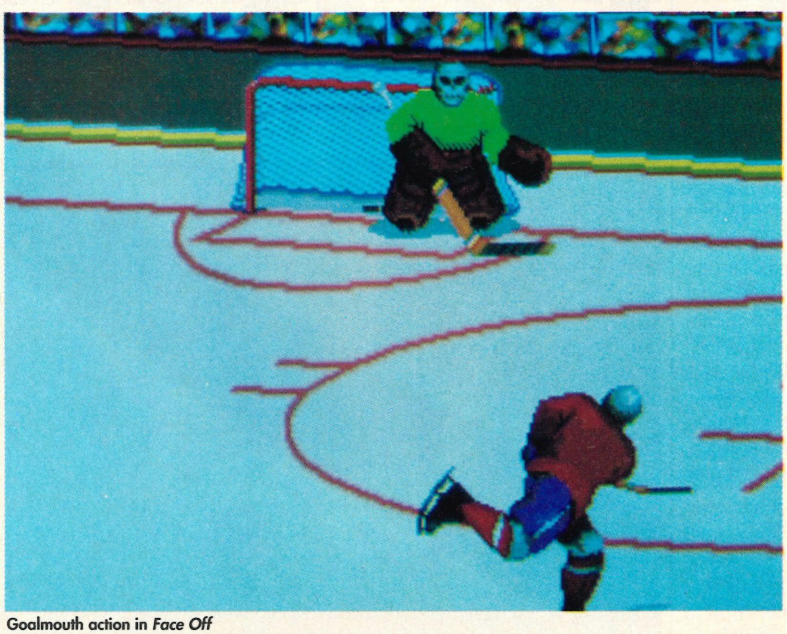
The effective control method allows you to skate backwards, hit other players (your own and the referee included), get into fights, pass and shoot without ever leaving your joystick (or keypad). The control only changes slightly at one point: when you're in a good scoring chance in front of the goal, the camera switches to a full-size TV-style behind the player viewpoint. This appears off-putting at first, but it really adds to the atmosphere and is a good visual effect to boot.

And speaking of atmosphere, add either a Roland or Ad-Lib sound card and you're treated to some engaging organ music - but still the spot effects are generated through the internal speaker! Surely a bit of extra work here would have paid dividends?

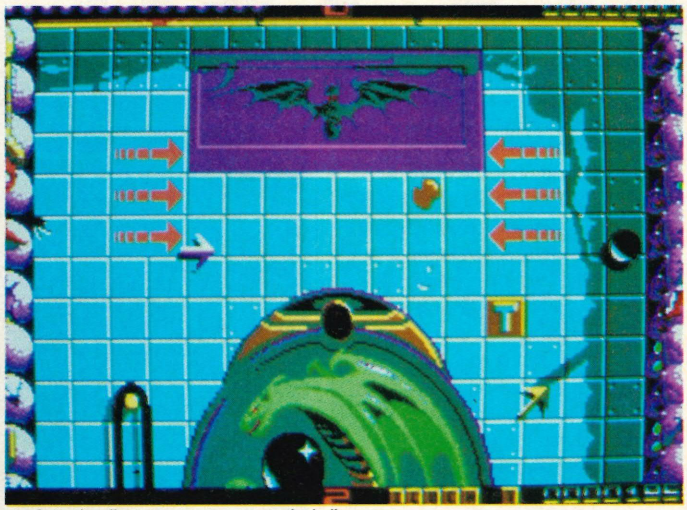
If there is a problem with the gameplay, it's that it's a little too easy to master - put enough work in and you could probably even win the championship in your first season. That aside, Face Off is well presented with nicely animated graphics, generates a wonderful atmosphere and is immensely enjoyable. What more do you need?

**** **Paul Presley**

Gamestar	
(0734) 310004	
£29.99	
5¼" ✓	3½" ✓
CGA ✓	EGA ✓
VGA ✓	Hercules ✗
Mouse ✗	Joystick ✓



Goalmouth action in *Face Off*



Psyclapse's *Ballistix*: now you can go to the ball

BALLISTIX

Remember Crossfire? A board game from MB Games which involved two bearing-filled guns a hardboard 'pitch' and an ice hockey-style puck and seemed to be the only ad that ITV showed over Christmas during the 70s. Believe it or not, Ballistix is basically a one or two-player version of that same classic idea - albeit beefed up with additional features and a futuristic/mythical scenario.

Psyclapse is noted for its glossy presentation, and this product does nothing to tarnish that reputation. After the usual high class loading screens (and a reasonable amount of optional parameter setting) you're thrown immediately into the game - and thrown is definitely the word. A gruesome hand creeps across the court and lobs the puck into play.

Instead of Crossfire's plastic gun, you're armed with an arrow or cursor (depending on your initial choice). By moving this every which way and firing a constant stream of balls at the puck to guide it in the right direction, you blast your way into the money and up the levels, of which there are some 50 (80, count them, 80 for two players).

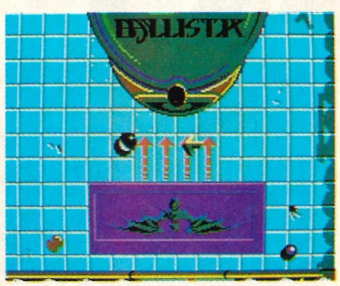
As well as by scoring goals, you amass points by bouncing the puck off the pinball-like obstacles and by collecting the innumerable goodies from the board's surface. In fact, it's often best not to score goals: blasting the puck round and round the obstacles gets far more points.

There's even an element of strategy involved: as it's possible to change everything from the arrow power through the acceleration to the key controls.

Obviously the EGA version is preferable, and has the inevitable Psyclapse attention to detail and colour, but even in CGA it's still highly playable. The attraction may not last forever, but Ballistix does offer an addictive and enjoyable short-term blast.

*** **Alastair Swinnerton**

Psyclapse	
(051) 709 5755	
£24.99	
5¼" ✓	3½" ✓
CGA ✓	EGA ✓
VGA ✗	Hercules ✗
Mouse ✗	Joystick ✓





Never Mind's puzzles bring new meaning to 'climbing the walls'

NEVER MIND

Psyclapse
(051) 709 5755
£24.95

5¼"	✓	3½"	✓
CGA	✗	EGA	✓
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✓

Don't tell me to never mind! This thing is driving me bonkers - and it's by far the easiest way to catch RSI (Repetitive Strain Injury) I've ever come across. Mostly because it's so completely compulsive, but also because it's a monster to use without a joystick (and probably just as infuriating with one).

Never Mind has almost everything - it's an obscure idea, difficult to explain, but very easy to play once you've got the basic concept under your hat.

That doesn't, of course, mean that it's a simple game. Rather it's a series of three dimensional puzzles, each of which contains a picture. Trouble is, they all have a few pieces missing and you have to find the missing bits, exchange them for one of the blank tiles you're carrying and complete the picture. Simple huh?

No! For a start the pieces are all over the place, and to complicate matters they're often not on the same plane as you - they might be on the wall in front of you or on a wall around the corner. The only way you can pick them up is to stand on them. Which means you've got to stand on the wall. No problem, because here you can defy gravity - though you've still got to get up onto the wall. This is where the warp tubes come in (these are transporters which take you from one surface to another - not cans of strong lager).

Problems occur when you realise that the warp tubes don't always take you where you want to go. On top of that, tiles in the higher levels have a habit of dissolving or randomly taking you to one of the other 250 different scenes. Then there are the chess pieces which appear harmless - until they start scrambling up the pictures and changing your task from difficult to completely impossible.

Excellent gameplay, good graphics and seemingly endless variety make Never Mind a good choice for those seeking an alternative to shoot `em ups or strategies. But for goodness sake, don't try and play this when you're drunk or `tired' because it's really going to screw you up.

**** **Rob Beattie**

STRIDER

US Gold
(021) 625 3388
£24.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✓

With a slash and a thrust and a glint in his eye, one of the arcade industry's most successful characters of recent times makes the bold leap from coin-operated cabinet to PC courtesy of conversion specialist US Gold - and quite successfully too.

Set in Russia in the distant future, the storyline tells of an evil dictator known as `The Master' who intends to expand his evil empire across the Free World. Never ones to let despots march all over them, the West's combined governments have resolved to pre-empt this attack by sending in a lone agent to infiltrate The Master's kingdom, steal his invasion plans and return with them.

As freelance superhero Strider Hiryu, your job is to battle through five levels of enemy-infested action, before finally taking on The Master himself and laying your hands on his plans. This is no easy task, especially when you're initially armed with nothing but a laser-powered sword and spiked boots.

The object of each level is simply to slash your way through the hordes of enemies that confront you to reach and fight a huge `Guardian'. This all sounds simple enough, but things can get pretty hectic - and to make matters worse the terrain itself is harsh, requiring you to navigate everything from the icy wastelands of Siberia to a dense jungle, where the trees and branches are your only means of travel.

Strider's athletic ability knows no bounds - he can run, jump, swing, leap across chasms, climb up walls, shin across ropes all with a touch of the joystick - or the touch of a key if you don't mind fiddling about a bit.

There's hardly a dull moment from start to finish, and the sheer size of the objective coupled with the variety of enemies - everything from dogs to dinosaurs - means there's plenty to keep you going. The going may be a little heavy, but for those who are willing to persevere that shouldn't be much of a problem - practice makes perfect, and there are plenty of little tricks and shortcuts to learn.



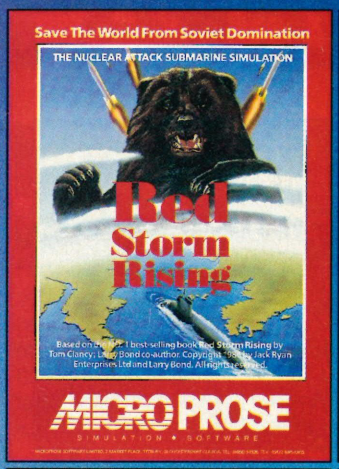
*** **Gary Whitta**

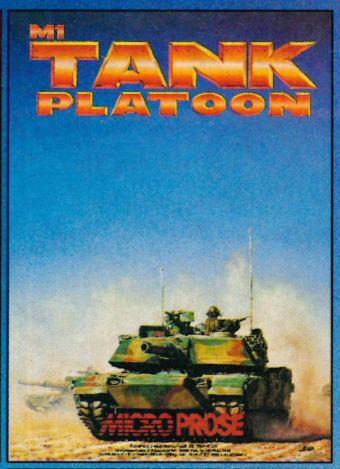


US Gold puts an end to perestroika in *Strider*

STRATEGY SIMULATIONS

FACE THE ULTIMATE CHALLENGE



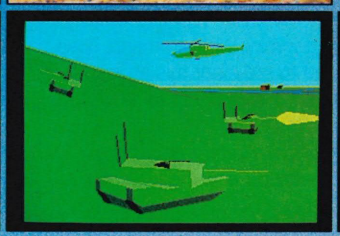


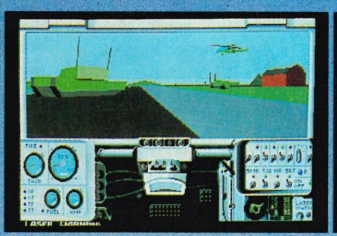
M1 Tank Platoon is the definitive simulation of armoured land combat. US tank platoons have four M1s. Four soldiers operate each tank. That's four tanks, sixteen men. And you control the whole shooting match. 16,000 acres of rolling, superb 3D terrain allows you to hide your tanks behind hills and ridges, just as a real tank commander would. Give orders to your entire platoon or to individual tanks. Lay down some heavy artillery or mortar fire before advancing your main tanks, or possibly call in air support in the form of A10 Tankbusters or AH64 Gunships. Defend yourself against attack from the air by strategically positioning anti-aircraft batteries. The strategic permutations are endless!

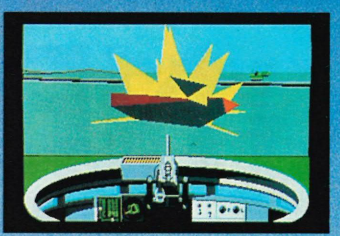
With thousands of battlefields and millions of situations, there is infinite variation within the game. With varied skill levels allowing veteran tank commanders, take on single battles or wage war from start to finish.

M1 Tank Platoon. All the action of armoured land combat. Available for IBM PC and Compatibles £39.95.









RED STORM RISING

This high technology simulator of strategy & tactics is based on the International best seller by Tom Clancy.

Working with the authors, MicroProse have brought the book's intense action and excitement to your computer screen. You are put in command of an American nuclear attack submarine at a time when 2 super powers collide. Available for C64 £14.95 cassette, £19.95 disk, Atari ST £24.95, IBM PC Compatibles £24.95 . . . "AWESOME" (CCI)

MICRO PROSE
SIMULATION • SOFTWARE



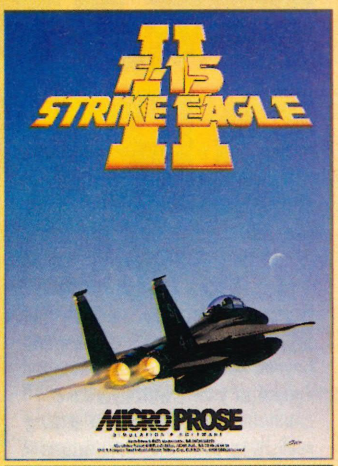
MicroProse, Unit 1, Hampton Road Industrial Estate, Tetbury, Glos, GL8 8DA.

THE MISSION IS VITAL – THE ODDS ARE AGAINST YOU.

F15 Strike Eagle II

F15 Strike Eagle II is a whole new concept in computer air warfare. Dogfighting is the name of the game. The air swarms with enemy aircraft. Dice with death as you light your 'burners' and head for the skies. Success depends on making the right moves – fast. Super smooth, non-stop action takes place over 250,000 square miles of authentic terrain. Superb, solid-filled polygon based 3D graphics makes it feel as though you really are in the thick of the action. Hundreds of options, four difficulty levels and a vast amount of missions and scenarios make F15 Strike Eagle II perfect for dogfighting veterans and novices alike.







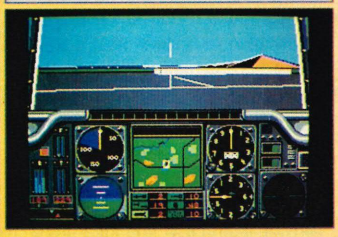
F-19 Stealth Fighter

MicroProse's F-19 Stealth Fighter transports you into the real world of Stealth Technology. Placed in charge of one of the USAFs most valuable and secret aircraft, you must carry out missions deemed too dangerous for normal aircraft to accomplish. Amazing three-dimensional graphics add a totally new dimension to F-19 Stealth Fighter as you fly, undetected, at 75 feet around Berlin and strike deep within Communist territory.
F-19 is not just a flight simulation – it's an experience!











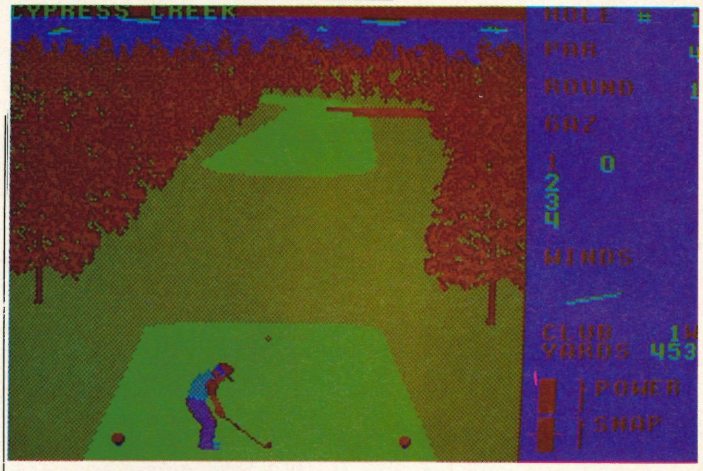
Gunship

Gunship has proved itself to be one of the truly great combat flight simulations. Based on the AH-64 Apache, one of the most advanced attack helicopters in the world and developed with the help of real attack helicopter pilots, Gunship lets you loose on a high-performance helicopter that can fly low and slow, hover, sideslip, fly backwards, rotate and go into a full-blooded, 200 knot power dive through some of the hottest combat zones in the world.
In the face of adversity, it is a brave heart and sharp mind that matters more than the technology behind the man.
The spirit of attack is all . . .

MICROPROSE
SIMULATION • SOFTWARE

MicroProse, Unit 1, Hampton Road Industrial Estate, Tetbury, Glos, GL8 8DA. stein

HARD DRIVIN'



Coin-ops (sorry, arcade machines) have developed beyond recognition over the last couple of years, with hydraulic cabinets and stereo sound adding realism to even the most futuristic space shooter. But nowhere is this more obvious than in Atari's Hard Drivin', a cabinet-housed driving 'simulator' which has everything you'd find in a real car, right down to the ignition switch.

Apparently the system was originally developed as an aid to driving instruction (the idea being that people could use it before taking to the road), but then someone recognised the gaming possibilities and a phenomenon was born.

The 'game' as such amounts to nothing more than driving around a choice of two tracks: a straightforward Speed course or a Stunt track complete with loop-the-loop and ramp jumps. However, the cabinet's realistic handling and the gameplay's 'one more try' nature made this a massive success, despite the high price (1 per turn in most cases).

Although Domark's package doesn't come complete with a steering wheel and pedals, I was pleasantly surprised on first loading by the speed and accuracy of the conversion. Bringing this kind of programming wizardry to the relatively limited PC was surely no easy task, but with the exception of a couple of glitches (cars 'floating' in mid air for example), it looked and played just as well as could be expected.

Domark
708 2222
£24.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✗

But this was all executed on the office's flashy 386 monster in glorious technicolour (well, VGA at least). Then, some inexplicable demon made me load it up on my 'work' machine, an 8Mhz Tulip AT, and this is where the blight set in.

One of Hard Drivin's main attractions is that everything is 'real' – right down to the clock in the middle of the screen which charts the remaining time. Guess what? on the slower machines, this ticks away so slowly (over 10 seconds of real-time for each on-screen second in some cases) that you feel as if you're in an action replay, and consequently the average game can seem to last up to six months.

Sadly, like most driving games, Hard Drivin' is best left to those with faster machines – and that means from a 286 upwards. There's no doubting this game's quality, but only for those suitably equipped.

★★★

Ciáran Brennan



PC GOLD HITS

Compilations often promise more than they deliver – but that's not the case here: PC Gold offers real value, with four classic and varied games from the past few years on a three-disk package. In one and the same box you get an excellent golf simulation, an excellent fighting game, a good combat flight simulator and a fun arcade adventure – be warned though, the CGA-only graphics do tend to betray the games' age.

First up is Bruce Lee, where you play the oriental martial arts hero in his struggle against the ugly villain, the Green Yamo. It's not, strictly speaking, a pure beat 'em up – 'platform' elements creep in as Bruce leaps from ledge to ledge and crawls up vines in the struggle – but fighting is its raison d'etre. There's kicking and punching galore, and the two-player option rounds it off nicely.

World Class Leaderboard is still one of the best golf games available. There's a choice of four different courses to play on, while the process of making a shot is as realistic as you could hope for, with ample opportunity for slicing and hooking. The graphics are at best adequate, but this is made up for by nice touches such as the ball distinctly bouncing off trees when you don't quite get your line right.

Ace of Aces is a combat flight simulator set in the Second World War. You play a brave RAF boy in the battle against German U-boats, planes and trains. While the flight aspect is fairly strong in simulation terms, it's by no means horrifyingly difficult to get airborne. The combat, however, is the crucial point, and here it delivers some enjoyable goods.

US Gold
(021)625 3388
£19.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✗
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✓

The final member of the quartet is Infiltrator, an intriguing mix of arcade action, flight simulation and strategy. You play ace secret agent Johnny 'Jimbo Baby' McGivvitts (crazy name, crazy guy) on a three-part secret mission that could be as simple as offing a bad guy or as complicated as photographing secret information.

Each of the four is a pretty good example of its kind. Put together in one package they make outstanding value, especially for those who are just beginning to build a collection.

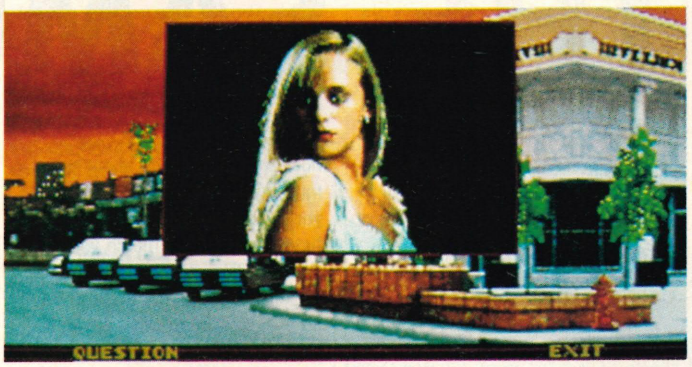
★★★★

Frank O'Hara

MECHWARRIOR

One of the biggest board/strategy games in America at the moment, certainly in the last few years, is Battletech. Set in the 31st century, centering around huge 70-ton battle robots (bearing a slight similarity to a well-known kiddies toy), it is so popular that there are board games, RPGs, books, models, specialised arcade machines (even with their own centre), fan clubs, official magazines and finally, if somewhat inevitably, computer games.

The general background has life in the 31st century governed by five ruling Successor States: the Houses of Steiner, Kurita, Marik, Liao and Davion. It is from the latter state that you find yourself on the run. Mechwarrior starts with you and your family accused of the theft of an ancient symbol of rulership and the destruction of the ruling palace, so ultimately the aim of the game is to prove your innocence. This will take money, a powerful Mech team and a lot of detective work.



Activision
(0734) 311666
£24.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✓

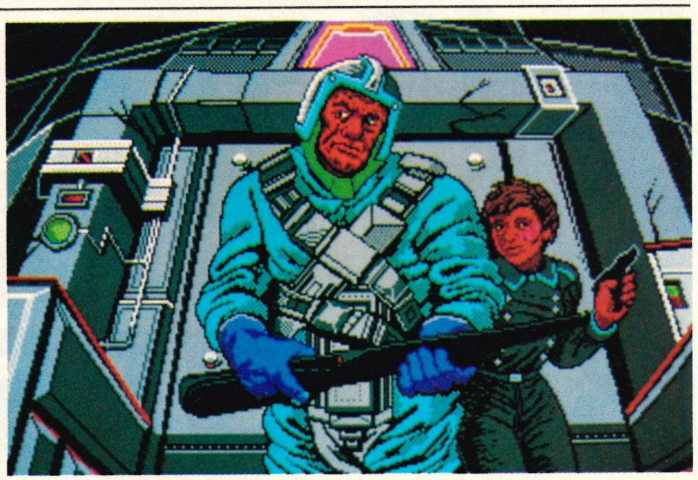
The game is effectively split into two parts, the clue-gathering adventure section and the combat arcade section – and they mesh together well. Clues are gathered by asking around in bars and checking the continually updated newsnet (a very nice touch here is that your actions on the battlefield can sometimes relate to seemingly irrelevant news stories). On the minus side, when leads are followed up you are often treated to a story rather than a 'quest' and choices are usually limited to a yes/no option at the end of the text. This tends to turn it into a simple 'follow the clues' affair.

Combat is plays a major part, and thankfully the programmers have not neglected it. You're treated to a first-person view from your cockpit, from where you run the battle, giving orders to other team-mechs and taking on the enemy yourself. The animation is superb, just watching the other Mechs slug it out is great fun but you don't have much time to sit back as the enemy can be intelligent enough to outwit even the most hardened strategist.

Mechwarrior is a superb second Mech (the first was a more conventional RPG), but it does lead me to wonder what they will do for a third since they've already covered most game styles. We can but wait.

★★★★ **Paul Presley**

MEAN STREETS



The year is 2033, an Tex Murphy, Private Eye, finds himself hired to investigate the alleged suicide of a prominent university professor. Not long after the start of his investigation several more professors meet untimely ends – suddenly it seems as though there's more to this case than meets the average (private) eye.

One of Mean Streets' main selling points is a device called Real Sound: a software innovation which claims to be capable of playing 'high quality digitised effects' through your internal speaker. In reality it's nowhere as good as a plug-in sound card, but the results do make a pleasant change from the usual scratchy effects. When several of the main characters talk, the speech, if not completely crackle-free, is audible enough for the player to catch the drift of what's going on.

Apart from the sound, the other main feature is the 256-colour VGA graphics. Each of the suspects is digitised and animated, responding to your questions with appropriate facial movements. This, coupled with the atmospheric backdrops, really helps to draw the player into the game.

Digitised graphics aren't the only ones used though. There's also a 3D travelling environment which appears when you take to the skies in your flying Lotus speeder car. True, the effect is rather pretty, but it doesn't inspire much in the way of exploration as most of the time you find yourself using it only to look at the pretty scenery while your autopilot takes you from place to place.

Investigate within a building however, and you're presented with a 3D perspective view of your location and its belongings (which scrolls smoothly if the room in question is larger than the screen). Walking next to an object causes a menu to appear allowing you to manipulate it to your own ends (the only trouble with this system is that objects such as desks usually contain quite a number of smaller objects and you often find yourself examining a host of unimportant items).

Minor points aside, the overall effect is enough to keep you ploughing away at your task, uncovering more clues and suspects. In fact the further you get into this adventure the more likely it is that you're going to become totally absorbed.

★★★★ **Paul Presley**

Access
(021) 625 3388
£24.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✓

SWORD OF THE SAMURAI

16th century Japan is in turmoil. War and treachery is commonplace and life as a Samurai is tough and dangerous.

Every young Samurai's dream is to become ruler of all Japan, but this can only come in stages as you rise first to Hatamoto of your clan, then Daimyo of your provinces and then, finally, Emperor.

A Samurai such as yourself controls a small piece of land and is in a constant state of emergency as neighbouring provinces look to take you over, kill you or, worse still, attempt to make you lose face.

To stand any chance of defending yourself you need to control a large enough fief – and the more Samurai you gain the larger the land needed. Land is increased by raising the rice taxes, this does however cause unrest amongst your people and raises the chance of rebellion. The other way to enlarge your holdings is to have the Hatamoto give you extra land: he doesn't give it freely, more as rewards for honourable deeds.

But by far the best elements are the encounters. Messages from the Hatamoto appear at regular intervals, inviting you to perform some honourable deed or another; rescuing kidnapped priests, duelling with assassins, facing opposing armies etc.

Duels present the chance to show off your Kenjitsu skills. The graphics here are amongst the most stylish in the game, two-dimensional tangram-style characters in a three dimensional environment. A special note should be made about the music. With a sound board installed you're treated to authentic oriental tunes that actually match your actions! Gaining a few hits on your opponent causes the music to race up in a crescendo, while being hit causes them to take a dour tone. There are no audible breaks and the atmosphere created is engrossing.

In fact the atmosphere is strong throughout. There is so much to do, honourable or otherwise, and all have effects on the game. The illustrations are beautifully stylish and the level of entertainment is constant – even down to the loading messages 'Cultivate a stoic calmness' and 'The tide hastens for no man'.

You may find it slightly slow at first, but perseverance is the order of the day, once things start moving they don't slow down. Recommendations all round, this is Defender of the Crown meets Shogun.

Microprose
(0666) 504326
£29.99

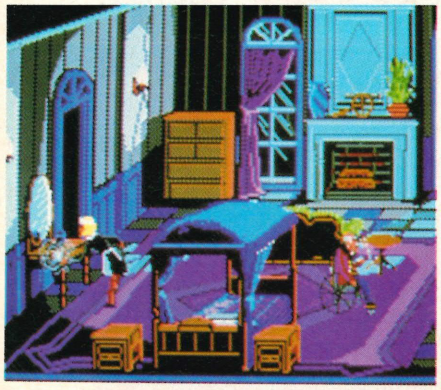
5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✓



★★★★★ **Paul Presley**

THE COLONEL'S BEQUEST

If you're a fan of whodunnits and murder-mysteries, you'll take to the latest from adventure specialist Sierra like a knife to a back. Set in the USA at the height of the Roaring 20s, it casts you as college student and amateur supersleuth Laura Bow who in the best Agatha Christie tradition never goes looking for murder and intrigue – they just seem to follow her around.



The plot is just about as 'whodunnity' as you can get – as Laura, you've been invited by your college room-mate Lillian to spend the weekend at her rich uncle's mansion where there's to be a 'family get-together'. But when you actually arrive you realise everything is not quite what it seems. Lillian's uncle, the ageing and eccentric Colonel Henri Dijon has actually called all his friends and relatives together to explain his last wishes to them, as he expects to pop his clogs at any time.

According to the crackpot colonel, his many millions are to be divided equally between his survivors – anybody who dies before the colonel will have their share divided between the rest. This all sounds perfectly innocent, but when the weekend guests start to get bumped off one by one, you realise that one of the guests wants to inherit all the colonel's cash and you decide to investigate.

To discover who's behind the grisly murders you explore the colonel's vast mansion and its many outhouses, picking up as much information as you can about your fellow guests. Along the way there are a number of mini-puzzles to solve, but remember to keep one eye behind your back at all times – the killer doesn't appreciate you poking your pretty little nose in.

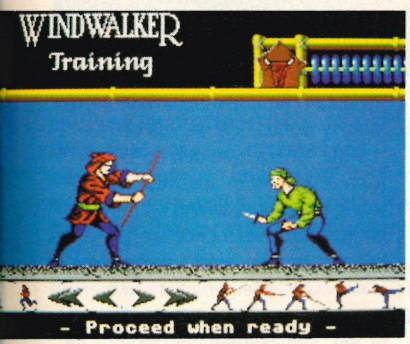
Unfortunately, while it's possible to move around directly by means of mouse or keyboard, actual commands have to be typed in – which may be appreciated by the ever-shrinking band of die-hard adventurers, but for the most of us who appreciate a quick and easy method of command entry (such as that seen in Lucasfilm's adventures), this can be a tad tiresome. But that aside, this is a cracking good romp, with plenty of intrigue to keep you going – the biggest problem is getting the killer before the killer gets you. And it's not easy...

Sierra
(0734) 311666
£24.95

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✓

★★★★ **Gary Whitta**

WINDWALKER

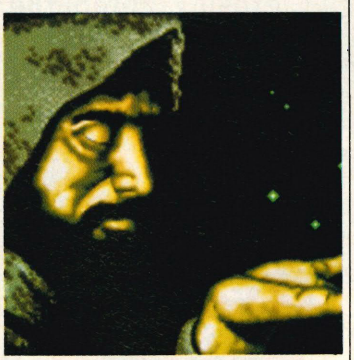


Mention the name Origin to an American gamesplayer and the first thing he will say will be Ultima. The success of the Ultima series has been phenomenal, a success that's sadly failed to stretch to most of the company's other projects. With the exception of Autoduel – a futuristic car wars game – the Origin games lack a certain addictive quality that would keep you coming back for more.

One of the company's less well-known titles is Greg Malone's Moebius, a quasi-oriental RPG which concerned itself with a mystical orb that had to be retrieved to restore harmony to the lands. Windwalker is supposedly its follow-up and starts with an impressively illustrated Moebius giving you the none-too helpful details of your quest; there is an evil in the land – go forth and destroy it.

An evil alchemist is planning to let loose a host of evil spirits into the world and only you can stop him by using the Fireball of Righteousness to destroy him. So, setting forth with bedding, food and money you attempt to right wrongs – usually by finding a bad guy and fighting him.

Fights in role-playing games are usually handled in a strategic, wargame manner. Not so here, where our hero prefers to take out his opponents, Chuck Norris style. This might have worked well had it been handled better, but it's slow, restrictive and far too hard. You're given a choice of six offensive moves and can run the fight in stop-time or normal speed. You may think that stop-time would make things easy but the buffer responds to every keypress whether you want it to or not. Repeatedly tapping the keys while waiting for a move to be executed causes you to lose control of the fight too easily.



Windwalker's main problem is the very empty feeling it generates. Not enough happens to keep you interested: for example, I found myself arrested and in prison, where nothing happened for ages until I eventually just lost interest and turned off – you can take realism a bit too far.

Oriental games are tricky to execute successfully at the best of times – and it takes more than some quasi-philosophical platitudes to pull it off. Pity really, Origin is capable of far better.

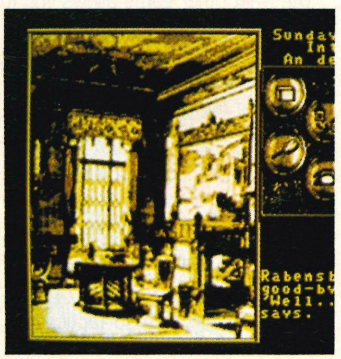
★

Paul Presley

Origin
(044 486) 545
£29.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✗	Hercules	✓
Mouse	✓	Joystick	✓

MYSTERY OF THE MUMMY

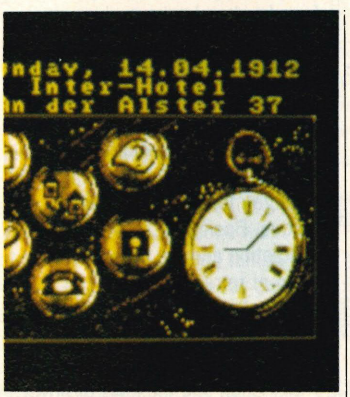


The place is Hamburg, the year 1912. Times are tough and getting tougher. You're a private detective, far from home and tangled up in a case that's far from closed. You're lost, but you're not alone – your chauffeur, Wilhelm, is by your side.

You should have turned the case down, but money talks and you listened. A mysterious telephone call set you on the trail of a missing mummy. You've got five days in which to find it and all of Hamburg to search.

But already you're experiencing pain. First you spend an eternity installing the game on hard disk from five 5%s. Pain. Next you blunder around the menu with its 28 choices, constantly referring back to the manual to decipher the meaning. You're getting nowhere fast.

Anger turns to desperation. You



visit the zoo and talk to the animals – an elephant in particular. And what's worse, it's talking back. 'What would you like to ask the elephant?' The program prompts you.

You request information about one Helma Tufall: "I don't know anyone's name," it says. This doesn't surprise you. Next, the program throws a wobbler, bringing up the message: "Who would walk to the wire mesh and say: 'My name is Heir Meier!'? You are the first person whoever spoke to me." More pain.

Rainbow Arts calls Mystery of the Mummy a 'German criminal-adventure' and I can't really argue with that. It's tried to achieve the fusion of a menu-driven adventure with an RPG – but only with mediocre results.

There's a body of thought which says that the adventure game is dead and RPGs are the future. And while I'm not sure if this is correct or not, weak hybrids like this one do little or nothing to help the former's case. Operating Mystery of the Mummy is a cumbersome: the menu is confusing and the icon system should be self-explanatory (constant reference to the manual is the only way to get ahead).

Okay, it does have 186 places to visit, but so does an atlas – and an atlas doesn't make a good game – and the 'free' poster is nothing to write home about either. Let The Mystery of the Mummy remain just that.

★★

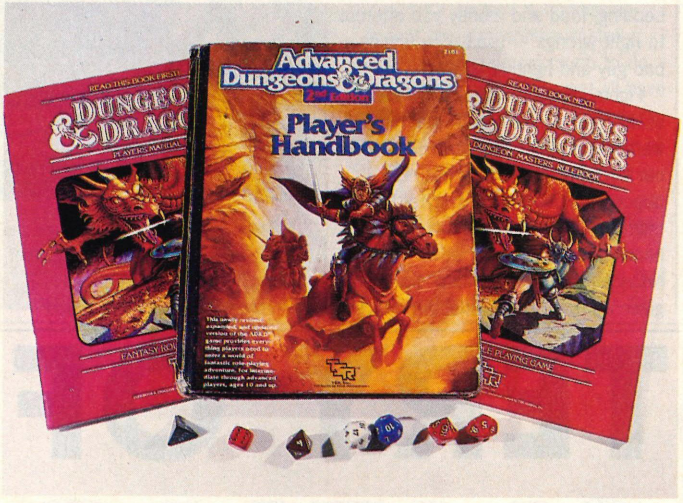
Paul Boughton

Rainbow Arts
(021) 702 2323
£24.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✗

GETTING DOWN

What is it that makes grown men stay up all night rolling dice and making believe that they're hobbits and dragon slayers? Paul Presley enters the world of Dungeons And Dragons to shed some light on the mysterious art of role-playing.



"Your character stands atop a grassy hill... the sun glints off your golden hair, rippling in the warm breeze... you absent-mindedly rub the gem-studded hilt of your magic sword, and glance over at the dwarf and elf, bickering as usual about how to load the horse... the magic-user has memorized her spells, and says she's ready to go... a dangerous dungeon entrance gapes at you from the mountain nearby, and inside, a fearsome dragon awaits. Time to get moving... have Fun!"

It is with these words, published in the 1983 edition of Dungeons And Dragons, that Frank Mentzer sparked off a boom in popularity for the role-playing game (RPG). Despite this, Dungeons And Dragons is still a minority hobby, with most non-players still thinking of it as a little immature or strange. But what other game allows you to become a heroic, muscle-bound warrior or a powerful, spell-casting wizard, battling the forces of evil, rescuing fair maidens and gaining fabulous treasures - and all before Sunday lunch?

THE MAN

Dungeons and Dragons - widely regarded as the granddaddy of RPGs - first saw fruit in 1974 when E. Gary Gygax formed Tactical Studies Rules Ltd (which was later to become TSR Hobbies Inc). The company was formed to give a more professional backing to Gygax's brainchild, which took two years to develop as a kind of fantasy supplement to wargaming.

The firm started small, printing a mere 1,000 copies, but it grew beyond all expectations to the extent that by 1978 it was turning over more than $1,200,000. Since then, thanks to a wealth of supplements, magazines, game expansions and the creation of D&D's sister game Advanced Dungeons and Dragons in 1979, sales have gone through the roof.

D&D and AD&D (as they are now known) have become so huge, and have sparked off so many other RPGs, that TSR now produces a whole host of goods aimed at the D&D player. You can buy ready-made adventures, written by professionals, campaign packs that create a fully detailed world for setting your games in, magazines and books that contain rule expansions to make your games more realistic and novels based on the official TSR-created D&D worlds.

THE GAME

So what is D&D and why all the fuss? To explain fully would require more room than there is in this entire magazine so, in a rather large nutshell: first you create a `character' - your alter ego, usually a warrior or a magician. Next, rolling a dice to determine a value, you rate each of his or her characteristics, strength, intelligence and so on. You then get together with a group of friends who also have characters and take them on some sort of quest, rescuing maidens etc. The quests are overseen by a Dungeon Master (DM) whose job it is to create a world for the characters to inhabit, a world that's populated by strange monsters and brave heroes. Basically, the DM describes a situation and the characters attempt to resolve it.

Because there are no boards or plastic tokens to worry about, the only limitations are the player's imagination and the laws of physics - you can't jump a mountain in these fantasy worlds, just as you can't in real life. Characters can be taken from adventure to adventure - providing they survive - and as they go on they gain experience and become more powerful. In fact, regular players often get quite attached to a valuable character.

The DM has the hardest job as he has to control all events, often improvising the results of the characters' actions on the spot. He has to be part storyteller, part actor, part referee and at all times fair. The DM's main pleasure comes from knowing that he has complete control, in fact he's a minor god of sorts.

The main point of the game, and one that's repeated often throughout the manuals, is to have fun. It's also very addictive once you get into it and, as the manual itself quotes `It is nearly the most popular game ever played'.

Advanced Dungeons and Dragons is the same concept taken a step further. Whereas D&D was a basic RPG, designed as an introduction, AD&D is more complex. The rules are more detailed, combat is much more strictly controlled and characters are greatly defined with many new races and professions. The game is bigger, detailed and... more popular. It has sold fast, even overtaking its simpler predecessor, and TSR has more and more AD&D products coming out all the time. It's the most commonly played role-playing game, and at one stage became so popular that it inspired a kids' cartoon series. High praise indeed.

THE SOFTWARE

In 1987 SSI bought the AD&D computer games licence and took the bold step of putting two games on the market: one an exploratory action game based on the best-selling Dragonlance series, the

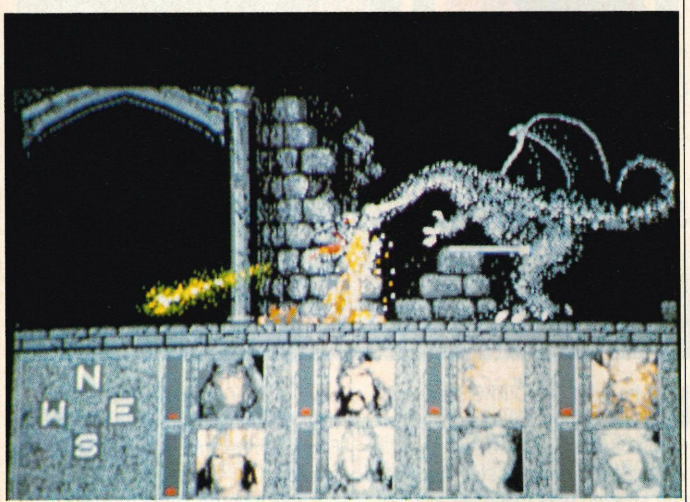
other a more traditional RPG based on the Forgotten Realms series.

The Dragonlance books, by Margaret Weis and Tracy Hickman, came about as a result of people wanting more dragons. TSR, quick to realize the popularity of these winged beasts, set up a design team, headed by Weis and Hickman, with the sole aim of creating a world which centered around the fire-breathing terrors. Thus the Dragonlance saga was created and was so popular that no time was wasted in marketing it. Pretty soon we had Dragonlance books, games, calenders, posters, figures, lunch-boxes... the list is almost endless.

The Forgotten Realms setting, despite not being pushed quite as much by TSR, did well enough amongst AD&D gamesplayers, with adventures and campaign packs, that it settled nicely and formed a solid base for SSI's computer versions.

SSI games are distributed in this country by US Gold (021 625 3388), costing ú24.99 and ú29.99 for the action and adventure games respectively.

HEROES OF THE LANCE



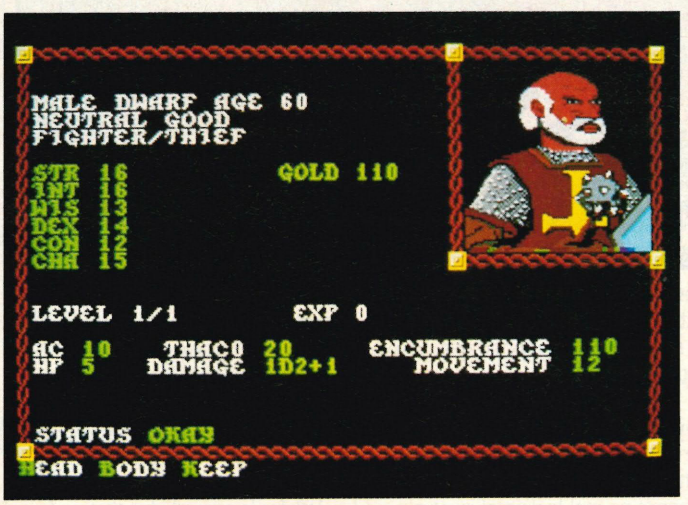
The first Dragonlance game sees you controlling the books' main characters in an arcade-style exploration game. The Dark Queen, Takhasis, is trying to stage a comeback into the world of Krynn and the only way that her evil tirade can be stopped is by reviving faith in the old gods. One of the best ways of doing this is to recover the legendary Disks of Mishakal (a fantasy version of the Ten Commandments), the only trouble being that the disks are guarded by an ancient black dragon in the ruins of Xak Tsaroth.

The game consists of exploring the ruins and killing its foul inhabitants. There are three methods of combat: Ranged, Magic and Hand To Hand. Ranged combat involves firing arrows and throwing spears and axes when an enemy is far enough, hand to hand involves close swinging of swords and axes, while magic involves first putting either Raistlin (the magic-user) or Goldmoon (the cleric) up front, picking a spell from the relevant list and firing it in whichever direction seems appropriate. Magic isn't just restricted to offensive spells: healing, detecting traps, defence and even raising the dead can be achieved through necromancy.

The spirit of Xak Tsaroth is nicely generated and anyone who has read the Dragonlance books will feel quite at home, battling familiar enemies and exploring places that you've only read about - the final battle against the black dragon is very tense. The game works pretty well too, control is simple yet comprehensive and the backdrops' gloomy atmosphere is effective. Unfortunately the main characters appear patchy and poorly animated and the whole package is a little lacking in addictive qualities, a pity really because its fun while it lasts.

☆☆☆

POOLS OF RADIANCE



The first AD&D game, and what a way to start. After a lengthy installation procedure, the player is treated to what's still one of the best character generators available - you not only select the type of character, but also what he (or she) looks like. Almost all of the AD&D rules are adhered to and the wealth of characters to choose from is enormous.

Having created your group, you venture into the once-great city of Phlan, now overrun with monsters of all variety. Your group, like many others are involved in a mass city-wide clean-up operation. However, you soon learn that there is a mysterious force behind the evil foes and your aim becomes finding and destroying it.

Control is exercised by use of the menus along the bottom of the screen. With menus leading to sub-menus, leading to more menus, everything is catered for and you'll hardly ever come across the `There wasn't an option for what I wanted to do' syndrome that is common amongst other RPGs.

Combat plays the most important part in this adventure (as with most really), and is handled in a way that is easy to use and still generates excitement. When confronting a hostile enemy (or enemies) the screen closes in on the area around your party giving a 3D perspective view. A very nice point to make is that the area you fight in isn't just a randomised background. If you were about to turn down a narrow alley, at the end of which a main street runs to a T-Junction when the screen closes in, you can actually take the fight down the alley, to the street and up to the T-Junction and beyond.

Plot, atmosphere, excitement, gameplay - everything has been thought of and executed in what's simply the best RPG system on the market today.

☆☆☆☆

HILLSFAR

The city of Hillsfar is a well-known stopping off point for adventurers, providing a chance to relax, spend some time training or to gather equipment for whatever journeys lie ahead. For AD&D explorers it gives a chance to take your characters from Pools of Radiance or Curse of the Azure Bonds and increase their skills by completing various tasks. Gamewise, it's little more than a glorified training ground and sadly, it lacks any kind of lasting interest.

For thieves, you get the chance to break into each of the houses and rifle through the occupants' personal belongings. This is a simple maze section that has to be completed before the city watch discov-



er the break-in. Graphically there is little to differentiate between houses - so when you've robbed one, you've robbed them all.

Fighters get a chance to flex their biceps in the arena, where the control method works well enough but the actual combat is too static and there's no real feeling of involvement.

Clerics fare better with their own mini-plot - a search for a missing fellow cleric. This involves riding a horse to various points outside Hillsfar and following the clues picked up at those locations. The horse-riding is fun at first, but soon becomes too easy and ends up as a monotonous interlude between the action.

Hillsfar is a good idea that, unfortunately, has been poorly implemented.

☆☆

CHAMPIONS OF KRYNN



The third Dragonlance title takes a step away from the others and a step towards the Forgotten Realms games by employing their tried and tested role-playing system. The setting is towards the end of the third book, where the Dragon armies have been vanquished and the war seems over - except that no-one seems to have told the forces of evil who are plotting a revenge.

Taking a small party through a series of encounters, including a hair-raising race against time on a flying citadel, you discover the cause of the evil unrest and come to a thrilling final confrontation.

Several of the more famous Dragonlance characters are involved - Tanis, Caramon and Tasslehoff included - and help bring life into the game, capturing some of the atmosphere created by the books.

Using the Forgotten Realms role-playing system, Champions is simply the best Dragonlance game yet. It's a shame that most of the future Krynn-based games will not use this system as it really does justice to the books.

☆☆☆☆☆

CURSE OF THE AZURE BONDS



The third AD&D RPG starts with your group (taken from either Pools or Hillsfar or created anew) waking from their blissful slumber to find strange blue markings all over their arms. Unable to remove them they seek professional help and learn that they were placed there by a group known as the New Alliance.

When the markings glow, your groups' actions become controlled by some mysterious force and they're forced to commit crimes against their will. The only way to remove the bonds is to locate the New Alliance and the only clue you have to their whereabouts is that they are somewhere in the Forgotten Realms. A tough search is ahead.

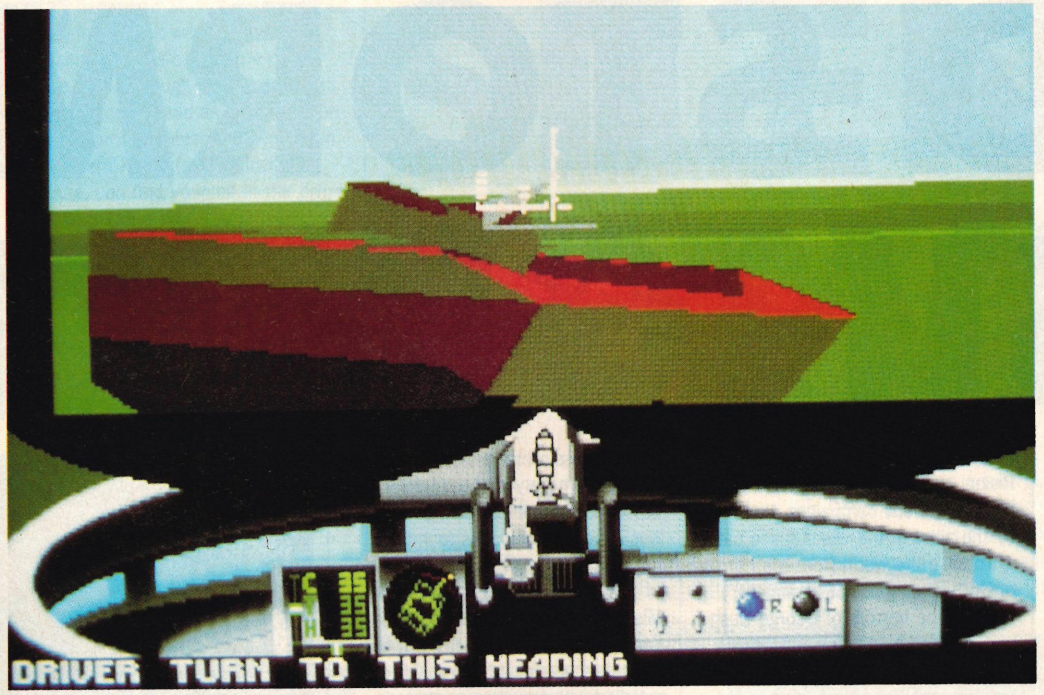
There's no doubting that SSI is onto a winner with its RPG system and Curse plays just as well, if not better than the first offering. The familiar journal entries and tavern tales are included and character interaction is wealthier than before. This s a superb third game that sets a strong foundation for the next releases.

☆☆☆☆☆

THE FUTURE

So what's next for RPGers everywhere? Having bought a five year licence, SSI is working to a schedule of about five games per year. The next few releases will be Dragonstrike, a dragon-flight simulator, War of the Lance, a Dragonlance wargame and Dungeonbash (a working title), the next adventure in the Forgotten Realms series. With graphics getting better all the time and sound boards already being used in Champions of Krynn the future looks very rosy indeed.

Paul Presley



Make tracks with Microprose's superlative tank simulation.

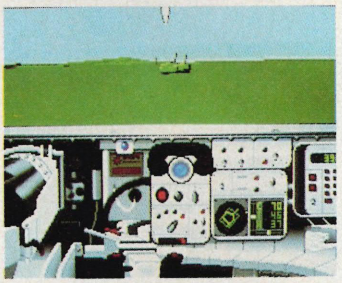
M1 TANK PLATOON

Microprose	
(0666) 504326	
£39.95	
5¼" ✓	3½" ✓
CGA ✓	EGA ✓
VGA ✓	Hercules ✓
Mouse ✗	Joystick ✓

You're on your first engagement, to knock out a platoon of Soviet T-62s, not the most worthy adversary for your awesome M1. You've ordered mortar support on the enemy position, and a 'Kiowa' scout helicopter circles overhead. Night has fallen, and as you approach the enemy platoon and take a look outside, you see enemy shells flying and exploding all around you, the chopper buzzing around overhead, your own shells hitting (or missing) their targets, Soviet transport hovering around in the background and, if you're not careful, any or all of the four tanks under your command being blown to pieces. And everything is moving at once, all doing its best to help and/or hinder your efforts. Now this is what I call a simulation – and it's still only the first mission!

In the early days of simulators, budding pilots, soldiers and sailors were happy if the terrain was green or blue, their vehicle was grey and there was a couple of keys to press: this is a close to them as they were to Space Invaders.

And even though it recreates the M1's technical performance with great accuracy, and to extract the most out of the game you need to deal with huge amounts of strategic and technical details, Tank Platoon's most important feature is that even a novice can have a stunningly good time even from the off.



To begin with, you create a platoon, before moving on to select an assignment. You can go on training exercises (they don't fire back), whether moving or static, or you can go straight into battle. Be warned – you'll need to train: those Soviets take no prisoners.

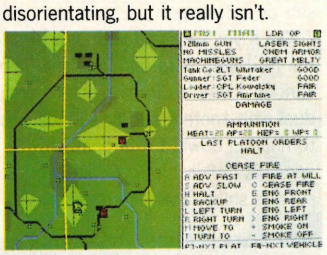
There's a choice of engagements between easy and hard, with optional enemy capabilities, from second line troops to the lethal Guards and their T-80 monsters. Each new engagement generates new terrain conditions, thus giving the player an almost infinitely variable game.

Even in the easiest scenario the soviets don't make things easy for you: they don't tend to stick around to be shot at too long, so if you want to get anywhere you have to use every ounce of the tank's capabilities.

But even the perils of these limited engagements do not prepare you for the horrors of war. The final choice is 'Start Campaign' which throws you into total warfare, with one battle after another until it's all over, one way or another.

It's only when in a real engagement that you realise how well this has been put together. You can swap very quickly from Commander's view to Gunner's, to Map and back again, with a quick stop at the driver and a fleeting glimpse from the outside. Although not all the controls can be used from all the views (one of the very few drawbacks), all the essentials are there: manoeuvring, firing and reconnaissance. You find your fingers zooming around the function keys the minute the enemy comes within range, and, thanks largely to a very comprehensive key control card, this comes fairly easily even to a relative novice.

The best feature by far is the external view – too many sims use a different key for different directions. With Tank Platoon you get the nearest to turning your head I've seen so far in the genre. All you do is use the cursor keys, and you can look anywhere you want, all centered on your tank. One more facility is worthy of note: the ability to swap tanks at will, so if yours is destroyed, you simply take over another. It sounds a little disorientating, but it really isn't.



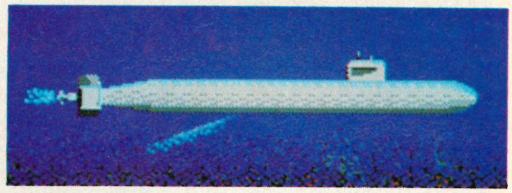
On loading any simulation, it's a good idea to try to make it do what it shouldn't: drive through solid objects, blow your own people up, drive on water and so on. And Tank Platoon doesn't do anything wrong. Try and drive into your own tanks and they get out of the way, drive at buildings and your own driver steers round them: I drove across a stream, and the engine noise changed appropriately. These boys know what they're doing.

That's not to say that you can't blow up your own men if you want to, but you'll get short shrift from the debriefing officer if you do. At its best, this is a simulation of actual military battles, and it wouldn't surprise me if the army were to start using it for real very soon.

Microprose has surely excelled on this one: it's all there, from superb playability through great attention to detail to one of the best (and biggest) manuals I've seen in a long time. The competition should watch out, as this one's going to take some beating.

★★★★★ **Alastair Swinnerton**

RED STORM RISING



Batten down the hatches and dive, dive, dive! Adapted from the Tom Clancy novel of the same name, Red Storm Rising puts you in the 'con' of a nuclear attack submarine and simulates present-day undersea warfare.

The story unfolds across one of four selectable time periods (between 1984 and 1996) providing four different classes of submarine to do battle in and differing classes of 'enemy' targets. There's also a further four levels of difficulty and two training actions where you can hone your skills against either a Russian sub or a destroyer.

Once you've found your sea legs, the next step is to test your mettle in various scenarios from a one-on-one duel with another sub or surface ship to hunting down a wolf pack or engaging a fully-blown Strike Group of surface ships. Then there's the ultimate challenge – Red Storm Rising – a simulation of World War III and the various campaigns adopted by the allies in the ensuing sea battle.

To save the world from the horrors of Gorbachev (but not, strangely enough, the horrors of George Bush and the global intestinal warfare of MacDonalds), it's wise to use the training missions to get used to the controls. A nuclear submarine is a hotbed of technology and computers and to simulate this, control is achieved by mouse and a virtual plethora of keys. The mouse is mainly employed on the world map to navigate the sub by 'dragging' it around the North/Norwegian Sea whilst the keys are where all the real work is done – the task of remembering almost 60 different keyboard combinations is made easier by the familiar MicroProse keyboard overlay.

Each mission begins at Port in Scotland where your boat (either a vessel you chose yourself, or one that was allocated to you) is found. It's possible to change its initial payload of Torpedoes, Harpoon Cruise Missiles, Tomcat or futuristic Sea Lance and Stinger missiles, but all of this takes up valuable time. Once satisfied with the armament you're free to pursue the mission – once again it can be your own choice or an assignment.

The sub's controls are as you would expect, covering speed, depth, movement to port and starboard etc, but it's in the quality of the gameplay that this program excels. All the variables that would come into play for a present day submarine are included: there are three computer map displays which zoom in or out up to eight times, and a tactical display which shows the sub's position and direction along with any contacts you may have.

A Weapons Control screen tracks every weapon that is fired with a single key press flicking between each one. This facility is especially useful for wire-guided torpedoes that can be re-directed towards a target even after they've been decoyed.

As you'd probably expect, the enemy doesn't just sit around and let you fire at will, so the Defence Grid shows incoming threats in the same way the weapon control screen does. Information as to the direction, heading and distance of each threat is shown as numbers in a box to the left. In addition to this, when threats get too close a message blinks onto the screen to remind you that you ought to do something Captain.

The manual is a hefty tome weighing in at 110 pages. These are packed with information – from how to play the game through tips on how to avoid detection by Anti Submarine vessels and even a technical lowdown on each of the types of target that you may encounter.

It's almost impossible to go into the working of the game in any great detail without recourse to the hundred or so pages that MicroProse has found necessary. Suffice to say that Red Storm Rising provides an absorbing and illuminating glimpse into the undersea world of nuclear submarines. Oh, and you get to save the world too.

★★★★★ **Garth Sumpter**

Microprose
(0666) 504326
£34.95

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✗



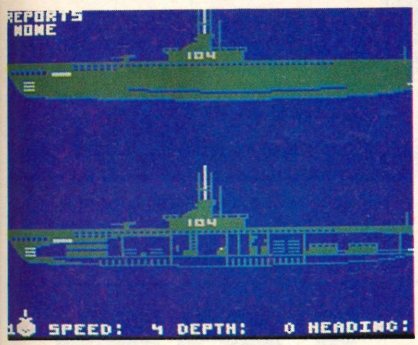
Save the Free World from the safety of the ocean's bed in *Red Storm Rising*.

SILENT SERVICE

When Silent Service first surfaced in 1987, it was widely acclaimed as the best game of its genre. And although now quite dated, it's still recognisable as an inspiration to Microprose's latest sub simulation, Red Storm Rising (see opposite).

Here, you find yourself in the diving seat of a World War II American submarine on patrol in the Pacific Ocean. Your mission is simple: send as high a tonnage of Japanese shipping as possible scuttling to the bottom of Davey Jones' locker.

The hallmark of Microprose simulations is the range of options available, and Silent Service gladly upholds this tradition. There's a wealth of training options – from Target Practice – using either torpedoes or the deck gun against old wrecks at anchorage – through Convoy Actions to the War Patrol scenario, where you command a whole patrol.



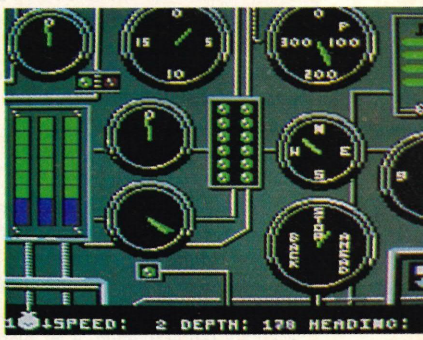
Before each patrol you must correctly identify a Japanese ship (the 50-page manual is littered with them) before setting out below the Pacific. Your vessel is represented as a small dot on a map which is moved by joystick, mouse or cursor keys. This map turns red to indicate that your lookouts (or radar/sonar) have spotted something, at which stage you return to the conning tower to take control.

Identify your target, unleash your 'fish' and get out quickly, because you can bet that the Japs are going to pepper the area with depth charges (this is where the sound comes in, as the beeps and squawks represent the sonar contacts and the Destroyers' engines approaching). You can try to fool the ships into thinking you've sunk by releasing oil and debris through the torpedo tubes in true Run Silent, Run Deep fashion.

Overall, Silent Service, is a playable game that suffers mainly from its age. When it was first released it left a lot of stunned reviewers in its wake – however, in the light of current techniques it's let down by its lack of graphic sophistication and the slow screen update time, which was once hailed as state of the art.

Microprose
(0666) 504326
£24.95

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✓	Hercules	✓
Mouse	✓	Joystick	✓



★★

Garth Sumpter

BIG BANG

If you believe that greed is good and that lunch is for wimps, then strap on your red braces, adjust your red-rimmed glasses and pour yourself a glass of designer water before playing Zortech's aptly-named stock market simulator. This would-be bull's dream proves that there's more to simulation than tanks and planes, as it allows you to enter the world of dealing on the London Stock Exchange without having to risk a penny.

Starting off as a novice with £10,000 burning a whole in your filofax, you invest in any (or all) of the 99 diverse companies using all your intuitive powers to buy low and sell high. This elusive dream is realised by watching the movements of commodities (oil, gold and steel), currencies (dollars, yen and pounds) and share indexes (FT100, Dow-Jones US and the Japan 100) and using the relationships between them and their effects upon various markets to influence your decisions.

World affairs have a strong affect the market, so it's wise to keep an eye on the tickertape messages which scroll across the bottom of the screen bringing news of events that could make or break your investment portfolios. For example, I tried buying shares in Sparks & Mencer after the tickertape revealed that the Prime Minister dropped the name as having the monopoly on where she got her smalls. Alas, the bottom fell out of the market – which only goes to show that even with underwear, you've got to know when to cut and run.

Although a day in politics may be a long time for a pair of knickers, a day on the stock market can completely ruin them for life. An hour's trading represents only a few seconds game time, during which time fortunes can come and go.

The cut and thrust of dealing on the main screen comes via a scrolling list of some 100 companies, each with a bar showing their comparative price, the current bid price, the direction of the last share price move and how many shares you own.

A click menu reveals a brokeresque analysis of the chosen company, with reference to its dependence on commodities and/or currencies. A more detailed graphical representation of the company's profits, turnover and share history is also available so that anyone who isn't Gordon Gekko can at least play the market through sheer research.

However, as an interest-holder, Big Bang needs certain commodities; it fails to generate any real feel of the world of stocks and shares and just trundles along. After a few sessions, the monotonous tickertape messages that make their way slowly across the screen begin to lose their urgency and the initial interest begins to falter.

Simulations succeed, only when they give the player a chance to experience an otherwise unattainable pursuit. Many would argue that although being a stockbroker is, for the most of us, unattainable, most would agree that it's not the kind of leisure activity that the average person would want to simulate.

Stockbrokers will not play this game (talk about a busman's holiday!) but aspiring stockbrokers may – the manual itself is thorough in its background and the details of the bureaucracy involved. However, even they will probably come away from it wondering why they ever wanted to get involved in such an initially compelling, but ultimately pointless, exercise.

Software Circus
(01) 436 2811
£34.95

5¼"	✓	3½"	✗
CGA	✓	EGA	✓
VGA	✗	Hercules	✓
Mouse	✗	Joystick	✗

★★

Garth Sumpter

RED LIGHTNING

Strategic Simulations' Red Lightning is an attempt to predict a non-nuclear scenario for WWIII in central/northern Europe, a concept which is now, hopefully, a little behind the political times.

That aside, this is a user-friendly simulation, giving easy access to all areas of the map, information on all relevant forces and instant success/failure statistics on any operation, all utilised via a standard business software pull-down menu system.

You plan your airborne strikes, support and reconnaissance, then your ground deployments and attacks, using any or all available units, from A-10 squadrons through infantry divisions to mobile armour. The range of armour available is a highly accurate representation of an average NATO/Warsaw Pact scenario, and you really can become a Field Marshall, controlling the whole theatre... for all the good it does you.

For the Artificial Intelligence is somewhat above that of the first time wargamer, and if you don't know anything about current military and political strategy, you'll soon find yourself without much of a theatre to control.

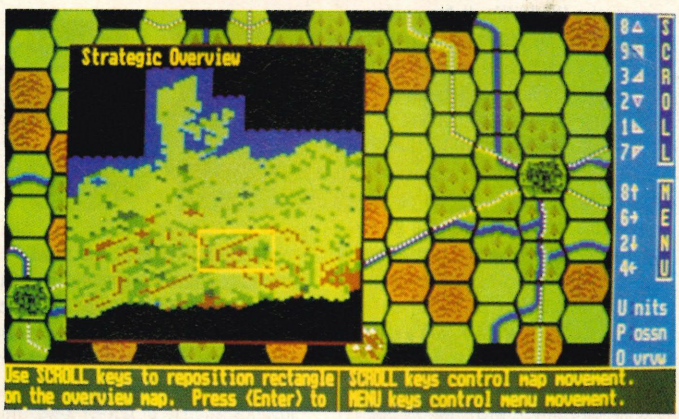
But whereas some simulations give a reasonable feel for the battlefield itself, only to let themselves down with unnecessary fumbling required for any serious strategic planning, Red Lightning goes the other way – it's top of the class in delivering good tactical information, but only uses a board game-style hexagonally pockmarked screen with the usual military symbols as any visual guide of where all this armour is going.

Games of this type would work best with a perspective view of the battle area combined with easily accessible maps, information and even maybe some arty graphics of briefing rooms/tents and the odd dead platoon here and there. Very soon the makers of 3D simulators and those of wargames are going to realise that both have what the other needs, and a new generation of games will emerge to excite either and both camps (see the M1 Tank Platoon review elsewhere). I, for one, am waiting in eager anticipation.

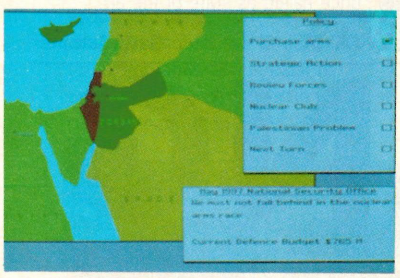
★★★ **Alastair Swinnerton**

SSI
(021) 625 3388
£29.99

5¼"	✓	3½"	✗
CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✗	Joystick	✗



CONFLICT



We all suffer from fantasies of power, where we're suddenly the teacher instead of the naughty pupil, or the hiring/firing boss instead of the cringing employee. But in this case the fantasy is of another order altogether: here you're the Prime Minister of Israel, in 1997, with power to destroy not just the Arab states but your own country, and yourself, into the bargain.

After the assassination of your predecessor you get the role of Prime Minister of Israel. Your bellicose aim in this stressful job is to engineer, by a combination of political and military means, the downfall of the neighbouring states of Syria, Egypt, Lebanon and Jordan.

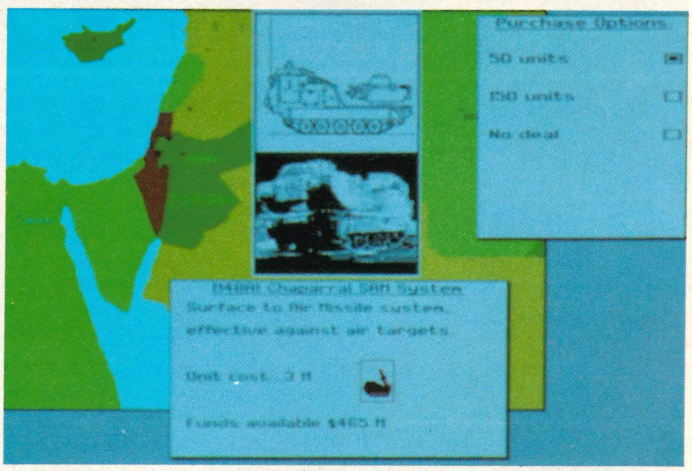
The proceedings start with the headlines of the morning press summarising the region's political situation (this happens after every turn). Each 'turn' represents one month, after which a map of the region appears along with a list of the countries. At this stage you call up diplomatic and intelligence reports which tell you the status of your relations with your neighbours, and also whether or not it is worth encouraging internal strife in them by supporting dissident groups.

When you've decided what to do with the status quo, you move on to making policy decisions – which is where the real fun starts. Here you can decide to buy arms (depending on your budget), whether or not to carry on funding the country's nuclear weapons research, how to deal with internal Palestinian unrest and – most megalomaniacal of all – whether or not to mobilise and deploy troops on your borders.

This stage is the most delicate, as you have to make your own policy on the basis of a wide variety of different factors: should you support Libya in its dispute with Egypt, and if you do will it help in your own impending war with the Egyptians? Should you spend your limited resources on Mirage fighters or SAM missiles?

It's exactly this which makes Conflict an entertaining strategy game, and pretty good value for money. It's by no means as complex or as realistic as, say, Balance of Power, but for the money not even the hardened strategist can complain too much.

★★★★ **Frank O'Hara**



16 Blitz
(01) 727 8070
£4.99

5¼"	✓	3½"	✓
CGA	✓	EGA	✓
VGA	✗	Hercules	✗
Mouse	✓	Joystick	✗



WIN EVERYTHING

(From Electronic Arts, that is!)

YES, WE ARE SERIOUS! This ONCE IN A LIFETIME offer is NEVER TO BE REPEATED! And it could all be YOURS!

Anyway, that's enough of the hard sell. What we've got on offer is every game that Electronic Arts has released for the PC - ever. We're talking about Populous, Battle Chess, Budokan, Skate Or Die, Powerdrome, Neuromancer, Zany Golf, John Madden Football, Ski Or Die, Low Blow, The Promised Lands, Indianapolis 500, Chessmaster 2000, Caveman Ughlympics, Hound Of Shadow... Is that enough for you? No? Okay, well how about Ferrari Formula One, PHM Pegasus, Deluxe Paint II Enhanced, Earl Weaver Baseball, 688 Attack Sub, Project Firestart, Sentinel Worlds, Keef The Thief, Wasteland and armfuls more as well? That's more like it!

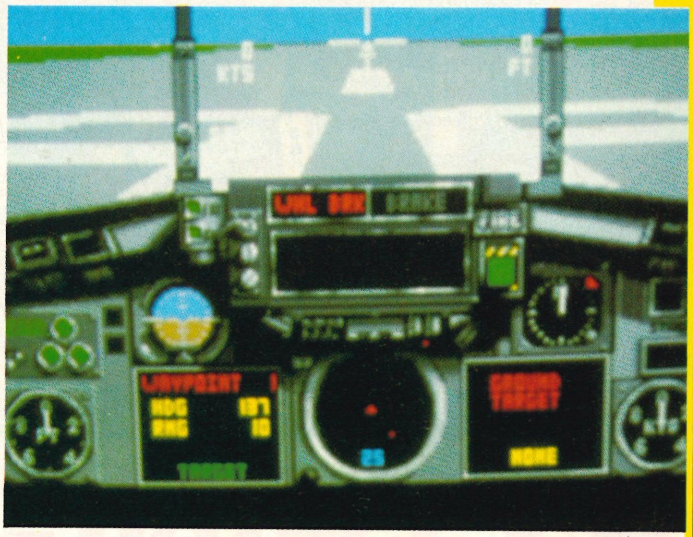
Now, to be the proud owner of the most comprehensive collection of software in the Western world, all you have to do is answer these three easy questions. Pop the answers on a postcard and send them to: The Lot! PC Leisure, EMAP, 30-32 Farringdon Lane, London EC1R 3AU. Your completed entry should reach us no later than April 20th 1990.

The questions are...

1. Ski Or Die is the sequel to which EA game?
2. Where is Electronic Arts' UK office based?
3. Name TWO EA Flight simulators and TWO RPGs.

The editor's decision is final and no correspondence will be entered into. Employees of EMAP and Electronic Arts aren't allowed to enter. And anyway, why bother? If you work for Electronic Arts, you can just take the games you want off the shelves, can't you?

FIGHTER BOMBER



If you're in need of help with Activision's Fighter Bomber, then why take a tip straight from the horse's mouth, as developer Vektor Grafix gives the benefit of its experience.

PLANE CHOICE

There are seven aircraft at your disposal. The differences in performance only become apparent when you begin to attempt to complete missions. Technically speaking, each mission can be completed with any of the aircraft, but some are more suited to certain missions than others.

Choose Free Flight and take a nice relaxing spin around the map. You won't be bothered by any adversaries, so take your time to get used to the controls. Try this with all seven aircraft to get a idea of how they handle.

While in the air, make a note of some of the more interesting landmarks. There's a farm to see and plenty of factories worth visiting (although you have to go in pretty low to appreciate them fully). Mount Rushmore also makes an appearance, although you have to opt for the `more complex map' option to see this.

As well as basic Free Flight, there are several sub-options: you can attack a bridge, or choose to overfly Rapid City (amongst others) - all without fear of danger.

MISSION IMPOSSIBLE?

Master the rudiments of flight and you are ready to dive head-first into the missions. There are 16 in all, and they must be completed in sequence - although any mission that's already been successfully completed can be reflown at any time.

Missions become more difficult as more targets appear and become more spread out (increasing the mission time). Later targets must be destroyed in a set order AND within a strict time limit!

Your performance in the air is decided on the ground. The AUTO ARM facility is not always reliable - it's best to equip the plane by hand when preparing for later missions.

Once in the air, get the location of your target and swing round onto an intercept course. Note that high flying attracts attention.

Keep an eye on the `Range To Target' indicator until you are within 20 miles. Now call up the Maverick AGM 65 Video Guided Missile. Slow down to a medium speed and, as soon as you see the target through the cockpit, adjust your heading so that it's as close to the centre of your fixed crosshair as possible. Now lock on.

DON'T fire straight away. The Video Guided Maverick relies on a constant signal transmitted from the aircraft to keep it locked onto its target. Fire too early and the missile may fly out of transmission range. Wait until you are within five miles of the target before letting rip.

Don't `break off' as soon as the missile's fired - it may miss! Follow it through until it's close to the target, allowing yourself time for a second shot if necessary.

As soon as the `Target Destroyed' message appears, bring up the bearing back to Home Base and return. It's now that you are most likely to be intercepted by enemy jets, so set your radar at maximum range and keep an eye out.

MID-AIR REFUELLING

The position and altitude of the Tanker is shown in the mission briefing, and it flies in a constant `U' formation. Match its altitude and hang around at a slow speed until it goes past, then hit the throttle and chase it.

The refuelling pod protrudes from below the right wing. If you get close enough to the pod, the lock-on and refuelling process is automatic.

DOGFIGHTING

A blip on your radar is definitely an enemy plane. Punch up a Sidewinder Missile and swing round to an intercept course. As soon as you get visual confirmation, let fly with a Sidewinder. Don't let the enemy plane get behind you.

When you meet an aggressor, a quick way out is to go into a high-velocity dive and fly away at low altitude - your adversary is unlikely follow suit.

If you leave it too late and get in too close to use a missile, switch over to cannon and open up on the target - it's more effective than you think.

LANDING

These directions for a safe landing apply specifically to the first mission, but they work for the others too - just replace the given headings and positions with the ones relevant to your chosen mission.

Read the Mission Text carefully - your landing position is the last thing you are given. The landing position for the first mission is Elsworth Air Force Base on Runway 36. The figure 36 refers to the heading you should be on when you come in to land (Air Traffic Controllers knock the zero off the end of the actual number, so 360 degrees becomes runway 36).

As you approach the runway, use the exterior views to get a lie of the land and a better perspective of where you are in relation to the runway - it should be at around 10 o'clock (slightly to your left). Bank round to bring yourself to a heading of 000 degrees, in line with the runway.

Bring your thrust down to 50 per cent and lock in the air brakes to further slow your ascent. When your speed hits around 200 knots, lower the landing gear and punch up one of the weapon systems, preferably the Cannon or Maverick - their aiming reticules are an aid to lining up with the runway.

Use the rudders to make fine corrections to your level of tilt. Once you are straight, knock the power back to around 20 per cent, and when your altitude reaches around 100 feet, bring the nose up to soften the landing. At 30 feet bring the nose up again and the plane should sink down onto the runway without so much as a bump!

SHORT CUTS

HARD DRIVIN'

Been getting into a bit of rut with Domark's Hard Drivin' then? Do you feel as if the only thing you've mastered is spinning off the track at the earliest opportunity? Well instead of slip sliding away all the time try this cheat and become as sure footed as the Lambourghini Countach in the Pirelli ad.

If you accelerate up the hill, whilst on manual gears, as you come to the brow (and the car leaves the



road) stick the gear selector into neutral and you can go round the course without skidding.

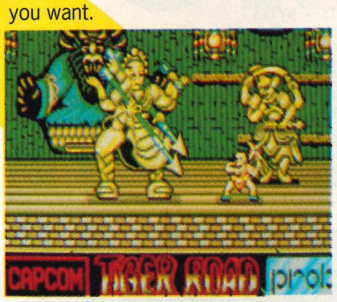
LAST DUEL

This vertically scrolling futuristic race game is much easier on the player if you can have a few extra lives here and there. So, if you don't feel too racey and want to make things a little easier for yourself, wait for the loading screen to appear, press fire to start and on the next screen type STRIDER to enter cheat mode.

Once there: F10 Exits, F9 Goes to next level, F8 Gives Player One five lives, F7 Gives Player Two five lives.

TIGER ROAD

Load game by typing `GAME X TIGER nn', where X is the video mode and nn indicates which level you want.



FORGOTTEN WORLDS

Type WREN to enter the cheat mode, then amaze everyone with your prowess as you become invincible.





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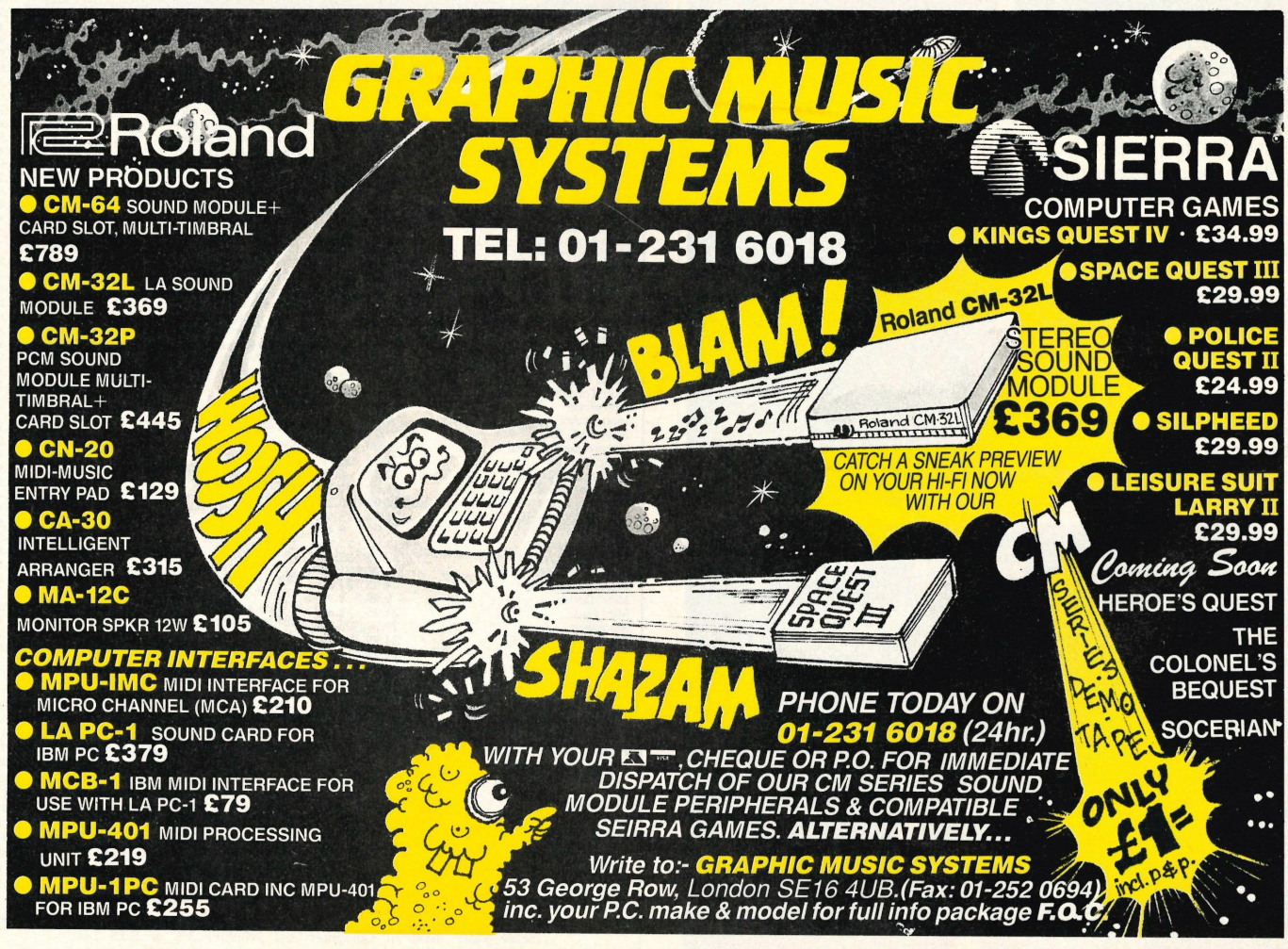
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LEISURE SUIT LARRY LOOKING FOR LOVE IN ALL THE WRONG PLACES

Sierra On-Line

In this, the sequel to Larry's bestselling first adventure, our hero pursues a wider and more varied range of activities than he did in the original. He must win a million dollars and secure a date on the American (and original) version of Blind Date.

To add spice to an already risque plot (especially with the Lewdness option set to maximum), Larry must also evade the clutches of KGB agents whilst he thwarts Dr Nonookee's evil plans for world domination.

Sounds interesting? Well judging by the sales of the Larry trilogy, many of you will have already sampled some of Larry's coming and goings. But for those of you who've not quite made it yet (and are afraid to admit this to their friends), here's the solution. Oh, and don't forget to save regularly just in case!

LOS ANGELES

From Eve's house, go to garage and walk East until you're hidden from view and take the dollar bill. Now go to the TV station KROD where you'll notice some information. Now go East until you reach the dumpster. Go to the hole in the fence and have a peek. Got it? Now, continue out past the Hollywood sign to the Quickie Mart. Talk to the girl and buy a lotto ticket and type in any old set of numbers before returning to the T.V. station. Show your ticket to the girl and note the numbers she gives before repeating the numbers to her when she asks. Exit North through the green door, In the green room wait until a man enters and then follow him when he exits. It's the Dating Connection! Cilla's not here (surprise, surprise) but answer the questions and win the game before exiting to the green room. Take the cruise ticket and sit down to recover from the shock of it all. A woman will enter. You're Larry so follow her (try not to trip over your tongue though!) You'll need it to lick your lips when in the next location you win a million a year for life from the lottery. Take the money and exit to the lobby and back to your start point Eve's house.

PART TWO

Look in the rubbish twice to find a passport. Go North and East to Century Plaza. Look at man and then go North to Molto Lira. Read the sign and take swimsuit and buy it. Go East to the drugstore and then look for the lotion on the far left shelf and buy that too. Go North to the Quickie Mart and have a soda. Remember to pay for it. Now go get a haircut at the barbers which is as far South as you can go and then West. Chat to him, sit down, have a haircut and then head off to the music shop to the North. Talk to the girl and get the microfilm. Once you've got it the KGB show up, so scoot off to the docks in the South East. Give the ticket to the guy and board the SS Love Tub.

PART THREE - THE LOVE TUB

Go East to Larry's cabin. Read the note and take the fruit before leaving through the East door. Now's the time to save the game. Meet the woman and return to cabin. Close the door, wear the trunks and exit to the South. Go West and climb the stairs two flights to the top deck. Go East into the pool and have a swim. Dive in and get the top from the bottom. Leave the pool and get in the deckchair - don't forget to use the tanning lotion. Ignore the girl that talks to you and return to your cabin. Save the game and then enter Mama's cabin. Open the wardrobe and take her sewing kit. Return to the cabin. Wear clothes, return to top deck and go West to yet another barbers. Sit down and get the wig. Leave East and climb the stairs to the bar. Sit at the West end of bar, look, take a dip but don't order a drink. Leave. Go to top deck, go West and climb the stairs to the bridge. Go to the East side of the bridge and move handles to start lifeboat drill, leave the bridge and go back along top deck to stairs. Go halfway up stairs to the bar and turn right to the lifeboats and get in. The lifeboat should leave the ship. Now, wear the wig and eat the dip. Wait for a while before using the sewing kit to fish with before reaching an island and swimming ashore.

PART FOUR - THE ISLAND

Once you've arrived at the beach, walk West to the nude beach (and curse yourself for not having bought that VGA board!). Talk to the woman, wait until she leaves and return to the first beach. Go South and wander through the garden to the restaurant. Talk to the guy and tip him. Sit down, then go to the bar, examine the food and take the knife - but don't eat anything. Return through the garden and, without following the maid, look in the wardrobe and take the matches. Get the soap from the bathroom and return to the garden. On leaving the garden you're... in another barbers! Sit down until someone does the business and return to the garden. Exit again onto the first beach and go West to the nudist beach. Examine the rocks and take the bikini bottom. Return (via the garden) to the hotel room. Go behind the bathroom and put on the bikini using the soap to pad out the top. Save game. Go via the garden to the barbers and get waxed when you sit. Return to the garden, examine the flower and take it and exit to the first beach. Go East and continue past the KGB agents (who don't recognise you - and you thought all the dressing up in drag was just a fun thing to do) until you reach the cliffs and cross them to discover the airport. Change back into a man.

PART FIVE - THE AIRPORT

Go to the Krishna and give the man a flower. From the counter go West to the waiting area and then North to yet another barbers. Sit down, have a trim and conditioner and return to the counter and go East. Show your passport at customs and go East to security. Go to the conveyor and take the bags until you get the one with a bomb before returning West to the counter. Wait until the bomb explodes and then join the queue. Talk to the woman and get the ticket and exit East to customs. Show your passport and continue East to the snack bar. Read the sign, buy the special and look in the food. Take the pin and go to the top vending machine, examine it and buy insurance. Take the parachute and go North to the plane. Look at the counter and take the pamphlet. Give the ticket to the man and board plane to the North.

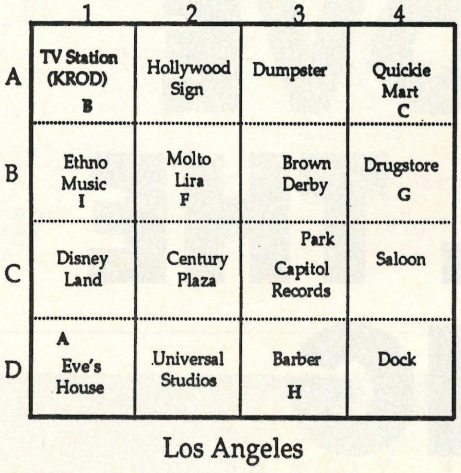
Inside the plane, give your ticket to the stewardess and go to middle. Look at the seat and take the bag. Stand around and then sit, and when the man walks up to you give him the pamphlet. Now go to the rear of the plane, look at the doors and go to the south side of plane and wear the 'chute. Pick the door's lock (once you've found it) turn the handle and open it to be sucked from the airplane. Pull the ripcord, float down into a tree and use the knife to free yourself.

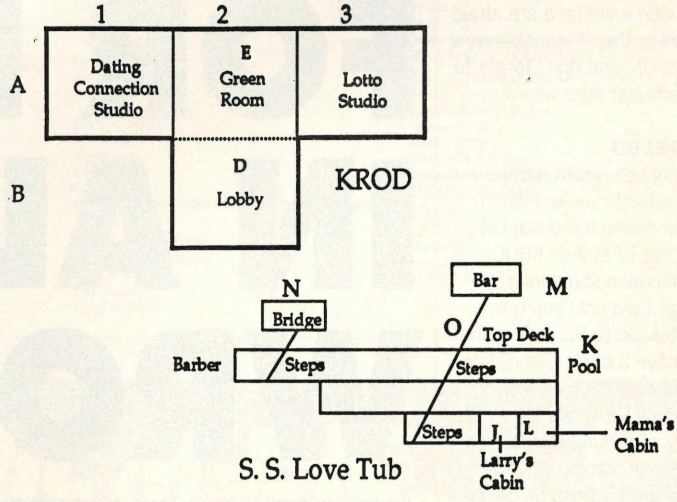
PART SIX - THE JUNGLE

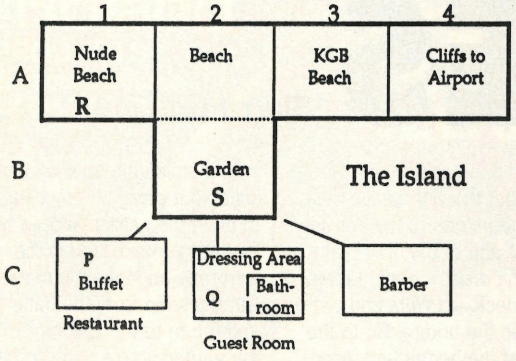
Look at the ground, take a stick and go Left and down to just above bush. Don't go near the tree or you'll die. Crawl along and then go South until the snake notices you, then use the stick and go Right. Save the game before trying to cross the swamp and go East. Swing across the river on the vine - do it quickly so use the F3 button. Release the vine and take it East to the beach and the girl who takes you to the chief of the village.

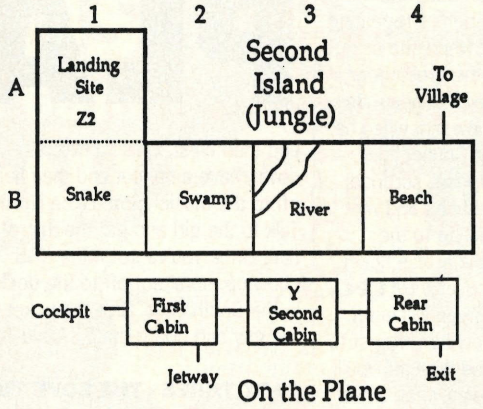
THE VILLAGE

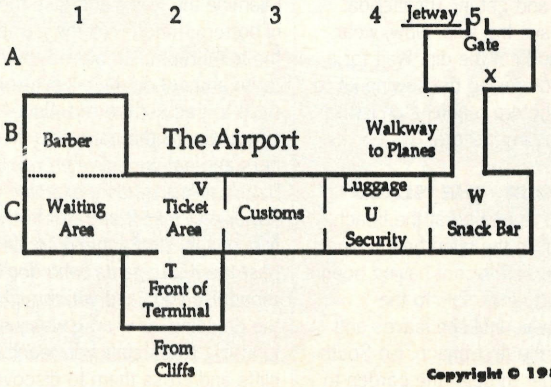
Follow the chief to the ravine and listen to him before going South to his hut and East to the fire. Collect the ashes and go South to the beach. Get the sand and return to the ravine. Save the game before looking at the tree and (if you're still alive) going North to the end of the path. Throw the vine (if this is unsuccessful, try moving slightly). Cross the ravine and go North to the ice. Throw ashes and sand onto the ice, enabling you to walk North to the bridge. Cross that and near the centre of the screen, stand by the crevice, open the tonic, put the air-sick bag into the tonic and light the bag with the matches. Then drop into the crevice, enter the elevator and its all over!!!



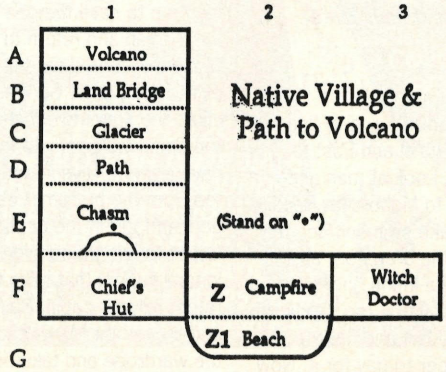








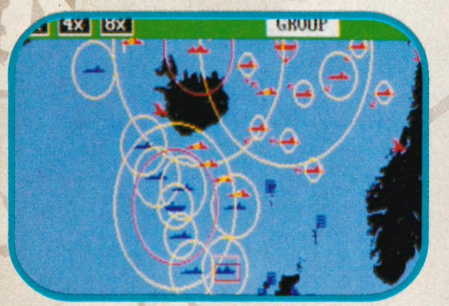
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HARPOON

Somewhere in the desolate and freezing wastes of the North Atlantic, between Iceland and the Kola Peninsula, a Soviet battle fleet is lurking, ready to pounce on its prey.

As NATO Task Force Commander you must deploy your fleet of submarines, ships and aircraft to locate, engage and defeat the Kremlin's finest.





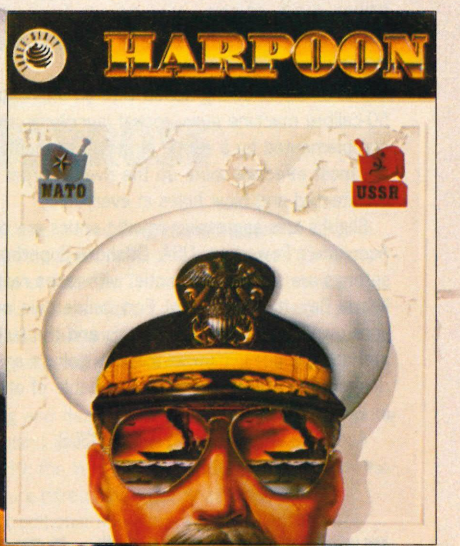
Produced by LARRY BOND the Naval Analyst, HARPOON portrays the superpower's final confrontation. Now it's up to you.

With graphics that make everything else look like finger painting and an arsenal of weaponry that comes up to your armpits. HARPOON'S non-stop action, relentless intensity and chilling responsibility will leave you gasping.

It's more than a mere game – it's a current event!!

Available now on PC.





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PSS

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Now you know what's out at the moment – but what about the shape of things to come? Here's a leisurely stroll down Impending Release Lane to find out what's in store from the top software publishers. Window shopping down Software High Street is you like.



Action and strategy in Electronic Arts' *Centurion – Defender of Rome*.

ACCOLADE

Taking a riverboat cruise isn't the liveliest of pursuits. Well, not unless it's with Accolade's Gunboat... Take the helm of a heavily-armed high-speed patrol boat and negotiate a series of 20 missions, ranging from rescuing POWs in Vietnam to busting drug dealers in Columbia and catching insurgents in the rivers and bays of the Panama Canal.

The all-out shooting action with an impressive armoury of 50-calibre machine guns, rocket launchers, and mortars is complemented by a subtle strategic element – navigating the most effective route up the river in order to sneak in undetected and blow holes in everything.

Slightly less aggressive aquatic antics are on offer in Accolade's Powerboat USA: Offshore Superboat Racing. The settings are a little less exotic, with races restricted to Miami Bay, the Mississippi, Fort Lauderdale or a course of your own design. But despite this and the lack of guns and grenades, it doesn't mean that the going's any less dangerous – the Powerboat is capable of attaining speeds in excess of 200mph!

Accolade is found on (01) 585 3308.

ELECTRONIC ARTS

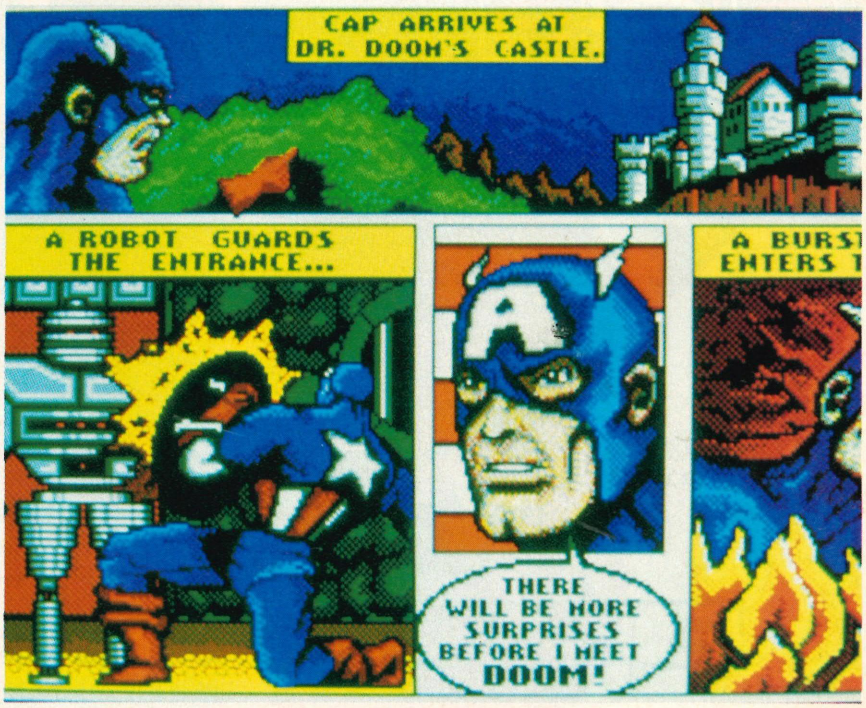
Role-Playing Games have explored the possibilities thrown up by all manner of locations and situations, but none has ever promised as chilling a prospect as this diabolic adventure.

Escape From Hell, which hits the streets in early April, is based on Dantes inferno and features all of the fire and brimstone that Mephistopheles can possibly throw at you.

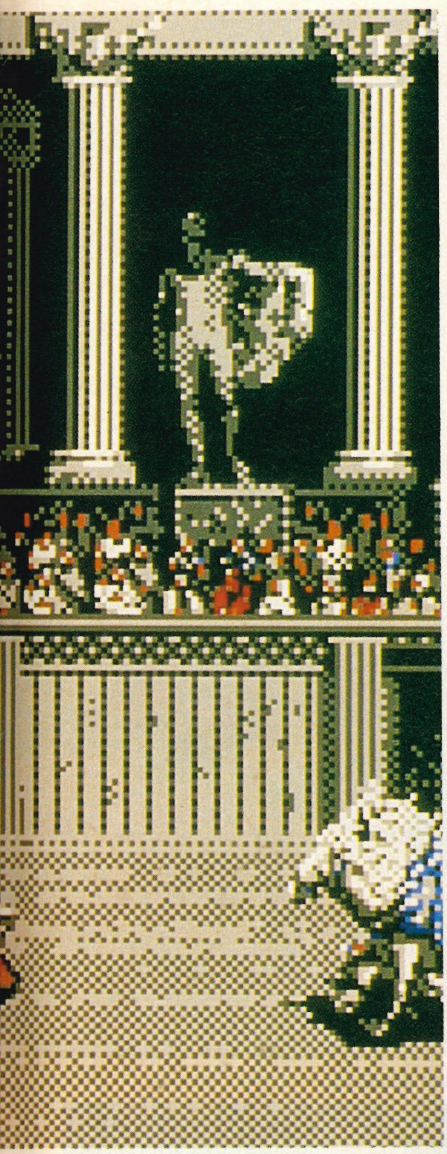
Hell of a different kind is waiting to be experienced at the beginning of April in Low Blow, a pugilistic program which positively encourages the player to fight dirty. Rabbit punches, gouges and shots below the belt are there for the taking against seven increasingly tough opponents.

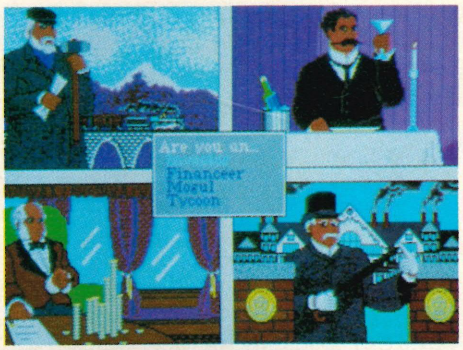
A game which has been around for over a year, but is only now making its IBM debut is Powerdrome, a futuristic racing championship based in a system of treacherous tunnels which were inspired by the programmer burning up the M25 on his motorbike! The racing machine is almost completely adjustable to the driver's taste, so get your spanners out at the end of March and start racing.

Also flying high at the end of March, LHX Attack



Captain America meets his fate in *Dr Doom's Revenge* from Empire.

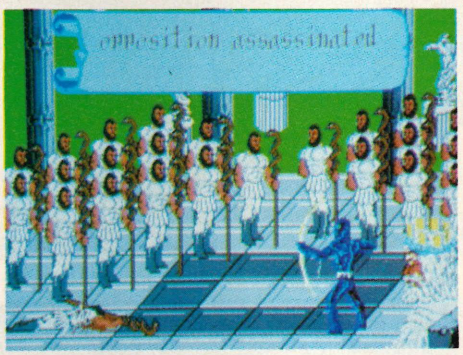




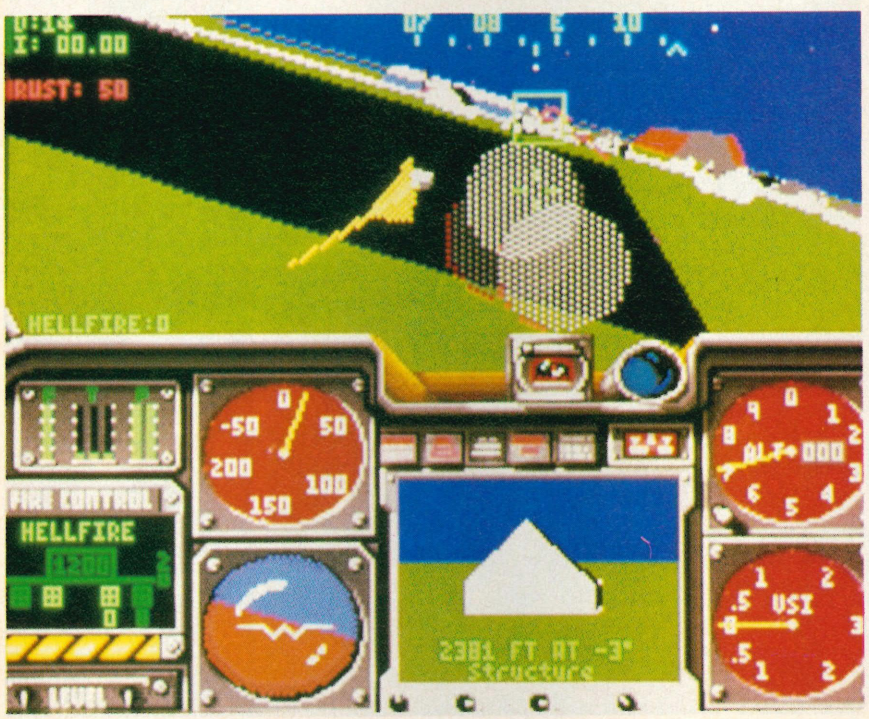
Railroad Tycoon.



Powerdrome.



Betrayal.



LHX Attack Chopper takes off.

Chopper takes the idea of simulating state of the art aircraft to a new dimension by putting the player in the seat of the eponymous aircraft – which hasn't even been built as a prototype yet! The LHX is only one of four choppers featured, two of the others being the Black Hawk and the Apache.

Last, and definitely not least, is Centurion – Defender Of Rome, a strategy game blended with arcade sequences and programmed by the team behind Cinemaware's seminal Defender Of The Crown. Based, as the title would suggest, in the time of the Roman Empire, this game features chariot races and gladiator fighting... how successfully it's executed you can judge for yourself at the end of May.

All of the above games are priced at £24.99, except LHX Attack Chopper which costs 10 more. Electronic Arts can be contacted on (0753) 49442.

EMPIRE

Captain America and Spiderman join forces to defeat the infamous Dr Doom in this officially licensed adaptation of the Marvel comic classics.

The arcade action involves fighting off the Doctor's minions and so on, and is linked by static cartoon 'pages'.

Marvel fans can gain complete control of some of their favourite characters in late March for £24.99. For further information contact Empire on (0268) 541126.

MICROPROSE

The Gloucester-based king of the simulation takes a break from planes, tanks and submarines for Easter with the release of Railroad Tycoon. Although this is to some extent still a simulation, it tracks the player's rise from a small businessman through to becoming a railroading magnate, rather than recreating the trains' workings.

The wheeling and dealing takes place across four regions and times: England in 1828, the Eastern seaboard of America in 1830, the Wild West in 1866 and Europe in the late 19th Century (stretching from Spain to Istanbul).

On a more traditional Microprose note, Silent Service (reviewed, page 81) is currently in dry dock at the MPS Labs, undergoing a major modernisation programme. This promises to preserve all of the original program's strengths, as well as adding a number of new features.

The facelift means that all graphics modes are now supported, along with digitised graphics and animation. New regions and roles are also being added, and include a North Atlantic scenario where the player assumes the role of a German U-Boat commander hunting allied shipping.

You can see all of these changes for yourself when the tin fish resurfaces in mid-April.

And on the company's Rainbird label, Betrayal makes an appearance in May. Set in the Middle Ages, the aim is to fill two courts with courtiers under your control in order to seize power from a weak King or Bishop, and replace them with one of your own. Along the way you need to exercise all of your military, political and financial skills.

Railroad Tycoon and Silent Service II are priced at £34.99 and £39.99 respectively, while a price has yet to be determined for Betrayal. By the way, the musically minded among you will be pleased to hear that all future Microprose product will support the AdLib and Roland sound boards. Further information from Microprose on (0666) 504326.

MIRRORSOFT

While Maxwell's software company isn't normally associated with military simulations (with, of course, the odd exception such as Falcon and Tank), it's got two such product in its proverbial pipeline.

The first, Harpoon, is for the aquatically-minded, casting the player as a NATO Commander in the North Atlantic and allowing access to over 100 NATO and Soviet weapons systems. The only drawback is that prospective sub commanders have to wait until Winter 1990 to take their command, when Harpoon appears on the PSS label.

Sticking with the sub-aqua theme, but this time released on the NovaLogic label, Wolfpack is also set in the North Atlantic, but this time during WWII.

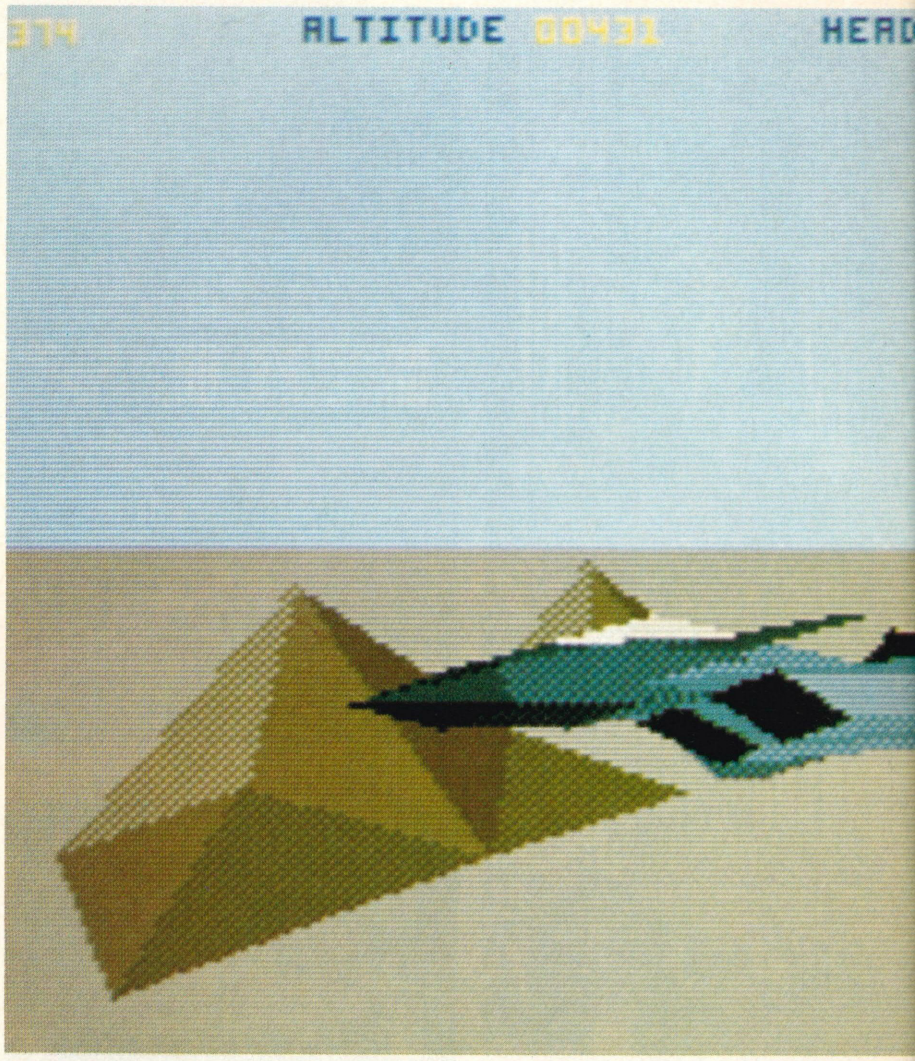
Great things are promised on the technical side, including a series of digitised rotations of actual ships, 'real' VGA graphics real-time animation, which produces a frame-rate 10 times faster than any comparable program. Wolfpack, like Harpoon, isn't available until Winter.

Those wishing to contact Mirrorsoft can do so on (01) 928 1454.

OCEAN

Although it's best known for arcade-style games and film adaptations, the Manchester giant is about to take its first step into the ever-expanding world of flight simulation with F-29 Retaliator. Like Electronic Arts' LHX Attack Chopper (see page 90), this simulates a machine which has yet to see the light of day — or rather, two machines, as the USAF's two next generation fighters are included: the Lockheed F-22 Advanced Tactical Fighter and the Grumman F-29.

Either plane can be flown in a futuristic war setting, with your successes and failures directly affecting the battles' and, ultimately, the war's outcome. F-29 Retaliator will take to the skies around Easter, at a price of £29.99. Ocean Software is contactable on (061) 832 6633.



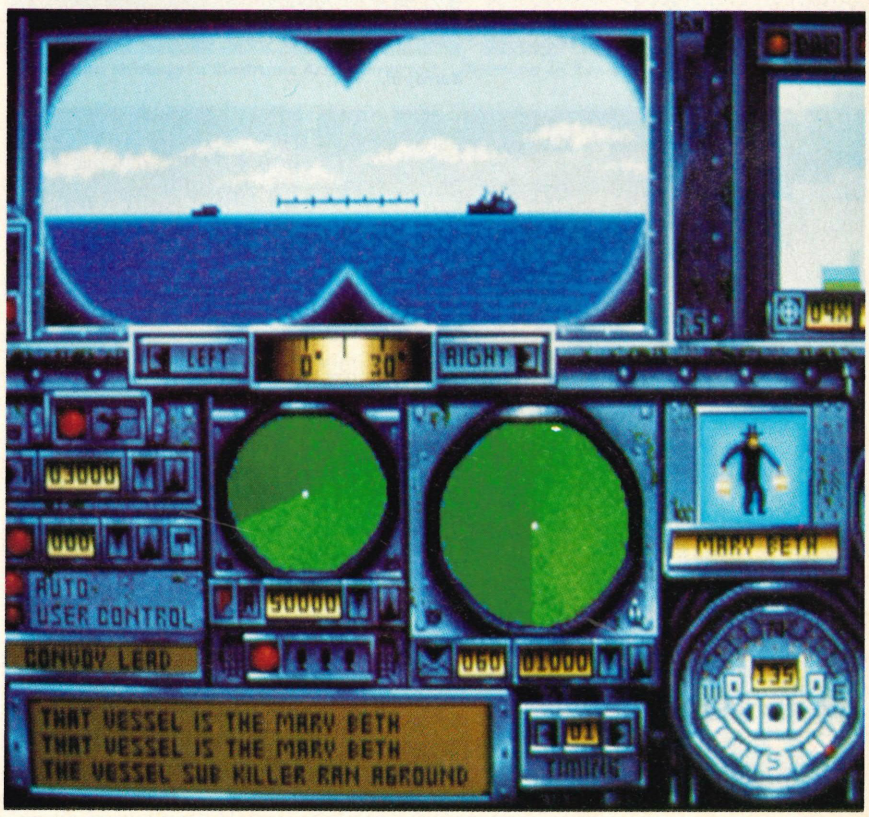
Boldly go where no pilot's been before . . . Ocean's *F-29 Retaliator*.

SOFTWARE CIRCUS

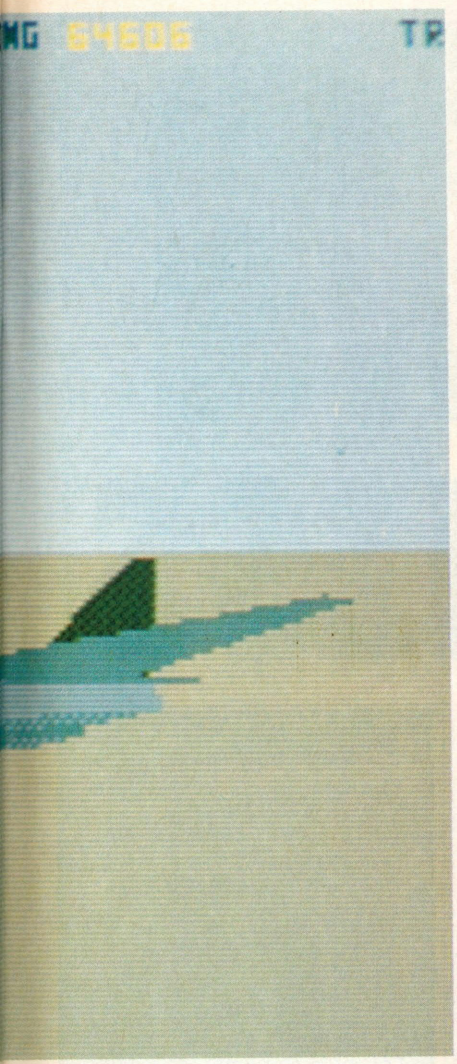
Two Air Traffic Control simulations, one civil the other military, give the player the chance to sit behind the scope and play around with billions of dollars worth of the latest in aviation hardware. Both Tracon and Rapcon (Terminal Radar Approach CONtrol and Radar Approach CONtrol, the latter being the military model) offer a number of aircraft, while Tracon gives greater variety by including five control sectors: Los Angeles, San Francisco, Miami, Chicago and Boston.

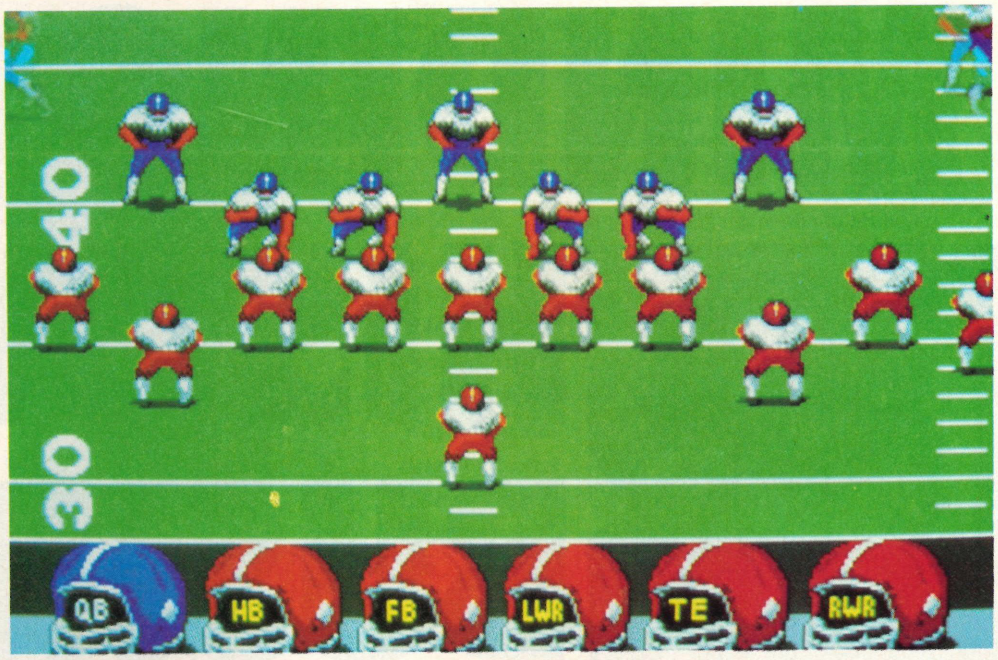
Coming down to Earth, basketball's teams of the decade face off in Lakers Vs Celtics — described as a head-to-head arcade clash. Individual players sport their real-life characteristics: you can watch Kareem perform 'sky-hooks', Isiah Thomas finger-roll the ball into the hoop and Michael Jordan do a 360 slam down the lane, while each of the 10 featured teams appears resplendent in its official team colours.

Yet another sports-related title, this on produced in association with the top-rated US TV program, ABC's Monday Night Football combines a mountain of complex strategies and playmaking with animated arcade action.

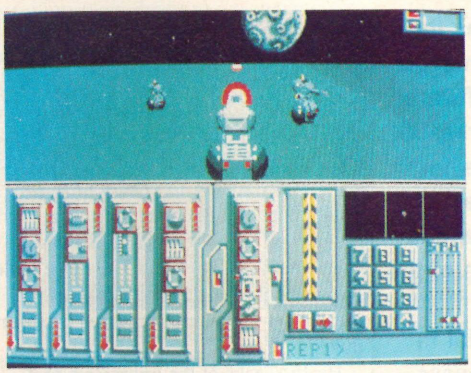


Become a hunter killer in NovaLogic's *Wolfpack*.





Gridiron grappling with a TV flavour: ***ABC's Monday Night Football.***



Titus' ***Dark Century.***

There are 40 pre-set offensive plays and over a dozen for the defence — but if that's not enough, the 'playmaker' feature allows you to design your own.

All of the above retail at £34.95, with the exception of Lakers Vs Celtics, which carries a £39.95 price tag. More news on any of these, and a whole host of other US imports, can be had from Software Circus on (01) 436 2811.

TITUS

A gang of dangerous terrorists has escaped from prison on the planet Sideral, stolen a platoon of highly sophisticated armour and are now trying to escape to Earth. You are out to stop them — this is Dark Century.

Developed in France by Titus, which up until now has concentrated almost exclusively on driving games (Crazy Cars etc), Dark Century features two player split-screen action, and 3D graphics which make use of ray-tracing technology (which adds to the image's realism by keeping the light-sourcing consistent).

Dark Century is available in Late March for £24.99. For further information, contact Titus' British distributor, Entertainment International on (0268) 541126.



Mekon Mayhem in Virgin Mastertronic's ***Dan Dare III — The Escape.***

VIRGIN MASTERTRONIC

Hero of the cult 1950's comic, The Eagle, Dan Dare makes his third computer appearance in, you guessed it, Dan Dare III (subtitled The Escape).

The plot sees our hero captured by The Mekon for 'Treenisation' experiments. Predictably, Dan escapes and searches his satellite prison for the fuel necessary for his return to Earth.

The game's April 14th release is timed to coincide with the 40th anniversary of The Eagle, and Dan's first ever appearance. Virgin Mastertronic can be found on (01) 727 8070.

MINDING HIS OWN BUSINESS



Geoff Heath: at home on the farm.

Following its recent merger with Software Toolworks, US software publisher Mindscape is now one of the most influential in the business – not bad for a company whose UK base is a Sussex farmhouse. Kelly Beswick spent a day in the country with European boss Geoff Heath.

Entering Mindscape's UK offices is a bit like walking into an episode of the Archers. Based in a large working farm sprawling out over the Sussex countryside, the firm happily nestles in a converted farmhouse, conducting business before a backdrop of rolling hills and grazing cattle.

It's a setting which suits Mindscape's UK boss, Geoff Heath. Since setting up the US firm's European base over a year ago, Heath has indelibly stamped his personality onto the company, imbuing it with a distinctly 'family' feel, reflecting his own gregarious nature.

Heath perches on the arm of his chair, dressed in jeans and a casual sweater, interspersing his conversation with the occasional swig of Seven Up. His office resembles a comfortably furnished sitting room, with the odd antique tastefully thrown in – compliments of his wife, who happens to run her own antiques business.

A large grey cat has also become part of the fixtures and fittings. Originally a farmyard animal, the cat's clearly found a hospitable refuge from the tiresome chore of mouse chasing.

It all seems a long way removed from the cut and thrust world of big business, and this is obviously the effect Heath has successfully sought to create. After 20 years in the frenetic world of music publishing, handling such prestigious clients as The Eagles and The Steve Miller Band, the peace and solitude of his present set-up has not occurred by sheer fluke.

Heath speaks of his impressive past without the slightest trace of affectation though, only dropping famous names when pushed. Yet it was through music publishing that Heath gradually moved into the then uncharted domain of leisure software.

In fact, it was from a relatively innocuous phone call that Heath was to eventually embark on his new career, turning his back on the music business to set up a UK office for US software publisher, Activision.

CARTRIDGE FAMILY

"In my music publishing days I used to deal with a US lawyer called Greg Fishback, who later became Activision's international vice president," Heath explains. "He rang me up one day, telling me that he'd given up his law practice to join Activision and that he was making loads of money. He also mentioned the possibility of selling those funny cartridges in the UK."

And the rest is now history. But at the time Heath admits that everyone thought he was mad – throwing away a lucrative business to sell what he aptly calls 'those funny cartridges'.

After a two-year stint at Activision, firmly setting the UK division on its current path, Heath moved to Australian



Origin Systems' *Omega*.

software firm, Melbourne House. Heath is not a man to look back in anger, but he clearly intimates that all was not harmonious between Melbourne House and himself, resulting in his eventual quitting of the company.

A brief period of unemployment followed, yet typically Heath describes it thus: "I was in the nice position of not having to work. Theoretically, if I'd been sensible that could have lasted indefinitely – it was quite a novelty for me."

Yet, as is often the case, the novelty soon wore off and in search of a new challenge, Heath joined Virgin/Mastertronic, with the responsibility of setting up the firm's New Projects division.

Over the years, Heath has built up a considerable network of contacts within the industry, and ever since he set up a licensing deal with Mindscape (back in his Melbourne House days), Heath has enjoyed a good relationship with the firm's US boss, Roger Buoy.

So, it came as little surprise when Buoy approached Heath to set up Mindscape's European operation, after all, as Heath states: "I did set up Activision, so I wasn't unused to new situations."



A little piece of England: Roger Buoy's imported dartboard.

Yet the two men appear to share a great affinity – and not only for the software industry.

At the time of Heath's appointment, Buoy was quoted as saying: "Geoff knows everything there is to know about 50s and 60s rock and roll, and that certainly had an influence on my choice. Really this business is just like rock 'n' roll. When it comes down to it what you're talking about is having hits... no matter how you go about it, it's the hits that count."

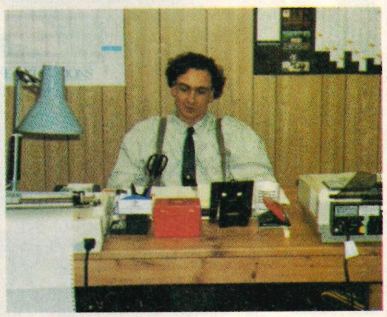
On the surface, Buoy looks like the quintessential American – tall, moustachioed and tanned, exuding the air of a rich and successful businessman. Yet, despite his deep drawl, which serves to further confirm the initial impression, Buoy is in fact Bristol born and bred.

In true hackneyed tradition, Buoy left England in the mid-60s to seek his fame and fortune in the land of opportunity. As a young computer programmer Buoy obviously hit the big time, yet he's remained loyal to his roots, with English beer, Bristol City Football Club and rock 'n' roll still occupying a large chunk of his life.

NINTENDO BLUES

Setting up a UK base was a dream he clearly held dear, but what was initially heralded as a jubilant beginning for Mindscape UK very quickly turned sour, as the US software market hit an all-time low, unable to stave off the increasing dominance of the Nintendo console.

Mindscape subsequently suffered a dramatic fall in profit – Buoy's golden era appeared to have passed, and for a time the very existence of the company looked to be under threat. Heath admits that: "There was a question mark over the future of Mindscape and it was a bit disconcerting for me, especially as I was just starting something."



Sales manager J.P. Rohan – now selling for two.

However, Mindscape US weathered the storm. As the old adage goes: if you can't beat them join them, and Buoy was able to reverse the company's fortunes by becoming a Nintendo licensee. In fact, Mindscape's first Nintendo release, Paperboy, has now sold in excess of 1,000,000 units.

Yet with the US market becoming increasingly polarised between high–end PC products and low-end console titles, Mindscape further consolidated its position by tying up a European distribution deal last July with another American software publisher, Software Toolworks.

Creator of such classics as the Chessmaster series, Software Toolworks also houses a strong line-up of low-cost business and education titles, all of which have been incorporated into the Mindscape range in the UK.

So effective was the deal, that the two companies recently underwent what is officially described as a 'merger', although Heath admits that: "if you look at the technical side, Software Toolworks has taken over Mindscape because one company has to acquire the other's shares."

Clearly it is early days, in fact the merger is still awaiting approval from the US stock exchange. But on paper it certainly appears to be a fortuitous arrangement, making the new-look company one of the most powerful in the US market, with an estimated annual turnover of $60 million.

'Really this business is just like rock 'n' roll. When it comes down to it what you're talking about is having hits... no matter how you go about it, it's the hits that count.'

Yet the marriage extends beyond the realms of pure financial convenience, representing a pairing of kindred spirits. Les Crane, founder and boss of Toolworks, cuts a dashing figure who in his heyday invented the Top 40 rock 'n' roll radio format as well as hosting a prime-time TV chat show and picking up a Grammy in the 70s for his musical endeavours.

It's hardly surprising, therefore, that with Buoy's own rock 'n' roll philosophy, the two men quickly struck up a mutual admiration society, based on shared interests and attitudes extending beyond the realm of pure business acumen.

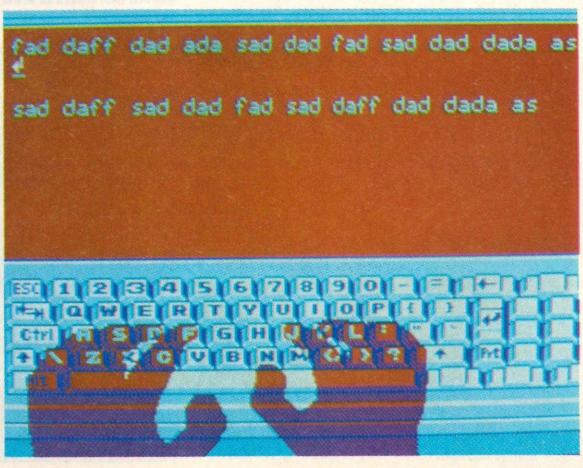
Now, in its present guise, Mindscape will be the outlet for all leisure products produced by the group, while Toolworks brings a diversity of other interests to the union, including Priority, its wholly-owned duplication and packaging subsidiary. In addition, Heath's operation offers Toolworks a strong European foothold, an area which it had previously neglected.

Summing up the situation Heath offers: "Roger and Les do get on very well together, but obviously it was a difficult decision for Roger when you've got a company doing its own thing. Yet basically, the two firms are a good fit. It means that for the future we have a strong business, and looking at the finance side we're now a very strong company. But most importantly it will give us the ability to accelerate a lot of our plans. It gives us the opportunity to expand."

And one area that Heath is particularly keen for Mindscape UK to develop is its involvement in the PC market. Heath is convinced that the UK will ultimately follow in the US market's footsteps, and is determined to be at the forefront of PC products when "the explosive growth potential" of the PC takes off.

COMPACT CASE

Indeed, since Mindscape's merger with Software Toolworks, the firm has a head start over most of its competitors, both



Marvis Beacon Teaches Typing: part of Software Toolworks' productivity range.

figuratively and literally. For some time, Toolworks has been involved with Philips' CD-ROM Headstart Explorer PC. In fact, the firm developed the operating system, including the graphical user interface and a number of applications programs for the IBM-compatible machine, and is currently bundling several of its titles with the computer.

Despite his relatively laid-back style, Heath becomes decidedly animated when discussing the merits of CD-ROM: If you address the home entertainments market in this country, the first in popularity is obviously TV, then video, followed by music and then clumped together are other forms of electronic entertainment including computers.

"What the CD does is close the gap between music and computers. If you talk to someone who hasn't got a computer the whole illiteracy thing starts to loom: a disk is totally alien to them, whereas with a CD they feel at home."

Heath then proceeds to flaunt Toolworks' latest CD Games Pack, which includes such titles as Life And Death, Beyond The Black Hole, Bruce Lee Lives, Chessmaster 2000 and Cribbage King/Gin King. This is in fact Toolworks' third compilation product on CD and is sold directly by Headstart in the States.

Over here, however, the CD-ROM market is still very much in the earliest stages of infancy, yet the CD Games Pack is currently winging its way across the Atlantic and should make an early April appearance. As yet, no price has been fixed.

In the current Stateside climate, Heath admits that nearly all the products coming over are for the PC, with the release schedule for the next few months appearing never-ending. Harley Davidson, Space Rogue, Knights Of Legend, Wind Walker, Tangled Tales, Omega, Guns And Butter, Dja Vu II, Sport Bike Simulator, Ultima VI and Bad Blood all make for a very impressive games line-up, and that's not to mention the plethora of education, productivity and utility software also in the pipeline.

"Our PC sales just keep growing and growing. At the moment on a pan-European basis they are probably second only to the Commodore Amiga,

Origin's *Space Rogue*, fighting and trading with a futuristic flavour.



Heath is convinced that the UK will ultimately follow in the US market's footsteps, and is determined to be at the forefront of PC products when "the explosive growth potential" of the PC takes off.

Martial arts action in *Bruce Lee Lives*.



and it's no secret that the Amiga will eventually be positioned as the state of the art console of the industry, the 'connoisseurs console' if you like," he says, laughing at the quotability of his last statement.

PC TRANSFORMERS

What effect the American situation will have over here is obviously open to debate, yet Heath believes that it could lead to a dramatic transformation in the type of PC product hitting the shelves. The hack and slash, shoot 'em up style of game may well find exclusive refuge in the realms of the console market, whilst PC products will reflect a more mature taste – as Heath puts it: "People who want an Ultima or Leisure Suit Larry or a flight sim."

Speaking of Ultima, Heath is unable to resist the opportunity of plugging Origin, creator of the said title and one of Mindscape's most successful affiliate labels. The US outfit signed up with Mindscape last September, offering a style of product that clearly reflects a more mature market.

Heath sings nothing but Origin's praises: "The company just keeps amazing us. The people are so switched on, so on the ball with the Ultima series – which, incidentally, with the sixth version is now celebrating its tenth anniversary – as well as Times Of Lore and its sequel, Bad Blood. The sales of Origin product are astounding."

Indeed, the company has an interesting pedigree. Based in Austin, Texas, the firm is run by two brothers, Robert and Richard Garriot, whose father was in fact one of the first astronauts in space. It's an anecdote that Heath relishes in revealing, adding further credibility to the company's profile.

But despite the success with Origin, Mindscape has no plans to take on any other software companies to bolster its existing stable. The firm appears decidedly happy with its present line-up, offering a broad range of quality titles covering most aspects of the business.

All in all it's been a rather hectic first year for Mindscape UK, what with its parent company's initial pecuniary problems, followed by an eventual resurgence and the merger with Software Toolworks.

In fact, the new company's strength on two fronts was brought home to Heath on a recent visit to Tandy where he had to deal with two separate buyers for his range of games and productivity software, precisely because his is the only company which carries a full range of both. Surely it's this diversity which will keep Mindscape happily down on the farm into the 90s.

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Everything you need to know to become the complete armchair golfer is explained in our next exhaustive `Which?' round-up.

SOUND OFF...

The ever-increasing range of sound boards and other aural add-ons, explained, compared and contrasted.

FEED IN...

Did you know that information can be passed to your machine from the unlikeliest of sources... a radio, for example, or even a wristwatch! We take you through the pros and cons of MS-DOS gadgeteering.

GAME ON...

The latest in IBM-compatible gaming, once again brought to you by our panel of experts.

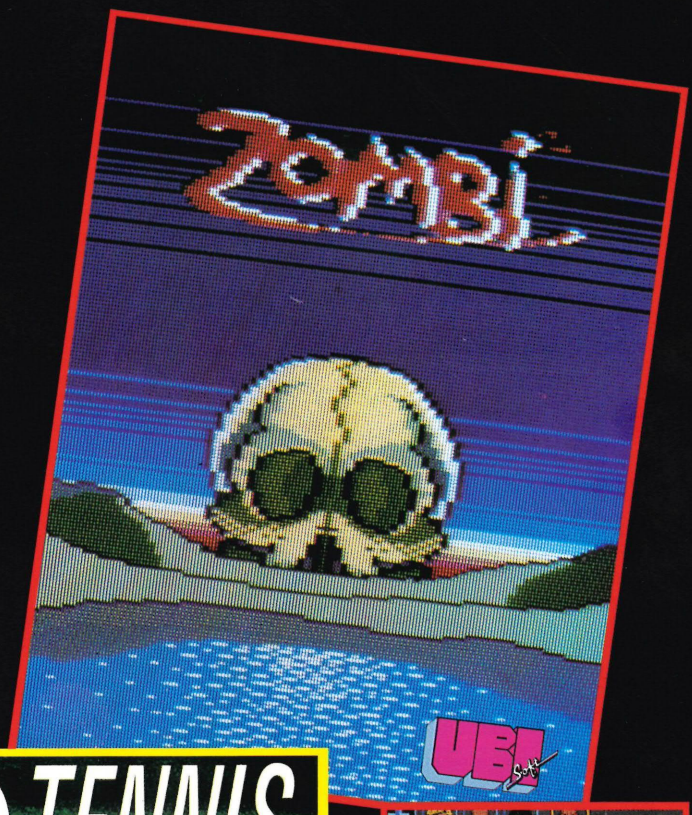
GET DOWN...

To your newsagent on June 14th to find all of this and more in the next issue of PC Leisure.

ISSUE

THE FEARSOME THREESOME

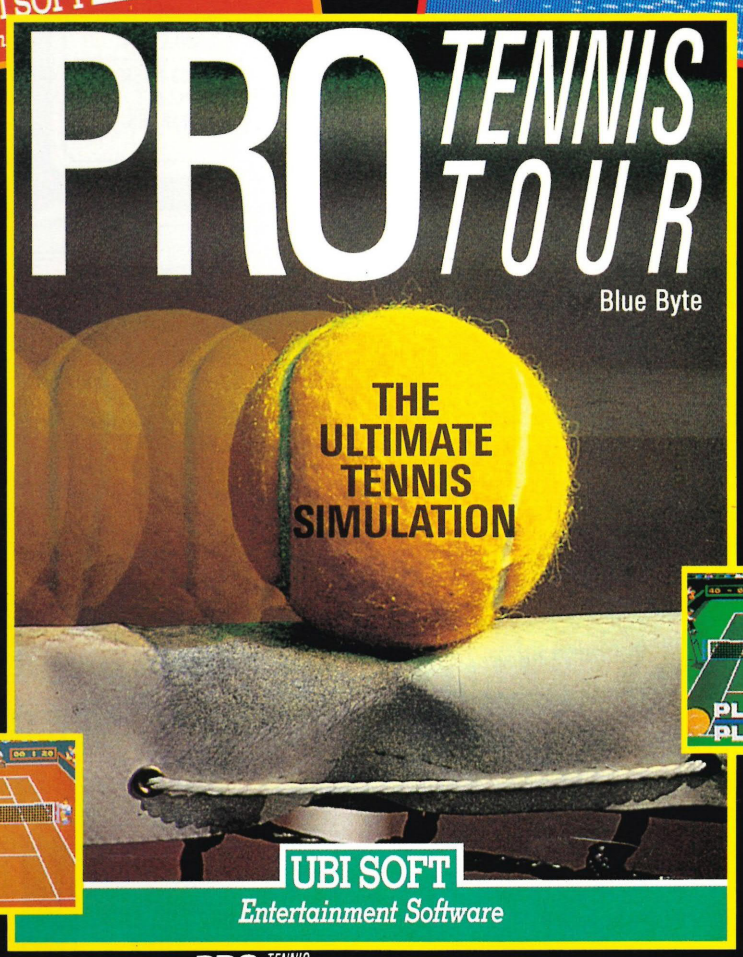


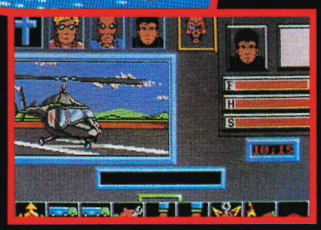




TWIN WORLD

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- DISCOVER OVER 20 DIFFERENT LEVELS AND MANY STRANGE SETTINGS
- WATCH OUT ! SOME ITEMS ARE MAGICAL...OTHERS ARE INDISPENSABLE !
- DON'T MISS THE ROOMS FILLED WITH TREASURE !
- CHOOSE THE RIGHT WEAPON TO FIGHT EACH ENEMY !

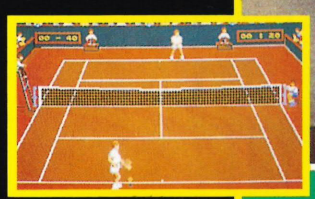




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