THE MAGAZINE FOR PC BEGINNERS • $4.50

THE PC MHG

plus THE AMSTRAD USER

February 1991

Registered by Australia Post
Publication No. VBP7017
National Library of Australia
ISSN - 1035-9516

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An instantly useful range of software for your PC at home.

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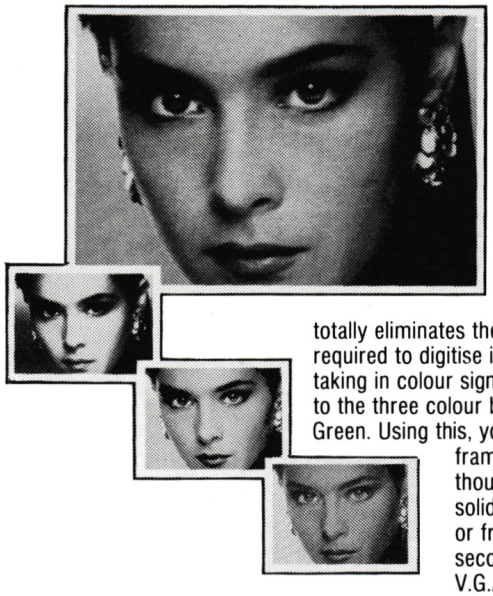
How does this grab you?

VIDI FRAME GRABBER

VIDI is the missing link in your graphics presentations. Using VIDI, a cable and your computer, you can capture video images from ANY source that outputs simple video signals. Cameras or videos, it doesn't matter, VIDI will grab a perfect image in 16 shades instantly! You don't have to pause your video, you don't even have to have a digital VCR. Multiple frames can be stored into memory for saving as an animation sequence, and the software allows full control of brightness and contrast to ensure top quality images.The uses for VIDI are virtually endless; Desktop Publishing, Desktop Video, graphics productions, program enhancements, animation; the limits are your imagination! To introduce VIDI PC into the Australian market, Pactronics are giving away, ABSOLUTELY FREE, VIDICHROME, the amazing software upgrade that allows you to digitise video in full colour!!



VIDI RGB COLOUR SPLITTER

If you have a colour video camera, the VIDI COLOUR SPLITTER is the ideal companion to VIDICHROME. The RGB COLOUR SPLITTER totally eliminates the colour filters normally required to digitise in colour. It does this by taking in colour signal and then stripping it to the three colour bands, Red, Blue and Green. Using this, you can grab full colour frames faster than ever thought possible. Take a rock solid image into your camera or from your video, and seconds later, PRESTO!! V.G.A. images better than you'd thought possible.

VIDI-CHROME

If you thought VIDI was good, wait for this! VIDICHROME allows you to digitise in FULL COLOUR! Using a series of coloured filters, VIDICHROME takes images, even from a black and white camera, and displays them in V.G.A. mode! It fully supports PAL displays, and can simultaneously display 256 colours on screens up to 800 X 600 size. For those of you with a colour camera, you may like to take advantage of the time saving offered by the RGB Colour Splitter.

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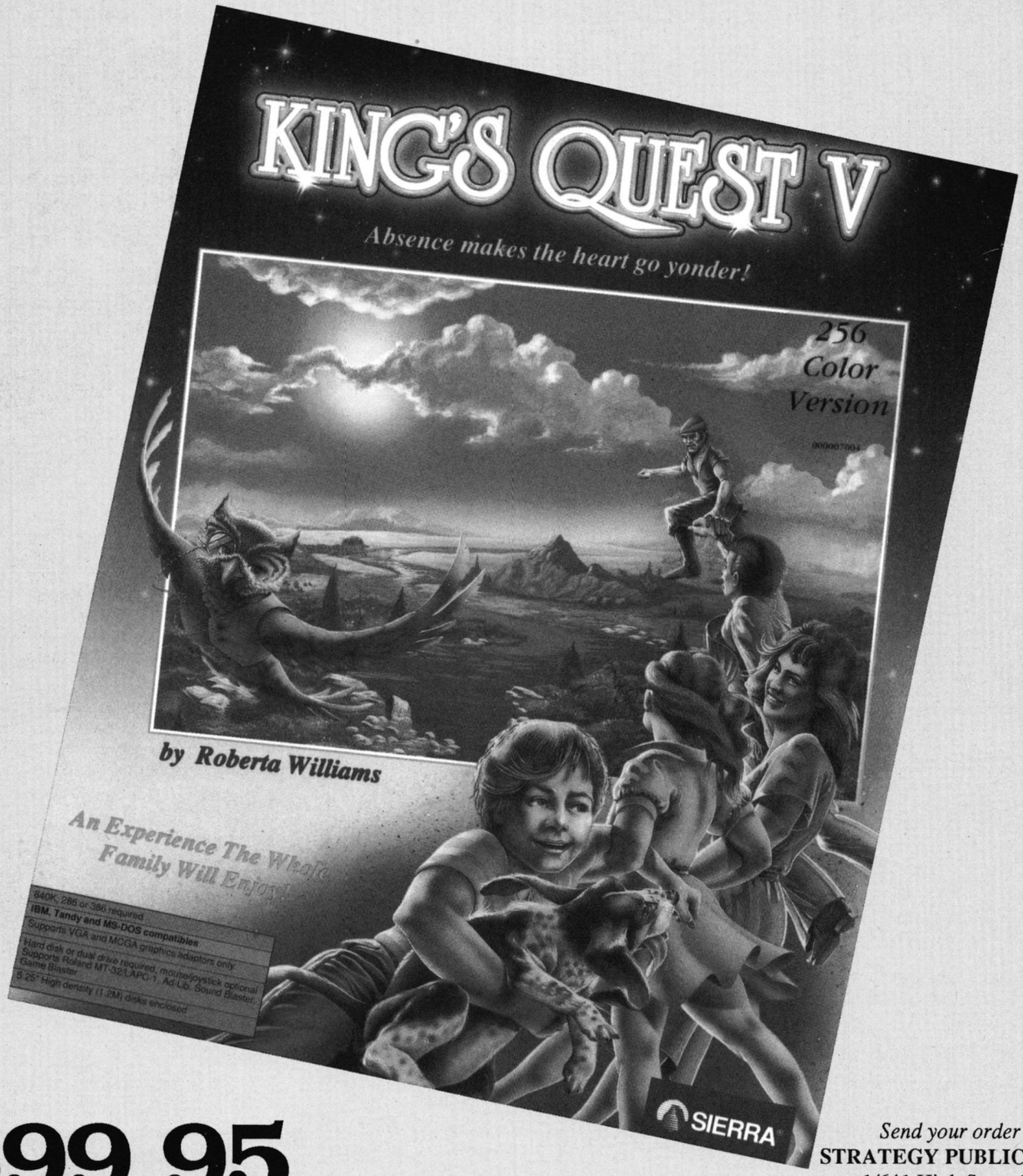

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Supports Tandy graphics, EGA, MCGA, & VGA; supports Roland MT-32/LAPC-1, Ad-Lib, Sound Blaster, PS/1 & Game Blaster sound cards

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All enquiries and contacts concerning this Publication should be made in the first instance by writing to The PC Mag, 641 High Street Road, Mount Waverley, Victoria 3149, Australia. Urgent matters can be telephoned through on (03) 803 9661.
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The subscription rate (for Australia) is $45.00 for 12 issues, which includes postage. For overseas subscriptions to New Zealand, PNG, Solomon Islands or Vanuatu please add $30 for airmail costs. Other overseas prices are available upon application.
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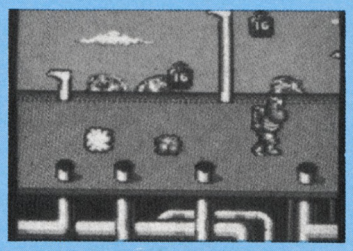


• *Screen shot from Monty Python's Flying Circus game, reviewed on Page 12.*

• *The Star LC24-10 printer, reviewed on Page 16.*

• *Screen shot from Stellar 7, a new Sierra game to feature in a review in next month's magazine.*

NEWSNEWSNEWSNEWS

The latest information from the PC arena.

DATAFLOW RELEASES

On the educational front, Dataflow have released two products from First Byte. **MathTalk** ($59.95) is a piece of software designed to increase a child's ability to solve basic addition, subtraction, multiplication and division problems. It allows children to enter their own maths problems and compete against friends and themselves to improve their skills. **MathTalk Fractions** ($59.95) is aimed at older children from ages 8 to 15 and teaches fractions, decimals and percentage problems. The package aims to make learning fun. One game takes place in a fun house using lasers, estimates and basic maths facts to outsmart the professor and earn the best score.

Once Upon a Time 3 ($79.95) continues the very popular series of programs for children to create their own illustrated books and stories based around fun themes. This one has colourful graphics for the Wild, Wild West, Medieval Times and Outer Space. SimCity owners will be happy to know that two graphics packages are now available for their software. **SimCity Graphics Set 1** offers Ancient Cities; Ancient Asia providing a mythical mix of Asian cultures; Medieval Times featuring villages, rural economies and spooky dangers such as witches, dragons and plagues; and Wild West allowing the players to stake a claim and develop a land in that period. **SimCity Graphics Set 2** moves into the future. Future USA puts you in charge of a high-tech manufacturing centre; Future Europe has you creating monorails, air/space ports and fission/fusion power plants; and Moon Colony, where you plan the humanity's future, against extra-terrestrial viruses, oxygen shortages and creeping moon mould.

For arcade freaks, the release of **Wing Commander** ($84.95) is bound to cause some excitement. It is a very high quality action game featuring some of the best deepspace dogfights you are likely to see in any game on the market at the moment. In the new World's of Ultima series comes **Savage Empire** ($69.95), taking Avatar to the historic land of Eodon where dinosaurs still roam and ancient mysteries abound. **Galleons of Glory** ($79.95) re-enacts Magellan's sea voyage of 1519 with five galleons from Spain to discover El Paso, the legendary passageway to the riches of the far east.

For more details on the above contact your local dealer, Strategy Publications on (03) 803 9661, or Dataflow on (02) 331 6153.

COUNTING ON CANON

If you are fed up with using your memory-resident computer calculator, have to keep deleting it to make room for memory hungry programs or your eyes are "not what they used to be", Canon has seven models of calculators, each with 'hyper-display' - an extra large display that makes for easier reading without compromising functionality. All but one offer dual power source (solar and alkaline).

The top of the range Canon HS-101H ($44.85) is a 10-digit desktop model with retractable stand and weighs just 105 gms. It offers percentage, square root and mark-up/mark-down functions. At the lower end is the Canon LC-25H, an eight-digit display with a single alkaline battery power source providing 5000 hours of operation and automatic power saving function.

For more details contact your local dealer or Canon on (02) 887 0166.

NETWORKING WITH SAGE

Networking is a growth industry with surveys revealing that over 15000 new systems will be installed in 1991. Accordingly, Sage have released three new network products, providing an upward compatibility hitherto not available in the industry.

MainLan 386 is a totally new network that uses new software for 386 computers. It has all the features of other MainLan systems but with an enormous increase in power. It conforms to IEEE 802.3 Ethernet standards and is Novell Netware compatible. A 2 to 4 user system including 10mb Ethernet boards, cables and software is $2395 (including tax).

MainLan GTi also conforms to Ethernet standards (now using much less RAM) and has been developed with smaller systems in mind, especially where a dedicated file server is not justified. It can be easily upgraded to MainLan 386 with the addition of software. A two-station starter kit is $1295 (including tax).

MainLan Datalink is for users who wish to share files and printers but do not wish to run multi-user software. A two-station starter pack costs $695 (including tax). *For more information on the above contact Sage Australia on (02) 252 4166 or fax (02) 241 1245.*

SPC RELEASES

There are two new products in the PFS series published by Software Publishing Corporation (SPC). The first is a useful utility called **PFS: Preface** ($110.00). It lets you start programs from menus, manage files and directories with the Preface file manager and run DOS

NEWSNEWSNEWSNEWS

commands from an easy-to-use DOS window. This last feature is particularly useful if you have trouble remembering some of the command formats.

PFS: Easy Start ($99.00) is designed for all members of the family to use. It is an integrated package containing a word processor and spell checker for homework and assignments, a spreadsheet for home budgeting, a filer (database) for addresses, recipes, birthdays etc., and communications (you'll need a modem) to access on-line information services. It also contains a quick tour to teach the family how to get the best out of Easy Start in less than an hour, and on-screen help if the user gets stuck. Both the above products will be reviewed soon. *For more information contact your local dealer, Strategy Publications on (03) 803 9661 or Dataflow on (02) 331 6153.*

PAGEMAKER CLONE CHALLENGED...

The release of PagePlus, a budget desktop publishing package running under Windows, has been delayed following a letter from the president of Aldus (publishers of PageMaker) to Serif (developers of PagePlus). It warns that Aldus will use "any and all legal remedies" if Serif release the product in its current form.

PageMaker uses its own pasteboard method of display instead of frame switching found in other DTP products. PagePlus appears to emulate the pasteboard although Serif argues that similarities are bound to occur within a Windows environment as design guidelines promote consistency of user interfaces. On the other hand, Aldus argues that Serif may be infringing intellectual property rights as "the user interface, command structure and screen designs appear to be near direct copies of PageMaker".

The result is that Serif have decided to make a few user interface changes, although they maintain the unchanged product is non-infringing as it is.

...WHILE LOTUS SETTLES OUT OF COURT

Lotus Development has now settled out of court with Stephenson Software and Paperback Software International. This followed its successful action claiming that VP Planner infringed copyright on Lotus 1-2-3.

Paperback Software International has agreed to take the VP Planner series (licensed from Stephenson Software) off the market in addition to paying Lotus $500,000. Paperback have also signed away its right to appeal and dropped counter claims against Lotus.

The outcome of this legal fighting will no doubt send a shiver through developers of other 'clones', including Borland against whom Lotus have a similar case pending. The action relates to Borland's Quattro Pro.

PROGRAMMABLE LOGIC CONTROL

Procon Technology has released an upgrade to the Programmable Logic Control (PLC) program for IBM PCs and compatibles. It's used in conjunction with an I/O board (PC-IO-XX plugged into a printer port) supporting 8 external and internal outputs, 64 internal control relays, 8 timers (0.1 seconds to 24 hours) and 8 down counters (preset up to 99,999). Procon claim that their unit enables the writing and testing of logic control programs to be as easy as switching on a light bulb. Anticipated applications include home or business security systems, process control, laboratory automation and educational and training needs.

If you have a high-speed control application, the program runs at up to five times faster with scanning rates up to 300 times per second. The latest version of the PLC software costs $250. Procon also supply a Starter Pack containing the PLC software, I/O board, interface card, cable and documentation for $450.00.

Procon has also upgraded the PC-IO-XX software which controls up to 120 inputs and outputs from most high level languages. The latest version (2.20) provides support for MicroSoft's Professional Development System Basic vers. 7 and documentation and support for controlling the Fischertechnik range of experimental models and robots (reviewed last month) from a single I/O board. *For more information contact Peter King on (03) 807 5660 or fax (03) 562 0503.*

KING'S QUEST 5 AND SPACE QUEST 4

The news from Sierra is that there will be four versions of the latest King's Quest and Space Quest series. Because of the complexity and improvement of the games, and Sierra's commitment to supporting all IBM PCs and compatibles, Version #1 (with 16 colours) will contain 3.5" low density and 5.25" high density disks for EGA/Tandy 1000; Version #2 (with 256 colours) will contain 3.5" high density disks for VGA/MCGA; Version #3 (with 256 colours) will contain 5.25" high density disks for VGA; and Version #4 (256 colours) will contain a CD-ROM for VGA/DAC. Version #1 is currently available in Australia for $99.95.

The reason for the move to high density disks is that, for example, if Versions 2 or 3 were shipped on normal low density 5.25" disks (360k capacity) the box would contain some 50 disks - hardly practical. Space permitting, we'll give more details next month.

Video Visuals

Tony Ienko reviews the Rombo Vidi PC, the video frame grabber that attaches to your video camera or recorder.

Ever wanted to incorporate pictures, company logo's or even self portraits into your Desk Top Publishing applications? Well Vidi might be just what you're looking for.

Over the last twelve months or so, DTP (Desk Top Publishing) has become an application more and more people want to use. Whether for professional, educational, or leisure purposes, everyone that owns a computer, at some stage or another, wants to get into DTP.

• *Graphics printed using Vidi PC.*

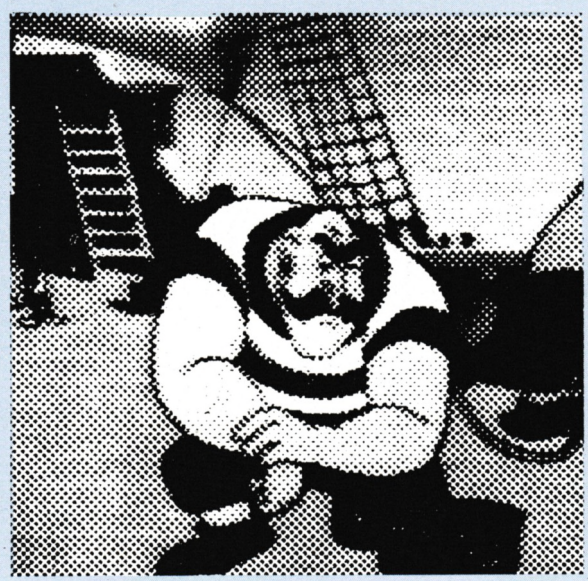
As you discover the many intriguing things a DTP package can do, sooner or later you're going to think it would be great to incorporate some external graphics into this document. This is where Vidi PC comes in. That's not to say DTP is the only application that it is suited to. I can see some video buff's finding an appropriate application somewhere, however limited it may be.

WHAT IS VIDI?

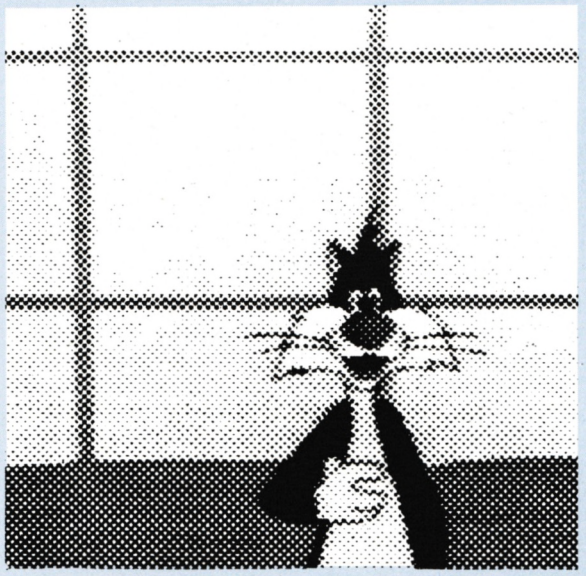
Quite simply Vidi PC is a video frame grabber; in other words a real time digitising board that allows you to plug either a video camera or video recorder into it. In the package you get the digitising board, software on both medium, instruction book, vidichrome colour filter and an RCA connecting lead.

Installation is straight forward. The digitising board just plugs into an expansion bus port. You can install the software onto the hard disc or run it from the floppy. Just tell it what monitor your are using and you're up and running. Oh! I almost forgot, you will need a video camera or video recorder.

Vidi saves pictures in almost all popular formats. PCX, TIFF, GEM and of course vid for importing the graphics back into the Vidi software. Deluxe Paint, Windows Paint, Ventura Publisher and page Maker had no glitches reading the files. I even managed to incorporate some of the graphics into Word For Windows. However, the graphics had to be cut from Windows Paint and pasted into Word.



Manipulation of the pictures,



once loaded into the paint programs, was easy enough. I found Deluxe Paint gave the best results allowing pixel by pixel manipulation. Printing results were unchanged from the Vidi software to Deluxe Paint, but I had difficulty printing with Windows Paint.

Vidi covers just about all screen sizes; 512k x 256k 16 shade, 512k x 512k 16 shade, 640k x 200k 16 shade, 640k x 400k 16 shade and 1024k x 256k with optional 128 ram board. All gave acceptable results when printed. The shading, which can be varied from 2 to 16 shades, is excellent. Even colours which were close, appeared in different shades. The sharpness was a little disappointing. The pictures seemed to have a soft look, a little diffused if you like.

Printer support of the Vidi software itself was adequate, covering the range from a standard 9 pin, 24 pin or 300 dpi inkjet, to a laser printer.

VGA colour graphics are achieved with the use of a Vidichrome colour wheel (supplied with Vidi) attached to a camera. It provides the same resolution as monochrome but is not suitable for grabbing 'live action' frames. It is used to capture 'still life' pictures such as magazine photos or other inanimate objects.

EASE OF USE

Vidi does not require any pilot's licence. The package is very straightforward to use. It is all menu driven by the use of function and hot keys. I rarely found it necessary to refer to the manual once I'd had the general gist of things.

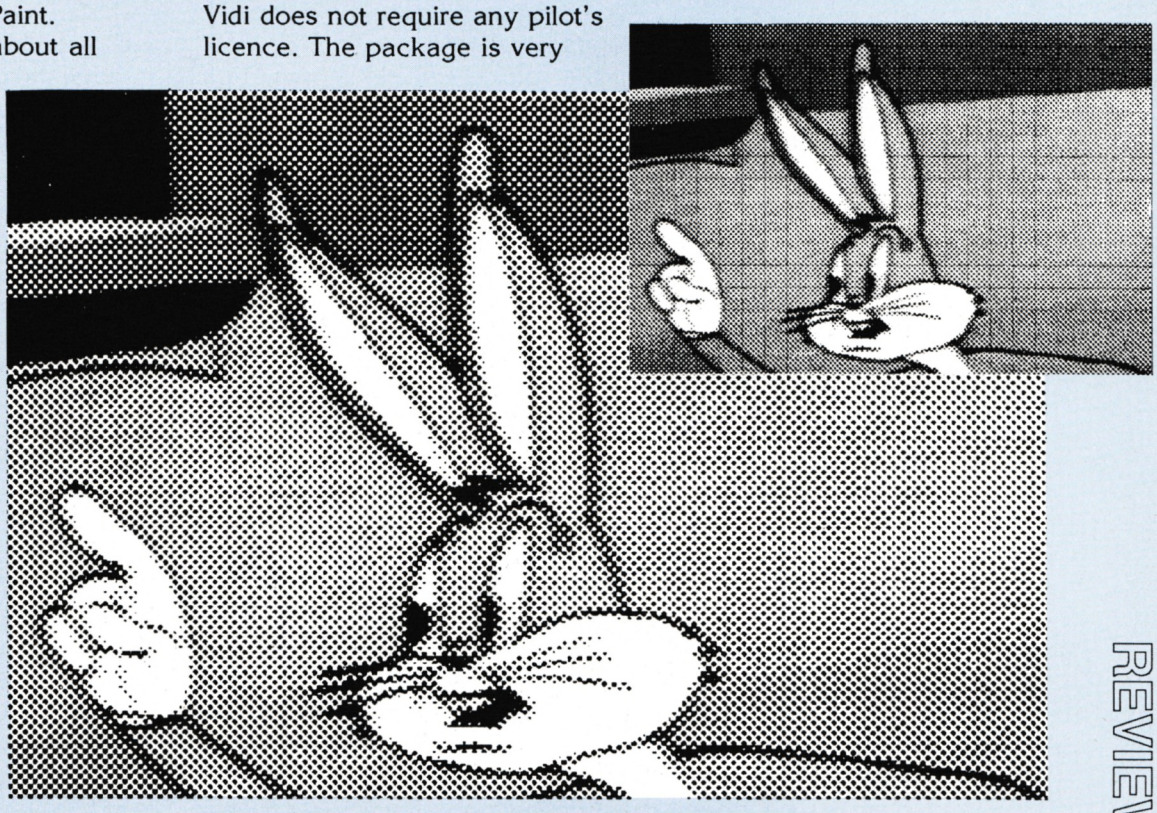
CONCLUSION

As with all video related products, lighting is the key. At times I found the brightness and contrast controls of the software just didn't have enough control.

For the professional who wants to incorporate graphics into a document or newsletter it does a reasonable job.

As a hobbiest, and I feel this is more where this product belongs, it's great to bring up a picture of your mother-in-law and well, I'll leave that to your own imagination.

Vidi PC is priced around $699 and is distributed by Pactronics (02) 748 4700. ■



• *Vidi PC graphics printed by a laser printer, both actual size and enlarged.*

Introducing DOS - 2

Shane Kelly & Tony Blakemore continue their instruction on MSDOS, the operating system at the heart of your computer.

Now we have hardware down pat, what is software? It is the part that you can't see or kick. Software is computer programs. It is software that is responsible for fancy graphics or pictures on your screen, it is software that adds those numbers up, it operates your disc drives and makes your computer work. Without software, all you have is an expensive paperweight.

There are two broad types of software. One is the systems software and the other is applications software. Systems software is software that operates the hardware or provides some function that allows you to use your computer effectively. This type of software is absolutely essential. You CANNOT use your computer without it.

SYSTEM SOFTWARE

In Part One we briefly touched on operating systems. Operating systems are systems software. If you read closely, you will find the word 'program' mentioned. A program is simply a collection of instructions that command the computer to do something. So systems software is a program/ programs that help you operate your computer. MS-DOS is systems software and is just such a group of programs.

There are alternatives to MS-DOS, PC-DOS, DOS PLUS (as supplied with some older Amstrad PCs). We will not be dealing with them in this series, but you should be aware that there are several alternative operating systems to MS-DOS for your computer. So, systems software is a program/programs that operate the hardware and help you use your computer effectively. MS-DOS is an example of systems software as is DOSPLUS and PC-DOS.

APPLICATIONS SOFTWARE

Applications software is software that allows you to do some productive work with your computer. It is a program or group of programs that lets you carry out a specific job on your computer. There are, broadly speaking, two types of applications software; general purpose applications software and specific applications software. Some examples are word processing, spreadsheets and database packages.

GENERAL PURPOSE

General purpose software is software that can be adapted to the particular purpose. For example, word processing is a specific task, but within word processing you have many categories. You have letter writing, manuscripts, books, technical manuals, pamphlets, flyers and notices. A word processor can handle all these functions, although various word processors handle each task with varying degrees of success. Most word processors allow you to configure them to some degree, to allow you to accomplish your chosen task with greater ease. Hence a word processor tends to be a general application program.

SPECIFIC PURPOSE

A payroll program is one such application specific program. No matter how hard you try, you will not be able to do a trial balance with a payroll program. You may be able to do your trial balance with an accounting program, but not with your payroll program. An accounting program is a specific purpose program that is usually made up of modules or groups of programs. One group may manage your debtors, another your creditors, and yet another your cash. But no matter how hard you try, you will not be able to

INSTRUCTION

do word processing with your accounting program.

To summarise, there are two broad types of software. One is systems software and its sole purpose is to allow you to operate your computer. The other is applications software which is once again divided into two main categories.

These are application specific software and general purpose software. Application specific software does one task, while general purpose software can be adapted to your particular requirements.

Therein lies another trap for the unwary. As with all computer related things, there are no hard and fast rules dividing this from that. For instance, all have just said that word processors are a general application program. But some people refer to word processors as application specific programs because they only do word processing and not spreadsheets or data management. This is a narrow view and does not take into account the vast number of tasks that word processing encompasses.

You must be aware of the overlap in terminology that occurs in all things computer related. Keep an open mind at all times. We know that this is confusing, but if you think about the nature of a computer you will see that this is inevitable. The computer is a general purpose problem solver. A computer may be used only for playing games, or on the other hand solely for data management. You could swap programs and data with others and find that you will be able to manage most things on your computer. The point is that the computer is oblivious to the type of operation performed on it. You decide what is to be done and you are in control of the applications that are run on your computer.

MS DOS EXPANDED

Since the purpose of these articles is to teach you the fundamentals of using your computer, we will of course be concentrating on how to get the best from DOS and other programs supplied with your computer. Which brings us to MS-DOS.

MS-DOS is the major operating systems software that is used with IBM personal computers. IBM have their own brand of MS-DOS called PC-DOS, but functionally they are equivalent. DOS has evolved over a period of time and has many versions. They are mostly compatible with each other, each version offering some improvements over the previous one. MS-DOS (from now on, just DOS) is the glue that binds your application software to your hardware.

Almost all programs must use DOS. The exceptions are some programs that only require minimal DOS services and therefore provide their own minimal operating system that is dedicated to that particular program. You can usually tell which programs these are, because they require you to put their disc in the A: disc drive and reset (or as it is called in jargon, REBOOT) your computer.

Do not be deceived, these programs are using an operating system, it is just that it is minimal and totally dedicated to that particular program.

OK, so why is DOS a general purpose operating system? What makes is suitable for being the platform that most programs use, enabling them to run on different brands of hardware with the same functional ability? The key to DOS's universal nature is a set of services that DOS performs for other programs. These services operate across the range of hardware.

Since these services are provided by DOS, there is no need for the program writer to re-invent them every time a program is written.

For instance, DOS contains a service to write text to the screen. Since DOS provides this service across all the hardware, the program writer doesn't need to know which computer the program will run on, and so does not have to write 50 different routines to put the text on the screen. The program simply passes the text to DOS and tells it to put it on the screen. Since DOS is running on almost all IBM compatibles, the program writer can forget HOW to access the specific hardware of the machine, and just concentrate on WHAT is to be done.

DOS services are provided for almost all INPUT/OUTPUT (or I/O) functions that a program may want. There are services for accessing disc drives, screens, memory and printers. And DOS is expandable. There are services for adding other non-standard hardware devices that were not in the original equipment list of the IBM. For instance, DOS by itself does not provide any routines for handling mouse input. But, through its expansion capabilities, it allows for additions, written by other programmers, to be attached to take care of such things. So, we have an operating system that takes care of interfacing the application programs to the hardware, is expandable by all and sundry and runs across a vast range of machines. That's not all it does - this article will continue in the March issue of The PC Mag. ■

GAME PLAY

OCTADIAL

MONTY PYTHON'S FLYING CIRCUS

RAILROAD TYCOON

SILENT SERVICE II

VERDICTS

Outstanding
Above average
Average
Fair
Waste of money

OCTADIAL

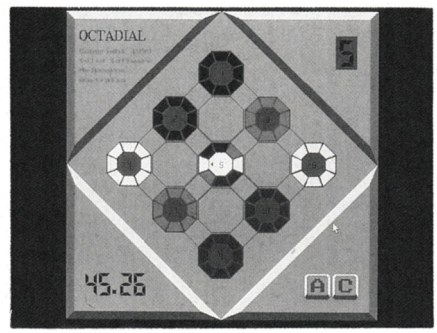
- *Published by Solid Software • Distributed by Solid Software*
- *Supplied in Dual disk packs • Price $49.00*
- *Requires EGA or VGA screens*

Occasionally a small, local software company will develop a game of a high standard. Too many of these games sit on the dusty shelf of obscurity, without the benefit of recognition and support. Octadial is one such game that deserves to be acknowledged. The comparison that immediately springs to mind is the Rubics Cube, as it is based on a similar process of colour combinations achieved by a series of logical manipulation.

On your screen you will begin with a view of eight octagonal tiles, each in itself consisting of eight facets. These facets are of randomly distributed colours. Your objective is to manipulate the tiles so that each will house only one colour, with the central tile holding a representative of each.

Rather than describe the layout of the screen it is best to refer you to the diagram before explaining how the game works. What you see (page opposite) is an actual screen shot of the opening of the game. Within the diamond border are the playing tiles, whilst in the top right hand corner is a box which indicates the level at which you are playing. In the bottom right hand corner are the clockwise/ anticlockwise selection buttons, whilst in the bottom left hand corner is the clock which times your game, adding an extra dimension to your goal. This leaves allowance for those who complete the Octadial and wish to improve upon their game.

These individual tiles are rotated one-eighth of a full revolution per click, the purpose of doing so to position the colours for the dial rotation. The idea is to move the coloured facets from one tile to another to another to another and so on, using said dial to select the appropriate tiles. The dial (the shaded section between tiles in the diagram) works on any four chosen tiles at a time, no less. These tiles are chosen simply by placing the dial in the space central to each of them. With each turn, either clockwise or anticlockwise, the dial will move the three selected facets from each tile to the succeeding tile, a total of twelve moves altogether.



•*Screen shot of the completed game.*

Once you get the hang of it you will find completing the first few tiles more or less 'easy', but having achieved this much makes the final tiles more difficult because each rotation will begin to undo what you have already set up successfully.

When you have completed the game your screen should

•*Screen shot of the game before you begin.*

look like that in the diagram (page 10), with each tile holding a single colour, which also lines up directly with the colours in the central tile.

Just to ensure that one player doesn't master the game too soon, there are three levels of play. On the first level the player is able to move whole tiles around the diamond platform to make selections easier, and on completion to line the tiles up with the central colour block. Level two deprives you of this privilege, making it that little bit more difficult to finish off. The third level takes you onto a further challenge yet again by making the platform three dimensional. Your viewpoint is from such an angle that viewing the tiles in their entirety is impossible, so you are playing with blind spots that require constant rotation and a good memory.

Played with either keyboard or joystick, Octadial is demanding and absorbing, the type of puzzle game that will have you returning again and again. It's an exciting game of pure concentration. No game begins the same, the colours scattered randomly on each occasion, so it's not as simple as memorising the moves. Graphically the screen is bright and colourful, the developers having taken into account that you may be looking at it for some time! On the whole a game well worth looking into.

For those who are interested, Octadial is available exclusively from its producers, Solid Software, at the price of $49.00. (Postage is free.) To order a copy you can call or write to:

Solid Software
P.O. Box 218
Belgrave, Vic 3160
Ph: (03) 754 4377
Fax: (03) 752 5033

VERDICT ■ ■ ■ ■

AUSTRALIAN SOFTWARE PUBLISHERS ASSOCIATION

Octadial was written by Steven Goschnick, chairman of the Australian Software Publishers Association. ASPA was formed recently by a number of Australian pioneering PC software package developers and publishers.

"What we are concerned with is the selling of packaged Australian software, many times over, to both individuals and corporations. To have Australian software considered on par with quality imported products, when people from all sections of the community are making their purchasing decisions."

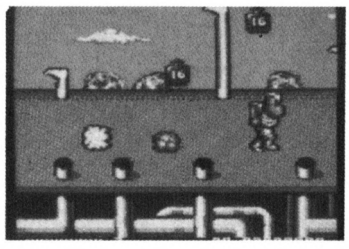
For further information about ASPA contact Steven Goschnick, of Solid Software, on (03) 754 4377; or Philip Bertolus, of Program Development Systems, on (03) 563 3063.

MONTY PYTHON'S FLYING CIRCUS

- *Published by Virgin Games • Distributed in Australia by Mindscape*
- *Supplied in dual disk packs • Price $59.95*
- *Requires CGA, SPAM, EGA, SPAM, VGA, SPAM*

You don't really need me to write this. I could just mumble a lot of nonsense and you'd know exactly what I was talking about. Why? Because you are Monty Python fans, that's why.

"It is a game of skill and fun" it says. It has four levels, it says. "The levels are all quite different in a skill and fun sort

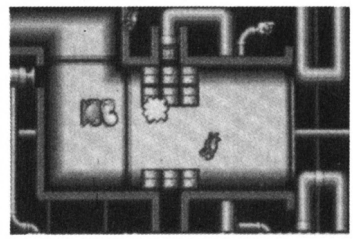


of way," it says. I wouldn't exactly call it an instruction booklet. I wouldn't exactly call it The Official Hungarian Phrase Bokk, either. But they would. Nor would I tell you what is in it. Yes I would. There's cheese in it. And there's a.... no, I can't tell you that. Well, there's a.... no, I can't tell you that either. There's just lots of silly, silly bits in it. The object of the instruction manual is to entertain you if you forget that there is a game disk in the box. Or if you do not find the free Mr. Gumby badge as much fun as it should be.

For those of you that do want to know if there is life after the instruction manual, yep. Eventually it tells you what to do. Your objective is to find the four missing - or should I say escaped - pieces of Mr. Gumby's brain.

If you pass the cheese identification test, you begin life as Mr. Gumby. Armed with fish, you must dodge the dropping weights to reach the first level. Here, a little hint: press the space bar to dodge the interruption to your dropping weight dodging, (which is actually quite an educational interruption that will have you abounding with knowledge about the recognition of Larch trees from a distance). However, should you not wish to know about the recognition of Larch trees from a distance, just press the space bar to continue. I wouldn't advise stopping to explore the walking shrubs whilst in the vicinity of these weights, as it could cause superficial death, sort of, to one or all of your three or four - depending on how silly this game is - lives.

Probably nowhere near exhaustion yet, you have reached the first level. You have fallen, been pushed, been



decapitated, had your body replaced by that of a fish, and been pushed again until you find yourself in the proverbial pipeline.

This is the first of many challenges. You have to dodge all sorts of uncommon nasties, and so on.

You have started with a score of 99,999,999. Not because of your superior skill and fish throwing ability, but because your score is counted backwards. Uncounted? Depleting, diminishing,.... de-something or other. If you're really bad, you get instant recognition by earning an ignominious position on the Silliest Scorers board.

Bonuses are never to be expected and so happen when least, (ie: if you happen to throw a fish in a silly place where a bonus might happen to be hiding but probably isn't). If you find a hidden bonus screen, you can expect as much as you earn by bouncing the head-on-the-boot above all sorts of stuff. You can also win bonus points by exploding cheese.

> ***Quote:***
> *"I think cement is more interesting than people think."*
> *Professor Enid Gumby.*

The most important thing you must do is collect spam. Hence the Spam Count. In order to win back your four pieces of brain, which originally ran away but are now being held for ransom, you must present sixteen tins of spam for each piece to your brain's abductors.

Mind you, each time you make it through the levels will only win you one piece of brain. Then you have to go through it all again. The graphics are clear and amusing, for want of a more interesting description, and are accompanied by a wonderful (ie; potentially irritating) jingle. For the worldly wise, a remarkable experience I recommend. I can only say this - fave hun.

VERDICT ■ ■ ■ ■

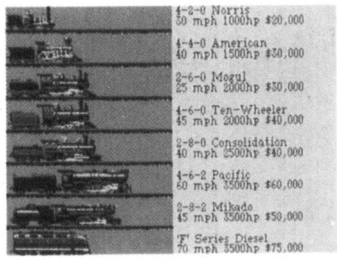
GAMES

RAILROAD TYCOON

- *Published by Microprose • Distributed in Australia by Questor*
- *Supplied in dual disk packs • Price $89.95*
- *Requires 512k and CGA, VGA or EGA screens*

MICROPROSE are the kings of the simulation software. Railroad Tycoon is so good that there will be a place for it on my hard disk for a long time to come.

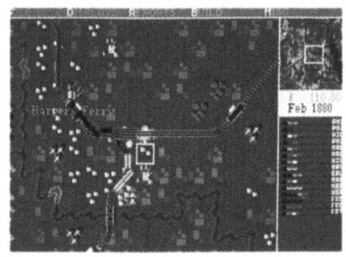
Railroad tycoon is Microprose's best effort yet and as far as I am concerned, it is the best game around at the moment.



I don't know whether it is the fact that you can control your trains individually both in the route they take and in the composition of their carriages, or the fact that you can control individual signals along each and every line, or if it's the fact that almost all this detail is easy to implement that makes me rave about this game, but let me tell you, it is worth a rave.

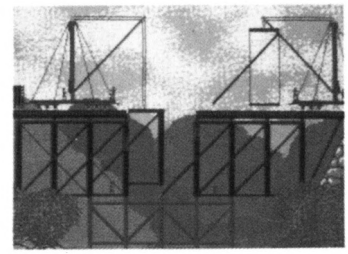
To start with, Microprose have researched the subject quite thoroughly. You may start a railroad in England, Europe, west U.S.A. or east U.S.A. All of these places have individual economies and start at different times in the 1800's and all have differing strategies that you may apply to get the best out of them. For instance, in the U.K. it is best to start from a seaport or harbour so that you have a place to supply you with goods that can be transported to inland towns for revenue. In the U.S.A. coal mines to steel mills are the shortest route to profits.

As you start the game you are asked to pick your area and then you are asked to choose a simple economy or a complex one. If you choose a simple one, all towns or cities want everything, but a complex economy is much harder as only towns with steel mills will want coal, and factories will want chemicals to turn out manufactured goods which in turn may be transported to cities. Next you are asked if you wish to have a "no collision operation" which means that even if the track is single you will not have head-on collisions - trains of lower status will automatically be shunted to sidings to await the passing of the more important train. The opposite of this choice is to have dispatcher operation



where you have to physically change signals yourself for each and every train on each route - this is not recommended if you have more than 3 or 4 trains running as it is a moral that you will be responsible for another Grafton tragedy. If that is not enough you can also classify the opposition as friendly or cut-throat - if you choose cut throat look out they will all be after you. There are difficulty levels also that influence how much your final rating will be. Obviously the higher the difficulty factor, a higher the final rating.

After all the preliminaries, you now enter the main game where you may search around the map for the best place to start your railroad. The user interface is quite good with the majority of functions being available with the mouse. Believe me they have packed a lot of information into the



screen display and they have made excellent use of colour and divided the screen intelligently into the different playing areas. Full marks for this interface, Microprose.

Assuming you have got a railroad going and are actually making a profit you can now put your profit to good use by buying shares in other railroads or by increasing your share holding in your company. All these share dealings are accessed by a call to your broker where you may not only buy and sell shares you may also float a bond to raise cash to finance your next expansion of the world's greatest railroad.

So the game goes on. The whole object of the game is to become a tycoon which I guess means the richest player of all. The final ratings are in 'ranks' with the President of the USA being the utmost in America,

while the Prime Minister is the nadir in the UK. I have yet to attain these exalted levels, but rest assured I will keep trying - this game has got me in!

As is usual with Microprose software, the documentation is lavish and the attention to detail is suberb. I know more about the early history of railroads in both Europe and America than I care to, but it was all well worth the read. Also included with the documentation are some cards depicting what goods are needed at what factories to obtain what finished products to sell at whatever area requires them - these cards are a great help in the complex economy game, but not much use in the simple variant as anywhere that wants anything wants everything!

Now a sour note (what would a review be without one?). When I first played this game I indulged in a rate war with

another railroad. This is where you deliberately build your tracks into an opponents station thereby triggering a war or price cutting that lasts for two years and ends when the citizens vote on who they want as their railroad. I won this war by a large margin (6-0), but then got a "can't find file so and so" and was unceremoniously dumped back to the c: prompt. The next thing I saw when I did a Dir of drive C: was 22 megabytes of bad sectors - the only way around this was to reformat my hard disk - lucky I keep recent backups. I have heard of this happening with one other player, but others have not had it happen under the same circumstances. The conclusion that I came to is that I was unlucky. But you have been warned - keep backups!!

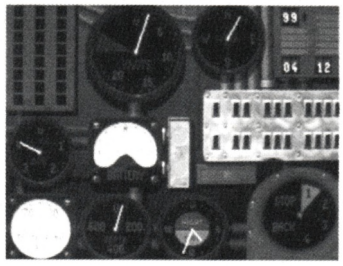
In all, one of the best I have seen to date from Microprose, but let's hope that the bug I experienced was a micro aberation that will not happen again. Recommended with the suggestion that you have recent hard disk backups to hand.

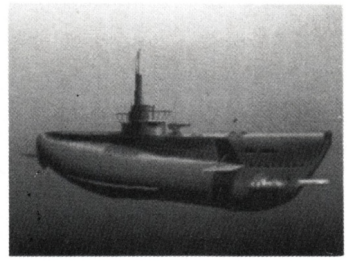
VERDICT ■ ■ ■ ■

SILENT SERVICE II

- *Published by Microprose • Distributed in Australia by Questor*
- *Supplied with dual disk packs • Price $89.95 • Supports Sound Card*
- *Requires 640k memory and CGA, EGA and VGA or MCGA screens*

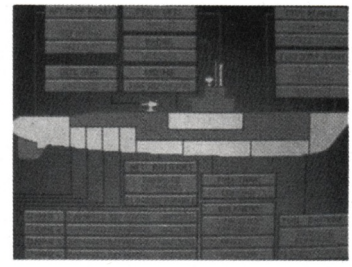
The thrashing sound of the screws gets louder as the destroyer closes in accompanied by the dreaded sonar bleeps, trying to get a fix on your position. You look again at the gauges, you are at the maximum depth, all you can do is wait... if you survive the depth charges you may just have enough fuel to get back to Pearl.



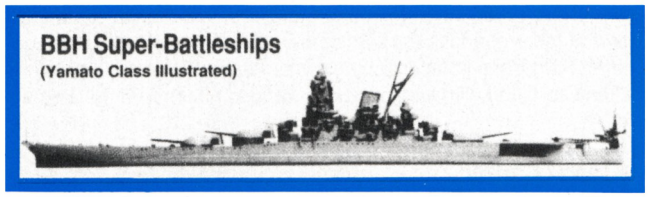


Welcome to Silent Service II, the latest simulation from Microprose. This is a sequel, but unlike those we usually suffer from (usually in the film industry) this one is an improvement. In 1985 the original Silent Service was a smash hit, it brought the exciting and dangerous world of submarine warfare into your own home and soon became a classic. Now it is back and you will not be disappointed.

Silent Service II, like it's predecessor, is a simulation of American submarine action along the Pacific Rim. As the captain of a submarine you have the choice of fighting in a training mission, a single battle (historical or random generated), a single war patrol or a war career. In a war patrol you



GAMES



choose which port to start from and then direct your sub around the map of the Pacific Ocean and around your chosen patrol area. You will not know where the enemy is until an encounter is reported by your crew, and you will then have to base your choice on whether to attack or not according to the information they provide. You will not know what you are up against until you take a look through your periscope. It could be an ambush or it could be an easy target.

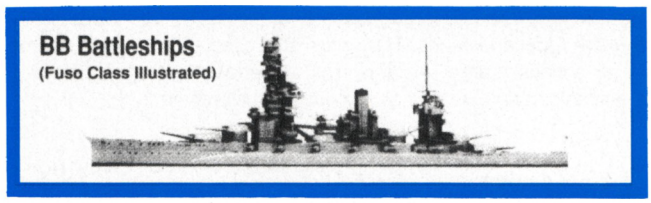
You will normally have 60 days of fuel with which you must move to the patrol area, conduct your attacks and then return home. My advice is to keep a particularly close eye on this as your commander does not appreciate it at all when his subs have to row into port. The war career is simply a series of war patrols.

The main new feature (and certainly one of the most exciting ones) is the view presented of the outside world. The Microprose team have digitised accurate drawings of original Japanese navy ships and cargo vessels resulting in good detail and good playing action. The scrolling is nice and smooth and the VGA graphics are well designed. One other detail that I found to be well dealt with is that of battles that occur at dawn or dusk; as time approaches one or the other, the sky slowly changes colour. This adds a touch of realism, as whilst during the night you can travel and attack safely on the surface, the convoy you are pursuing at dawn will suddenly become aware of your presence and take measures to discourage any potential threat. The only disappointment was the omission of the after battle replay feature as advertised on the game box. An explanation is given in the technical supplement but I feel it is unfortunate that it could not be fitted in.

One feature that I tend to find annoying in MPS simulations is the lack of enthusiastic and efficient opposition, but I am glad to say that they seem to have solved this problem in this their latest work. All of my play testing was done at the "Introductory" level and the challenge was always there. I was often the focus of attention of groups of unfriendly destroyers and too often returned to port with a fair bit of damage; (frustratingly, the deck gun seemed to be one of the pieces of equipment that always got wrecked first). The game is full of the thrills and disappointments of real action, giving you a real dread of depth charging and an awareness of what your capacities really are. Within the first few games you will discover the limitations of your sub and crew and learn that you should never bite off more than you can chew.

The career that I conducted lasted just over one war year. The whole of my crew and I were lost in action west of Bikini Atoll on New Years Day of 1943 after attempting to tackle an anti-sub warfare task force of four destroyers. Having emptied all of my ammunition tubes at the leading destroyer (all of them missing the target) I was systematically depth charged until the bulkheads collapsed as I was trying to surface. Even though I always came home with more than one kill to my credit I never seemed to be able to do well enough to receive an award or a promotion.

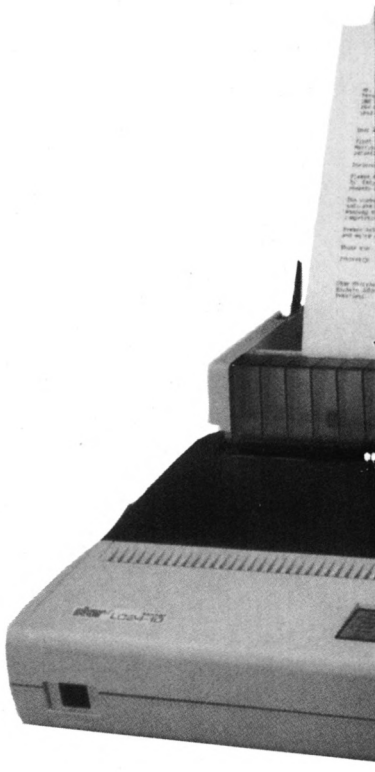
Overall SS2 shows plenty of potential to be a challenging game that you will not easily tire of. Every mission is different and challenging. The game supports CGA/EGA/VGA, as well as AdLib and Roland sound options. It is highly recommended for VGA owners but also requires 640k of memory. There is no mouse interface available but this is not a drawback as it is very easily played off the keyboard. For the fans of WW2 sub sims there is finally something that should keep you happy for a decent amount of time.



VERDICT ■ ■ ■ ■

Star Quality

All you need to know when considering the purchase of the multi-font LC24-10 Star printer.



The Star LC24-10 is a relation of the LC10 printer, so it looks quite similar in appearance - but then appearances can be deceptive! Firstly it is a "twenty four pin" printer, which in basic terms means that it has double the amount of pins inside the printing head. There are several benefits of 24 pin printers, the main one being the print quality in both text and graphic modes.

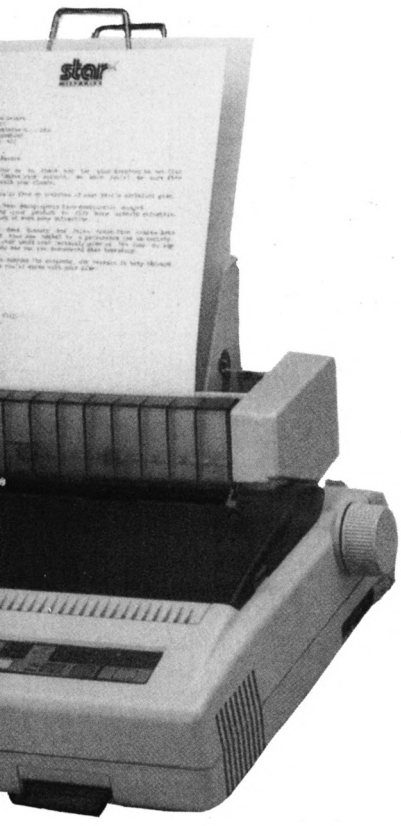
Text turns out far better than on a normal 9 pin printer, such as the Epson FX or Amstrad DMP ranges, and in particular the 24-10 comes with fifteen fonts including Courier, Draft, Prestige, Orator, and Script; all of which can be printed in a variety of pitches such as pica (10 cpi), elite (12 cpi) and other condensed, proportional and semi-condensed modes which many other printers lack.

The graphics side of things is also improved, with the extra 15 pins (Yes, 9+15=24!) giving graphics from your PC a new outlook. I use Fleet Street Editor for my DTP needs and using the standard printer driver for an Epson LQ or Star N range printer brings excellent quality, nearly rivalling a laser. Should your application support the normal "Epson Compatible" or "FX" printer then don't worry, Star have thought of it. Having provided the 24-10 with an IBM & Epson emulation it copes very well with the difference in line spacing which nine pin printers have.

Paper handling is better than average, with a push tractor feed at the rear and a standard friction feed and single sheet feeder. The Star range of printers all have what is known as Paper Parking. This is where the tractor feed reverses the paper, taking it back out of the printer and holding it just behind the platen (roller). This allows

•*Soft-touch User Panel.*

REVIEW

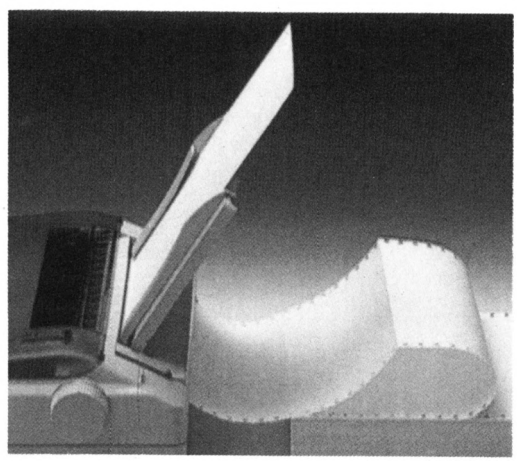


single sheets to be inserted, printed, then at the press of a switch or lever, the tractor feed passes the paper back up and the printer is converted back to tractor feed. This is very beneficial if your printer is on a desk or out of reach, as the paper is loaded with only single sheets being inserted. Just think, no more swapping paper when printing formal documents or letters!

Selecting the fonts, pitch and other modes is done using a membrane or soft key pad which has various lights indicating the option selected. One minor problem is when selecting fonts, as there is only one button for the fonts, which gives you the choice between pitch and quiet modes. This can cause difficulties at first, but with practise the changing of fonts etc. can be quite quick, (for the more experienced user).

The general speed of the 24-10 is excellent; don't expect your five page Ventura document to fly hot off the press, but for most users the speed is quite adequate with text printing at 47 characters per second (LQ), and 142 characters per second for draft. The printer comes with a 7kb buffer, which really does help those longer reports print more quickly. I recently had to print off a lot of Local User Group Forms; with a smaller buffer I would have had to wait, but with 7kb it took only half the time. The all-important ribbon is of the cassette type, which I find lasts longer (less exposure). The life expectancy is of about 200 million dots, but don't quote me on it! One last note, the Recommended Retail price on the Star printer is no more than $675, including the cable.

When drawing my verdict on the printer, all I can say is that "I love it". ■



•*Separate paper feed openings allow you to print single sheets without removing the tractor feeder.*

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On Top of the World

As a game/evolutionary simulation, SimEarth is an all-round introduction to Earth sciences.

Naturally, creating and managing an entire world is no easy task. SimEarth is a complex but rewarding 'game', for want of a better description. Many readers will remember SimCity, the system simulation before it. A 'system simulation' is a situation where you are provided with rules and a given set of tools to create and control that system - in this case a city. SimEarth is based on similar principles but on a much grander, more complex scale. It also requires a different organisational approach, more ecological than technological, more about nature than politics.

In the beginning.... you are presented with a living but barren planet, which you must fill with the right combinations of biomes (plant and animal classifications) to make it ecologically sound so that it can thrive and develop.

Based on the theories of evolution (either generally or pertaining to a specific era), one of the most interesting aspects of SimEarth is that it is not necessarily going to follow the course of history that Earth has already set. Any species is able to develop intelligence, and is likely to, given that the most favourable surroundings are created and maintained by you.

GAIA

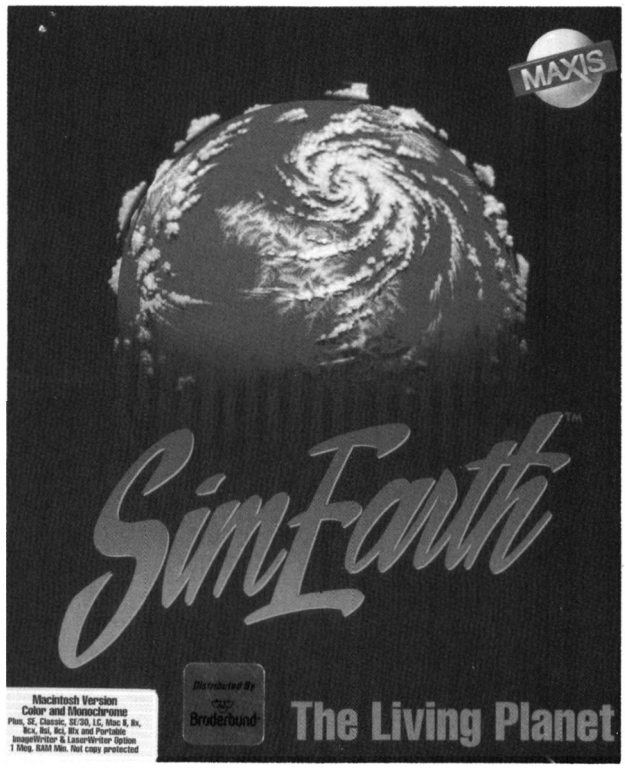
One thing to keep in mind is the scientific, albeit philosophical, concept behind the program. SimEarth is based on the Gaia hypothesis, developed by James Lovelock. Gaia is a theory about the evolution of the Earth, that all features of life on the planet are interrelated, that all species of animal and plant, all types of dirt and rock, affect the existence of each other in much the same way as the components of any one body will do so in order to keep the system working as a whole. Hence the description as holistic. The Gaia principle is best described in the words of James Lovelock himself, "Earth may be alive: not as the ancients saw her - a sentient goddess with a purpose and foresight - but alive like a tree. A tree that quietly exists, never moving except to sway in the wind, yet endlessly conversing with the sunlight and the soil."

You will learn about this as soon as you open the manual. It will take a great deal of reading, running through the tutorial, and then generally experimenting with the actual program before you reach the stage of being able to utilise it fully. This is not an annoying demand of effort on your part, but it does involve a reasonable commitment to learning the basics of Earth sciences, both in a general context and specifically geared to the program. When your screen is open it is advisable to run through the tutorial program, situated under the Windows menu with the options for help and information which are always at hand. These eradicate as much confusion about procedures as possible. In fact, the amount of helpful information available is refreshing, with facts about every feature represented by icon available at call.

THE GAME

You may find the screen overwhelming at first. You will notice a long string of pull-down option menus. Divided into sections is a bar of subcategories represented by boxes/icons at the bottom of the screen. These are viewing choices. Selecting an icon here will change the view of your map to highlight all details relevant to the chosen category as they are allocated across your world. Such information is also displayed in graph form, under the Graph menu.

Your view of the planet can be from either of two perspectives; flat or in the shape of a globe. However, this is merely your overall view. More detail of what is happening in the environments that you create is open to you through the Edit Window, whereupon you will discover a close up view of the selected region. Through this window you can work upon the region to create or edit the environment via an option panel on the side of the screen. This is probably the most active window as it is the centre of all direct control. With this panel you control the creation and alterations to all biomes and life forms, and can trigger events (such as earthquakes, meteorites, volcanoes) etc. An example of how these might be used is, say, the meteor - if targeted inland it could cause the formation of a lake. If a volcano is made to erupt in the ocean it will cause the formation of an island, and so on. You can also display the atmospheric specifications which influence the survival of all that you create, such as heat and rainfall.



Indication of your ecological management success (or failure) is displayed in two ways. One is in the Report window, where you are given the statistics of life forms and habitats, as well as details about your current tasks and the quality of life on your planet. The Gaia window is the second indicator of success, and is a much more general one at that. This window holds no data whatsoever, but displays an animated picture of Gaia - a planet with a face - whose expression alternates between extremely happy and terribly distressed according to the state of the planet. It occasionally utters the odd comment to either encourage or discourage your actions. This window is particularly good for younger users of the program as it offers a simple form of guidance whilst being entertaining.

THE FINAL COMMENT

The flexibility of SimEarth and its series of endless possibilities make it a broad and engrossing program. Its effectiveness lies not only in its education about the world and its ecology, but that it reaches into the very basis of evolutionary theory, allowing the user to create a world that can follow any evolutionary pattern, experimenting with scientific theory itself.

If used as an educational tool, SimEarth is bound to provide students with a fun way of learning some very serious scientific facts/theories. Not only do they learn these facts, but they apply them and test them out whilst 'playing' with the power of creation. SimEarth would be the ultimate introduction to Earth sciences as a whole. It encompasses all areas of research, namely physics, chemistry, biology, astronomy, psychology, and sociology. This program will give the users a background, introductory plus, to theories that they will in turn be reiterating in school, making it more interesting for them and giving them a full picture of science, not just from a text book but from the perspective of its application to 'reality'. In a nutshell, it gives science relevance.

There is only one aspect that I can fault; although it uses the process of "natural selection" with the survival of the fittest techniques in determining which species will dominate over another, my observations suggest that the species in the program do not co-exist - if one species comes across another the weaker one disappears from that region.

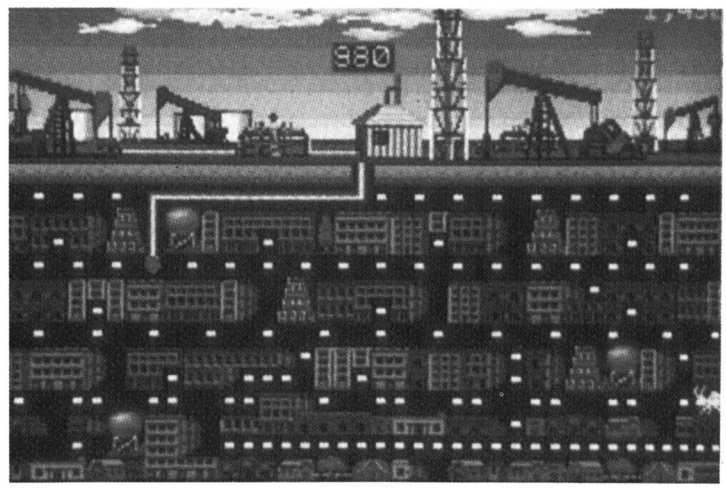
Apart from that, the program is brimming over with interesting features, hence its complexity. SimEarth is a wonderful program for anyone who likes to learn, create and organise on a monolithic scale. ■

The package is distributed by Dataflow, requires 640k memory with EGA, VGA, MCGA, HERCULES or TANDY, and sells at the retail price of $109.95.

Double Trouble

Oil's Well and Quest For Glory II are two of three new potential classics from Sierra.

Sierra On-Line continues to grow. Its close contact with Dynamix Inc. in licensing "3Space", a powerful 3-dimensional modelling and display system, culminated last year in Sierra acquiring the company. The enlarged company now provides an even healthier production schedule with what appears to be many exciting and varied challenges for all Sierra freaks. Two of the latest offerings are the subject of this month's article, with Stellar 7 showing next month.



OIL'S WELL

Do you remember how Pacman and its various derivatives caught the imagination of games players a few years back? This simple theme of moving around a maze eating pellets while avoiding 'nasties' has been brought right up to date with Sierra's new game Oil's Well.

The story goes that Slater the Petrosaur has taken to living in an underground cave since his surface homeland had been devoured by land-clearing machines. He adapted well until oil was discovered, and now has to avoid the perils of drill bits puncturing his home. What happens to him is impressively animated at the end of each level.

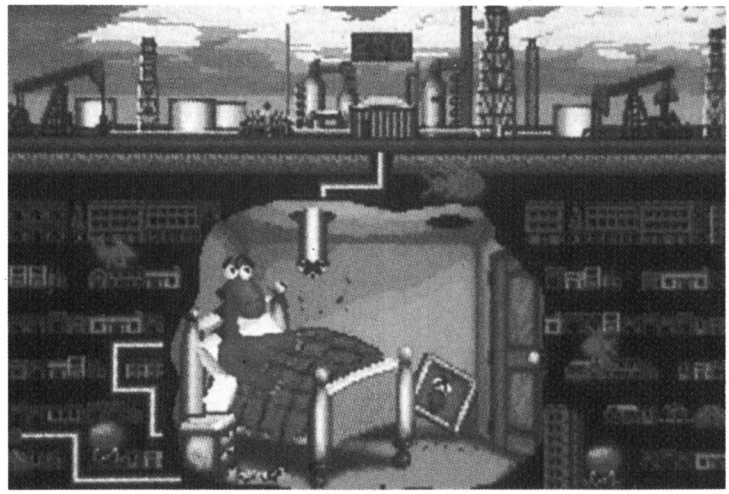
The game itself consists of guiding a drill bit through a maze of tunnels, picking up pellets of oil until all are consumed. Super-rich deposits appear from time to time attracting high points if consumed. The nasties consist of critters of varying hairy shapes and slimy sizes which can earn you points if consumed, but can make you lose a life if they eat through your ever-extending shaft. Moving the drill bit is just a question of guiding it with a joystick, through the keyboard or with a mouse. I found a joystick more convenient but needed to identify a change of direction a split second before the drill bit arrived at that point. The same tactic was necessary with the keys.

The further down the maze you go, the higher the points gained from drilling through the critters, but at the same time there is more chance of a critter eating through your pipe as it takes that much longer to retract it. If that is not enough, land mines float across the screen ocassionally and if you drill through one of these you're a goner. The final item to keep you under pressure is a timer representing the life span of the drill bit. It starts at 990 and if you haven't cleared the screen of pellets by the time it gets to zero, the drill is replaced - but at the top of the maze. You get three drill bits at the start of a game and for every 10,000 points amassed you earn another one. Help comes in the form of a 'petromin' pellet found nearer the bottom of the maze and drilling though it causes all nasties (except the land mines) to slow right down for a short period of time.

With the title screen comes a choice of level - Regular, Unleaded or Premium (Easy, Medium, Hard) and a snappy little tune which really gets the foot tapping especially when played through a

REVIEW

sound card. A sound card also enhances the other in-game sound effects, in particular when the drill bit is retracted; it has a clever metallic 'echo' sound you would expect. The first two levels are relatively simple (depending upon your age of course) but as the game progresses, the nasties seems to get nastier and the pellets more inaccessible.



My children love the game and currently we have an in-house competition to knock the champion off the top of the high score table which, incidentally, is stored on disk so won't get lost once the computer is turned off. Function keys are provided to switch off the music or sound effects, toggle the CGA colours and switch off the animated end-level sections. The latter are cleverly presented and show how Slater is being affected by all the drilling. At the end of the first level the poor guy is trying to relax in his lounge but has lost pictures on all channels of his TV. The reason becomes obvious as a drill bit breaks through the ceiling and pushes his TV through the floor. The next end level shows him having problems in the bath. And just to prove to you that I did in fact get beyond this level, you'll see him in his gymnasium, in bed, eating a meal in the kitchen and more.

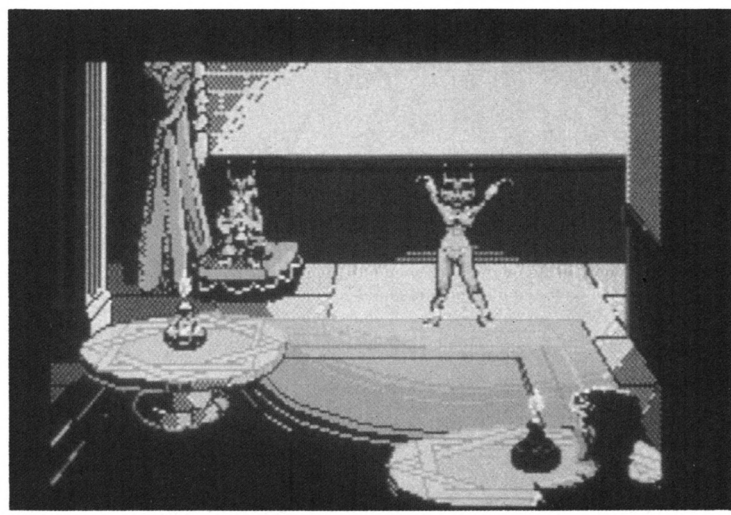
The mix of simplicity and great graphics with the urge to have 'just one more go' makes Oil's Well another family winner for Sierra.

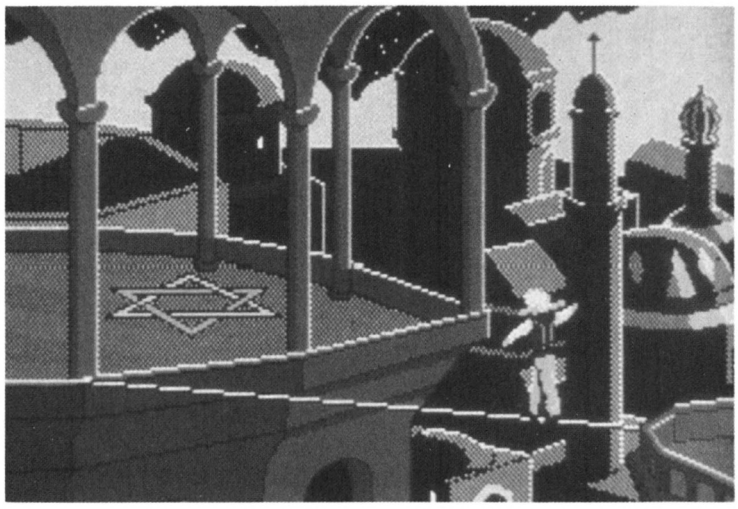
Requires 512k MS-DOS compatibles or Tandy, or 640k if using 256 colour graphics (VGA or MCGA) or older PS/2 Model 25 or 30. Supports Tandy Graphics, CGA, EGA, MCGA, VGA and Hercules Monochrome. Also supports Roland MT-32, LAPC-1, AdLib and Sound Blaster music synthesisers. Hard disk recommended. Supplied with 2 x 3.5" Low Density and 2 x 5.25" High Density disks. Dual pack retails for $69.95.

QUEST FOR GLORY 2 (HERO'S QUEST 2)
I must admit that I haven't really finished Sierra's Hero's Quest 1 yet. OK, I solved it as a fighter and put it away for a while, but curiosity got the better of me and I had to try it again, this time as a Magic User. I was about half way through when the sequel arrived. It's subtitled "Trial by Fire" under the heading "Quest for Glory 2". The change of name from Hero's Quest is due to a board game of the same name being available before Hero's Quest 1. No matter, the much awaited follow-up was now in my hands and shortly to be on my hard disk. For the sake of those who haven't played QFG1 I will give some greater detail of QFG2 than normal.

QFG1 finished with a victory celebration after Speilburg had been rid of a wicked witch Baba Yaga, and the Baron's children returned to him. It had an end-game facility whereby the Hero's well earned skills could be saved to disk and used in the sequel. The final screens showed the Hero and middle-east Merchant flying off on a magic carpet to adventures new.

QFG2 opens with the carpet and passengers landing in an Arabian desert city called Shapeir. It is a Sultanate with two surrounding mountain ranges in the middle of which is the northern capital (Shapeir) and twin city (Raseir) in the south. Between the two is a very hot and barren desert. The Sultan, Harun al-Rashid, is the abso-





lute ruler of the realm and has an Emir as a governor overseeing Raseir. At least, he did have - it seems that the Emir has disappeared and Raseir is now under an evil influence which is also beginning to effect Shapeir. The Hero's quest is to banish the evil and restore the Emir, Arus al-Din, to his rightful place.

As the player and Hero, the first choice to be made is whether you wish to be a Fighter, a Magic User or a Thief. The Fighter uses strength, vitality and weapon skills; the Magic User relies on intelligence and the casting of spells; and the Thief calls on stealth and agility skills. All the characters come with pre-defined skills, but they can be altered from a pool of 50 extra points at the beginning of the game.

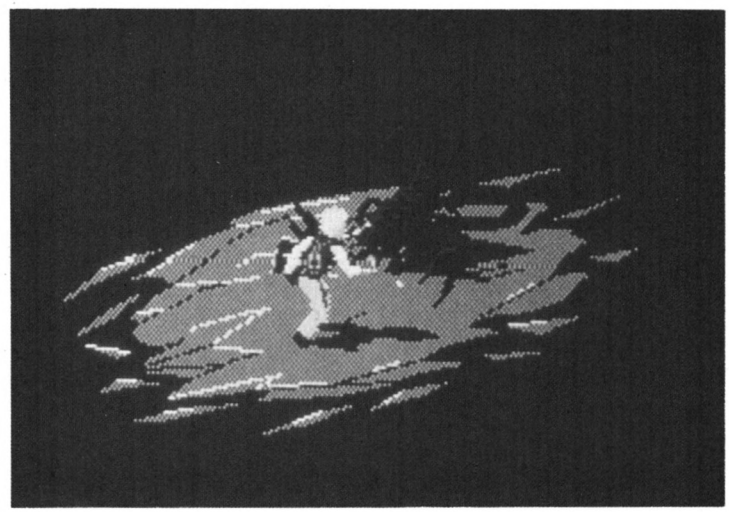
QFG 2, like its predecessor, is billed as a role-playing game. While it means that your Hero's attributes get stronger as his/her experience grows resulting in, say, being able to overcome a particularly nasty monster later in the game rather than at the beginning, it is not a role-playing game of the Advanced Dungeons and Dragons genre. This makes the game a little less complicated and open to a wider game buying public.

Having chosen a character, the next step is to get as much information as possible about what is happening in both Shapeir and Raseir. This involves a lot of talking with locals, helped by a map purchased from a street trader (clue). Once again I chose a Fighter as my character and before long I was out in the desert fighting off a few Brigands and monsters, at the same time increasing my Fighter's skills. The game has a built-in clock which keeps track of the time of day. So if you are still wandering around at night you may well get the message "You're tired" popping up. You get R and R at the local Inn (another clue) and can sleep all night, until evening or just for an hour.

Then the Elementals appear! One at a time you have to work out how to get rid of them, and no, I'm not going to give you any clues. I have currently scored 190 points out of a possible 500, so there is a lot yet to see and solve. This is one of the attractions of buying a Sierra adventure game. You get far more hours per dollar than you would hiring videos. They make you think too!

Once again, Sierra has produced a high quality game every bit as good as QFG1. There are just as many puzzles, and most are quite different, and a good smattering of humour. There seem to be many more characters to chat with and many more locations than I have seen in their games before. The sound effects (especially through a sound card) are well thought out and really add polish to the whole product. Wash all that down with a good dose of VGA graphics and the result is a high quality, challenging and entertaining piece of software. I'm still hooked!

Requires 640k MS-DOS compatibles or Tandy. Supports Tandy Graphics, CGA (B & W), EGA, MCGA (PS/2), VGA and Hercules Monochrome. Also supports Roland MT-32, LAPC-1, AdLib, Sound Blaster music synthesisers and PS/1 audio/joystick adaptor. Hard disk recommended. Supplied with 9 x 3.5" Low Density and 5 x 5.25" High Density disks. Retails for $79.95. ■



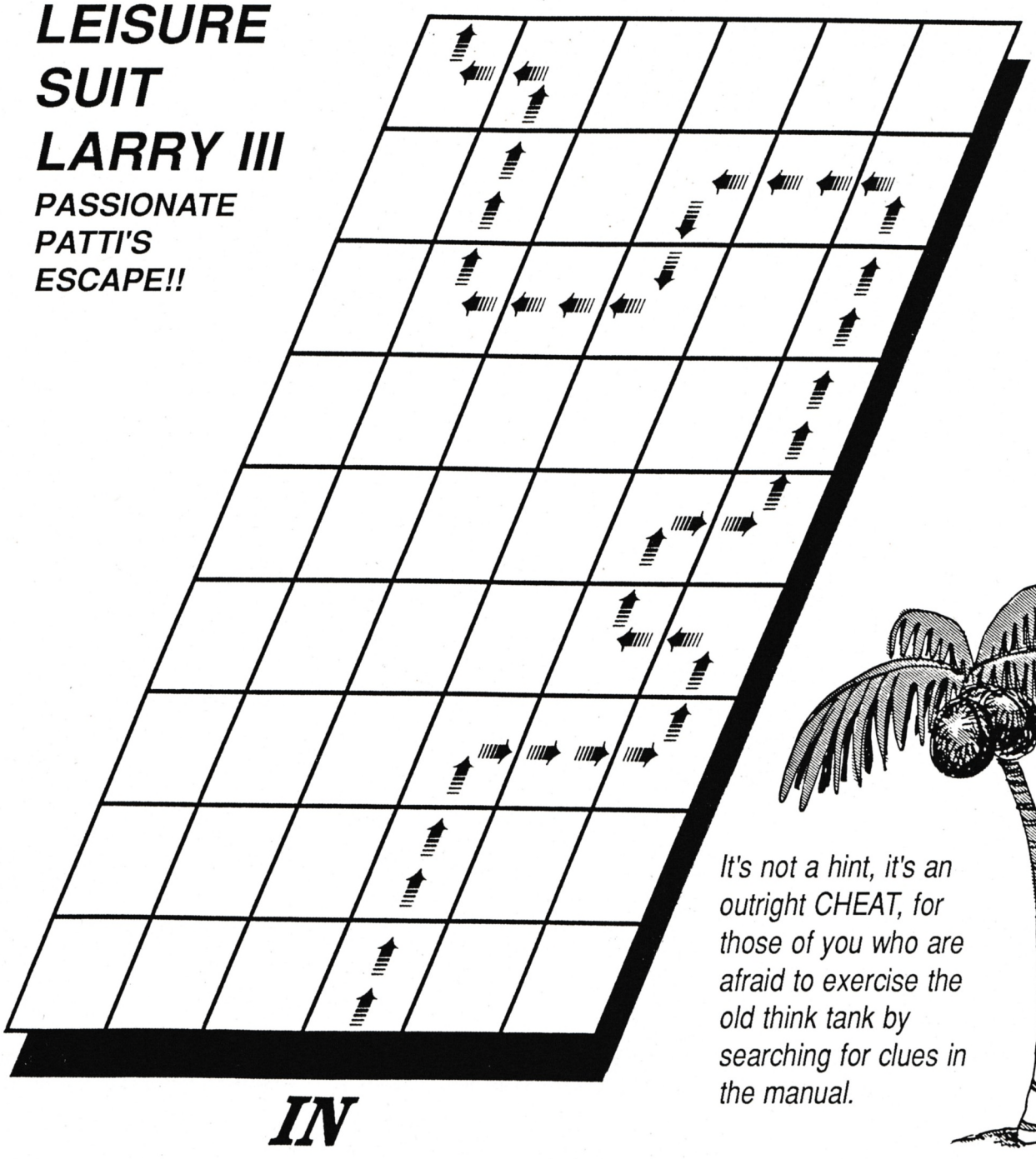
REVIEW

Can you take a hint? (Nudge nudge, wink wink...)

OUT

LEISURE SUIT LARRY III

PASSIONATE PATTI'S ESCAPE!!



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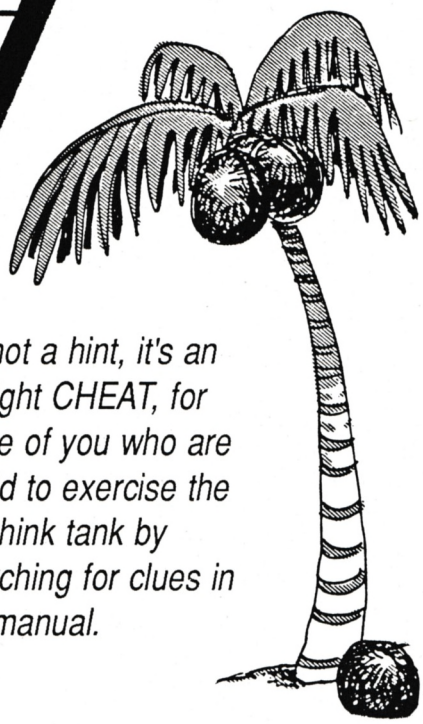

It's not a hint, it's an outright CHEAT, for those of you who are afraid to exercise the old think tank by searching for clues in the manual.

Affordable Homeware

A new series of software, designed for family or small office use, gets the green light.

Over the past three years Reckon Software has grown to become a major supplier of productivity and educational software in Australia. Unlike some distributors who tend to fall over themselves to get the rights on any or all products available in the US or Europe, Reckon is selective in its approach to choosing software applicable to our own market. As many users would have found out too, Reckon has always supported its products - a service which some other distributors would be wise to adopt.

The KHK Software series is the latest addition to the Reckon list and cuts new ground. In the first place the constituents of the series are a departure from the normal productivity aids expected from the company, and in the second place, they are probably the first software products to be published in Australia under license from the new United Germany. Apparently KHK sells extremely well in Europe yet the cost in Australia is nearly half the DM price - now that makes a change.

Labelled as "affordable titles for every member of the family", Reckon has selected twelve titles, an appropriate cross section of the twenty-four available in United Germany. *(For a full list, refer to the box at the end of the article.)*

KHK PRIVATE PAYMENT PLAN

Our economic climate is not the best at the moment, and overstretching financial resources (especially over the last few months) may cause some sleepless nights. Keeping track of commitments is fundamental to good house keeping and this package is designed to do just that.

It essentially stores a list of your regular expenditure and income so that you can display or print a report of your financial commitments over a selected period. Having made a backup of the program disk (or installed it on a hard disk), the program is loaded to present a title screen in black and white with an option bar at the top of the screen. Selecting the options is simply a case of pressing the ALT key along with either a P (Payments), D (Display), C (Currency), O (Options or E (End).

The first job is to identify all the period payments you are currently making, and any others in the future if known, and set up the new file by entering them into the 'Payments' option of the system.

With each entry you are first required to enter an optional Payment Number and an optional Description. Both these fields can be used later for record searching purposes, so choosing unique numbers and descriptions is sensible. You also have the opportunity to enter the name of the account from which the payment will be drawn (normally a cheque account) and three comment lines relating to the payment. For example, if you rent your TV it is possible that you would want to note the rental agreement number or the hiring company name and phone number.

The 'Payment Interval' is the next entry and can be any one of a list running from a one-time payment and daily through to every six months and annual. All the possibilities seem to be here, including fortnightly.

Now we're getting to the 'drain on resources', the part of the program where the payments are entered. Usefully, two amounts can be entered. This facility is provided if you know that a payment will change at a later date. The amount and date of the first payment is entered and then the second if necessary, otherwise the return key is hit. The final entry records a 'Valid Until' date, for example, the day after the last payment, and the whole record is saved to disk.

To balance the 'drain' must be some income, and although it is not specifically mentioned in the manual, this is logged by entering a negative payment.

The 'Payments' option also allows for existing records to be retrieved, browsed through, edited or

deleted. Finally, you can specify the format of the date, either dd.mm.yy or mm.dd.yy.

The 'Display' option gives two useful pieces of analysis. The first is an overview of your payment commitments over a specified period, either within a particular bank account or overall. As long as you have specified correctly in the file creation stage as to where your payments will be coming from, you can get some useful information from this part of the program. The second set of figures concerns a look at the annual situation. This is where it all comes together in terms of giving a 12 month forecast as the income is also displayed. Both sets of analysis can be printed if required.

That takes us neatly to the 'Options' which allow you to identify whether or not you have a printer, and if you have, into which port it is connected. It also allows for the printing to be adjusted from 80 characters across to 132 characters. This is the place where you can alter the colours on the screen too.

Private Payment Plan is simple to use and appears to be free of any bad programming points you would normally expect from cheaper software. For first-time users, the provision of a Help Key (F1) is bound to be a great help. Owning the package may be a small price to pay to keep your financial affairs in order and avoid a potential disaster.

KHK WORD PROCESSING

There are heaps of Word Processing packages around, so what sets this one apart from the others? First off - the price, but then, does it have the features you would expect in more expensive packages and is it as flexible? The only way to find out is to give it a run through.

Word processing is all about entering text, modifying it and then printing it out. Text entered for a new letter or article should be saved to disk as often as possible so as to minimise any loss in case of power failure. KHK WP forces you into this habit as soon as you identify that a NEW file is to be started. In fact, before you can start entering text, the program asks for a file name. Perhaps a few days on, when you wish to add to the file or make amendments, you'll use this name to load the text back into your PC to work on it further.

Editing text with this package is relatively simple, it's just a question of getting used to using the correct cursor movement keys. In general terms, movement of the cursor to a desired position for insertion or deletion is achieved by using the cursor keys. For scrolling up and down the text, a combination of CTRL and W or Z keys are used, and to move a page at a time the PgUp and PgDn keys are used. Certainly there is everything here that is needed to edit a document properly, even down to the insert mode toggle. (If the toggle is on, as it is at the start of the program, any text to the right of your insertion point, and as you type, will be moved to the right. If it is switched off, the text to the right is overwritten). You can delete characters, words or even lines with just one or two keypresses. You can copy, move, delete, write and read blocks of text or search for particular words or character strings and amend them. This is particularly useful if you have typed a long document only to discover at the end that you have incorrectly spelled a name which appears frequently in the text.

The package does have mailmerge facilities (where you need to send the same letter to a lot of different addresses) and is supplied with a conversion program SLETTER to do it. Unfortunately it also requires KHK Address Management, which is not currently on Reckon's list. No doubt they will organise this.

Printing is a breeze and you are given a choice before you start as to how far from the left margin you wish to print. This is always a handy option for avoiding hole punches in printed text.

The answer to the question at the beginning of this run-through is that KHK Word Processing stands up very well to comparable packages, some much more expensive too. Sure, you cannot compare it to, say, MS-Word or the like, but then it has not been produced with those users in mind. It's a simple word processor designed for all members of the family to use regardless of their computer expertise.

KHK TELEPHONE AND ADDRESS REGISTER

This is essentially a database to hold telephone numbers with their respective company names, addresses and contact points, but goes beyond that with an extremely useful 'recall' facility.

With all databases, planning is necessary before any data is input. This package is no exception and with a little forethought it performs well. For example, if our own telephone number was input as 803 9661 instead of 03 803 9661 there would be little chance of picking it up as a Victorian phone number (although you could use the Post code in the address). Another example could be the use of company names and their place in a sorted list. If we had entered "The PC Mag" in the company name field, a sorted list would show the

entry in the "Ts". On the other hand, if we enter it as "PC Mag, The" it will end up with the other "Ps".

There are plenty of sort and print options with this program, but no doubt the household or office which treats the telephone as an important means of communication will find the 'recall' facility particularly handy. Against each phone number can be stored information relating to a call that must be made at a future date, along with the name of the person to contact and brief details of the subject matter. Alternatively, this area can be used to log important calls received which require a response. Lists can be browsed through or printed relating to the 'recalls'.

Again, it's a neat little package, easy to use and well presented.

KHK SLIDES AND FILM MANAGEMENT

If you've built up a large collection of photographs, some exhibited in albums or slides stored in cassettes ready for projection and the rest stored away with their negatives, you may think you're well organised. Chances are you'll discover you're not when asked to produce a particular shot or negative for copies to be made. This package will help you discipline yourself and make life more tolerable when searching for that elusive picture.

It's a database which lets you categorise your collection. Each record holds a unique number identifying the roll of film or resulting negatives and a 'contribution number' which really means the shot or exposure number. It also identifies the film speed/type, the 'motive' or description of shot (eg. Castle), the picture series (eg. Holiday - Scotland 90), the place (eg. Edinburgh) and the date. There is also provision for additional comments of up to 50 characters. The process is repeated for every shot of every film. Setting up a database is a long process (often underestimated) but you normally only have to do it once.

Once created, the program comes into its own by being able to identify groups of pictures or films. For example, you could identify all the pictures of castles you have taken, or on a particular date or at a particular place. In fact it is safe to say that you can sort and extract information on any of the fields entered. Now there is no excuse for 'losing' a treasured picture.

SUMMARY

It is true that you only get what you pay for, and the KHK series is not expensive. The cost of each is $49.95, but if you buy three and return the special vouchers found inside each pack, you can get another free of charge. Each pack is supplied in dual format (both 5.25" and 3.5" disks are supplied) and will run on any IBM or 100% compatible with 512k, running under MS-DOS 3.1 or higher and with two floppy drives (or one floppy and a hard disk).

The main selling points are their ease of use, relevance to the home user and consistency throughout the series. This last point means that KHK have standardised the method of installation, use of function keys and general operation so that it is not a major learning exercise as you move from one package to another. The documentation is precise, and only occasionally exposes its German origin. Reckon should be pleased for discovering the series. ■

THE COMPLETE KHK RANGE

Slides and Film Management
An easy and quick tool to retrieve slides and films (regardless of the type) even if you only know either the type, motive photo series, shooting place or shooting date.

Creating and Printing Labels
Allows you to produce any required label (eg. Floppy disk, preserving jars, etc.).

Literature Management
Allows you to retrieve books quickly in an electronic filing system, even if you only know either the title, the author or the publisher.

Private Payment Plan
Helps you determine which financial commitments to expect over a certain period or to a specific deadline.

Telephone and Address Register
Manage your personal telephone register containing all important telephone numbers.

Personal Inventory List
Creates an inventory index documenting all objects, assets and household items entered in the inventory file.

Electronic Filing
Quick and easy retrieval of records filed in the electronic filing system.

Record, Cassette and CD Management
Facilitates the management of your audio collection even if you only know either the title, the artist or the composer.

Recipes Management
Helps you manage recipes with main ingredients, preparation time and nutritive value.

Video Management
Allows fast retrieval of titles recorded on your video tapes.

Calorie Control
Supports your slimming diet.

Word Processing
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Fair Game

Chris Collins gives his monthly update of what's new in the Shareware/Public Domain market.

Firstly, more news about the McAfee virus tools diskettes - currently (December 16th 1990) all of the McAfee programs have been updated to v71b. By the time you read this they will probably have gone even further, but as for now, v71b is the most current. Also, VET, another of the programs on the two Virus Tools diskettes has risen to v6.27 and has now been replaced.

Some games are the order of this month, as well as some DOS tricks. To start off with, an EGA games disk (#7), and two more VGA games disks (#3 and #4). Enjoy!

EGA GAMES DISK 7

EGA Games diskette 7 has now been released to join the other 6 diskettes, and shows how much people have been able to do with EGA graphics. A list of the programs along with a quick description is listed here:-

FRAC11.ZIP:- FRAC v1.1 is a 3 dimensional version of Tetris. Unlike the original Tetris and it's follower, Welltris, FRAC shows you what is happening from the front right corner of the well. This means that you can see almost everything that is going on. The blocks rotate in three dimensions also, which sometimes makes it easier to place them but also makes it harder. How does it get its name I hear you ask? (Well I hope that I did)! The background that is used for the screen is that of a mandlebrot equation, commonly called a fractal. This game is great, and apart from Quatrix, I think that it is the best version that I have ever played.

MLYAHT.ZIP:- This is the version of Yahtzee as supplied by the Microlink Computer Club, hence its name. The graphics used are a bit rougher than I would like considering the fact that it used EGA, but the game play is very good. You can use a mouse if you wish, although it isn't a necessity. The game plays well, and I had a lot of fun whilst using it.

REFLEX.ZIP:- This is a worm style of game similar to Turbo Snake, but with a lot better graphics and a lot better game play. The graphics are very good, and the game play is also very good because of the changing nature of the screen. The better you get, the faster the system gets. Remember, DON'T RUN OVER YOUR TAIL!

SFLY10.ZIP:- Superfly is another game from the computer of Nels Anderson. He is the same person who also wrote Mahjongg, EGATREK and a couple of others. Your mission, should you decide to accept it, is to kill all of the flies and other nasties that go into your house. Your only weapon is your trusty fly swatter. Go to it buddy!

SOLITILE.ZIP:- This is a version of Mahjongg by a different author. The tile set used is totally different from Mahjongg, and has a lot to do with normal life. If you enjoy Mahjongg, you will also enjoy Solitile.

Well, that about sums up Games Disc 7. I hope you enjoy this one as much as you appear to have enjoyed the previous ones. I am now working on EGA Games Disc 8. All VGA users, please don't forget that the majority of EGA games will run on your VGA cards without any problems.

VGA GAMES DISK 3

This is the third diskette in the range of VGA games disks. Following this dissertation will be news of VGA Games Disk 4, but for the moment a list of the games on VGA Games Disk 3, and a short explanation on each are listed here:-

ALIEN.ZIP:- Alien Worlds is a new VGA and mouse game that

BUDGET

I was able to find in the U.S. The game is a classic shoot-em-up, with flying baddies and a flying hero. Registration of the evaluation version will get you a couple of new programs that allow you to create new aliens and new background screens.
JOUST.ZIP:- This is a silly game called Jousting Ostriches. You are astride an ostrich and it is your job to try not to get killed. It is fun to play, but I didn't understand quite what I was supposed to do.
VSHARKS.ZIP:- Another new mouse and VGA game in which you need to swim about the screen collecting creatures from the bottom of the ocean. The only problem is that the sharks get in your way and try to eat you. I really enjoyed playing this one, even if it isn't too difficult to beat.

That completes the list of what is available on VGA Games Disk 3. If you don't see something you like, have a look at VGA Games Disk 4 which is listed below.

VGA GAMES DISK 4

Diskette #4 in the VGA Games Disk series is the most recent release. Currently, I am working on #5, but the following should be enough to keep you interested.
ACK!.ZIP:- ACK! is a VGA implementation of the old classic PACMAN. The gameplay is exactly the same, and the screen looks no different than before. Apart from the exercise in writing such a program, I can't see the point. But I am sure that there is somebody out there who would get enjoyment from ACK!
QUATRIS.ZIP:- This is another excellent version of the Tetris style game. This one has some extra wonderful additions, including bombs. The game is only two dimensional, but things change as you go along. On level 1, the width of the rows are only 10 blocks thick. This increases to 17 blocks on level two, with three half completed rows already supplied. In level 3, the width is back down to 10, but there are four uncompleted rows.

Unlike Tetris, Quatris doesn't use the coloured blocks, but uses numbers on the blocks to build up bonuses. You are given two numbers at the beginning of each level. If you delete a line, and the total is the same as the given number, you will receive extra bombs and super bombs. I won't tell you what the bombs do, that is up to you to find out.

On registration, you will receive the commercial version that doesn't stop at three levels as per this evaluation version.
ROULETTE.ZIP:- This is a classic implementation of a roulette game, with the addition of VGA graphics. The game plays very well, although the wheel is very disappointing. The tiles that can be used are either 100, 250 or 500, and can be placed almost anywhere on the board. You can also keep track of your results and your balance till the next time you play. This version of the game allows only 20 tiles to be placed by any one player. I have always quite enjoyed playing Roulette, and this version is very good. The only negative point is the wheel used as it is is not up to the standard of the rest of the game.
SPRAY.ZIP:- This isn't really a game, but a VGA demonstration of what would happen if you had different colour spray cans spraying against a wall. I like it, that's why it was included.
VGABOMB.ZIP:- This is a VGA version of that classic EGA game Artillery Challenger. You get to set the angle of attack and the speed of the shot to bomb the opposition. Great fun!

VGA Games Disk 4 is now over. Hopefully, as more people become familiar with their VGA systems we will see a lot more games released. Until then, please enjoy all 4 of the VGA Games Diskettes series.

HUMOROUS DOS TRICKS

The next two diskettes that we have to look at are called Humorous DOS Tricks 1 and 2. I won't go too much into what is on each diskette, but I will give you a quick run-down on some of the programs that are spread over the two diskettes. Each is available separately if you wish.
JIVE.COM:- Takes an ASCII text file, and converts it into jive speak.
FACE.COM:- Happy, smiling faces bouncing around the screen.
DRIP.COM:- The letters keep falling off my screen.
CHOMP.COM:- A different way to clear the screen.
THATSALL.EXE:- A great end to a batch file, THAT'S ALL, FOLKS!

These are just some of the programs on the two diskettes. Some of them have documentation files, some don't, but it can't hurt you to try. None of these programs will cause any harm to any part of your computer. If you want to be rid of any annoying joke, just REBOOT and all will be okay.

MORAFF'S PINBALL

Moraff's Pinball is a diskette version of a simple pinball game that works in either EGA or VGA mode. It actually asks you to specify which mode you want it to work in. The graphics are very good in both modes, but

WORDFIND

X	E	N	O	C	O	P	H	D	J	U	E	I	X	U	J	K	K	L	O	O	S
S	T	O	B	Y	F	H	S	W	M	A	N	E	F	L	Y	R	D	V	X	Q	P
D	D	F	C	V	B	N	I	M	A	S	N	L	E	G	E	E	E	G	G	S	O
Q	R	O	O	S	T	E	R	T	Y	O	N	F	L	C	S	H	I	N	O	B	Z
A	O	P	I	T	Z	A	D	U	P	T	O	W	N	R	I	L	L	O	V	J	B
I	L	I	P	O	H	A	G	H	Z	B	H	A	H	A	L	D	R	I	B	C	N
A	M	P	O	A	P	C	O	J	E	N	M	Y	T	E	E	E	W	I	R	E	D
F	R	R	C	C	A	B	Y	I	W	O	L	L	E	A	Q	S	X	I	E	F	O
U	O	O	O	L	E	K	B	W	R	A	D	P	T	I	M	E	M	L	K	E	O
N	T	B	B	J	E	C	R	U	D	C	F	H	T	Y	K	E	D	R	S	G	L
I	S	O	O	O	T	I	E	J	B	O	T	N	W	L	W	N	N	M	U	G	B
P	O	C	R	R	C	N	M	E	E	R	O	V	A	A	L	D	E	R	B	E	D
O	S	U	A	Z	W	O	C	V	A	Q	U	L	V	C	L	E	S	A	D	K	B
N	O	P	O	C	O	R	D	P	B	R	O	E	B	F	I	N	W	E	N	C	H
I	S	C	A	P	E	L	O	R	D	X	Y	B	O	T	S	R	S	S	T	Y	K
H	N	E	U	R	O	M	A	N	C	R	A	I	N	Y	N	O	R	B	L	O	O
S	H	I	N	O	B	I	O	I	L	S	W	O	P	K	D	I	P	U	X	I	M
J	E	F	A	S	C	A	P	E	G	H	O	S	T	U	S	K	E	R	T	S	O
N	W	O	D	K	C	A	L	C	R	I	M	W	A	V	H	E	D	E	E	A	S
J	I	N	X	Y	B	O	D	F	R	H	T	Y	B	H	T	Y	F	P	O	D	D
J	K	P	I	C	O	O	L	C	R	A	C	K	D	O	W	N	A	C	I	R	R
E	G	J	I	N	X	T	E	R	E	B	O	H	P	O	N	E	L	J	T	Y	M

Popular game titles to be found above:

- XYBOTS
- JINXTER
- BLOODWYCH
- CRACKDOWN
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- DEATHTRAP
- TURRICAN
- MYTH
- XENOPHOBE
- NEUROMANCER
- OILSWELL
- SHINOBI
- SCAPEGHOST
- STORMLORD
- TUSKER
- ROBOCOP

the gameplay does leave a little to be desired. But this could be attributed to my lack of knowledge of pinball machines. I always thought that it was possible to roll a ball along a flipper, but in Moraff's it won't allow you to do that as the ball keeps bouncing away. A small point to raise I suppose, but apart from that it is fine.

EXPLORING THE COSMOS

Exploring the Cosmos is a demonstration version of the full blown version of the same name. This version is limited to 200 stars, and has a limited range of vision directions, but the essential program is still here. It allows you to modify a lot of the parameters used by the program, and then save these parameters for the next time you use it. You have the facility to pick a star out of the night sky and find out more information about it.

The program requires either an EGA or VGA display to function at its best, but it will work on CGA. I don't really recommend it though. I think it is a very good program for people who have some interest in Astronomy, but if you want to get more involved, buy the registered version.

Well, I think that this is all there is for this month. Don't forget that all of the diskettes that I speak about are always available from:

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Hard Driving - 2

Part Two takes you further in depth into the machanics of your hard drive and its performance.

Last month's article introduced you to the technical aspects of the hard drive. Part Two now takes you a couple of steps further in understanding your computer with information on RLL dives, MFM drives, and disk performance.

RLL VS. MFM

You will have heard a lot about RLL drives recently: put simply a 30 Mbyte RLL drive can be obtained for little more than the cost of a 20 Mbyte MFM drive. So what's the magic secret that gives you 50% more capacity for the same price?

One of the functions of the disk controller is to translate the binary data that we wish to store into a series of magnetic fluctuations which are recorded on the drive. The system for doing this is known as the encoding scheme and the two most common encoding schemes are MFM (Modified Frequency Modulations) and RLL 2,7 (or Run Length limited or just RLL for short). Up until recently almost all drives have used MFM encoding. Just to confuse matters MFM is in fact a form of RLL encoding itself, technically called RLL 1,3.

Let me try and explain this to those who simply have to know just how everything works. For the less technically minded, please don't worry if you don't follow a word of this explanation!

The signal recorded on the disk is a series of very rapid magnetic field reversals, each reversal of the magnetic signal representing 1 bit. The result is a magnetic signal of varying frequency or differing intervals between pulses. Like any other communications system there is a minimum and maximum frequency that the drive and its electronics can handle, this is known as its bandwidth. This means that there is both a minimum and a maximum gap between pulses on the disk. The important point is that data is packed so densely that there are no distinct blips of sound - it is not recorded like Morse code (as a series of distinct bleeps) as I originally imagined. Instead there is a tone of varying frequency.

A lot of work has gone into devising systems of encoding the data into this sound wave. With both systems of encoding, additional bits are inserted into the signal which are set to 0 or 1 to ensure that there are never two adjacent 1 pulses and never more than a certain gap between pulses; ie. the LENGTH of a RUN of zeros is LIMITED. MFM recording (RLL with a minimum of 1 and maximum of 3) has a minimum of 1 zero between pulses. This means that the maximum frequency of flux that can occur is every other possible pulse position. So the possible pulse positions can be twice as close together as if it were possible for adjacent bits to be set. However, every other pulse position is reserved as a "clock" bit which will be set to 0 if both the data bits on either side are one, and 1 if between zeros, so that you can never get more than 3 positions without a pulse.

The system is quite wasteful of space - with only every other position holding data, although the redundant positions do help to identify even single bit errors. So RLL 2,7 was invented. In RLL 2,7 a much more complicated system of encoding the data is used to ensure there are a minimum of two (and a maximum of seven) zeros between each one. The RLL 2,7 system still inserts an average of one clock bit for every data bit, but instead of placing them as every other bit, applies a complex set of rules to translate data bits into the encoded signal. This means

the encoded signal. This means that only certain of the possible bit patterns are used in the encoded signal. It takes 16 bits including the inserted zeros to hold 8 bits of data. However, the spacing of possible bit positions can then be three times the maximum frequency of signals permitted, or two thirds the gap needed under MFM recording.

IS RLL ENCODING RELIABLE?

One might think that squeezing 50% more information into the same disk area would inevitably create problems. In practice the maximum flux density for both systems is the same: it is the system of encoding the signal that makes much more efficient use of the same disk space. The penalty is that RLL 2,7 encoding makes the effects of background noise much more difficult to control. Timing is more crucial in that the time frame in which each pulse could occur is only two-thirds the size. Moreover, whereas under MFM the clock pulses occurred at regular intervals, they will not be regularly spaced under RLL 2,7; the translation of pulses as clock or data depends on their context. This makes it that much more difficult for the controller to keep in step with the signal from the disk: one bit of noise can cause the translation process to lose synchronisation. Overall signal to noise ratios are much more important with RLL controllers.

For this reason some manufacturers have recommended that only plated media (with a better signal to noise ratio) should be used with RLL controllers. Others, including Seagate and Miniscribe, produce special versions of their drives with modified electronics. Even so RLL drives remain much more susceptible to read/write errors than MFM drives. Normally these errors will not be apparent since the controller retries until it is successful, but safety margins are reduced and in the worst cases some owners have found that RLL controllers give frequent errors and need to be constantly reformatted.

Attitudes amongst manufacturers vary: many now use only RLL drives, others such as Epson take a conservative attitude and refuse to use them. It is worth noting that high performance ESDI drives almost all use RLL encoding, but the encoding is carried out on the drive itself and not on the controller so that the possibility of noise being introduced in the cables between the two is removed. Western Digital, famous for their hard disk controllers and who took over the Tandon hard disk factory, now make only RLL drives.

Whilst many people use RLL drives without trouble, when trouble does occur it seems to be much more prevalent amongst RLL drives. The causes of the problem may lie elsewhere - excessive RF interference from the monitor, static electricity from Nylon carpets etc. But RLL drives will be more sensitive to such problems.

Radio frequency interference can be easily diagnosed by lifting the monitor off the top of the PC and placing it on the desk to one side. If that cures the problem it is due to RF. Although later PCs have an earthed metal shield fitted to the expansion slots lid, this does not cover the ventilation slots, which are directly above the disk on a hard card. If you are choosing a hard card try to get one where the metal chassis curves round to shield the side of the disk drive itself.

DISK PERFORMANCE

Measurements of disk performance can be quite confusing: few people seem to measure performance consistently or to explain how the different performance measures affect the speed at which your software will run. This is because there are three main elements to consider in hard disk performance: firstly the time taken for the head to move to the right track (or average track access time) secondly the time taken for it to read the required information from that track and thirdly the efficiency of the operating system in storing the data on disk in an order that can be easily retrieved.

Access times are often quoted as if they were the only influence on disk system performance, which they are not, though they are the main element under the control of the disk drive manufacturer. In any particular case access times will vary according to how far away from the required track the heads already were. If they had just been reading the previous track the access time will be much less and this is the figure sometimes quoted as the track-to-track access time. The main figure to look for is the AVERAGE access time. Beware though of making comparisons between drives of different sizes - a large drive with more tracks may well have longer average access times when measured over the whole surface simply because it has more tracks to cover. When partitioned for MSDOS into 2 logical disk drives (one using the outer part of the disk surface and one the inner) then the average access time across the limited range of tracks used by each logical drive will be much less. For the same reason

partitioning an ordinary 20Mbyte drive into two 10Mbyte drives will speed up average access, provided that you are not trying to access both at the same time. Of course if you are trying to use both halves of the disk at once the heads will be moving back and forth between inner and outer parts of the disk and the performance advantage lost.

The second component - data transfer rate - has much more effect on the time taken to read large files. It is the rate at which the drive and controller can send data to the cpu. Since nearly all hard disk drives rotate at 3600 Rpm, some 10 times as fast as a floppy disk drive, this is going to depend on the controller interface with the drive and the design of the system unit.

Drives generally have either 17 or 26, 512 byte sectors per track, so in theory an MFM drive with 17 sectors per track could transfer up to 17 x 512 bytes 60 times a second or 510 Kbytes/second whilst an RLL drive which normally has 26 sectors per drive can in theory manage 780 kbytes per second. In practice transfer rates are much lower than this, mainly due to the slow speed at which the motherboard can accept data from the disk drive controller. The slow speed of transfer means that by the time a sector has been read and its contents transferred to main memory, the next physical sector on that track has passed by the read/write head and cannot be accessed until a full rotation later.

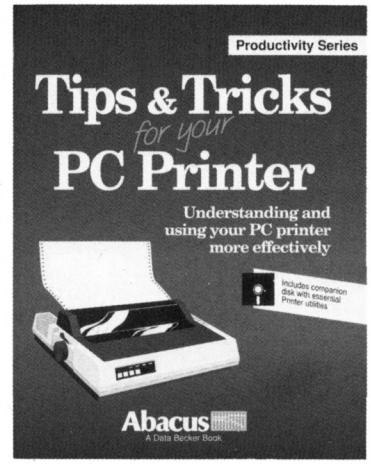
To counter this, sequentially numbered sectors are not located next to each other on the disk but are spaced so many sectors apart. This is known as the interleave factor. With an interleave factor of 4 the computer will read every fourth sector on the track taking 4 revolutions to read an entire track, so achieving a data transfer rate around 120kb/second. This is standard on many XI compatible PCs. With special controllers, which can hold an entire track of data in memory until the computer is ready for it, much faster data transfer rates are possible.

However in some computers which run their expansion bus at a slower speed than the main CPU, data transfer rates are slower and an interleave factor of 4 means that the computer will consistently miss a sector and then has to wait until that sector comes round again one rotation later. If the interleave factor is not altered this extends the time taken to read a track from the theoretical 4 revolutions to 20 revolutions and the data transfer rate drops to a pathetic 25 kb/sec.

Whilst changing the interleave is normally a laborious process, involving backing up all your data (twice if you want to be sure) and then repeatedly trying to do a low-level format with different interleave factors until the optimal value is found, it can be greatly speeded up using the Shareware program DISKOPT. This tests the system to determine which interleave factor is optimal and then reformats your disk track by track, saving and restoring the data as it goes.

Those with RLL drives could experience difficulties even with the latest version of DISKOPT. If you wish to use this program you must make a backup of your hard disk first. An editor once ignored this advice and was more than a little disconcerted to discover that DISKOPT had taken twelve hours to totally trash his data. Three years work down the drain! ■

TIPS



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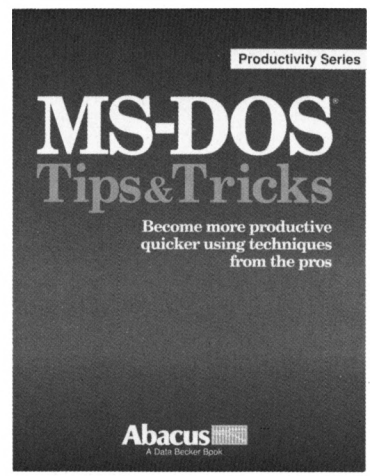

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Tempus /5.25		79.95
Terran Envoy /5.25	CE/512	49.95
Tetris /dual	CEH/256	59.95
The Pawn /5.25		69.95
The Usurper /5.25		59.95
Thexder 2 - Firehawks /dual		79.95
Thexder /dual (S)	CEVH/256	59.95
Third Courier, The /3.5 (S) (VGA needs 512k)	CEH/512	59.95
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Thunderstrike /5.25	EV/512	59.95
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Titan /5.25		59.95
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Treasure Trap (Deep Sea Diving) /5.25		59.95
Trivial Pursuit Genus /dual		49.95
Tunnels of Armageddon /dual		49.95
Tunnels & Trolls - Crusaders of Khazan /dual	CET/-	59.95
Ultima 4: Quest of the Avatar /3.5		79.95
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Ultima 5: Warriors of Destiny /3.5 (S)	ECVH/640	79.95
Ultima 5: Warriors of Destiny /5.25 (S)	ECVH/640	79.95
Ultima 6: False Prophet /5.25 (needs 640k)		84.95
Ultima Trilogy: 1, 2 and 3 /5.25		79.95
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Win, Lose or Draw 2E: from TV game /3.5		29.95
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Wipeout /5.25		29.95
Wizard's Crown /5.25		49.94
Wolf Pack /dual	CEVH/512	89.95
Wonderland /5.25 (S) [no graphics with CGA]	CEVMHD/640	79.95
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Xenomorph /3.5	CE/455	69.95
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UTILITIES

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MS-C Compiler /3.5 (also for OS/2)		825.00
MS-C Compiler /5.25 (also for OS/2)		825.00
MS-C Compiler Library Source/ 5.25		195.00
MS-Cobol Compiler /3.5 (also for OS/2)		1390.00
MS-Cobol Compiler /5.25 (also for OS/2)		1390.00
MS-Fortran Compiler 3/.5 (also for OS/2)		810.00
MS-Fortran Compiler /5.25 (also for OS/2)		810.00
MS-Macro Assembler /3.5 (also for OS/2)		295.00
MS-Macro Assembler /5.25 (also for OS/2)		295.00
MS-Pascal Compiler /3.5 (also for OS/2)		595.00
MS-Pascal Compiler /5.25 (also for OS/2)		595.00
MS-Quickbasic Compiler /3.5 (also for OS/2)		195.00
MS-Quickbasic Compiler /5.25 (also for OS/2)		195.00
MS-QuickC /3.5		195.00
MS-QuickC /5.25		195.00
MS-Windows 286 /3.5		220.00
MS-Windows 286 /5.25		220.00
MS-Windows 386 /dual		380.00
MS-Windows Developer's Tool kit /5.25		800.00
MS-Windows (v3.0) /3.5		249.00
MS-Windows (v3.0) /5.25		249.00
Music Construction Set /5.25		29.95
Name that Disk /5.25	CEH/256	79.95
Numbers Up /dual	CE/256	119.95
On-Screen DOS Assistant /5.25		29.95
PC Immunise /5.25	CEV/-	49.95
PC Protection /5.25	C/256	29.95
Program Director /5.25	CEH/128	95.95
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Tasprint Style writer /3.5		95.00
Tasprint Style writer /5.25		95.00
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Xtree Pro /5.25		179.00
Xtree Pro Gold /5.25		249.00
Xtree (v2.0) /5.25		79.00

WAR/MILITARY/SIMS

3-D Helicopter /dual (S)	CEVH/256	49.95
688 Sub Attack /dual	CEVH/384	49.95
A-10 Tank Killer /5.25 (S)	CEVH/640	69.95
Abrams Battle Tank /5.25	CEH/512	49.95
After the War /5.25		54.95
Air Combat /dual		69.95
Airborne Ranger /3.5	CEH/-	59.95
Airborne Ranger /5.25	CEH/-	59.95
Ancient Art of War at Sea /dual		79.95
Ancient Art of War dual		79.95
Arnhem /5.25	CE/-	29.95
ATF 2 /3.5 (EGA/VGA version)	EV/256	69.95
ATF 2 /5.25 (CGA version)	C/256	69.95
ATF 2 /5.25 (EGA/VGA version)	EV/256	69.95
B-24 Simulator /5.25		49.95

Battlehawks 1942 /dual	CEVH/384	69.95
Battles of Napoleon/ 5.25		49.95
Battletech /dual	CEVH/384	69.95
Blue Max /3.5 (VGA needs 640k)	CEVMT/512	69.95
Blue Max /5.25 (VGA needs 640k)	CEVMT/512	69.95
Carrier Command /3.5		59.95
Carrier Command /5.25		59.95
Chuck Yeager's AFS:1 /dual	CEH/256	54.95
Chuck Yeager's AFS:2 /dual	CEH/256	59.95
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Defcon 5 /5.25		59.95
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F-16: Combat Pilot /3.5 (EGA version)	E/384	59.95
F-16: Combat Pilot /5.25 (CGA version)	C/384	59.95
F-16: Combat Pilot /5.25 (EGA version)	E/384	59.95
F-16: Falcon /dual	CE/256	59.95
F-19: Stealth Fighter /3.5	CEVH/384	109.95
F-19: Stealth Fighter /5.25	CEVH/384	109.95
F-29 Retaliator /5.25		59.95
Falcon 3.0 /dual		69.95
Fighter Bomber /5.25	CEVH/-	69.95
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Fire and Forget 2 /dual		59.95
Fire Brigade /dual	CEVH/640	49.95
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Flight Simulator Vers 4 /3.5	CEVH/384	95.00
Flight Simulator Vers 4 /5.25	CEVH/384	95.00
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Gulf Strike /5.25 + 10 ds/dd blank disks		29.95
Gunboat /3.5	CEVH/512	59.95
Gunboat /5.25	CEVH/512	59.95
Gunship /3.5	CEH/-	69.95
Gunship /5.25	CEH/-	69.95
Jet Fighter 2 /dual		89.95
Jet Fighter /5.25	CEV/-	69.95
Kings of the Beach /5.25		49.95
LHX Attack Chopper /3.5 (best with 640k)	CEV/512	69.95
LHX Attack Chopper /5.25 (best with 640k)	CEV/512	69.95
M1 Tank /dual	EV/640	59.95
M1 Tank Platoon /dual	CEVH/512	89.95
North and South /3.5	CE/-	59.95
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Nuclear War /5.25 (VGA needs 640k)	CE/512	49.95
Operation Harrier /3.5	CEV/-	59.95
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UMS 2 /dual		89.95
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PC-Soft #01: 19 BASIC2 (Amstrad) utilities and games /5.25. Basic2	10.00
PC-Soft #02: Eight games /3.5	12.50
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PC-Soft #03: Twenty-four utilities /5.25	10.00
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PC-Soft #06: Ford Driving Simulator v2 (not mono screens) /3.5	12.50
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PC-Soft #07: Funnels etc. (Maths)/WP for Kids (Age 8 and up) /5.25	10.00
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PC-Soft #09: Educational Games for Kids - 1 (Age 4 to 8) /3.5	12.50
PC-Soft #09: Educational Games for Kids - 1 (Age 4 to 8) /5.25	10.00

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Disk Drive Head Cleaner /3.5" or 5.25" (please state)	17.95
Disks: 10 Verbatim Valulife Double Density /3.5	35.00
Disks: 10 Verbatim Valulife Double Density /5.25	18.00
Disks: 10 Verbatim Valulife High Density /3.5	60.00
Disks: 10 Verbatim Valulife High Density /5.25	30.00
Dust Cover: Amstrad PC1512/1640 - keyb'd & mon	36.00
Dust Cover: Amstrad PC20 - unit only	18.00
Dust Cover: Amstrad PC2086 - keyb'd & mon	39.00
Dust Cover: Amstrad PC2286/2386 - keyb'd & mon	39.00
Dust Cover: Epson LQ500, LX800	17.00
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Dust Cover: Star NX1000, NX 24-10, NB 24-10	17.00
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Ribbons: Epson FX800, LX800, 850	10.95
Ribbons: Epson LQ500, 800, 850	15.95
Ribbons: Epson LX80, 86, 90	8.95
Ribbons: Epson MX/FX/RX 100, 100+, 105, 105+	10.95
Ribbons: Star LC24-10, NX24-10	15.95
Ribbons: Star NX1000, LC10	10.95

PERIPHERALS

Joystick: Anko Precision	49.95
Joystick: Anko Standard	39.95
Joystick Games Card - 2 ports	49.95
Joystick: Junbo	29.95
Joystick: Konix Speed King (hand held)	49.95
Mouse Bus Card for X-30MD: frees serial port	46.95
Mouse: Genius GM-6X serial with Dr Halo /5.25	79.95
Mouse: Genius GM-F302 serial without CasCAD	129.95
Mouse: Genius GM-F303 serial with CasCAD /5.25	149.95
Mouse: Qtronic X-30MD serial with Dr Halo, pad, holder etc. /5.25	119.95
Printer Cable: parallel	29.95
Scanner : Full A4	895.00
Scanner : GS-4500 + OCR software	399.00

PUBLICATIONS

Abacus Quick Ref. Guide: dBase 3	24.95
Abacus Quick Ref. Guide: GW-Basic	24.95
Abacus Quick Ref. Guide: Lotus 1-2-3	24.95
Abacus Quick Ref. Guide: MS-DOS	24.95
Abacus Quick Ref. Guide: MS-Word	24.95
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Books for Beginners: Cobol	36.95
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NEWSAMSTRADNEWS

From the current CPC and PCW scene.

FLIPPER THREE SOON

An upgraded version of Flipper 2+, the program to split a PCW into two working environments, is currently being developed by Software Imperative. There will be a number of major enhancements, one of which takes into account users who have extra memory (in the shape of Rampacs) added to their PCWs. In this regard the new version will be able to flip between up to eight environments.

Other major changes include the ability to self-boot, (in other words it will not be necessary to load CP/M), and that the program will be entirely menu-driven.

At the time of writing a price had not been fixed by Software Imperative who are hoping for a release date by the beginning of February 1991.

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PCW FONTS AND CLIP ART

Get-Set Typeset, a fonts and clip art package for the PCW, is designed to be used with Stop Press. The collection of fonts includes typefaces for headlines and body text and the clip art contains pictures relating to transport, musical notation, heraldry and more.

The package comes on a three-disk set and even contains a utility to convert ASCII text saved from a number of wordprocessors (including LocoScript 1 and 2) into a form suitable for Stop Press to take. This utility may well be the answer to many PCW DTP-ers' dreams. Get-Set Typeset will be available from Strategy Publications during March at a cost of around $80.00. Advanced orders can be placed by ringing (03) 803 9661.

PCW GAMES

Surprise, surprise - not one but three new games are just about to be released for game-starved PCW owners. The first is **Terracom** ($52.95), a sort of Arkanoid derivative, where a sky-fortress has to be destroyed by blasting a 'ball' at it. Of course, it's a little more complex than that with many levels and sections to the game, but from all reports it seems to be one of those totally addictive games.

The second game is called **Tank Attack** ($64.95). It's a war game which brings together some really good graphics on the PCW plus the traditional board game. Tank Attack is a very intricate game requiring a lot of strategy, so will probably appeal to those who enjoy complicated scenarios.

To complete the trio (in more sense than one) is Topologika's **Last Days of Doom** ($64.95) which is also the third adventure game in the Doom series (the other two were Countdown to Doom and Return to Doom). It is not a graphic adventure but nevertheless is crammed with ingenious problems, over 200 locations and with 150k of text. You don't have to have played the others in the series to understand this new game, but those that have will appreciate the clever thinking that Peter Killworth has put into the game. Last Days of Doom is also supplied with a bonus game (Hezarin), clues in sealed envelopes and a cardboard cut-out Robot Dog Construction Kit.

Stocks of all three games are due sometime in February and full reviews will appear as soon as possible after that.

NEWSAMSTRADNEWS

LETTER TO THE EDITOR

I read with resigned interest the editorial in the December issue of TAU regarding the change to your magazine. With Amstrad withdrawing the CPC range of computers from sale in Australia the shift in readership and content was inevitable.

I was encouraged to note part one of two separate articles related to the CPCs, if for no other reason than that it illustrates the fact that The PC Mag is not abandoning the CPC owners. (I am hoping that the article on disk drives extends to the more technical aspects of the firmware as this information is almost impossible to obtain.)

Although I have access to an IBM compatible at work, my overworked CPC is still doing valiant work at home and I have no reason at this stage to upgrade. This letter is an appeal to remember the CPC owners and ask that you will continue to reserve us a corner in The PC Mag (as you have stated is your intention) as this is the only Australian magazine with news and articles relevant to the Amstrad CPC computer.

I have been a subscriber to The Amstrad User from the first issue in February 1985. I continue to be grateful for the help that the magazine as well as my CPC have given me in teaching me about computers in general. Because of the CPCs versatility and similarities to machines using MSDOS and UNIX operating systems I have been given a head start in learning to use these machines at my place of employ.

Mike Perry, Oatley, NSW.

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GAME PLAY

On review this month

BEACH VOLLEY

BACK TO THE FUTURE PART 2

ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS

MIDNIGHT RESISTANCE

VERDICTS

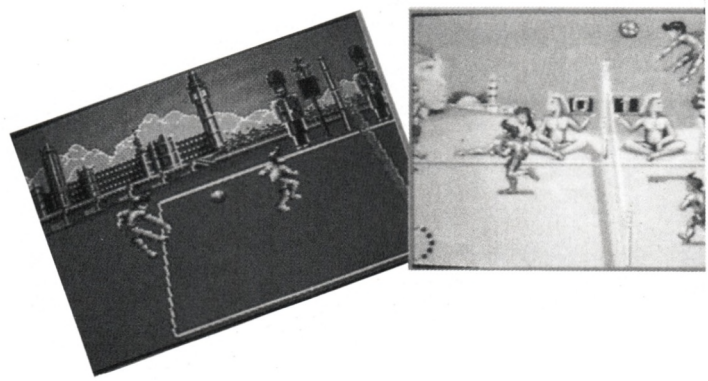
■■■■■ Outstanding
■■■■ Above average
■■■ Average
■■ Fair
■ Waste of money

BEACH VOLLEY

- *Published by Ocean • Distributed in Australia by Ozisoft*
- *Suitable for Amstrad 464/664/6128 • Price $39.95 Disk, $29.95 Tape*
- *Keyboard or joystick control Optional*

The release of Beach Volley came just in time for summer! With the greenhouse effect making hot hotter and ultra violet rays causing detrimental skin cancer, you're probably better off staying inside and toying with your computer this summer. But that's not to say that you can't still have fun in the great outdoors, no way people, that's what summer holidays are for!

Beach volleyball is the latest craze to hit our sunny, sandy shores - literally. Hence the release of Beach Volley, taking volleyball off the often polluted beaches and putting it into the cool security of your Amstrad CPC. It is a one or two player game, and as a bonus you don't have to be young and athletic to enjoy it, either.



Beach Volley takes your whole team (which to begin with numbers all of two) across the world, from London to Sydney - all expenses paid? - and before every match a world map appears on screen to show you your current destination. I guess that makes it geographically educational.

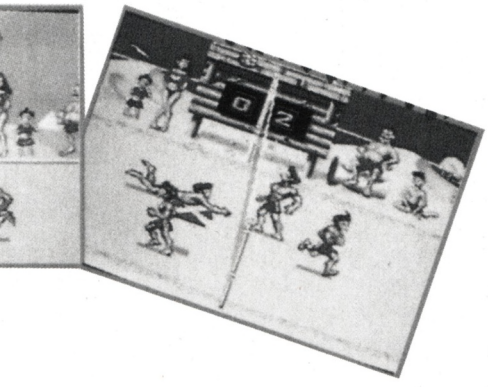
Methods of play involve the use of the joystick to determine the direction of the player and the ball whilst the FIRE button is pressed, and the cursor at the receiving end indicating the landing position, enabling the receiver to prepare a dig or a smash or what have you to return the ball. A hand icon bounces above the player which is in control at any given time.

If you don't yet know the finer points of volleyball then now's the time to learn them. To start with there are two types of service accommodated in this game, the first of which is the normal service. Normal service simply requires your player to use the button and the shaft of the joystick (if using one) to throw the ball into the air and then to fire again to hit it. Smashing a serve is done in the same way as smashing a normal return, simply pressing FIRE whilst simultaneously using the joystick to make your player jump, and then pressing FIRE again to hit the ball. You'll find that service takes a bit of practise, as combining movements and hitting the ball at the right moment aren't as easily done as said. As well as having to master the skills of volleyball, you play against a time limit.

Scoring is calculated by the effectiveness of your players'

defence and by the momentum of your attack. In simple terms that means that whenever the ball hits the ground one point is won, and it ain't by the team that dropped the ball. The winner will be the first team to reach seven points or the team with the higher score at the end of the set time limit.

The graphics are good if you like tanned male bodies, but bikini-clad women are a bit lacking at first. Plenty of detail has gone into the presentation of the scenery and the players, from the solid figure to its very



shadow. Even the ball has its own one of those.

It's entertaining to watch, as beginner players will look as clumsy as you feel, and in their human splendour fall over with great aplomb. The players also communicate, displaying good team spirit with voice tags of "OK" between hits. The accompanying jingle wont drive you mad, though it's nothing spectacular, and apart from that the most impressive sound is the bouncing of the ball. Beach Volley is a fun summer game for the great indoors. Who needs the real beach, you only get sand in your potato chips anyway!

VERDICT ■ ■ ■

BACK TO THE FUTURE II

- *Published by Image Works • Distributed in Australia by Ozisoft*
- *Suitable for Amstrad 464/664/6128 • Price $39.95 Disk, $29.95 Tape*
- *Keyboard, mouse or joystick control Optional*

Back To The Future, Part 2, is played over five different levels, each separate from the other in accordance with the storyline, and each based directly on certain scenes from the hit movie. Fortunately, though, it is a game to be played in its own right and therefore isn't dependent on the film. If you have seen the movie then the worst you can suffer is an extreme attack of de-ja-vu; if you haven't then here's your chance to re-write the script. Either way it begins the same, with Doc Emmet Brown returning from the year 2015.

Naturally he brings bad news, or we wouldn't be treated to a very interesting plot. It seems that Doc Brown has taken an extreme dislike to Marty's future personality and finds it his duty to warn him off the beer? It's under earth-shattering circumstances such as these that a destiny should be altered, right Doc? Anything for a friend.

Keep in mind that all levels are played to a time limit, some more stringently than others. Likewise, some more difficult to adhere to than others.

Your first objective is to race through a futuristic Hill Valley on your hoverboard (the skateboard of the future) to reach the Town Hall safely, in order to save your son from future disaster. The introductory and between-scene graphics are vibrant and amusing, but when you enter level one you are let down somewhat by the bland dichotomy of life. You are not supplied with maps and have little choice over which direction you take, therefore all you can do is ride your hoverboard - very slowly, I might add - pick things up, fight, and hope like hec that you get to wherever it is you are going on time.

The second level is much more colourful graphically, and gets your mind ticking over as soon as you enter. It is in the spirit of a logic puzzle and so requires a bit more thought. Your mission here is to get Jennifer out of the house, of which you have a bird's-eye view, without running accidentally or otherwise into any of the other occupants - ie: your future selves. This is no easy task as you do not control Jennifer directly. You activate the doors and the people follow the directions that open doors allow them. At first it is impossible to determine which figure is Jennifer, which door is the exit door and just exactly what you must do, but after a few tries it all unfolds, and eventually you'll work it out! It certainly makes up for the stale first level.

After this, so the story goes, you'll find things a little different. A sneaking suspicion tells me that Biff has screwed up the time flow and it's up to you to reverse it. But you'll have to fight your instincts on this one and make it safely back to the time machine first. This level is different in that the common occupant of Hill Valley is not so nice. People are so un-nice in fact that you have to battle your way through the town to reach the machine. That makes it a

combat game, which makes for plenty of variety so far. The musical score here is excellent, a perfect shade of eery. But the graphics seem to alternate between scenes, so it has gone back to being bland. Again you follow one direction, doing little but battle and pick up energy, which is very hard to see from the thick of the fight. Your energy may run out, but for some reason or other you may keep going regardless. Still, an interesting game, not dull.

To top that the next level is like a logic based jigsaw puzzle. You are presented with a scrambled picture of Marty playing guitar at the dance - reminiscent of the original movie - which, you may have guessed, you must unscramble. To do this you simply slide the tiles around and think very hard. It can be compared to small pocket tile puzzles. Logic puzzles such as this and the one in Level Two give the game its energy. They are the most absorbing feature, and the most colourful. The graphics are fantastic, in this particular puzzle there is superb animation even though the picture is scrambled. The band keeps playing and the toes keep tapping, the music still sounding. Even more challenging than the first puzzle, and more difficult, I found this to be the highlight of the game. The only problem is a four minute time limit, almost impossible to beat.

In the fifth level you have traced Biff back to 1955 - what, here again? - where it all begins. Biff has altered the future with a racing almanac and it's up to you to retrieve it to stop time from going skewiff. Therefore this level is a race against Biff and his guards. Still on your 2015 hoverboard you must trace through the yet again dull streets. Supposedly you are following Biff's car, but over this you have no control. These scenes are a big let down. Although they are not 100% dull, you never know entirely what is going on or maintain an appropriate level of control.

Overall the game is not a waste of money. The graphics are fantastic in parts and the music suitably dramatic. The musical side of it in its entirety is very well put together. Look forward to Back To The Future Part Three, perhaps the few minor problems will be improved upon by then.

VERDICT ■ ■ ■

ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS

- *Published by Domark* • *Distributed in Australia by Questor*
- *Suitable for Amstrad 464/664/6128* • *Price $39.95 Disk, $29.95 Tape*
- *Keyboard, mouse or joystick control Optional*

"Lots of beautiful girls have been abducted and taken to Planet X by the evil Reptilons. And when I say abducted, I mean.... well, yes - exactly! It's a disgrace! And those evil Reptilons are Downright... evil!"

If you are playing Escape From The Planet Of The Robot Monsters by yourself you will no doubt find it overwhelming. The first thing that will hit you is the speed - and following closely are the relentless abundance of robots. You wont even have time to wonder where they are all coming from.

Oh, two players, it says, that's why. The idea is that you adopt the identity of either Duke or Jake, playing with a friend. Both of you are allied in an attempt to rescue the enslaved humans from the Planet X, where they are held captive by the Reptilons. Each are forced to create a lethal robot army. The planet you traverse is little more than a factory - a robot factory - each room being a level that you explore, perform rescues and escape from.

Movement at first is awkward, you may only achieve a fragile state of control over your figure. This will improve with practise.

When you have adjusted to the pace you will notice the graphics - excellent! The layout of the factories consists of a platform arena. No entire room is displayed at a time, therefore the screen moves with you, adding an element of surprise to your adventure. Below the platform is your 'vital statistics' box which remains there for constant reference.

The setting is interesting and the colours vibrant. The figure itself is well animated, falling impressively flat on its back when destroyed and displaying great agility when falling from the edge of the platform. Watch your fire, though, because a hostage with an incinerated face is not a pretty sight.

The object of the game is to progress through these factories

freeing the hostages and destroying the Reptilon Guardians. To move from within one level to the next you must find the power switch to activate the exits and move on. As you progress the robots become more powerful, but reward you with green crystals that give you an extra power supply should you successfully destroy them. Mind you, if you get too smart you are likely to be crushed by giant steel ball-bearings, just one of the many surprises rewarding those that advance too far!

Rescuing the hostages is as easy as running into them, as they are beamed immediately onto your ship. The further you go, however, the more you will find them enclosed in glass cases that must be destroyed before they can be rescued. It is not necessary to rescue all hostages, but doing so earns you extra life points and so isl worth the effort.

Exploration is important, as there is more to be found than the odd hostage. Hidden in lockers is extra food, energy, and on occasion bombs, to increase your chances of survival.

Escape is pacy and fun, with a great jingle and good sound effects to boot. It's a fun shoot-em-up that makes saving the world all the more interesting.

VERDICT ■ ■ ■ ■

MIDNIGHT RESISTANCE

- *Published by Ocean • Distributed in Australia by Ozisoft*
- *Suitable for Amstrad 464/664/6128, disk only • Price $39.95 Disk*
- *Keyboard, mouse or joystick control Optional*

Average urban computer user turns hero yet again... Forget the common looking Rambo-look-alike cover of the box, this game is better than that. Packaging such as this, coupled with the dramatic title, would lead you to expect to be fighting person to person combat, wearing army fatigues in a jungle of some description.

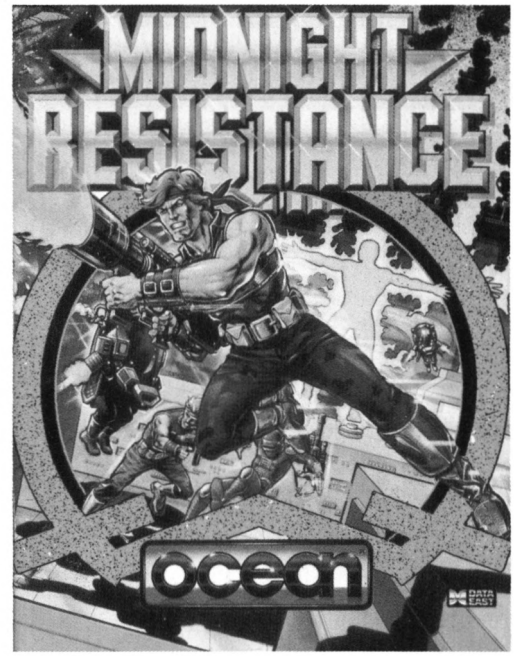
Luckily you are in for more variety than that. Midnight Resistance takes a similar fashion of combat and puts it into futuristic surroundings.

The plot involves a struggle between the resistance fighters - of which you are one - and the "awesome powers of King Crimson". Ultimately this is who you must destroy, but to do this you must first prove yourself over the various levels of battle.

Like all good crusades, it has had its difficulty proven by the many failed predecessors whose footsteps you must follow and improve upon. Most of your ammunition has been left by these predecessors, therefore must be collected as you go along. Collecting this weaponry is as simple as walking over it.

Your immediate enemies are the product of King Crimson himself. No ordinary king of evil, he is a (mad?) scientist who has used his knowledge for bad purposes. In his quest for power he has transmuted earthlings into ruthless fighting machines - machines being the key word. As a result you are up against giant armoured tanks, circular saws, mechanised snakes and airborne fighters, to mention just a few.

Enough of the scenario, onto the gameplay itself. Your screen is always busy, with a fully detailed background and a constant influx of enemies just waiting to be defeated. The action is non-stop - whilst not stressful and unrealistically difficult, it demands constant concentration and will keep the player absorbed. The scenery is interesting, and as I said, very well detailed. Your figure is refreshingly easy to manoeuvre - bulging biceps and all - whether walking, jumping or



crawling, which makes your combination of movement and shots a matter of reflex rather than a matter of acquired skill.

The sound effects are equally as impressive, though not overdone. If you're up to scratch you are asked to "Stick ya name in" the High Score screen, which ads a friendly, informal touch. Overall an entertaining fling with adventure, not much to complain about at all.

VERDICT ■ ■ ■ ■

AMSTRAD

Basic Short Cuts

Speed Basic cuts the redundant and time consuming aspects of programming.

Despite what those who sell assemblers and Teach-Yourself-Machine-Code books tell you, it is possible to write Basic arcade games of a decent standard. All you need is speed.

```
10  DEFINT  a-s,u-z
20  ti=TIME
30  FOR  a=1  to  1000
40  NEXT
50  PRINT  ROUND((TIME-ti)/
300,2)"seconds"
```

The above small program is a test routine which repeats an operation (placed between lines 30 and 40) one thousand times and then tells you how long it took. I am going to insert various program lines inside the FOR-NEXT loop to show you how you can cut seconds off program execution times.

10 RULES FOR SPEEDIER PROGRAMS

1. AVOID STRINGS

Strings are messy things. Unlike numbers, they do not have a fixed length and are slower to deal with.

```
31  IF  INKEY(64)THEN  c=1
32  IF  INKEY(65)THEN  c=2

3.46  seconds
```

```
31  b$=INKEY$
32  IF  b$="A"THEN  c=1
33  IF  b$="B"THEN  c=2

4.38  seconds
```

2. UNNECESSARY GARBAGE COLLECTION

The 664 and 6128 had improvements made to the Basic Rom so that there was no chance of suddenly running out of memory if you were using strings. Delete all FRE("") references if you have BASIC 1.1.

```
35  a$="**":z=FRE("")

4.78  seconds
```

```
35  a$="**"

1.33  seconds
```

3. AVOID ARRAYS

If your program contains tiny arrays with only two or three elements, it's much quicker to use separate variables instead.

```
35  z=a(1)+a(2)

3.24  seconds
```

```
35  z=a1+a2

2.63  seconds
```

4. USE DEGREES INSTEAD OF RADIANS

Arnold is the only home computer who allows you to use degrees and radians for angular measurement equally easily - degrees are quicker.

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```
15 RAD
35 t=COS(P1/4)

11.83 seconds
```

```
15 DEG
35 t=COS(45)

9.37 seconds
```

5. AVOID MATHS FUNCTIONS (COS, ETC.)

Repeated calculations of this sort take ages. If you know about Taylor or Maclaurin series, use them instead, even two or three terms can give excellent results. Also avoid the power ('^') operator; use repeated multiplication.

```
35 t=COS(P1/6)

17.85 seconds
```

```
35 t=0.5

1.11 seconds
```

6. USE INTEGERS

As an integer takes up only two bytes of internal storage - compared with a real number's five bytes - it's fairly obvious that it takes less time to knock fewer bytes into shape.

```
10 DEFINT a-s,u-z

0.47 seconds
```

```
10 DEFREAL a-z

1.11 seconds
```

7. AVOID EXCESS BRACKETS

A common error (one that you will see in almost every program you examine) is to use far too many pairs of brackets. They waste a lot of valuable time. Remember the 'order of preference': () * / + -

```
35 z=(3*2)*(5*7)

3.29 seconds
```

```
35 z=3*2*5*7

2.8 seconds
```

8. USE LOTS OF CONSTANTS

Calculate as little as possible inside loops. Use plenty of variables (preferably integer) instead.

```
35 z=SQR(2)*a

16.99 seconds
```

```
15 t=SQR(2)
35 z=t*a

3.75 seconds
```

9. USE FOR-NEXT, NOT WHILE-WEND

Apologies to structured programming fanatics, but FOR-NEXT loops are much faster, although they don't look as pretty.

```
30 WHILE a<1000
35 a=a+1
40 WEND

2.43 seconds
```

```
30 FOR a=1 TO 1000
40 NEXT

0.47 seconds
```

10. BE LOGICAL

Get rid of multiple statements by using logic instead. Say goodbye to IF-THEN-ELSE.

```
35 z=1:IF RND>.5 THEN z=2

4.16 seconds
```

```
35 z=1-(RND>.5)

3.96 seconds
```

Finally remove all excess spaces and REM statements, and compress variable names. It's as quick as that! ■

AMSTRAD

Discussing Disks - 2

The second installment for CPC and PCW Discophiles moving attention towards a better understanding of operating systems and their commands.

Having given you a brief background of the construction, composition and care of disks in December, it is now sensible to discuss how your computer responds to the demands of that spinning disk inside the disk drive.

Naturally, computers need some sort of system to handle the reading and writing of files to disks, copying, deleting, printing... the list goes on. The routines to achieve the necessary functions are either provided for you within a Basic interpreter language, native environment or as separate routines elsewhere and apart from Basic. Because the Basic language has been altered to suit different computers, commands or routines have been developed which are unique to a particular computer (try converting a Commodore program to an Amstrad CPC and you'll see why).

AMSDOS

The CPC6128 is supplied with AMSDOS, perhaps not a complete operating system as it cannot format disks, but it can be used by Basic for all disk operations and some applications like the ever popular word processor Tasword 6128. AMSDOS holds the commands (like Basic keywords) as System Resident Extensions (RSXs). They are distinguished from Basic keywords with a 'bar' in front of it. (The 'bar' is obtained by pressing 'shift' and '@'). They can all be accessed from within programs or in direct mode through the keyboard at the 'Ready' prompt. For example, type in |DIR at the 'Ready' prompt and you will get a list of disk contents displayed in a similar format to the CAT command.

As far as the cassette filing commands generated by a CPC464 are concerned (SAVE, LOAD, OPENOUT etc.), they are redirected to work on the disk based 664 and 6128. AMSDOS is not used on the PCW series of computers.

CP/M

The other operating system is CP/M and provides all the disk formatting and copying facilities missing from AMSDOS. The most important point about CP/M is that it is an operating system common to many computers and so a program written to run under CP/M may be used on different computers. Unfortunately, the CP/M commands are not available to programs running in the Basic language.

CP/M consists of the main software (operating system) and a number of utilities. It is loaded from a working copy of CP/M in the disk drive by typing |CPM at the 'Ready' prompt. PCW owners normally have a disk which will automatically load CP/M when the computer is switched on. In either case though, the result of successfully loading CP/M is the 'A>' prompt appearing on the screen. Some CP/M commands are available immediately, such as DIR to display a directory of the current disk. Others which are much larger are called in separately.

As the PCWs and 6128 have larger memories, CP/M Plus is provided with these computers. The standard and earlier version of CP/M (version 2.2) was supplied with the CPC664 and with the DDI-1 disk drive to be attached to a CPC464, but is only suited to a 64k environment.

AMSDOS Commands

Now for a run-down on the commands you can use on a CPC under AMSDOS. First, we'll go

through the external commands or RSXs. All of these are preceded by the vertical bar sign (|).

|A - Sets the default drive to A. When your computer is first switched on the default is automatically set to drive A. Only those lucky people who have two drives will need to use this command.

|B - Sets the default drive to B. These must be a formatted disk in the drive.

|CPM - Loads CP/M from a copy of your CP/M system disk (never use the master). It will wipe out any Basic program you may have loaded. Typing AMSDOS.COM at the A> prompt will return you to the 'Ready' prompt.

|DIR - Display a directory of the current disk, but unlike CAT, does not display the file sizes or put the list in alphabetic order.

|DISC.IN - Directs your computer to use the disk as input rather than tape. As the disk is the default anyway, you would only use it to switch back from |TAPE.IN.

|DISC.OUT - Directs your computer to use the disk as output rather than the tape. This is the default anyway, but could be used to transfer some types of files from tape to disk.

|DISC - A combination of the above two commands. It is normally only used to switch back to using a disk drive after using a tape drive.

|DRIVE - Provides the same function as |A or |B but can identify the particular drive to use within a program. It can be used as |DRIVE,"B" (switch to B drive) or |DRIVE,"C" (switch to C drive/silicon disk).

|ERA - A dangerous command which erases files from disk. It can erase just one file or combinations of generic files. For example, |ERA,"PROG.BAS" will erase the single file PROG.BAS whereas |ERA."*.BAS" will erase all files ending with .BAS. Beware!

|REN - Allows you to change the name of a file currently on disk. It requires the new and the old name as follows:
|REN,"NEWNAME.DOC","OLDNAME.DOC".

|TAPE.IN - Directs your computer to accept data from a cassette recorder instead of a disk drive.

|TAPE.OUT - Directs your computer to send its output to tape rather than disk.

|TAPE - A combination of the above two commands, usually used to switch operations to tape.

|USER - Allows you to change the current user number, a method of partitioning the disk drive directory.

Now we'll go through the Basic commands. The explanations are pretty brief and are only meant as a reference. You'll have to consult your manual for more details if you need to use them.

CAT - The standard command to display the contents of your current disk on the screen.

CHAIN - Runs a named program from disk or the next program on tape (if the name is omitted).

CHAIN MERGE - Loads a program and merges it with the current program in memory. Useful in using overlays in Basic programs.

CLOSEIN - Closes a disk input (reading) file.

CLOSEOUT - Closes a disk output (writing) file.

EOF - Tests for End of File to avoid errors when reading past.

INPUT#9 - Reads data from a file on disk which have normally been written in Basic using WRITE#9.

LINE INPUT#9 - Similar to INPUT#9 but usually used with files created in Basic using PRINT#9.

MERGE - Merges a Basic program from disk with one currently in memory.

OPENIN - Opens an input file on disk to be read by INPUT#9 or LINE INPUT #9.

OPENOUT - Opens an output file on disk to be written to with WRITE#9 or PRINT#9.

PRINT#9 - Writes a variable or list of variables to disk.

RUN - Loads and runs a program.

SAVE - Saves a program to disk.

WRITE#9 - Sends one or a list of write items to disk enclosed in inverted commas and separated by commas.

As it is not our intention to teach you Basic programming at this point, the syntax of the above commands have not been presented. The chances are, though, that you have not seen some of them before - so experiment. ■

Next month we'll focus on some of the more important CP/M operating system disk commands and look at some of the rules associated with them.

The Final Process

The final installment of Paul Gerard's word processing program for the CPC.

```
2420 LOCATE#2,mgn.set,1:PRINT#2,mgn$(mgn);:MID$(b$,1)=C
HR$(0)
2430 WHILE b$<>CHR$(13)
2440  MID$(b$,1)=INKEY$
2450  IF FNleft(ASC(b$)) AND mgn.set>2 THEN IF (mgn=2)
AND (mgn.set=lm+1) THEN PRINT CHR$(7) ELSE mgn.set=mgn.
set-1:GOSUB 2490
2460  IF FNright(ASC(b$)) AND mgn.set<79 THEN IF (mgn=1
) AND (mgn.set=rm-1) THEN PRINT CHR$(7) ELSE mgn.set=mg
n.set+1:GOSUB 2490
2470 WEND
2480 RETURN
2490 PRINT#2,CHR$(8);" ";:LOCATE #2,mgn.set,1:PRINT#2,
mgn$(mgn);:MID$(b$,1)=CHR$(0):RETURN
2500 GOSUB 3600:GOSUB 3760
2510 tas=lm:i=1:GOSUB 2620
2520 MID$(b$,1)=CHR$(0)
2530 WHILE b$<>CHR$(13)
2540  MID$(b$,1)=CHR$(0)
2550  LOCATE#2,tas-(lm-2),1:PRINT#2,CHR$(24);mgn$(3);CH
R$(24)
2560  MID$(b$,1)=UPPER$(INKEY$)
2570  IF FNtabkey(ASC(b$)) THEN LOCATE#2,tas-(lm-2),1:P
RINT#2,mgn$(3);:tas=lm:GOSUB 2620
2580  IF FNleft(ASC(b$)) THEN GOSUB 2700
2590  IF FNright(ASC(b$)) THEN GOSUB 2760
2600  IF INSTR(b$,"C")=1 THEN GOSUB 2820
2610 WEND
2620 IF i=tabs OR tap(i)>=rm THEN i=1
2630 WHILE tas=lm AND tap(i)<rm:i=i+1
2640  tas=MIN(MAX(tas,tap(i)),rm-2)
2650  IF tap(i)=tas AND tap(i)<lm+1 THEN tap(i)=lm+1
2660  IF tap(i)<>tas THEN i=2:tas=tap(i)
2670 WEND
2680 IF tas<lm+2 OR tas>rm THEN tas=lm+2
2690 RETURN
2700 LOCATE#2,tas-(lm-2),1:PRINT#2,"."
2710 tas=MAX(lm+2,tas-1)
2720 tap(i)=tas
2730 IF tap(i)=tap(i-1) THEN IF i>1 THEN i=i-1:tas=tas-
1:tap(i)=tas
2740 GOSUB 3660:LOCATE#2,1,1:PRINT#2,MID$(rul$,lm-1,rm-
lm+1);
2750 RETURN
2760 LOCATE#2,tas-(lm-2),1:PRINT#2,"."
2770 tas=MIN(rm-2,tas+1)
2780 tap(i)=tas
2790 IF tap(i)=tap(i+1) THEN IF i<tabs-1 THEN i=i+1:tas
=tas+1:tap(i)=tas
2800 GOSUB 3660:LOCATE#2,1,1:PRINT#2,MID$(rul$,lm-1,rm-
lm+1);
2810 RETURN
2820 j=0:WHILE tap(j)<lm+2:j=j+1:WEND
2830 IF tap(j+1)>rm THEN RETURN
2840 FOR j=i TO tabs-1:tap(j)=tap(j+1):NEXT
2850 i=i-1:LOCATE#2,tas-(lm-2),1:PRINT#2,".";:tas=lm:GO
SUB 2620
2860 RETURN
2870 IF (my=f) OR (my=(fr-1)) THEN 2960
2880 my=my+1:GOSUB 1630:my=my-1
2890 GOSUB 1630
2900 WHILE rm-rmk>INSTR(MID$(t$(pt(my+1)),lm)," ")
2910  MID$(t$(pt(my)),rmk+2)=MID$(t$(pt(my+1)),lm,INSTR
(MID$(t$(pt(my+1)),lm)," "))
2920  rmk=rmk+INSTR(MID$(t$(pt(my+1)),lm)," ")
2930 MID$(t1$,1)=SPACE$(84)
2940  MID$(t1$,lm)=MID$(t$(pt(my+1)),lm+INSTR(MID$(t$(p
t(my+1)),lm)," ")):MID$(t$(pt(my+1)),1)=t1$
2950 WEND
2960 IF auf THEN GOSUB 1480 ELSE GOSUB 1630
2970 LOCATE 1,sy:PRINT LEFT$(t$(pt(my)),rm):PRINT LEFT$
(t$(pt(MIN(my+1,fr-1))),rm)
2980 IF my<(fr-1) THEN my=my+1:sy=sy+1
2990 RETURN
3000 DEFINT a-z
3010 DEF FNcurs(a)=(a>239 AND a<252)
3020 DEF FNcontrol(a)=(a>0 AND a<25) AND (NOT FNsp(a))
```

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```
AND (a<>13)
3030 KEY DEF 68,0,28,28,28
3040 DEF FNtabkey(a)=(a=28)
3050 KEY 141,CHR$(29)
3060 KEY DEF 66,0,29,29,29
3070 DEF FNins(a)=(ins=TRUE) AND (NOT FNfull(a))
3080 DEF FNesc(a)=(a=29)
3090 DEF FNdel(a)=(a=127)
3100 DEF FNsp(a)=(a=16)
3110 DEF FNprich(a)=(a>31) AND (NOT a>125)
3120 DEF FNalph(a)=(a>47 AND a<58) OR (a>64 AND a<91) O
R (a>96 AND a<123)
3130 DEF FNlined(a)=FNalph(a) OR FNdel(a) OR a=13 OR FN
esc(a) OR a=46
3140 DEF FNleft(a)=(a=250) OR (a=246) OR (a=242)
3150 DEF FNright(a)=(a=251) OR (a=247) OR (a=243)
3160 DEF FNmenu(a)=(a>48) AND (a<=ml(mn)+48)
3170 DEF FNpron=((INP(&F500) AND 64)=FALSE)
3180 DEF FNdubhite=(INSTR(m$(18),"ON")>0)
3190 DEF FNblnk(a)=INSTR(t$(pt(a)),SPACE$(84))=1
3200 DEF FNfull(a)=INSTR(MID$(t$(pt(a)),lm,(rm-lm-1))," 
")=0
3210 TRUE=-1:FALSE=0
3220 tabs=10:DIM tap(tabs)
3230 RESTORE 3240:FOR i=1 TO tabs:READ tap(i):NEXT
3240 DATA 0,10,17,24,31,38,45,52,59,84
3250 DIM rul.op$(3),rul.inst$(3)
3260 RESTORE 3270:FOR i=1 TO 3:READ rul.op$(i):NEXT
3270 DATA "LEFT margin","RIGHT margin","TAB SETTINGS"
3280 RESTORE 3290:FOR i=1 TO 3:READ rul.inst$(i):NEXT
3290 DATA "      Move margin marker with cursor keys -
press [ENTER] to place marker"
3300 DATA "      Move margin marker with cursor keys -
press [ENTER] to place marker"
3310 DATA "  Press cursor keys to move, [C] to clear,
[TAB] to set next, [ENTER] to end"
3320 lm=3:rm=77
3330 DIM gm(40),spfg(40)
3340 DIM mgn$(3)
3350 RESTORE 3360:FOR i=1 TO 3:READ mgn$(i):NEXT
3360 DATA >,<,!
3370 pm$="  Printer is not on-line. Check connections,
 power, the ON LINE button etc.   "
3380 spg=1:ff=TRUE
3390 spg$="    Press 1 for single spacing (the default)
 2 for double spacing and so on    "
3400 prg$="       Make sure the printhead is in line wi
th the top of your paper etc.      "
3410 DIM ptr$(14):FOR i=0 TO 14:ptr$(i)=SPACE$(3):MID$(
ptr$(i),1)=CHR$(27):NEXT
3420 MID$(ptr$(9),2)=CHR$(18):MID$(ptr$(10),2)=CHR$(15)
3430 RESTORE 3450:FOR i=0 TO 8:READ ptr$:MID$(ptr$(i),2
)=ptr$:NEXT
3440 FOR i=11 TO 14:READ ptr$:MID$(ptr$(i),2)=ptr$:NEXT
3450 DATA @,x1,x0,4,5,P,M,W0,W1,p0,p1,u,h
3460 rul$=SPACE$(80)
3470 top$="Editing                  Line       Col.
              Auto format         "
3480 f$="Unnamed file":ins$="Overtype":form$="OFF"
3490 b$=CHR$(0):t1$=SPACE$(84)
3500 mn=1
3510 RESTORE 3520:DIM h$(3),ml(3),start(3):FOR i=1 TO 3
:READ h$(i),ml(i),start(i):NEXT
3520 DATA "  MAIN MENU  ",7,0," PRINT  MENU ",4,7,"  FO
NT MENU  ",9,11
3530 RESTORE 3540:DIM m$(20):FOR i=1 TO 20:READ m$(i):N
EXT
3540 DATA Create new file,Edit text in memory,Save file
,Load file,Print file,Rename file,Exit program,Set spac
ing,Set font,Print text,Return to main menu,Mode   (NLQ
),Italics (OFF),Font  (PICA),Expand (OFF),Compressed (O
FF)
3550 DATA Proportional (OFF),V. expanded (OFF),All to d
efault,Return to PRINT menu
3560 BORDER 13:INK 0,13:INK 1,0:MODE 2
3570 DIM t$(1),pt(1)
3580 GOSUB 3780
3590 RETURN
3600 WINDOW #2,1,80,1,1:PAPER#2,0:CLS#2
3610 WINDOW #2,lm-1,rm+1,1,1:PAPER#2,1:PEN#2,0
3620 MID$(rul$,1)=SPACE$(lm)
3630 MID$(rul$,lm)=mgn$(1)
3640 MID$(rul$,rm)=mgn$(2)
3650 MID$(rul$,rm+1)=SPACE$(80-rm)
3660 MID$(rul$,lm+1)=STRING$(rm-lm-1,".")
3670 FOR j=1 TO tabs
3680  IF tap(j) THEN IF MID$(rul$,tap(j),1)="." THEN MI
D$(rul$,tap(j),1)="!"
3690 NEXT
3700 RETURN
3710 WINDOW #0,1,80,2,24:WINDOW #1,1,80,25,25:PAPER#1,1
:PEN#1,0:GOSUB 3600
3720 WINDOW #3,29,34,25,25:PAPER#3,1:PEN#3,0:WINDOW #4,
40,44,25,25:PAPER#4,1:PEN#4,0:WINDOW #5,47,55,25,25:PAP
ER#5,1:PEN#5,0:WINDOW #6,27,54,25,25:PAPER#6,1:PEN#6,0
3730 RETURN
3740 CLS#1:CLS#2
3750 PRINT#1,top$;:LOCATE#1,9,1:PRINT#1,f$:PRINT#5,ins$
:LOCATE#1,74,1:PRINT#1,form$:CLS#3:PRINT#3,d:CLS#4:PRIN
T#4,MAX(a-(lm-1),1)
3760 PRINT#2,MID$(rul$,lm-1,rm-lm+2)
3770 RETURN
3780 d=1:a=1:my=1:mx=1:IF fr=0 THEN fr=(FRE("")/84)-30
3790 ERASE t$,pt:DIM t$(fr),pt(fr):FOR i=1 TO fr:t$(i)=
SPACE$(84):NEXT:FOR i=1 TO fr:pt(i)=i:NEXT
3800 RETURN
```


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Classic Couple

Classic Collection and Classic Collection Volume 2 are two new game compilations for the PCW.

When they named these games Classic Collection they weren't kidding, as most of them will be familiar to all and sundry. Unless, of course, you've been hiding out in the dark ages for the past ten years or so.

Classic Collection, the original, contains three classic games, inconspicuously entitled Shoot-it, Munch-it, and Hop-it. No prizes for guessing which is which! Shoot-it bears an uncanny resemblance to the now veteran Space Invaders that many of us grew up with. However, being a PCW version there are the inevitable differences. The screen set up is basically the same, with rows of aliens moving sideways and progressing downwards, you moving along the ground and firing upwards, and the bonus space ship making an intermittent appearance across the top of the screen. You'll notice, though, that the aliens are a lot "cuter". That's the most amicable difference. Apart from that, it is unfortunate that the bullets are a lot slower and don't always fire whilst you are moving. There is no fast/slow option, so the game progresses at a steady pace, even after succeeding through a few levels. In fact, by the third time around I noticed no difference in the speed or difficulty at all. Also, the skilled player is not rewarded with extra lives. These are minor let downs, because a game like Space Invaders - sorry, Shoot-it - is just the type that can keep the player busy for long periods of time without provoking boredom. The graphics are entertaining and the sound good, so without comparison it is a good game on its own.

Munch-it is reminiscent of Pacman. It involves a chase through a maze, munching dots left right and centre whilst avoiding the hostile ghosts that are after one large, mobile dot without eyes - ie: you. You can get your own back, though, because eating a flashing power pill in either of the four corners of the maze will give you the right to chase and eat the ghosts. This will earn you an extra one hundred points per snack. It's a good game, not too easy, not too hard, accompanied by good sound effects.

Hop-it is an all time favourite in terms of character, as it mimics the ever popular Frogger. Exactly the same screen format, exactly the same challenge. Starting on the roadside curb, your first objective is to cross the busy road, which consists of three tiers of cars and trucks moving in alternate directions. Once across the road you must jump onto and across rows of turtles, logs and crocodiles, also alternating in direction, in order to reach the safe squares at the top of the screen. The game can't fail to entertain, and gets noticeably more difficult as the levels progress, with the cars getting faster and the turtles getting fewer.

Together these games form a compilation worthy of respect. Though it doesn't allow for use of a joystick the keys are simple and easy to use. You'll find that scoring is slow, so five digit numbers will take longer than usual to reach, but the games are fun, the graphics good, and as far as I can tell that's all that matters.

CLASSIC COLLECTION VOL.2

Classic Collection Vol.2 contains games that are a little more obscure, a little more difficult, but I don't think as much fun as those in Volume One. That is to say, that to make a compilation of three

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games stand out, all three titles must equal the same standard.

Caverns is probably the better of the three. The first game on the menu, it involves flying a fortified gunship through a terrain of caves, fighting the alien inhabitants. These aliens come in all shapes and sizes, which makes the screen interesting and alive at all times. The scene isn't exactly the picture of a cave setting, therefore is probably best described as a series of canyons. The general idea of the game is good, as are the graphics, but the gunship is difficult to manoeuvre (or am I incredibly inept?) and firing is a little stiff. The enemies are many and often chase you (as opposed to merely crossing your path), so between the rusty movement and the slow firing, as well as the impossibility of escape due to the solid, crash-into-able top of the screen, the level of difficulty by far surpasses the level of success. Not impossible though, if you're keen to challenge it, then by all means go ahead.

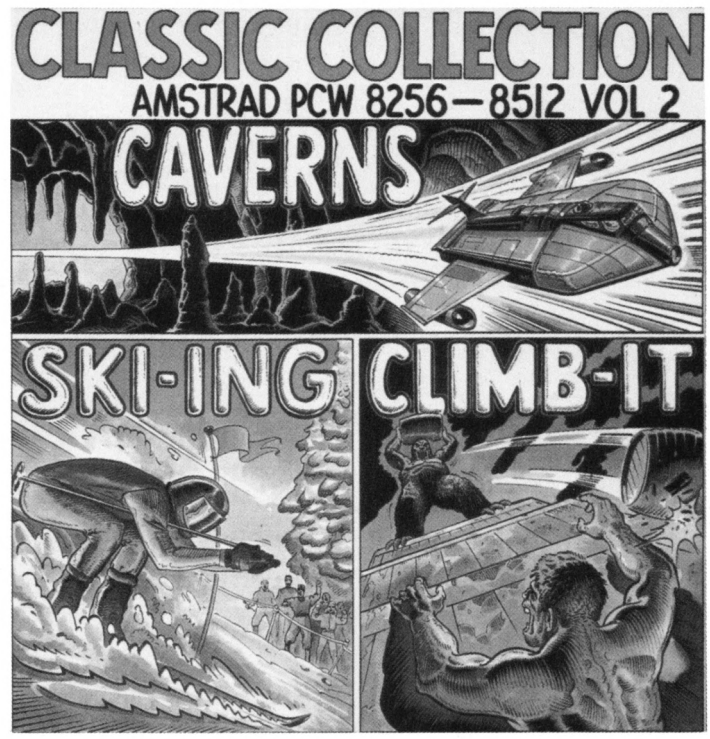
Climb-it is a replica of the ever-popular hand-held Donkey Kong. Again not bad in theory, the practise of jumping the onslaught of barrels on your way up to the top platform to rescue a fair maiden from an angry gorilla is no easy feat. The main problem is timing your jumps to clear the barrel properly, which is more a matter of skill than technical mishap, and the limited space within which you have to jump. Because jumping is just about impossible at certain places due to the low ceiling level of the platforms the level of difficulty is at times quite unrealistic.

Ski-ing is the third and final game, and the least playable. The key reason here is that it is stressfully slow. No amount of pressing the forward cursor key will speed it up. Therefore it is dull, no other word for it. The object of the game is to ski down a single slope, keeping within the flags. As the levels progress - unfortunately taking the original speed with them - it supposedly becomes more difficult. What this means is that the flags are placed more closely and in more numbers so your run is not as smooth. Unfortunately, though you have all the time in the world to clear these flags, the graphics interfere with the play by way of perspective, your figure unable to touch any part of a flag visually without 'physical' impact. The combination here is dull and difficult. Break a leg!

Volume Two is disappointing after the first Classic Collection, but the graphics aren't bad, if that's any consolation.

Both compilations are distributed by Pactronics and sell for the retail price of $49.95. ■

(Neither compilation is suitable to run on a PCW 9512.)



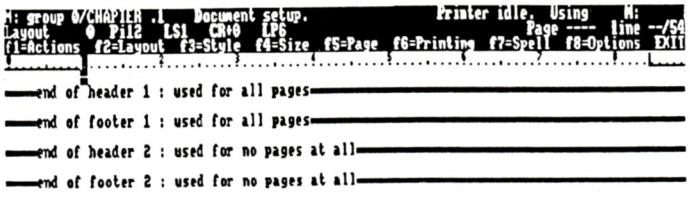
Page Numbers

Continuing from last month's article on Page Numbering with LocoScript.

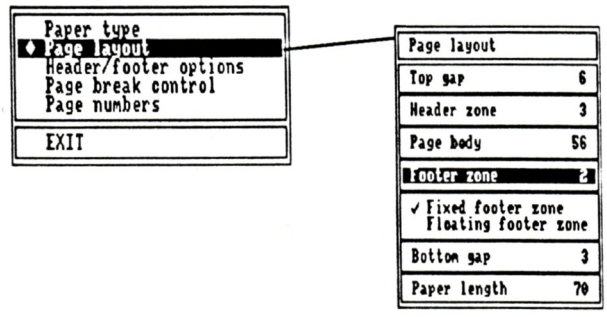
The following steps set up a document to print the page number at the bottom left of the page on left hand pages, and at the bottom right on right hand pages - a popular page numbering scheme for authors. This example shows you just one of the ways in which you can use Headers and Footers to print page numbers. In fact, you can set up Header and Footer text to print page numbers in a range of different ways. For example, you can print them on all pages except the first or the last or both.

NUMBERING LEFT & RIGHT HAND PAGES

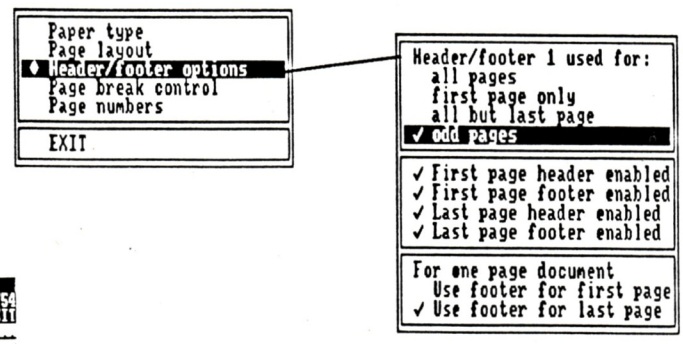
1. Edit the document, then select Document set up from the f1 Actions menu and press ENTER. This displays the Pagination screen and the various menus that you can use to change the Document Set-up.



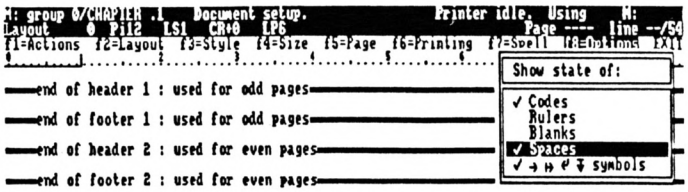
2. Press f5 to display the Page menu, then select the Page layout option and press ENTER. This displays the Page layout menu. Check the size of the Footer zone: this is given as a number of lines and it needs to be at least 2 so that we can put the page number in with a blank line above it. If necessary, move the cursor to the Footer zone line and type 2 ENTER to set a big enough zone. Then check that the Fixed footer zone option has a tick beside it. If necessary, move the cursor to this option and press +.



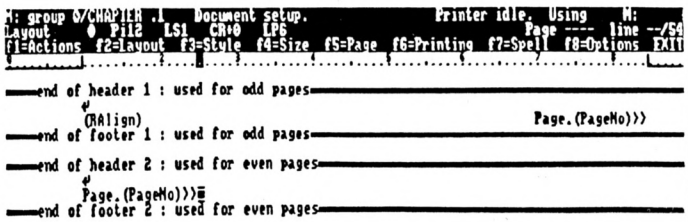
3. Press ENTER to return to the Page menu, then select Header/footer options and press ENTER to display the Header/Footer options menu. Move the cursor to Odd pages in the top part of menu and press + to select this option: selecting this option means that the first set of Pagination text will be used for odd-numbered pages (that is, right hand pages) and the second set will be used for even-numbered pages (ie left hand pages). Then check that both First page footer enabled and Last page footer enabled are ticked, so that the page numbers will also be printed on the first and last pages of the document. If necessary, move to each of these options in turn and press +.



4. Press ENTER to return to the Page menu and then press EXIT:ENTER to return to the Pagination screen. The document is now correctly set up to print different headers and footers on right and left hand pages. Press f8 to bring down the Options menu and, if necessary, place a tick by the options for Codes and Spaces.

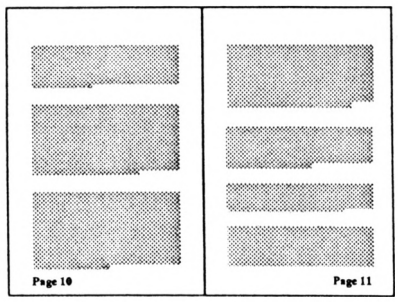


5. Move the Text cursor down to the second section of this screen, just above end of footer 1... This is the part of the screen in which to set up the footer text for use on right hand pages. We want a blank line between the text and the page number, so the first thing to do is press RETURN. Then we want the page number to appear at the right hand side of the page so the first thing on the next line needs to be a (RAlign) code. The quick way of inserting this is to press + RA. The cursor jumps to the end of the line ready for you to type in text. Type in the word Page, followed by a space. Now enter the special (PageNo) Page Number code by typing +PN followed by >> (so that the number is over to the right in the area reserved for it).



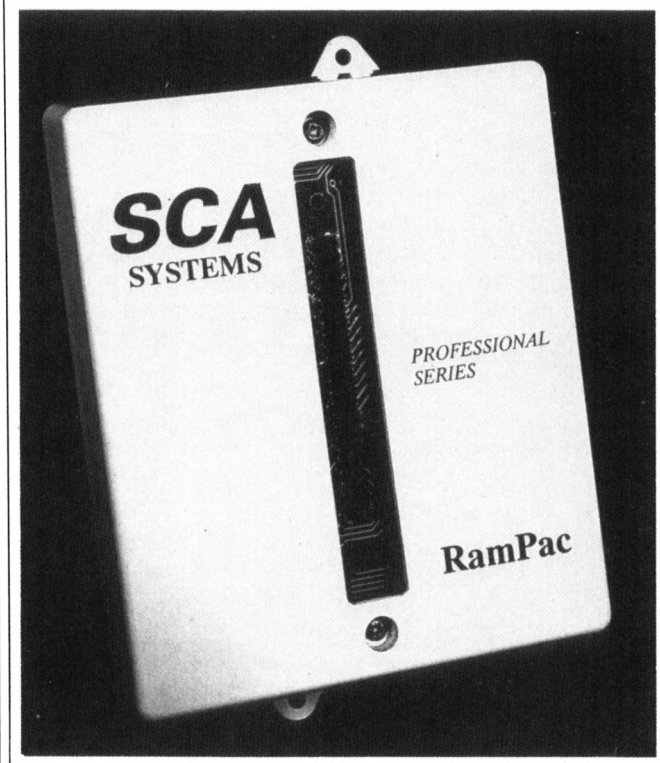
6. Move the Text cursor to the last of the four sections, just above end of footer 2.... This section is used for the Footer text for left hand pages. Again we want to start with a blank line, so press RETURN. Then we simply want the word Page, a space and the (PageNo) code followed by >>. No (RAlign) code is necessary this time because you want the page number on left of the page. Press EXIT and ENTER to leave Document Set-up. Finally save the document on disc in the usual way. ■

This is the result:



RAMPAC

512K PLUG-IN RAMPAC
FOR THE AMSTRAD PCW



*Upgrade your PCW for **$329** by plugging RamPac into the expansion port of your computer. 512k of extra Ram will provide you with extra memory for popular programs such as Flipper2 and Microdesign, as well as allow for the loading of LocoScript2, LocoMail, LocoSpell, and a selection of fonts from LocoFont.*

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THE CPC & PCW CATALOGUE

Regular readers will know that the following pages contain the most comprehensive list of software for the Amstrad CPC and PCW computers.

Please remember though, it's prepared many weeks before you get to see it and changes (deletions, additions, prices) could have occured in the meantime. It is wise, therefore, to provide an alternative choice or ring beforehand to confirm availability.

To help you make a choice, the products can be found in the categories and pages as follows:

CPC Arcade Action	60	PCW Games	63
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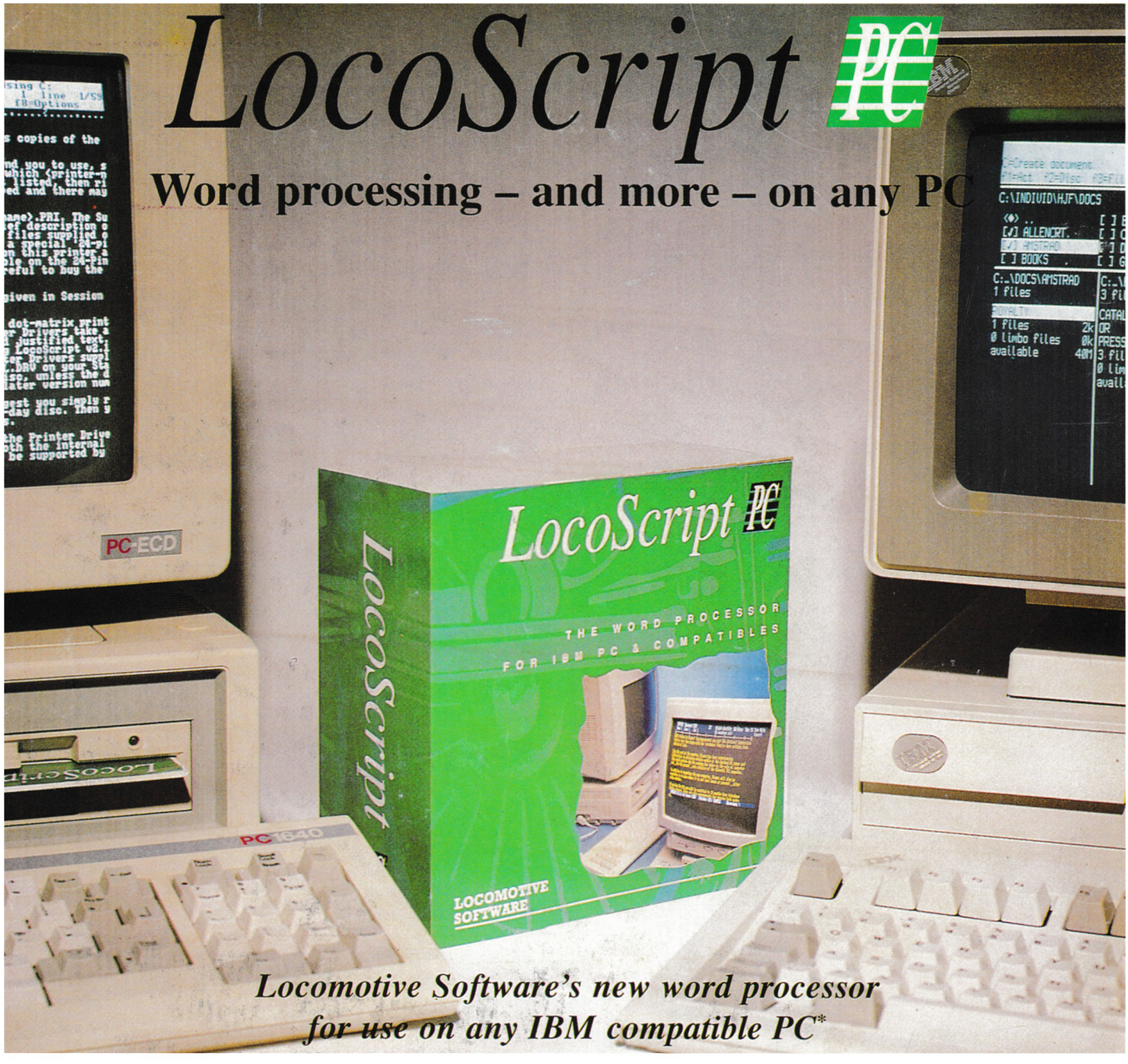

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