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mac FORMAT



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- GAMES ● SHAREWARE
- VIDEO ● GRAPHICS
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- DESIGN ● DTP
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the best value yet



Painter 2
How to be the new Van Gogh
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ClarisWorks 2.0
Is this really all the software
you'll ever need - in one box?



Civilisation
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still be home in time for tea

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SuperClock!
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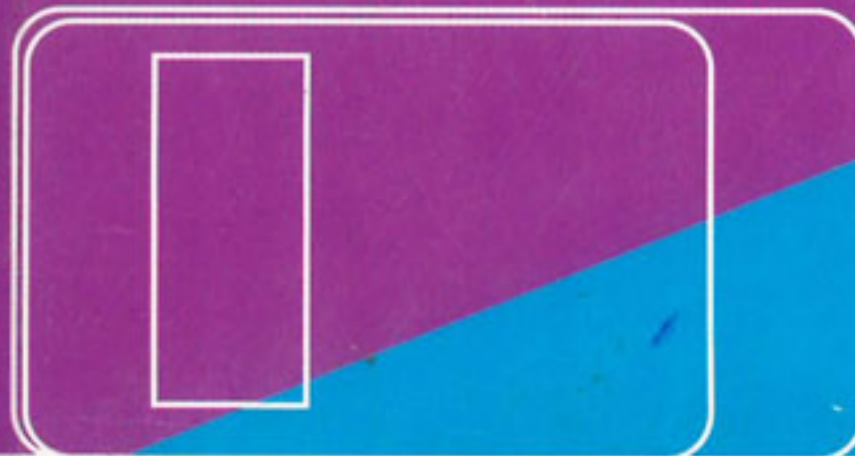
See page 8 for compatibility details

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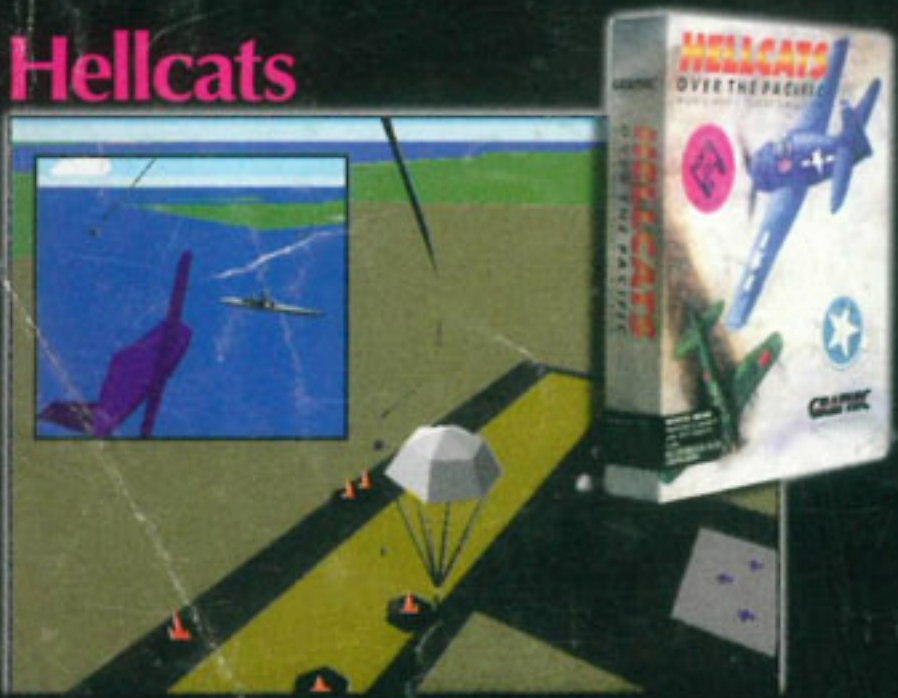
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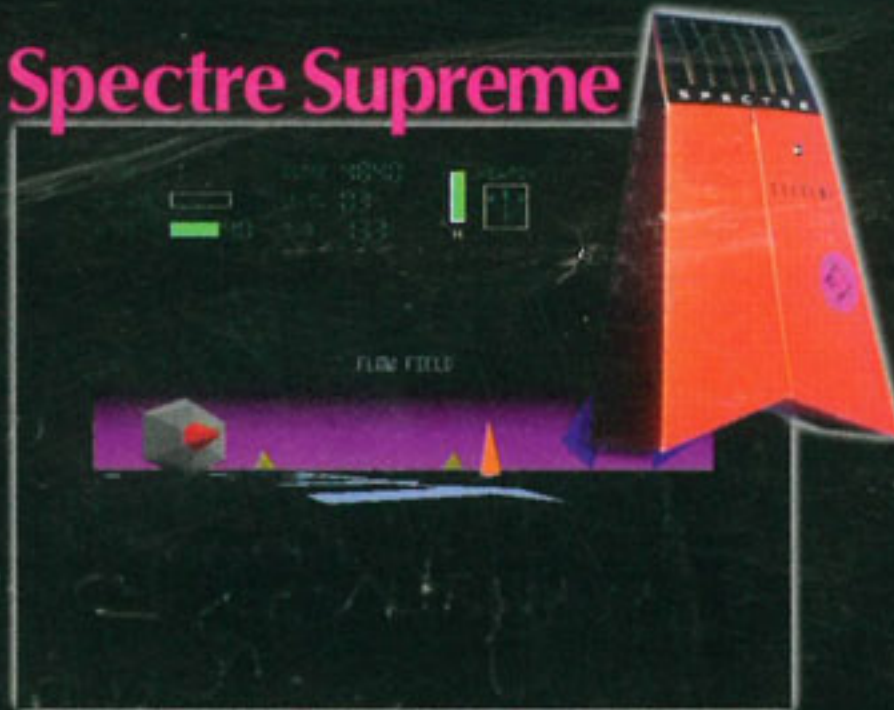


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Spectre Supreme



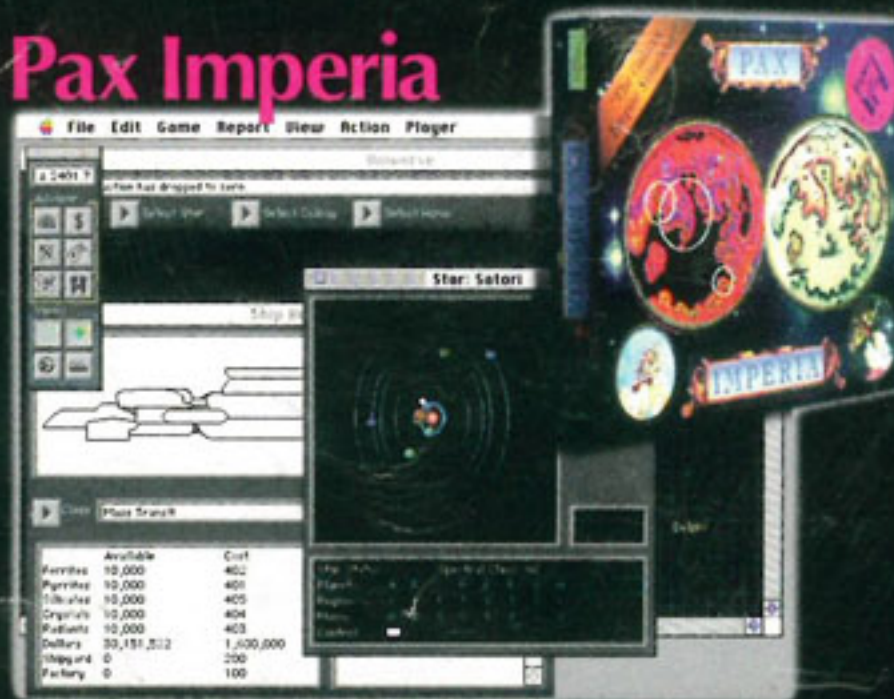
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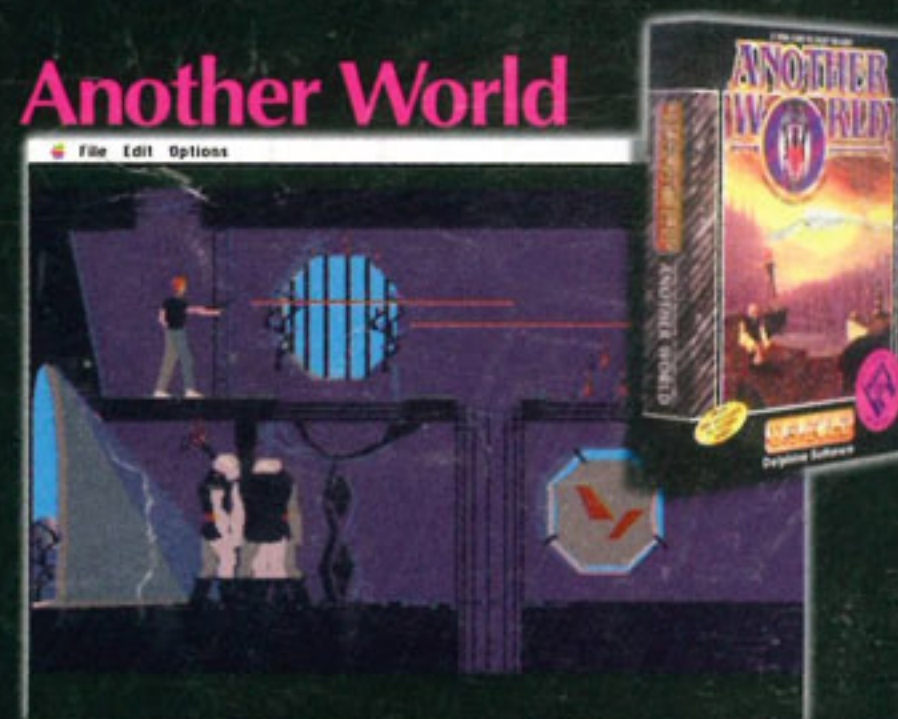
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Softline Distribution Ltd, 123 Westmead Road, Sutton, Surrey SM1 4JH. United Kingdom.
Voice 081 642 2255 Fax 081 770 9370 AppleLink UK0037 CompuServe 100012,21



Editor Andy Storer
Art Editor Julie Stuckes
Production Editor Sally Taylor
Staff Writer Kellie Simmons
Art Assistant Kim Ellaby
Consultant Editor Ian Wrigley
Contributors

Simon Cox
 Gordon Druce
 Martyn Lester
 Greg Morrison
 Huw Passmore
 Bob Wade
 Ian Waugh
 Jack Weber

Product guide Sophie Lankenau
Photography Ashton James
Colour repro

Avon Scanning and Planning
Production technicians

Simon Chittenden
 Mark Gover
 Nick Harvey
 Heath Parsons
 Chris Stocker

Cover art Simon Windsor
Advertising Louise Woods

Classified ads Diane Erskine
Production Coordinator

Tracey O'Donnell

Publisher Stuart Anderton
Group Publishing Director

Greg Ingham

Circulation Director

Sue Hartley

Managing Director

Chris Anderson

Editorial enquiries:

MacFormat
 Future Publishing Ltd
 30 Monmouth Street
 Bath BA1 2BW
 Tel: 0225 442244
 Fax: 0225 446019
 AppleLink: MacFormat
 E-mail:
 astorer@cix.compulink.co.uk

Advertising enquiries:

Louise Woods
 0225 442244

Subscription enquiries:

Future Publishing Ltd
 Freepost, Somerton
 Somerset TA11 7BR
 Tel 0458 74011 Fax 0458 74378

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and... well there's bound to be more - but if I mention one on joyriding, ecstasy, sex and grunge somebody'll either nick the idea or think I really mean it - hi there UK Press Gazette...



Andy Storer - Editor

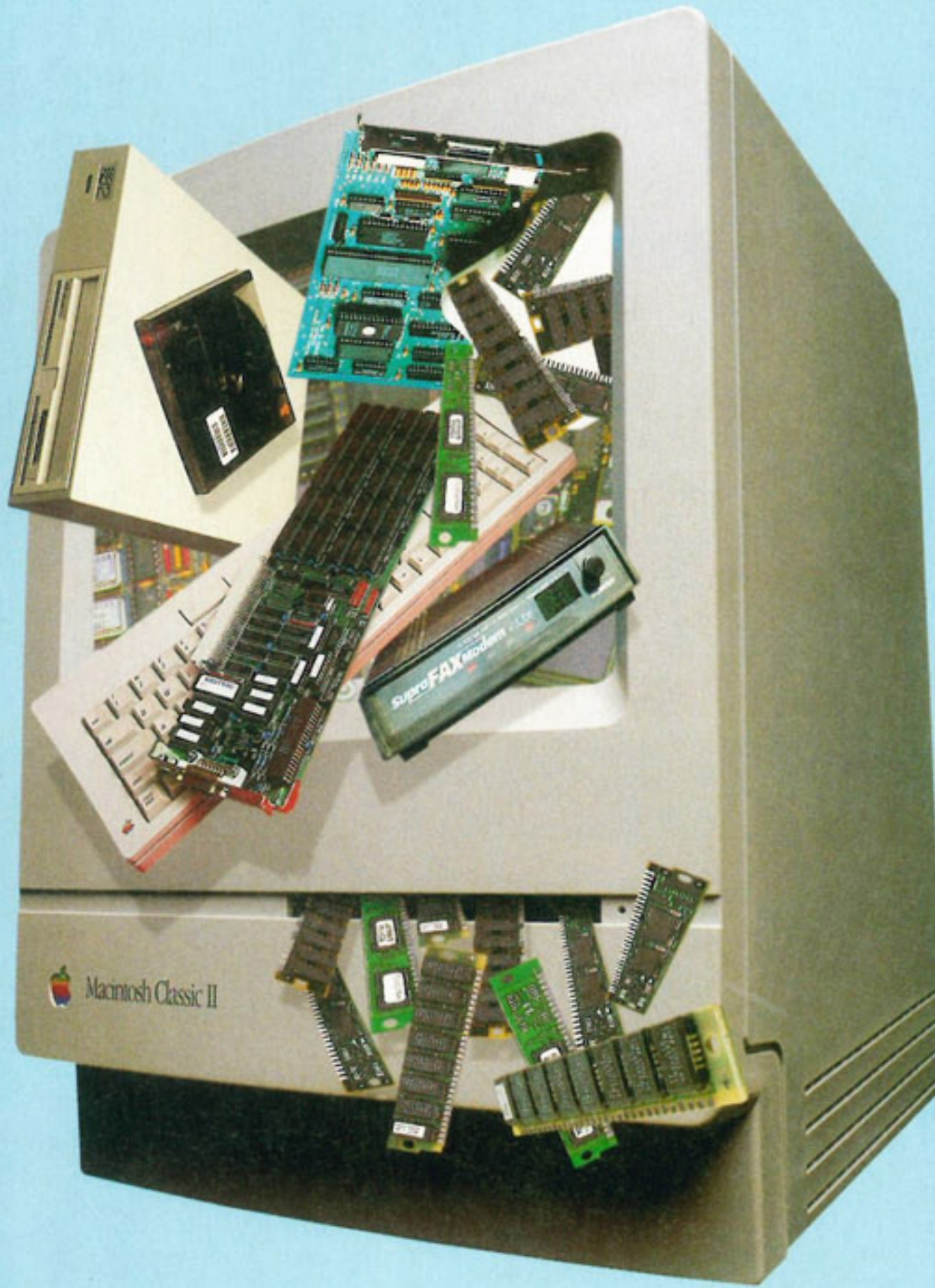
Welcome

...and congratulations on picking up the second issue of a magazine which, judging by your response to the first, has been extremely well received!

We've had well over 500 questionnaires and letters sent in congratulating us on issue 1 and that's great news for all concerned because it means we're right to have targetted *MacFormat* at the home user and enthusiast as well as business and professional users. And that backing not only means we can continue offering you clear, varied and detailed guides to getting more from your Mac but we'll also be able to bring you even more pages.

So this issue we've taken up where the last one left off and brought you tips, hints and advice on the world of affordable Mac hardware as well as our definitive guides to low-cost personal software. Whatever you want to see us cover be sure to write and let us know - our aim is to bring you the best of every aspect of what makes the Mac excel.

So welcome to *MacFormat 2* - Browse, Choose and Enjoy at your leisure!



Max Mac Power

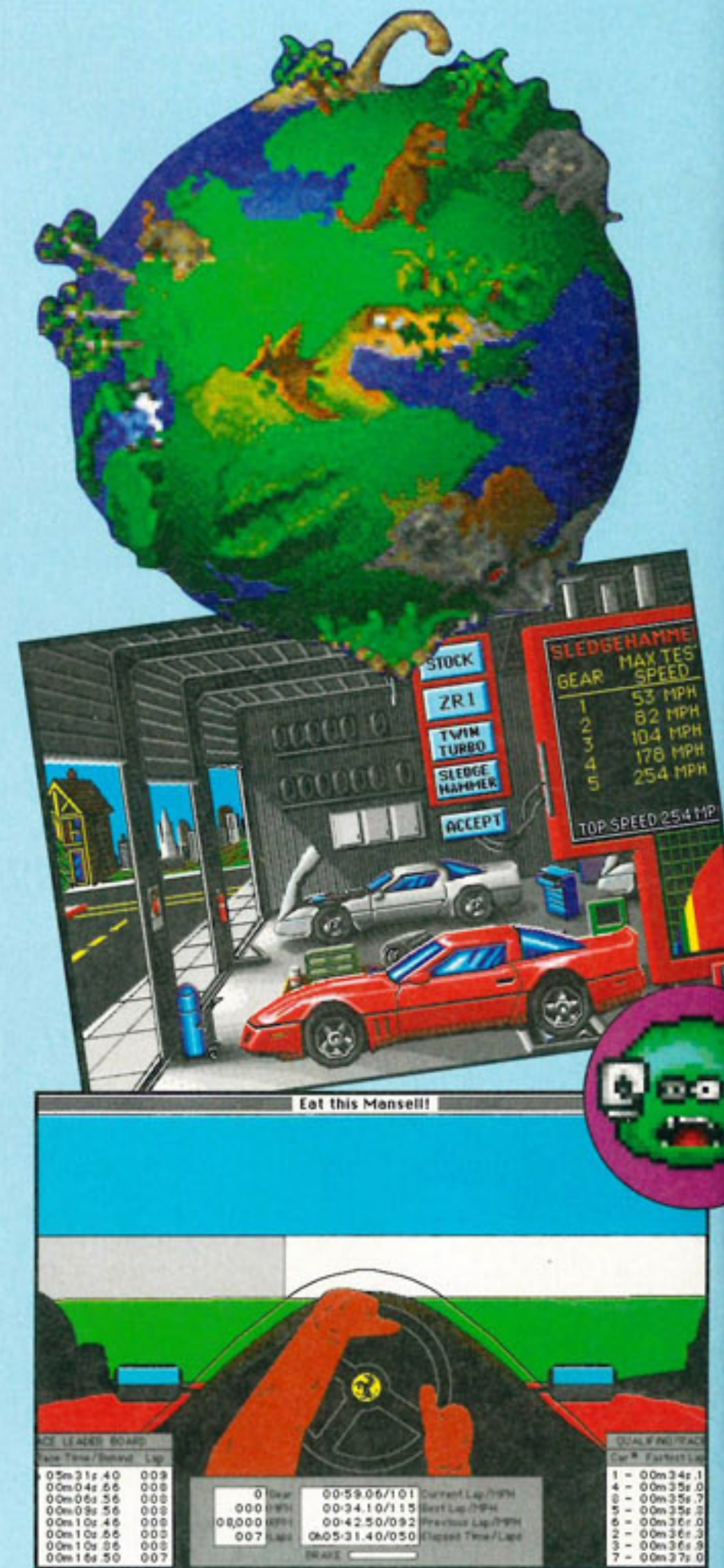
Catch our ten page buyers' guide to upgrading and expanding your present Mac set-up.

We give you the low-down on how to choose memory, accelerators, printers, scanners and hard drives to suit your needs and pocket

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A word on prices....

We make strenuous efforts to ensure all prices quoted in *MacFormat* are accurate at the time of going to press. They are all inclusive of UK Value Added Tax of 17.5%. This may not necessarily be the case with prices appearing in advertisements so readers should double-check to see if VAT is included or not.



Amusement arcade

Loosen up with our look at the coolest games in town. This issue we conquer the world with *Civilization*, trash some super-cars in *Ferrari and Vette!* and go totally terminal with *Tinies*

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...and a bit of small print about trademarks and printers
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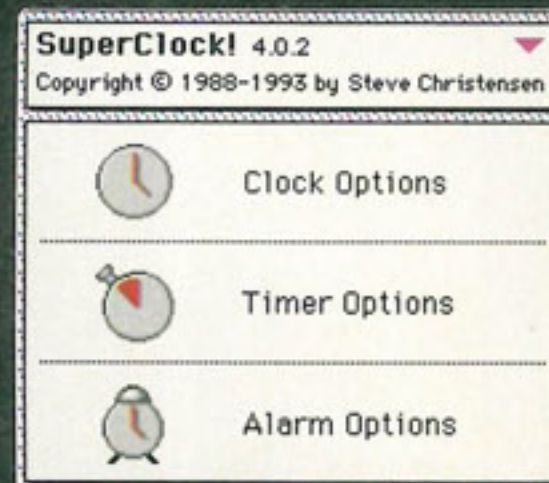
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COVER DISK

On this issue's MacFormat megadisk we bring you:



● **Spectre Supreme**
A fully-playable three-level demo of this hot new arcade action blast-em-up



● **SuperClock!**
Probably the most useful addition to your desktop ever – a permanent menu bar time display with alarms



● **CFloppy**
A neat little extension that'll turn all those dull mono floppy icons into 3D colour

Now turn to page 7 to get 'em loaded

COMPETITIONS!

We have well over £4,000's worth of prizes up for grabs this issue – and all of them could be yours if you answer a few easy questions correctly

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Go there now before someone beats you to it

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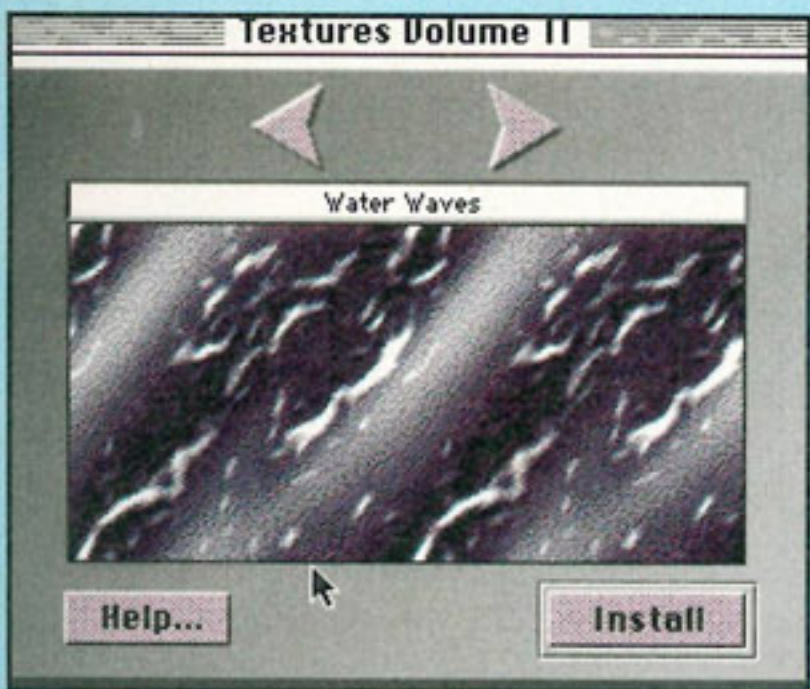
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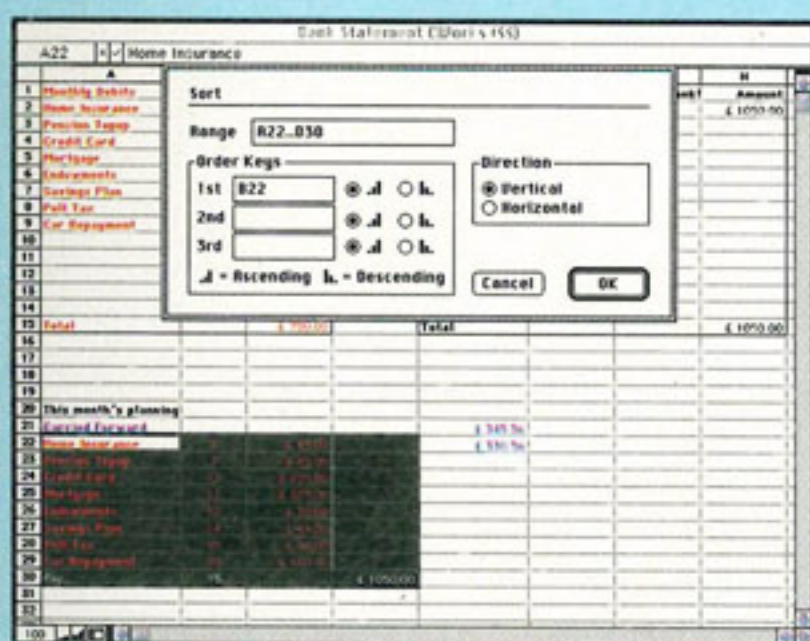
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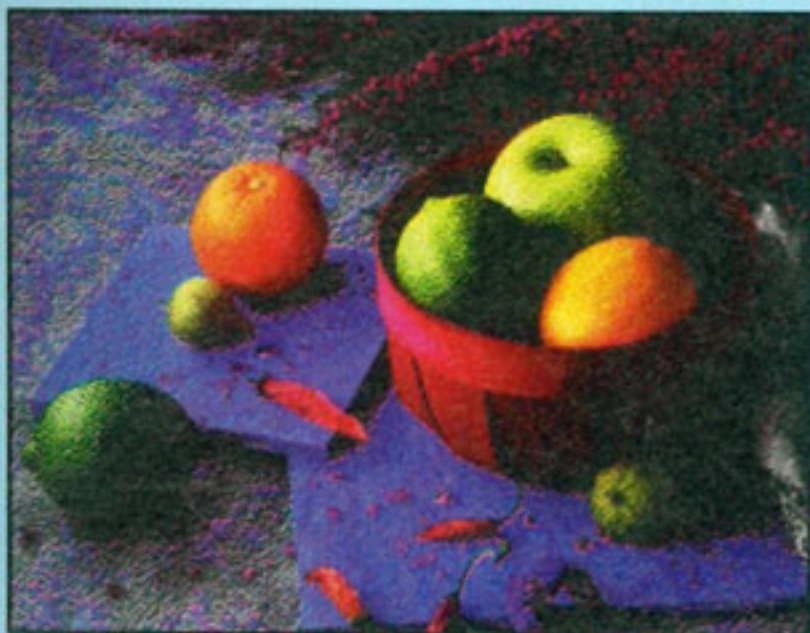
Win! Win! Win!
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Shareware Zone
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Why the Mac's most popular integrated business package just got a whole lot betterpage 63



Painter 2.0
Making an impression is now easier than ever – see how this great package can work for you...page 46

mac

ANSWERS

Page 87 – When there's no where else to turn... We solve your problems, posers, queries and quandaries! Whatever the hassle we'll sort it...



Introducing Performa. The new generation Macintosh that all generations can use.

If you've been hesitating over buying a computer for home, we can sympathise.

Should you buy a regular business PC that's adequate for work but wasted on your children?

A specialist educational computer that's perfect for the kids to learn on but not so good for grown-ups? Or a games machine that gives hours of family fun but does nothing to expand the mind?

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Introducing Performa. The Macintosh that's at home in your home. Apple

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Spectre Supreme

So you've just ripped the polythene and tape off your brand new cover disk and now you're just dying to get started. Well, you better get used to dying because *Spectre Supreme* will take some beating...

Begin...

Spectre Supreme is a real cyber freak's dream of a shoot-em-up arcade game which includes superb sounds, 3D graphics and – even if you don't tend to go for games of the battling kind – is incredibly addictive.

This sequel to the original (*Spectre*) includes those little extras that increase enjoyment in the playability stakes and is a great game for the Mac (promising that up to eight people can play at any one time over a network).

Our cover disk demo includes three exciting levels that will keep you on your toes for ages.

Install and load

Spectre Supreme runs on any Mac, colour or black and white and all

you have to do to prepare for battle is just double click on the *Spectre Supreme* icon. Remember though that your coverdisk has been compressed so you won't see this icon until you have extracted it from the compressed file. Turn the page for instructions on how to do this...

How to play the game

Easy – kind of. It's not just about firing at everything in sight. It's also about timing. You can't play the demo over a network so the object of the single player game is to collect a number of flags (shown on a radar on the top right hand of the screen as small crosses) by running over them. But beware because there are also a number of nasty red robots and 'slicers' travelling around the screen. Shoot them all

down before they get to you and gain extra points.

As you get past level one you'll find levels two and three become increasingly difficult. It may take you ages to complete, but then this demo is a good practice run for anyone thinking of buying the game when it's finally released.

Keys and commands

To move your selected vehicle you will need to use the number pad on the right hand side of the keyboard.

[4] moves you to the left

[6] moves to the right

[2] to move backwards

[8] to go forwards.

The [space] bar fires the cannon but you can select an optional weapon with the [F5] key and the [option] key will let you fire it.

You can select three different views from your vehicle by pressing the [tab] key.

You can also use your mouse to control your movements but it's easier to stick to the keyboard for more effective control.

If you are in need of a break from battle, click on [P] to pause the game. However, don't think you can use the pause button to take a look at the radar screen and check out the enemy objects. The game scenario will disappear!



Spectre Supreme is the nearest you'll get to a real shoot-em-up arcade game on the Mac...



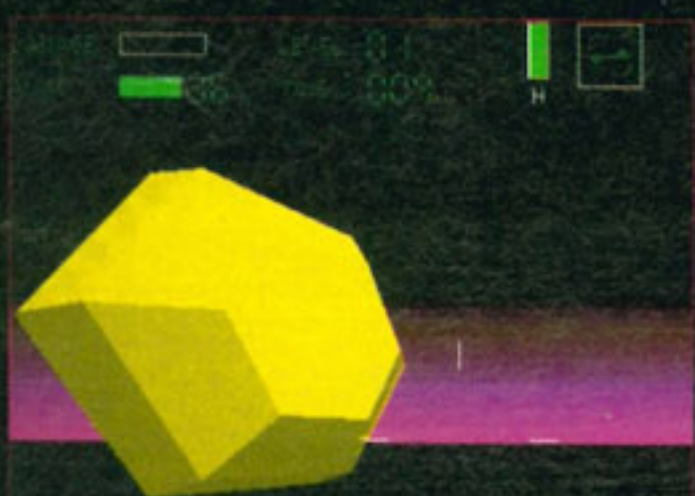
The initial aim is to check your radar for the red dots representing these red robot tanks...



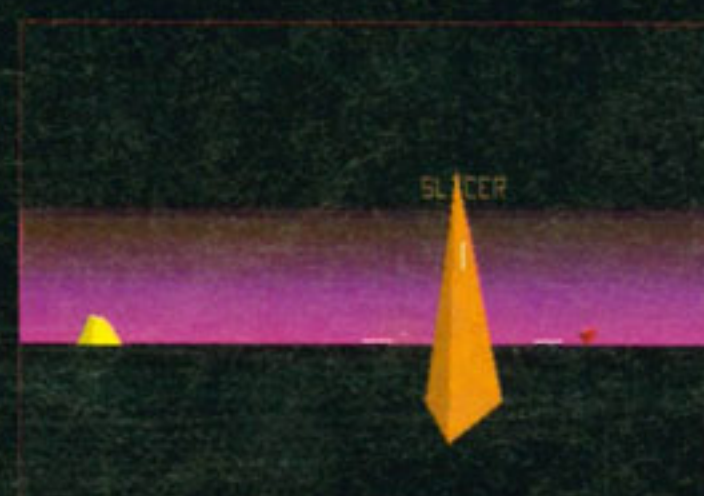
...and then just blast 'em to smithereens before they attempt to do the same to you



If you're running low on ammo just drive over one of these green diamonds...



... but watch you don't go bumping into these. They're useful though for hiding behind...



...when you come across one of these lean, mean 'slicers' – just blast 'em to bits...



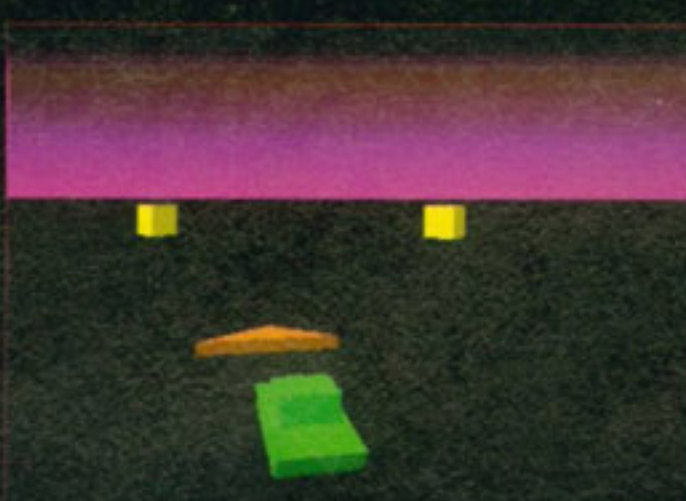
...but if you get stuck, head for these transporter gates – they'll drop you somewhere else



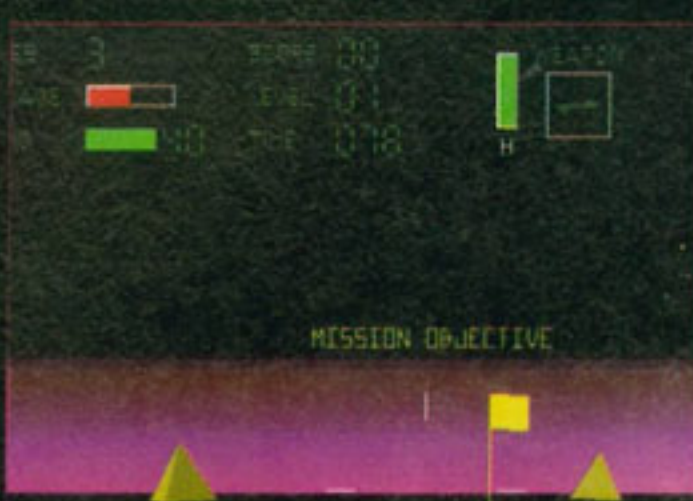
Acid pools can be found together in a triangular shape in level two – beware!

Which vehicle should you go for?

As soon as you click into *Spectre Supreme* and press the play button you'll be confronted with a 'vehicle selection' box. You have four different vehicles to choose from with a snippet of information on each one, including how fast they are, how many shields they have and how much ammo. Try each one out for size to find out which one you feel comfortable with. Speedy is great once you've got the hang of the keyboard controls. Your eyes will be glued to your monitor and your head swaying in whatever direction you move it in.



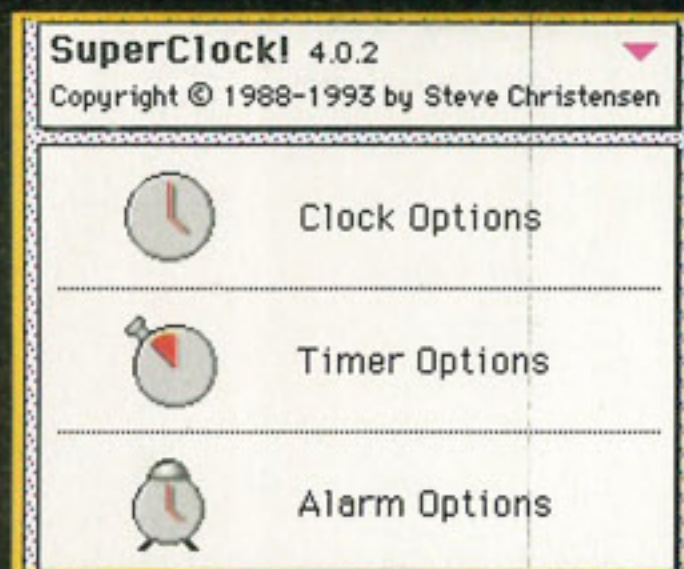
But look out for brown triangular 'chargers' – these'll let you just mow through opponents...



And to complete a level just pick up every rotating flag you find – deadly simple really!

SuperClock!

Tue, 12:10 pm



You'll never be late for a date again with *SuperClock!* to help you keep track of time

There are many extensions which add a digital clock into the menu bar, but *SuperClock!* is the best.

To install it simply drop the *SuperClock!* extension into your **System** folder. Under System 7 it will be stored in the **Control Panels** folder automatically; under System 6.0.7 it works loose in the **System** folder. (*SuperClock!* will not work with Systems older than 6.0.7).

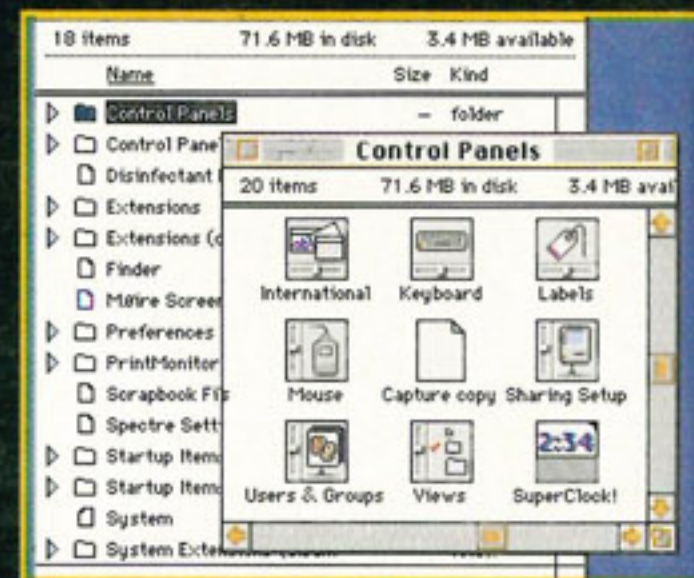
Once it's installed, restart your Mac to get it working and open the *SuperClock!* control panel to configure it to your requirements. There are three options, and each brings up a further set of choices.

The **Clock Options** let you specify the font, size and colour of

the clock as it appears. You can also get it to show the date and indicate am/pm. *SuperClock!* can also chime on the quarter-hour, and you can set different chimes for each time. If you really want to drive people mad it can chime the same number of times as the hour – superbly aggravating at 12 noon if you have a sample of Big Ben installed.

Timer Options control *SuperClock!*'s built-in stopwatch. You start and stop it by clicking in the time on the menu bar, which switches between time display, date and stopwatch.

Alarm Options just replaces Apple's built-in Alarm Clock and provides audible warnings.

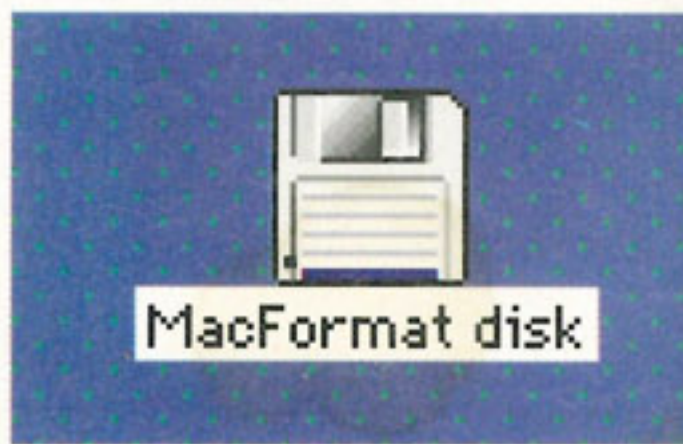


Just put *SuperClock!* in your Control Panels folder and you'll have all the time in the world!

Colour Floppy

Colour Floppy is even simpler than *SuperClock!*. To install it (under System 7 only), just drop it in your **System Folder**, then restart your Mac. Then whenever you put a floppy disk in the drive it will appear with a stylish colour 3D icon instead of System 7's boring black and white one.

You wonder why Apple didn't build this in to System 7, since they obviously took so much time over the appearance of the rest of the interface. Still, it matters not because *Colour Floppy* is here!



Disk info

Using your MacFormat cover disk

In order to squeeze as much as possible onto the disk, the programs on it have been compressed and must be restored to their original size before they can be used. To do this simply double-click on the MacFormat #2 icon. A dialogue appears which works in exactly the same way as the save dialogue in any application. Choose your hard disk and click Extract. After a minute or so the restored contents of the disk will be on your hard disk in a folder called "MacFormat #2 f" Then follow the instruction with each program for completing the installation.

If your cover disk won't work

Unfortunately when you duplicate as many tens of thousands of disks as MacFormat does, a few lemons are bound to slip through. If you think you have one, just read the installation instructions again to make sure you're not missing something. If it still won't work, then return the disk by July 10th with a stamped addressed envelope to MacFormat Disk #2
 DisCopy Labs Ltd
 PO Box 21
 Daventry
 NN11 5BU
 We regret that we cannot answer telephone enquiries on faulty disks or disk installation.

Backing up your MacFormat cover disk

We recommend you back up your cover disk since floppies can easily become corrupted. To make a back up just do this:

1. Insert the MacFormat disk in your Mac
2. Drag the disk icon to to your hard disk's icon. The contents of the disk will be copied into a folder called 'MacFormat disk #2'
3. Drag the floppy disk icon onto the Wastebasket to eject it
4. Insert a blank disk. If you need to, initialise it as double sided and name it 'MacFormat #2 backup'.
5. Drag the MacFormat folder from your hard disk on to the new floppy disk's icon.
6. When it has finished copying you have a back up of the original disk. You can now delete the 'MacFormat #2' folder on your hard disk by dragging it into the Wastebasket.

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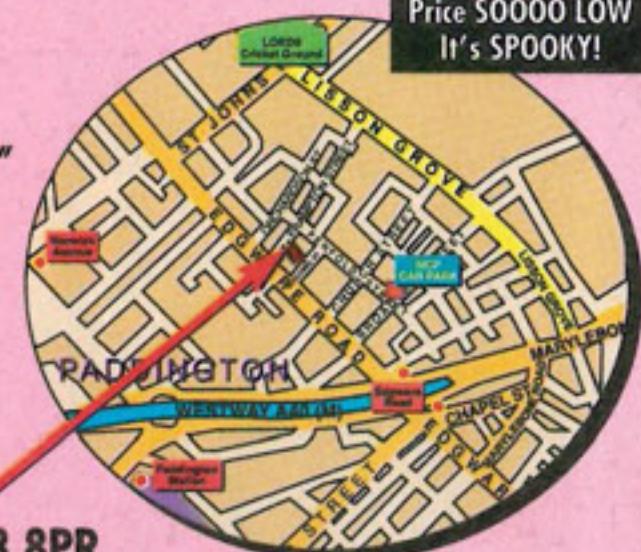
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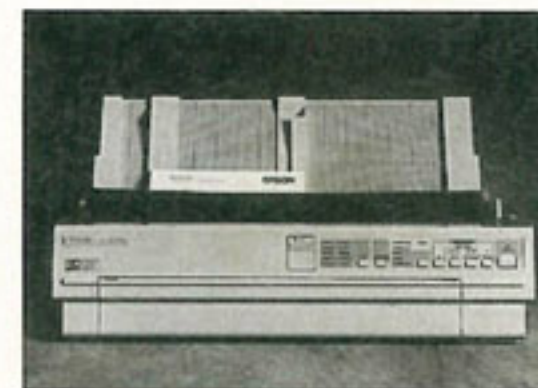
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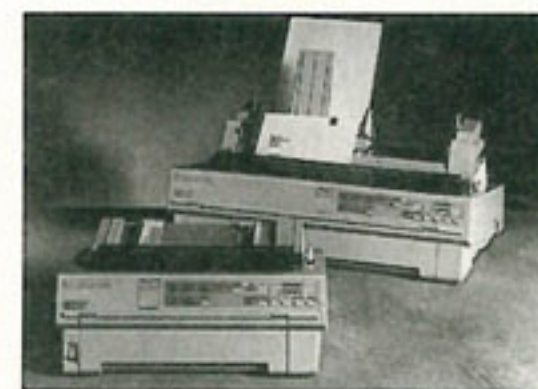
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Comment

Instant Access is a new form of software distribution – and one which deserves to succeed. It's well known that Apple strongly supports any company which evangelises CD-ROM as a distribution medium, and the fact that virtually all Apple's software – *At Ease*, *AppleTalk Remote Access* and the rest – is available on the Instant Access disc shows that Apple is doing its bit.

There have been two major stumbling blocks to CD-ROM gaining the sort of acceptance that Apple wants to see: speed and cost. The speed issue is being tackled by the multi-speed drives like Apple's own CD300, which goes a fair way to answering the 'CD-ROM is far too slow to be usable' critics. In fact, depending on the application, speed really doesn't matter that much at all – Instant Access' own disc, for instance, is not speed-critical. Do you mind if it takes two minutes or three to download your freshly-unlocked software to the hard disk? Not really, considering the fact that you have the software there and then, rather than in a day or two, when the postman can be bothered to call.

The other crucial issue, then, is cost. Again, Instant Access is leading the way by offering – albeit fairly old-spec – drives at a good (some would say incredible) price. But surely Apple could have done this itself, without leaving it to a third party? Apple's reason for not selling them off? They are no longer the minimum specification – that's a position filled by the more recent CD150.

It's true that the CD300 is cheaper than just about all of its rivals. But just think how popular CD-ROM would become if that model were to be sold for £150, instead of the £320 or so that it currently costs. Then the software industry really would be revolutionised.

Cheap CD-ROM drives – and low-cost software

A CD-ROM drive and a year's subscription to a new software distribution service for just £186 – that's the offer from Instant Access

Instant Access has struck deals with many of the Mac world's top applications developers to distribute their products on an encoded CD-ROM.

To help seed the market, the company has decided to make CD-ROM drives available at a very low cost to users.

The CD SC Plus drives, old Apple stock which are no longer manufactured, are compatible with everything except PhotoCD, according to Technical Manager Richard Dyce.

Tempting users

By effectively selling the drives for £128 including postage and offering a year's subscription to the CD-ROM discs for £59, Instant Access hopes to tempt Mac users into the CD world.

The company's first disc contains more than 180 Mac applications, from

industry-leading packages like Norton Utilities to products never before distributed in the UK.

Users select the program they want and phone a credit-card hotline; they are then given an access code which 'unlocks' the software and places it on their hard drive. Manuals are posted the same day.

Also on the disc are demo versions of more than a hundred of the packages; the company's motto is 'Find, Try, Buy.'

This type of 'locking' technology has been used before, on font discs from people like Adobe, but this is the first time that it has been used for wholesale software distribution.

Competitive prices

Dyce says that software prices will be very competitive – especially for site



Instant Access: Find, Try and Buy your software in a matter of minutes

licenses. Although some licence prices are quoted on the disc, Dyce says that large sites should "ring us up with your requirements and we'll quote you a price." Even single-user prices rival those available from conventional mail order dealers, although the company is quick to point out that the CD-ROM is designed as an extension to, rather than a replacement for, conventional distribution channels.

The first disc can be purchased for £12, or a full year's subscription can be had for £59.

Keeping data safe

Central Point Software has released a new disk diagnostic package, aimed at Mac users who "are neither experienced nor interested in understanding what can go wrong with computers."

Safe & Sound is designed to be completely user friendly – in the event of a problem, users insert the emergency disk, which automatically scans all mounted volumes, attempts to isolate the fault and automatically repairs it.

Central Point claims that the program can detect and repair a wide range of problems including missing files or folders, virus infection, crashed hard and floppy disks and startup problems.

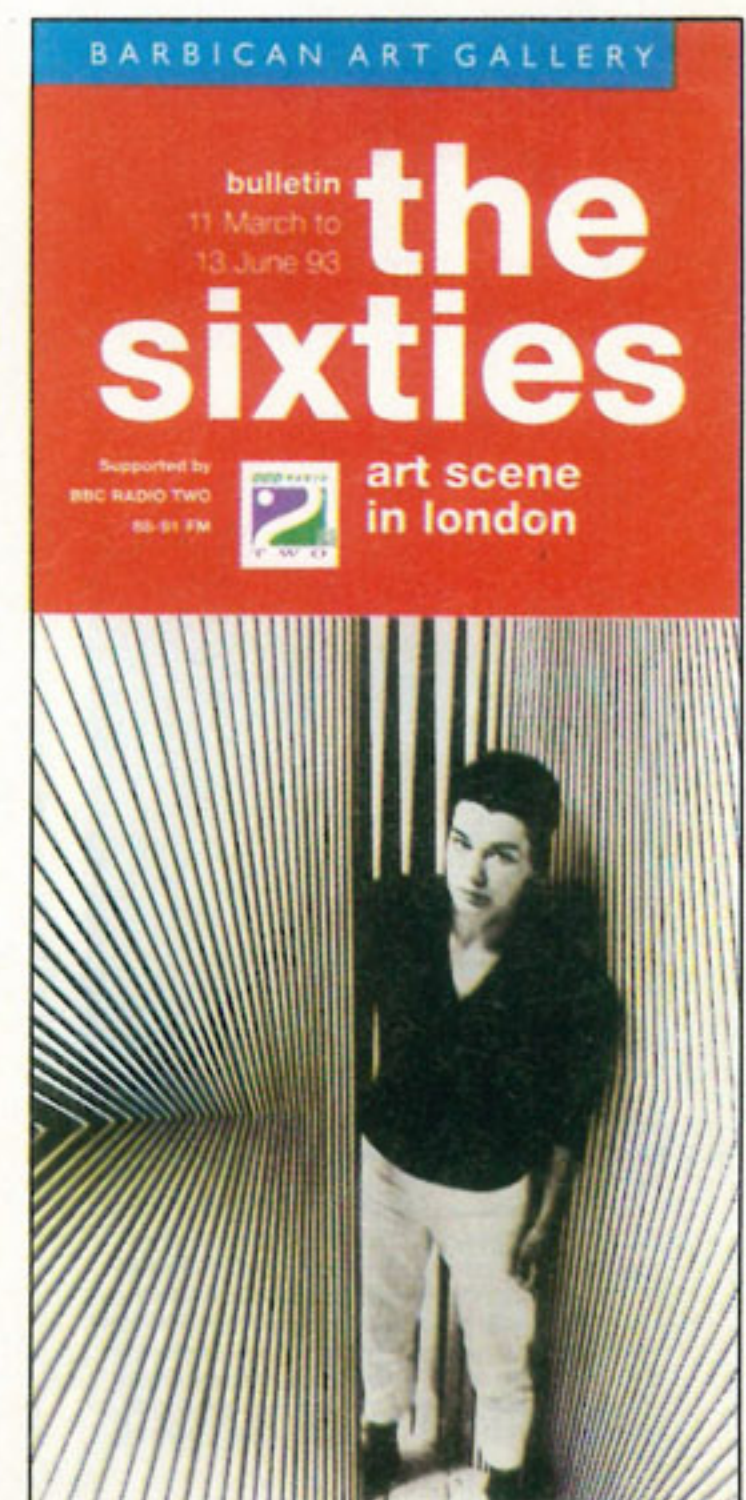
Safe & Sound has a suggested retail price of £58. Central Point Software can be contacted on 081 848 1414.

Sixties art, nineties technology

The Sixties Art Scene in London, an exhibition which is running at the Barbican Art Gallery until June 13, infuses 1960s art and memorabilia with state of the art technology in the shape of six Macintosh Performa CD-600s running an exclusive collection of Mac CD-ROMs.

The exhibition is the first of what will be a 12-month collaboration between the famous photojournalism library, The Hulton Deutsch Collection, and the Barbican Gallery.

Visitors to the exhibition can preview more than 2,500 images of the 1960s on the Performas provided. The selection of paintings, sculpture, photographs, design and illustration features works by Caro, Hockney, and Riley. On the pop side, there are posters from The Beatles to Hendrix. Discs are available from Hulton Deutsch on 071 266 2660 for £177.



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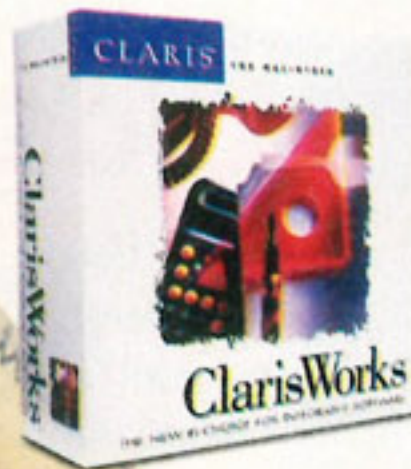
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News in brief

■ The London Macintosh User Group (LMUG) has joined together with Apple to introduce a National User Group Council.

The Council's main function will be to provide contact numbers for Mac users as well as compiling a user group guide. It also hopes to act as a voice for users who have any concerns about Apple.

According to John McKnight, LMUG's chairman, they already know of over 50 user groups, but there are still quite a number of unknowns in and around the UK.

The London Macintosh User Group can be contacted on 081 690 2904.

■ The 1993 Weird Software Competition, in conjunction with the San Diego Computer Fair, is now accepting entries. Winners of last year's competition included a program to help people find out if their neighbours were aliens from space, and a screen-saver featuring bungee-jumping cows. First prize is \$250, and all entrants receive a 'Certificate of Weirdness'.

If you've written a program that you think might qualify, send it on a Mac disk, along with your name, address, phone number and asking price for the software, to: 1993 Weird Software Contest, c/o ComputerEdge Magazine, 3655 Ruffin Road, Suite 100, San Diego, CA 92123, USA by July 30.

■ WordStar International, a company best known for its PC word processor, has entered the Mac market with the acquisition of WriteNow, from US company T/Maker. Version 3.0, which costs £175, will continue to be available through its current distribution channels. WordStar 081 643 8866.

New H-P inkjet printer

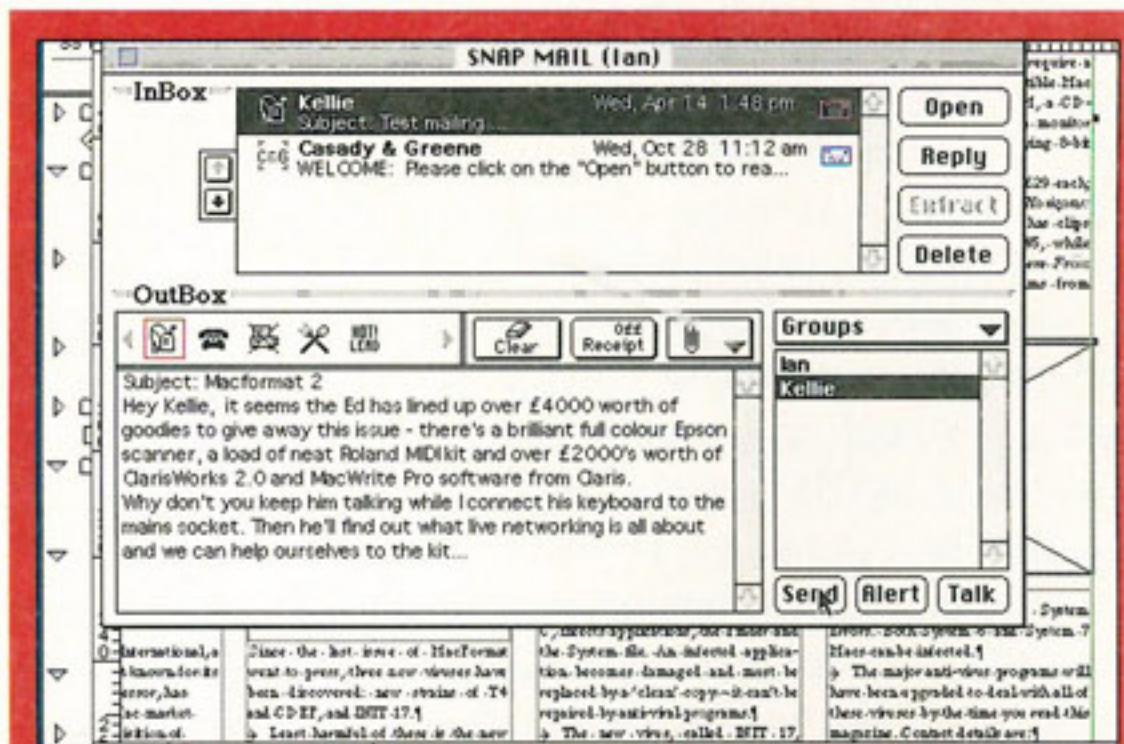
Hewlett-Packard has announced a new printer which replaces its popular DeskWriter. Styled the DeskWriter 510, the new model is claimed to be up to 40 per cent faster than its predecessor. It automatically handles five different paper sizes – A4, executive, letter, legal and envelope – and is supplied with 11 Agfa Compugraphic font families.

The new printer is based on 300dpi

(dots per inch) inkjet technology, and has a maximum printing speed of three pages per minute. It has network capabilities, or can connect directly to a Mac with a serial cable. The DeskWriter 510 has a recommended retail price of £387; and is available from all Hewlett-Packard dealers. Hewlett-Packard: 0344 369222.



The DeskWriter 510: Hewlett-Packard's new baby



Snap bang wallop

Casady & Greene has released *Snap MAIL*, a new low-cost electronic mail package for networked Macs.

Unlike other e-mail packages, *Snap MAIL* is designed to work on even the most basic Mac setups – any Mac with 1Mb of RAM can use the software. A dedicated server isn't needed – messages are sent directly to the recipient, rather than via a mailserver. Instead, the software uses a distributed server system, which means that any Mac can act as a forwarding station for mail that can't be delivered immediately.

Encrypted messages are supported for extra security, and the SnapTalk feature allows users to hold on-line conferences.

Snap MAIL is available in a number of configurations: a 5-user pack costs £187, a 10-user pack is £293 and a 50-user pack is £1,169.

Snap MAIL is distributed by Softline Distribution: 081 642 2255.

Virus watch

Since the last issue of *MacFormat* went to press, three new viruses have been discovered: new strains of T4 and CDEF, and INIT 17.

Least harmful of these is the new CDEF strain. CDEF is an old virus which infects the **Desktop** file under System 6 and earlier – Macs running System 7 are completely immune to infection. It does not attempt to do any harm, although unexpected crashes may occur.

The new version of T4, called T4-C, infects applications, the **Finder** and the **System** file. An infected application becomes damaged and must be replaced by a 'clean' copy – it can't be repaired by anti-viral programs.

The new virus, called INIT 17, infects applications and the **System** file. It displays the message 'From the depths of Cyberspace' when the Mac is first restarted on October 31 1993, and causes a number of problems, mainly on 68000-based Macs such as the Classic. These include applications

unexpectedly quitting, and System Errors. Both System 6 and System 7 Macs can be infected.

The major anti-virus programs will have been upgraded to deal with all of these viruses by the time you read this magazine. Contact details are:

- Disinfectant*
Freeware available from PD houses and user groups.
- SAM*
£176 from Symantec, 0628 777677.
- Virex*
£69 from Softline, 081 642 2255.

American movie magic

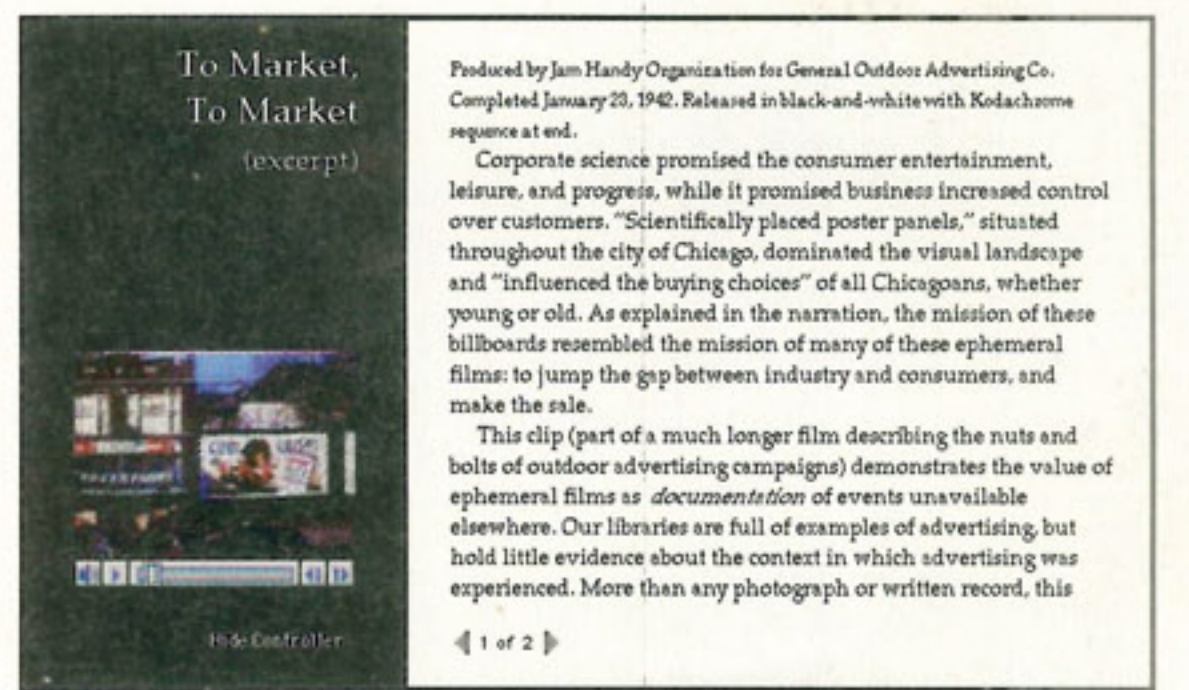
The Voyager Company has released two new CD-ROMs containing film clips from the USA that span 1931 to 1960.

But these aren't run-of-the-mill motion pictures from Hollywood; instead, they present a distinctly odd slice of Americana from days gone by.

The clips have been collected by 'media archaeologist' Richard Prelinger and range from films made by companies to promote their products (*Breakfast Pals* features Snap, Crackle and Pop slogging it out with Soggy, Mushy and Toughy) to government advice films such as *Dating Dos and Don'ts*.

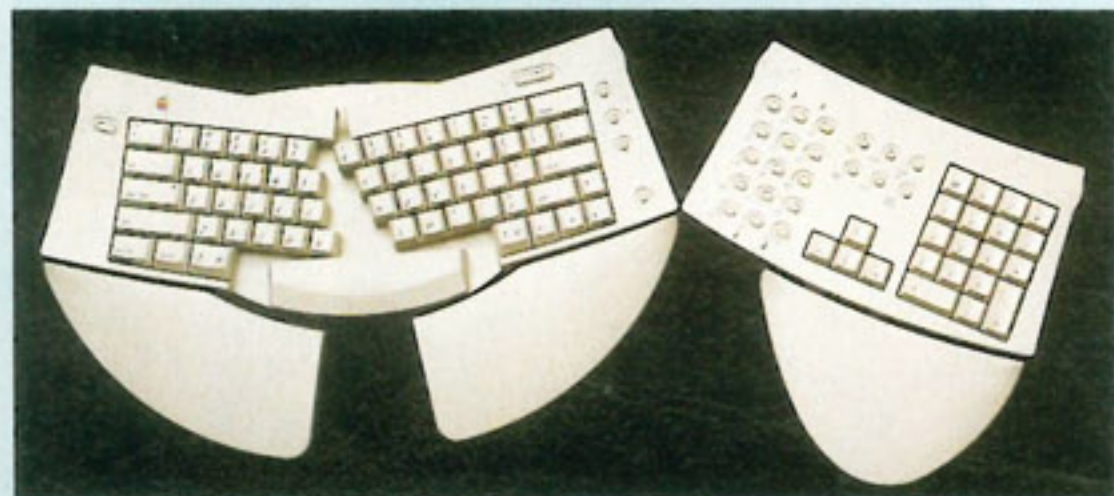
The movies are presented in *QuickTime* format, while a *HyperCard*-based application provides details about the clip being shown. The discs require a *QuickTime*-compatible Mac with 4Mb of RAM, a CD-ROM drive and a monitor capable of displaying 8-bit colour or better.

The discs, from Softline on 081 642 2255, cost £29 each; *To New Horizons: Ephemeral Films* has clips from '31 to '45, while *You Can't Get There From Here* covers '46 to '60.



To New Horizons: Ephemeral Films features detailed insights into subjects of real import – like the significance of outdoor advert campaigns in 1940s USA

FIRST LOOK



Apple Adjustable Keyboard

Repetitive Strain Injury – RSI – is becoming more and more prevalent among people who use computers. There are various kinds of Repetitive Strain Injury, but the most common for computer users is Carpal Tunnel Syndrome, which affects the hands, wrists and upper arms. The symptoms are aching in the joints and occasionally swelling – and if you start experiencing this, you'd better take notice because left unattended, the problem can escalate to the point where you physically can't use a keyboard any more.

Apple has taken notice of this problem, and has now released the Apple Adjustable Keyboard, a Star Trek-like device which aims to provide touch-typists with a more comfortable typing position.

The keyboard actually splits apart down the centre by up to 30 degrees, so that your hands are positioned more comfortably – and plastic wrist-rests give your hands some support as you're typing. A separate numeric keypad is included, which also contains the 15 function keys normally found at the top of an extended keyboard.

As with any different keyboard layout, some things take a little getting used to: in this case, I found that for the first few hours I was hitting the cursor up key by mistake when going for the right-hand [shift] key – they are right next to each other, and the [shift] key is smaller than on my normal keyboard. Also, there's no 'lock' on the keyboard's split – it's very frustrating to find just the right angle only to knock the keyboard by mistake and change it.

For some reason, Apple clearly doesn't think that the function keys are particularly important; they're small plastic buttons on the numeric keypad, rather than proper keys. If you're used to a standard keyboard, this will be no problem – you don't have function keys in the first place. However, anyone who normally uses an extended keyboard may find this frustrating – and there really doesn't seem to be any reason why the function keys couldn't be in their usual place. (The [escape] key has similarly been replaced with a small button on the main keyboard, but isn't such a problem since few – if any – programs make use of it.)

Small problems aside, the Apple Adjustable Keyboard really is an excellent piece of hardware. It's remarkably comfortable to use – going back to a normal keyboard at the end of the review period was horrible.

If you're not a touch typist, you probably won't have any use for the new keyboard; but if you are, it can be thoroughly recommended for work.

Price: £229

From: Any Apple dealer

Ian Wrigley

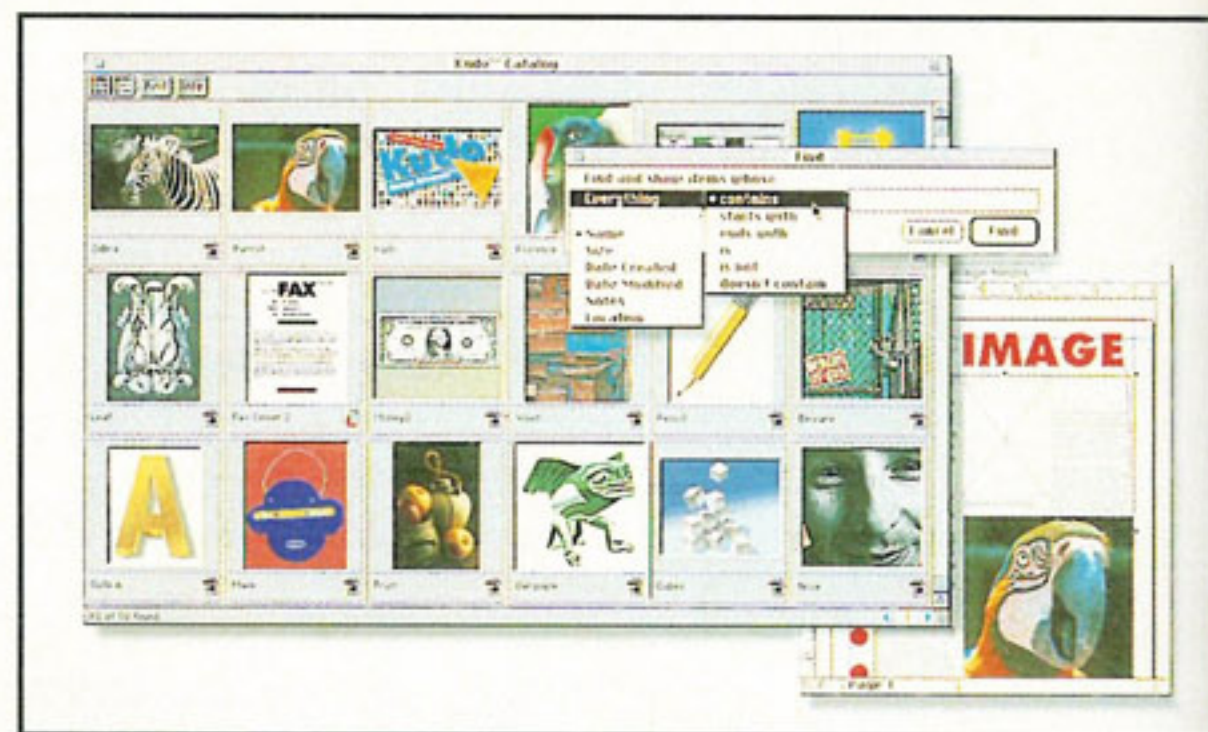
Just browsing

Impace Systems' *Kudo* Image Browser, a cataloguing, browsing and retrieval tool, is now available in the UK.

Kudo creates a catalogue of any images on a volume – hard disk, optical disk, CD-ROM or whatever – and displays these images as 'thumbnails' for the user. The program supports a wide range of file formats, including TIFF, PICT, EPS, *Photoshop*, *QuickTime*, GIF and many others.

Keywords can be assigned to images, and the Find system works by file type, file name, keyword or location. The program also has a 'Riffle' search, which displays thumbnails at a rate of around ten frames per second; Impace claims that it is easy to recognise an image at that speed.

An innovative feature is 'Drag and Place'. If you use *QuarkXPress* or *PageMaker* you can select a thumbnail and drag it straight to a picture box in the



Kudo's Find system can search by name, file format or keyword. When an image has been selected, it can be dragged straight into *QuarkXPress* or *PageMaker*

document – the original is automatically placed in the file for you. The manufacturer says that it is working on adding this feature to other applications.

Kudo requires a Mac II or above running System 7; the current version is 1.02, but an upgrade which supports CMYK and LZW-compressed TIFFs, and which will run under System 6 is imminent. This will be shipped free to all registered users.

Kudo costs £229 from Principal Distribution on 081 813 5656.

Mind your own business

M.Y.O.B., the popular small business accounting package, has had its price slashed to £293 with the release of version 3.0.

The program, according to manufacturer Soft Numbers Limited, contains 'all the accounting tools a business needs,' including sales orders, invoicing, stock control, price lists, cash book, VAT reports and bank reconciliation.

Version 3.0 adds data import and export, producing packing slips and delivery labels and customisable forms. Soft Numbers Limited: 0992 451551.

A bum deal for Pink

You'd be surprised at how many people use Macs at work, home, play whatever. Next time you look at an album cover, you may find that it has been produced with the help of a Mac.

Text for the 112-page book that accompanied the nine CD special edition of Pink Floyd's complete recorded repertoire were supplied on Macintosh disks at Sonic Plates, the London-based repro house that specialises in music industry work.



The absolute cheek: at many repro houses the bottom line is to turn to a Mac for work on album covers

The bear necessities

Fatty Bear's Birthday Surprise is the second 'junior adventure' release from Humungous Entertainment, and is due to ship in June.

The 'edutainment' title is about a lovable stuffed teddy bear who comes to life for children only, and lives with a little girl who happens to be having a birthday the next day. Fatty wants to make it the best day ever for her but is faced with a lot of distractions that are there to make things interactively interesting and fun.

The title follows the successful *Putt-Putt Joins the Parade*, and is designed to introduce kids to computers, as well as other kinds of skills. The program will be available on both floppy disk and CD-ROM, and is aimed at kids aged at three to eight. Price is to be confirmed. Electronic Arts 0753 549442.

Mac network bundle

Apple has announced a new bundle for purchasers from educational establishments which effectively provides them with free printers and software.

Anyone qualifying for the education discount who buys 15 or more Mac LC IIs will pay £1,169 per workstation, and will receive a free Personal LaserWriter NTR, an ImageWriter II, *MacPrefect* (a security package reviewed on page 78 of

MacFormat issue 1) and *ClarisWorks* (the integrated package) for each Mac, and all cabling for the network. Based on the minimum network of 15 Macs, this represents a saving of more than £3,500 on the individual list prices of the items.

The promotion is available from all Apple Authorised Education Dealers. To find your local dealer, dial 100 and ask for Freephone Apple.

Mac-ready dot matrix

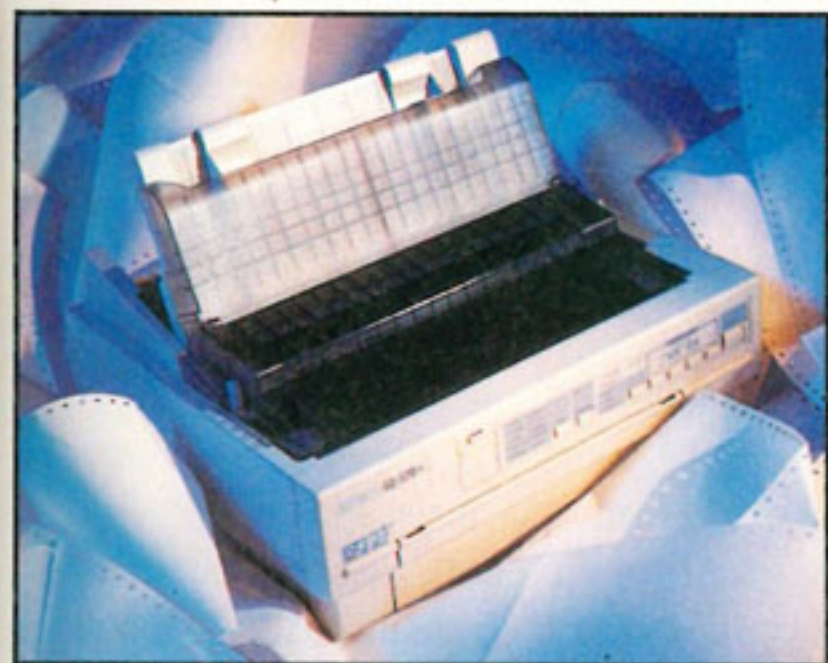
Epson has announced a range of dot-matrix printers which are compatible with the Mac. The models come with a built-in LocalTalk

interface, and software which makes the printer appear in the Chooser as a normal output device.

Dot matrix printers are useful when multi-part stationery or continuous-feed paper needs to be used – although a few of the inkjet printers on the market can handle continuous paper, an impact printer must be used if carbonated forms are required, since it's the impact which makes the image appear on the lower sheets.

All of the Epson printers are 24-pin dot matrix, which means that they produce a high quality image – equivalent to a maximum of 360 dots per inch.

Pricing for the printer range starts at £551; they will be distributed by Aptec – 071 627 1000.



The LQ-570+ from Epson: a high-quality 24-pin dot matrix printer, now with a built-in LocalTalk interface

Low-cost Internet access

ExNet Systems has announced that it can now provide low-cost access to the Internet computer network through its new HelpEx service. Internet is a huge collection of computers and their users, spanning the globe and providing everything from free software to a forum for discussing the latest developments in your favourite soap opera.

The entry-level point, called Basic Service, costs £5.88 per month, and gives users logging in at 2400baud or less a terminal-based interface. UUCP Service, for £9.79, provides a more sophisticated interface using public domain or shareware programs on your Mac for reading mail and getting news.

Rather than a joining fee, ExNet asks that users pay their monthly subscription three months or more in advance – there are reductions if you pay six or 12 months in advance. The first month on the system is free.

ExNet Systems: 081 755 0077

Fax for the memory

Glenwarne Limited has joined forces with Pace Communications to produce a Mac-compatible fax/data modem, plus software, for just £351.

The software, provided by Glenwarne, is called *FaxExpress*, and the modem is a Pace Microlin fx. This supports Group 3 fax transmit and receive at 9600baud, and 2400baud data transmission with V42bis compression – which, according to the manufacturer gives an effective throughput of 9600baud.

To fax a document, users hold down the [option] key when selecting the File menu; the Print... option changes to Fax..., and a dialogue box appears in which the phone number can be entered. Both fax transmission and reception occur in the background.

The system will work on any Mac; a multiple user version of the software is available for users on a network who want to share the fax modem.

Glenwarne Limited: 0753 643180

FIRST LOOK

Ask the Experts

What are the problems of excavating and preserving dinosaurs?

Were dinosaurs cold blooded or warm blooded? (Chure)

How were the fossils at the Dinosaur National Monument formed?

How did dinosaurs move?

How are dinosaurs reconstructed from such small fragments?



Don Chure of the Dinosaur National Monument, Utah, answers

Dinosaurs

Dinosaurs, from Media Design Interactive (MDI), is one of the best uses yet for multimedia. It's about as complete a dictionary/reference/tutorial about dinosaurs as you will find, and takes up over 600Mb on a CD-ROM.

The package is broken down into five sections. They are: Age of the Dinosaurs, (general information); Dinosaur History (what happened when); Story of the Fossils (how fossils occurred and where they can be found); Ask The Experts (dinosaur experts answer many commonly asked questions); and Dinosaur Gallery (a complete listing of all known dinosaurs, together with any information known about them such as what they ate, where they lived, how large they were and so on).

The information, apart from the Gallery section, is presented as *QuickTime* movies, featuring location film from around the world which was specially shot for the CD. Much footage comes from the Dinosaur National Monument in Utah, USA – an incredible area where huge numbers of fossils have been found.

The result of all this is that *Dinosaurs* at times seems more like a TV programme than a computer program. The video clips look professional, the interface is easy to use, the subject matter is fascinating and is entertainingly presented... all in all, this is a Mac program which will interest not only the dinosaur fans out there, but also anyone who wants tips on how a really great multimedia product should look.

This program will appeal to all ages: the experts manage to convey the information in terms that should be understandable to any child over the age of eight or so, while still being interesting to adults.

Version 1.0 of the package was written in a combination of *HyperCard* and *MacroMind Director* and, according to Philip Nash, Managing Director of MDI, "pushes the programs to their absolute limits." Version 1.1, out by the time you read this, has been re-written in C and will be far faster – not that the original was much of a slouch.

If it sounds as though I have shares in the company, I wish I did – it's great to see a program that really makes use of the technology available, and *Dinosaurs* will undoubtedly be a well-deserved, huge success for Media Design Interactive. I look forward to the company's next product.

Price: £79

From: MDI, 0252 737630

Ian Wrigley

News in brief

■ Hewlett-Packard has announced that it will be bundling the Limited Edition (LE) version of *Photoshop* with its ScanJet IIc scanner.

Photoshop LE is a cut-down version of the program; it retains many of the features but doesn't support alpha channels or CMYK separation. The ScanJet is a 400dpi, colour desktop scanner, price £1,851. Hewlett-Packard: 0344 369222

■ Frontline Distribution is offering a bundle deal on *QuarkXPress* and *Claris MacDraw Pro* through its network of dealers until the end of May. The bundle costs £934, a saving of £382 on the recommended retail price.

Frontline Distribution: 0256 847110

■ Aptec has been announced as the official UK distributor of the IBM Color Jetprinter PS4079 – a PostScript device which uses inkjet technology to produce output at a resolution of 360 x 360dpi.

The printer costs £4,699, and will be available through Aptec's network of dealers. Aptec: 071 627 1000

■ FontWorks will give a free Agfa FOCUS Color Plus scanner to the first 100 customers who purchase the full Adobe Type Library on CD-ROM.

The normal price for the type library – which contains 1,171 Type 1 fonts – is £11,691 and the scanner's street price is over £4,000, but the first 100 customers will only pay £8,811 for the bundle. The CD-ROM will be shipped with all the Adobe faces unlocked and ready for use; there are another 700 or so faces on the disc, and these can be unlocked at any time.

FontWorks can be contacted on 071 490 5390.

Three new Macs from Apple, but hey – they're just old re-badged Macs

New Macs from old

Apple has announced a family of three new machines, designated Apple Workgroup Servers – but in reality they are members of the current Mac family, re-badged and with extra software included.

The new machines are part of an Apple marketing plan to target the rapidly growing demand for fast file servers. At present, many networking *cognoscenti* aren't convinced that the Mac is a fast enough machine to act as a server for a large network.

The Workgroup Server 60 is essentially a Centris 610 running *AppleShare 4.0*, a new version of the file sharing software. Apple claims

that data throughput of 300K per second should be sustainable for up to 15 active users.

Next up is the Workgroup Server 80, a Quadra 800 with a built-in DAT drive for backup. Again, it will run *AppleShare 4.0*, and Apple reckons that between 400K/sec and 500K/sec data throughput rates should be sustainable for up to 30 active users.

Finally, the high-end machine is based on a Quadra 950 running A/UX, Apple's version of Unix, and *AppleShare Pro*, a Unix-based version of *AppleShare*. The machine, called the Workgroup Server 95, has a built-in DAT drive for backup, and has a

PDS (Processor Direct Slot) card. This contains 128K of second-level memory cache for extra performance, expandable to 512K, and two SCSI Direct Memory Access (DMA) channels for high-speed access to peripherals such as hard disks. Apple claims that up to 800K/sec throughput is possible with up to 100 active users.

No pricing has yet been set for the Workgroup Servers 60 and 80, which will ship 'this summer'. The Workgroup Server 95 should be available from the end of April, and will sell in two different configurations for different target users, priced at between £9,000 and £12,000.



Océ's G5241-PS printer: a thermal transfer colour device which has Adobe PostScript built in

Océ yah – colour printers!

Océ has launched a range of new colour PostScript printers. They use the thermal transfer printing method to produce 300dpi output, and are available in A4 and A3 models.

The A4 model, called the G5241-PS, has a print speed of around 80 seconds if a four-colour ink roll is used, and about 50 seconds if the three-colour roll (which contains cyan, magenta and yellow but no black) is used instead.

The printers can output to paper or clear film. A SCSI port allows the connection of a hard disk for extra font storage. Pricing for the A4 model starts at £5,047; the A3 printer starts at £8219. Océ is on 0454 617777.

Tablets of stone

Computers Unlimited is now shipping a new Wacom cordless, pressure-sensitive graphics tablet.

The Wacom ADB Tablet measures 6 inches by 8 inches, and connects to the Mac via its ADB port. The stylus, which doesn't need to be connected to the tablet by a wire,

weighs just 8 grammes, and contains no batteries.

The driver for the tablet features 'double click assist' – something which is bound to be popular among users. Previously, users of graphics tablets have found it difficult to use them as a replacement for the mouse

because double-clicking on an object meant hitting the same pixel twice. Version 2.0 of the driver increases this to a 15 pixel radius – so a slight movement of the pen doesn't matter.

The Wacom ADB Tablet costs £469, and is available from Computers Unlimited: 081 200 8282.

Recordable CD-ROM

KimTec UK is now supplying the Pinnacle RCD-202 recordable CD-ROM drive. This is one of the first reasonably low-cost recordable devices on the market; it sells for £4,694, and is able to create CD discs in Macintosh HFS, ISO 9660 (a multi-platform standard), incremental multisession, audio and mixed mode formats. All software is included in the price.

Blank discs cost £22 for a 550Mb CD-ROM, £25 for a 630Mb disc. Minimum order quantity is 10 discs. KimTec will also provide training courses for users, tailored to suit individual needs.

If you don't want to buy a recordable drive yourself, but you occasionally need CD-ROMs pressing, KimTec will press discs for you at a price of £206 per disc for up to 300Mb, £235 per disc for up to 650Mb. Additional copies of the disc cost £59.

KimTec can be contacted on 0202 888873.



The Pinnacle RCD-202 recordable CD-ROM drive: gives you the ability to press your own CDs for only £22 each

Rumours...

■ Rumours are circulating that Apple will release two digital colour cameras before the end of the year.

They are based on technology licensed from Fuji, and will produce 24-bit colour images. The higher end camera, codenamed Mars, should cost less than \$2,000 and will store images on a PCMCIA card, like that which will be present in the Newton; a serial interface will allow users to download the images to a desktop Mac.

The cheaper model, codenamed Venus, will sell for around \$500, and will have a lower resolution. It will store images in RAM and, again, will connect to the Mac via a serial cable.

■ The first prototype PowerPCs have been shipped to developers in the States, according to sources. Although they are still nowhere near finished units, first impressions have been good – although some developers have said that applications running under the 68020 emulation system are still rather slow.

Developers in the UK are expecting to see prototypes in the next four months or so.

■ Despite confident predictions, the PowerBook Duo hasn't had the astronomical sales figures that Apple was hoping for. Prices have already been reduced in the US, and observers are anticipating more reductions in the near future.

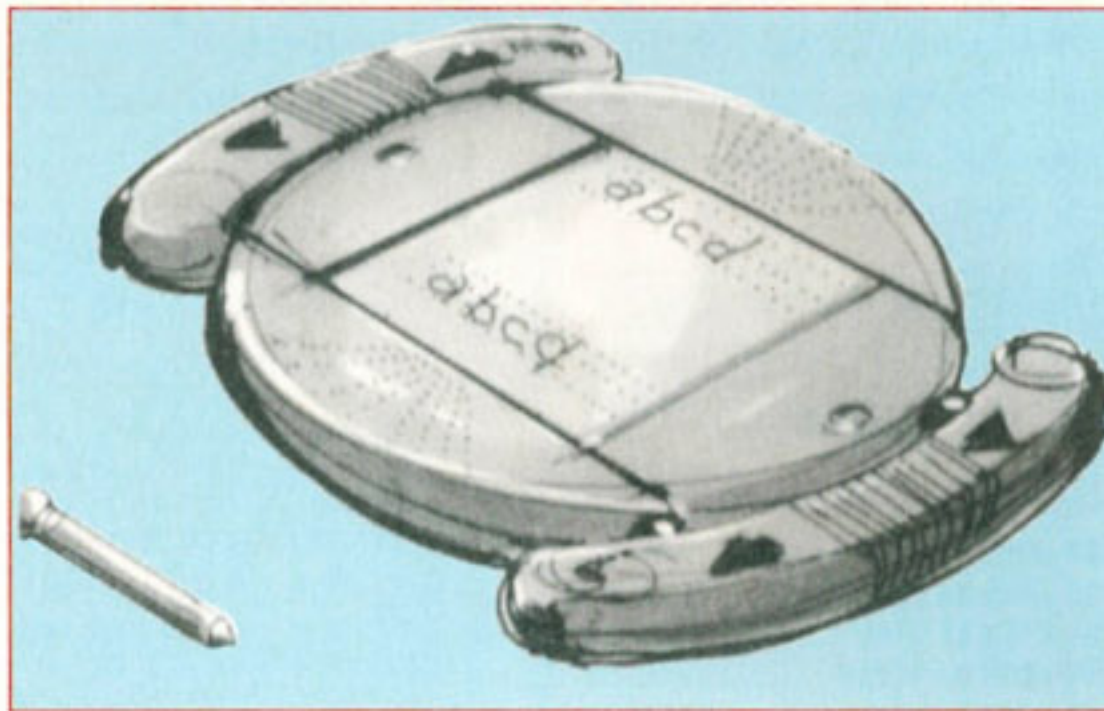
To try to boost sales, expect to see Apple releasing a Duo with an active matrix display very soon indeed.

Newton licensed to third parties

At the Cebit computer show in Germany recently, Apple announced a change in its previous policies regarding its Newton technologies, the basis for its forthcoming PDAs (Personal Digital Assistants).

Previously, Apple has fiercely guarded these technologies, which include things like handwriting recognition, communications and data retrieval. However, the company now seems to recognise the fact that, in order to make Newton-based PDAs an industry standard, the industry must have access to these technologies. "As different industries converge and as these technologies come together, no single company will be able to control all that is needed to meet customer demand," Apple Chairman John Sculley told a shareholders' meeting in January.

Apple will now license elements of Newton to third parties, the first of which have now been announced. The companies include Sharp, which is already involved in the manufacture of the first Newton with Apple, and Siemens, which will collaborate with Apple on the development of the NotePhone, described as a device "which will provide access to telephone and fax features." Also licensing core technologies is Japanese electronics giant Kyushu Matsushita.



The Newton Draw and Spell is just one idea that Apple engineers have had for possible future PDAs

According to Frank O'Mahoney, Apple's PIE (Personal Interactive Electronics) PR manager, Apple expects these companies to produce their own PDAs in the near future. He says that Apple products will compete in the marketplace with those of its licensees – Apple doesn't expect to be told what any other company intends to produce.

Portable CD-ROM drive announced

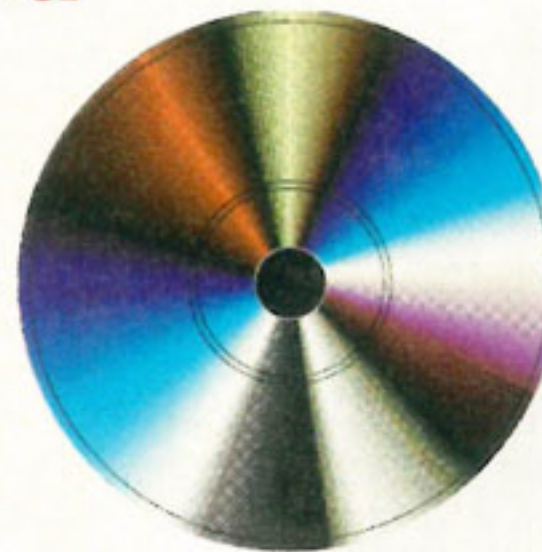
Apple has announced that its Personal Interactive Electronics (PIE) division will produce a new CD-ROM drive, scheduled to be released in the summer this year.

The drive, known as the PowerCD player, is a three-in-one device which will play CD-ROMs, Photo CD and audio discs. The device will be more portable than current drives, and may be powered by rechargeable batteries.

According to Gaston Bastiaens, vice president and general manager of the PIE division, the drive will provide "a lightweight, easy to use, portable CD-ROM solution."

The drive will connect to Macs and PowerBooks via SCSI. Users will also be able to connect the drive to a television to view Photo CD discs.

Pricing has yet to be decided.



Mac OS to run on PCs?

According to US trade magazine MacWeek, we may soon be seeing the Macintosh operating system up and running on 80486-based IBM-compatible computers.

An experiment currently under way at Apple, and codenamed Star Trek, is a rewrite of System 7.1 so that it will run with DR DOS, a PC-compatible operating system which is similar to MS DOS. Sources say that most of the conversion work has been completed, although the porting of the AppleTalk networking system, a major task, has yet to be done.

Although Mac applications wouldn't immediately run under Star Trek – developers would have to recompile the code – a Mac interface on a PC would be an extremely attractive proposition to many people.

We'll give you more information as soon as we get it...

Apple ships three new Performas in the USA

Three new Macintosh Performas were launched in the States last month, all based on the LC II and LC III.

■ **The Performa 405** is based on the LC II and comes with 4Mb of RAM, expandable to 10Mb, and an 80Mb hard disk. It can display 16 colours, expandable to 256, on a standard 14-inch Performa monitor.

■ **The Performa 430** is also based on the LC II, but comes with a 120Mb hard drive, and displays 256 colours as standard. It, too, has 4Mb RAM expandable to 10Mb.

■ **The Performa 450** is an LC III-based machine, running at 25MHz rather than the other two machines' 16MHz. It can display 256 colours, expandable to 32,000 and ships in a 4/120 configuration. The RAM can be expanded to 36Mb.

All three new Performas have a Global Village Teleport/Bronze fax modem built in. This provides send-only fax capabilities at 9600baud, and 2400baud data transmission.

The Performas come with software to access two on-line services: CheckFree, an automated bill payment system, and an Apple special edition of the popular US bulletin board America Online. Software bundled includes *ClarisWorks* and *Macintosh PC Exchange*; individual dealers will be able to decide what else to bundle with their machines.

As we went to press, Apple UK had no comment on whether the new Performas would be available in this country; the Performa 200, 400 and 600 were available in the US for some months before being launched here.

CALL FOR YOUR FREE CATALOGUE 081 642 2222

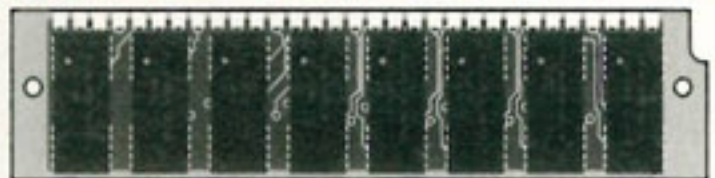
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Desk Paint 3.0 (excellent 24 bit paint and draw package)	£99.00
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MacDraw II (powerful, easy to use draw package)	£145.00
MacDraw Pro (hugely powerful, doubles as presentation tool)	£275.00
MacPaint II (the original Mac software)	£85.00
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LabelWriter II (mini thermal printer produces sticky labels)	£220.00
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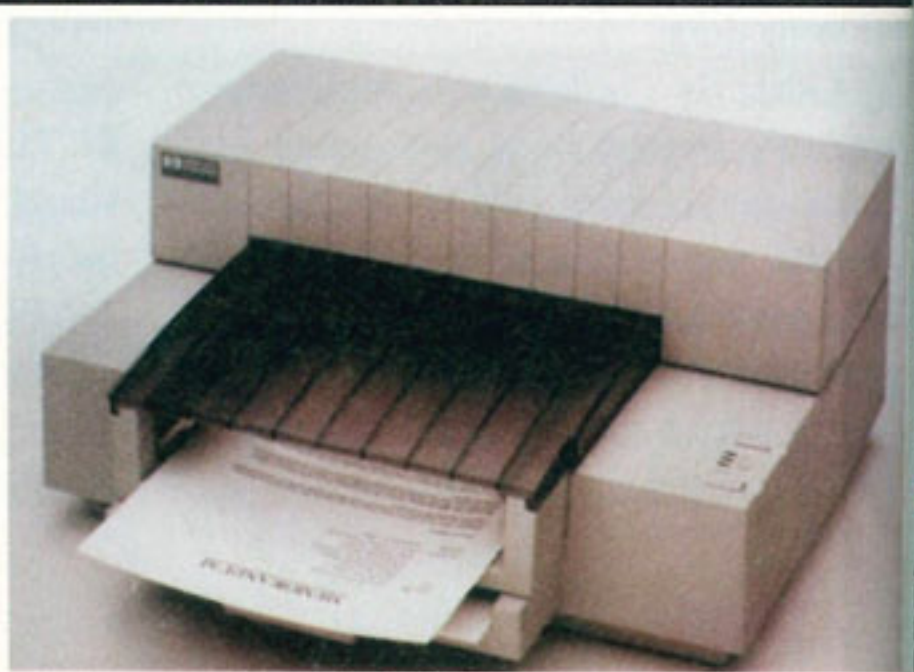
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(audio cassette application training for: New Mac Users, Upgrading to System 7.0, PageMaker 4.2, Xpress 3.1, Works, Word 5.0, Excel 3.0, Persuasion, Illustrator, FreeHand, FileMaker, Claris Works and Lotus)

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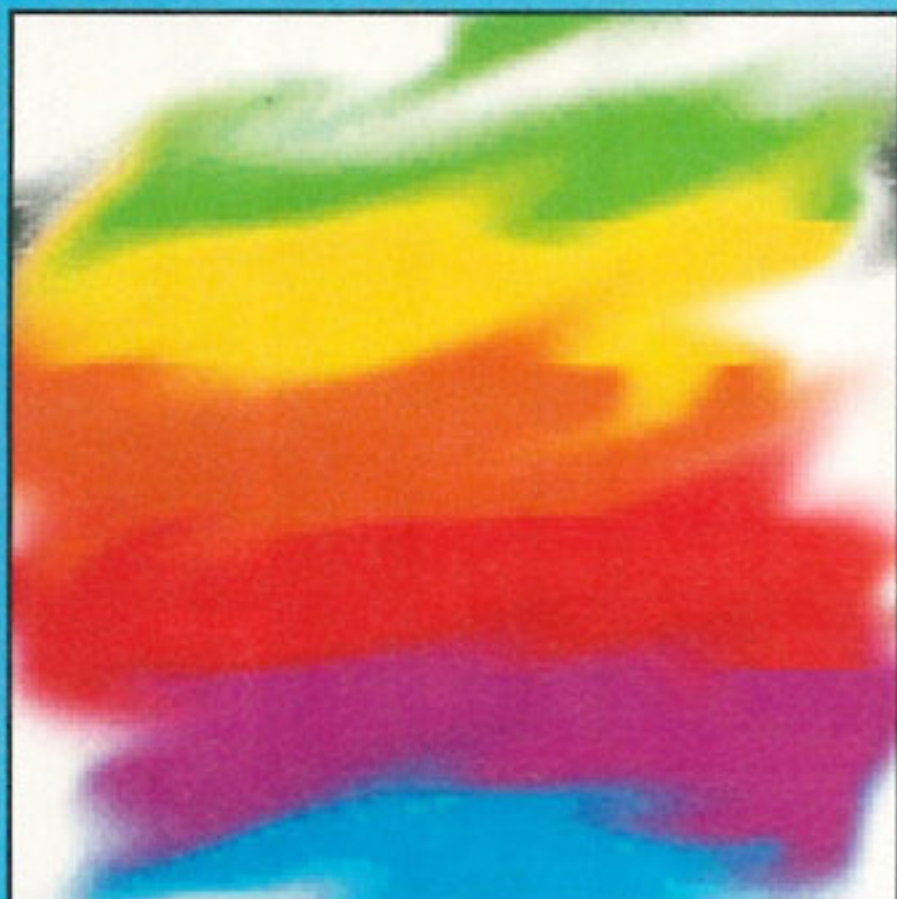
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TALK

Pleased, peeved, irate, enraged, amused, amazed, stunned or astounded? Whatever your feelings – about anything in the Mac universe – make sure you write in and tell the Editor – Andy Storer – at:

Apple Talk
MacFormat
30, Monmouth St
Bath, BA1 2BW

Lessons learned from history

Well Done! The first Mac magazine that I have wanted to sit down and read through. It even encouraged me to download the *BeHierachic* utility, which I had not heard of before.

On the subject of the availability of software, one major issue that might be brought out is the continuing lack of educational software in some subject areas applicable to BRITISH topics. As a history teacher I have spent quite a time looking for software suitable for National Curriculum history. The amount available can be counted on one finger – ‘The Railway Age’ stack by Bridge Publications (written by G Davies 1990).

The catalogue for History issued by a leading educational software distributor – AVP – contains among its many hundreds of programs for Nimbus, Archimedes, etc. only two Mac programs and these are only low level database revision programs.

There are one or two good stacks on American-related topics – the Vietnam War stack and Assassination of Kennedy called ‘11/22/63’. Although this situation is not quite so difficult in other subjects where the US origination doesn’t affect content, the lack of British writers producing software for the Mac is a major obstacle in a



Mac equipped school to applying technology to teaching in a subject such as mine.

Peter Morgan, Epsom, Surrey

Well hopefully that situation may begin to change if Apple’s education drive is successful and Nimbus and Archimedes developers began to port over some of their titles. But I guess we’ll just have to wait and see.

When oh when oh when

Please don’t fall into the usual mag trap of publicising kit that your readers can’t get for love nor money. Or at least be honest about the supply situation. I’ve been after an Apple CD300 (which you plugged in Issue 1) for a couple of months. No dealer I have spoken to has seen one yet. Computer Warehouse says none has been shipped. Actually a story on Apple’s supply operation and a chart showing true waiting lists as against what dealers say would be very interesting. I was told ‘mid-February, definitely’, ‘end of February, mate’ and finally ‘April 1st, I’m afraid’. The latter I almost believed, for the obvious reason, too. Still no CD300 though.

Paul Fry, London

It’s one of our jobs to publicise kit as soon as we hear about it – and if there are likely to be delays we’ll let you know. But I know the feeling – we’ve only just taken delivery of a CD300 after waiting three months ourselves.

Curlies in short

I was interested to read your new magazine, which I found both useful and entertaining. Imagine my horror, however to see page 21 full of what I believe are known as ‘dumb apostrophes’ (ie what you get when you hit the quote/double quote key on an Apple keyboard). Surely, you of all people should know that you can get proper curly apostrophes/quote marks by

You won’t believe this!

This issue’s most weird and wonderful item of software or hardware which takes the esoteric to ludicrous levels is *Swimsuit v1*.

This \$100 CD-ROM features 200 shots of bikini-clad nymphettes. Only in America.... Do you have a weird one you’ve come across? Send it to ‘You won’t believe this’, MacFormat, Future Publishing, 30 Monmouth St, Bath BA1 2BW We’ll send you a fiver if it’s printed.

Hey you! Yes you!
– just fire all your missives my way...

Star letter – wins £500

I couldn’t believe my luck. I think I just might be able to read this one... games reviews, interesting articles... and a bit of a sexy cover too! Despite what other Mac mags think, most people who use these computers aren’t middle-aged, boring, Volvo driving geeks! Some of us still have all our own hair and find 20 pages about printers pretty goddam sad!

Anyway I just thought I’d tell you that it’s a good one (I know how insecure you people are about your first issue) and if you have a letters page then you should put this one at the top with a caption like ‘Star Letter – wins £500’. you can even get that Ed bloke to write some sarcastic (*nice try with the £500 scam there Vince – Ed*) italic remark halfway through one of my sentences if you want. Just keep up the good work.

Vince Sneed
Hackney, London

We’re feeling much more secure now we’ve had something like 500 questionnaires back, but that may change once we’re avalanched with letters from balding Volvo drivers

hitting [option] [square bracket]. *Word 5* allows you to specify this sort automatically (and the software knows which way round to put them), but *Quark*, for instance, doesn’t. Please fix this common problem.

David Nutt, London

Can we just plead ‘deadline blindness’ on this one? I’m sure other readers will thank you for the tip though...

More modern memory

Congratulations on your first issue. Here’s a couple of points for debate.

When will we get proper multi-tasking on the Mac? Unless an application has been written in a particularly friendly way, a busy foreground application will stop you switching to anything else. Similarly it is possible for a background application to hog the processor and not let anything else in.

The Amiga, a ‘games machine’, has proper pre-emptive multi-tasking like a mainframe operating system – once a task has had its quantum of CPU time, it is swapped out and something else is given a chance. Why isn’t this the case with System 7?

Alan Smith, Norwich

Cruising the keys

Try selecting the Apple menu in the Finder with the Option key held down and check out 'About the Finder'. Just wait a while and see what happens.

Jerome Dewhurst
Chesham, Bucks

Hidden features are very common in Mac programs, and do not always involve the Option key. Here's two for starters:

In the System 6.0.7. Installer, typing 'SKI' will give a dialogue box with credits, and allows you to choose different cursors.

In System 7, turning Balloon Help on and positioning the cursor over the *QuickTime* extension gives an interesting little paragraph on the nature of time.

Gordon Barr
Renfrewshire, Scotland

...Thanks Jerome and Gordon – a fiver is on its way to you both. Anyone else found any hidden delights? Well just send 'em to:
'Optional Moments', MacFormat,
30 Monmouth St, Bath BA1 2BW

Well you won't be surprised to learn that since I'm not a hardcore C++ programmer based in Cupertino, California I've no easy answer... but I think you'll find Apple's line is that true multitasking would lead to incompatibility problems with the Mac's entire software range to date. Rumours are that System 8 may take the plunge though – if it ever comes to light.

Mac networkers wanted

After having spent a few years in the printing trade, I was able to see first hand what the Apple Mac has achieved, even though I lost my job because of its introduction.

I was keen to keep in the printing trade, so I got myself a Mac and have been learning it ever since, and even making a bit of money from it.

The difficulty I'm finding is that because I have had to learn it myself I cannot find a job in DTP because of my lack of industry experience. They seem to regard 'home taught' as not good enough. But I'm not one to be outdone and I have an idea I'm hoping you might help me get off the ground.



Win a year's subscription!

So just which two faces did we merge last issue to make up the rather blurred but dreamy young morphette on the left? No Madonna didn't get a look in – nor did Margaret Thatcher, The Queen, Julie Andrews, Esther Rantzen, Edwina Currie or Fergie. The correct names were Princess Di and Marilyn Monroe and the winner of a free year's sub is...ta da da... Laurence Sidorczuk of Liverpool!

Well done Laurie and hard luck to the dozens of other readers who also got it right...

All you have to do to win this issue's free sub is work out which two faces comprise the ageing macho-morph on the right and send the two names on a card to: 'It's Really Difficult This Time', MacFormat, Future Publishing, 30 Monmouth St, Bath BA1 2BW. Oh and no, Kirk Douglas, John Wayne, Burt Lancaster and Bob Mitchum, aren't in there!



I would like to set up an agency which will offer both home tuition and in-house tuition. The idea would be to set up a nationwide database of experienced Mac users who would be willing to teach others in the required software. To keep costs to a minimum it would be practicable to have tutors in as many areas as possible. Thus when someone asks for help in Brighton I can send someone who lives in that area.

It would be nice to have some sort of recognised certificate at the end which could go some way to helping prove that someone has had decent tuition. It wouldn't be a full time job for the tutor, just simply to offer their time when they can. This way I hope to be able to offer a useful service at a reasonable cost.

I would be extremely grateful if you could print this letter so your readers can ring me if they are interested. If the response is good I can then go back to my bank manager with some facts and figures and prove it's a viable idea.
Graham Smith, Seaford, Sussex (0323 896767)

Good luck Graham – I hope it works for you.

Gimmie footie

Why are there no soccer games for the Mac? I have absolutely no interest in American football and I would prefer soccer to saving green-haired things with a death wish or flying an aircraft.

Alan Bradshaw, Raheny, Dublin

Well I'm sure *Kick Off 2* or *Sensible Soccer* wouldn't be very difficult to port to the Mac – but there lies the rub – are there enough Mac footie freaks in the UK for it to be worthwhile for their publishers? Got to be worth a gamble at the end of the day setting out the stall hasn't it Brian?

The Lemmings hard line

You looked quite shagged out on your 'Welcome' column picture. Hardly surprising, as launching something like MacFormat must be quite gruelling. It is a superb product but in the depths of a recession should you be encouraging clandestine office *Lemmings* addictions?

Peter McGrath, Saltburn, Cleveland

Oh dear. A busy workforce is a happy workforce? Actually, our cover disk games are specially optimised for lunchtime sessions...

AW SHUCKS GUYS...

We're still blushing after the floods of letters we received after our launch issue. Many thanks to everyone who wrote in – here's a few we picked out at random...

...The more news you put in about games, share/freeware the better!...

John Walker
Wantage, Oxfordshire

...Congratulations on MacFormat and the best of luck for the future! In particular I welcome the readers' ads and contacts sections that you plan to include in future issues...

Richard Forway
St Ives, Hunts

...At last – a new magazine that concentrates on that often ignored section of the Macintosh world – the home user. Not a £3,000 laser printer or other high-priced peripheral in sight, thank goodness. And best of all – a substantial section for games and shareware...

Gordon Barr
Renfrewshire, Scotland

...Congratulations on the best Mac mag on the market. I learned more about Macs from your one issue than I have from all the others put together. I have left my well thumbed copy in the crew room for others to browse; I think you may get some more subs. All the best for the future...

Peter Godfrey
RAF, Bahrain

...A big thank you to all of you for being the first people in publishing to publicly realise that business use is only one area of computing...

The Honourable CEB Portman
Brightwalton, Berkshire

...I write to express my delight in discovering MacFormat. I feel it fills a niche in the market providing good reading, well balanced and informative articles. It is long overdue and puts other magazines in the shade...

WD Tucker
Barrow-in-Furness, Cumbria

...Congratulations on MacFormat, it's a winner; I thoroughly enjoyed it! Light-years ahead in all departments. Every success for the future...

Cyril Berryman Poulter
Hull

...Congratulations on MacFormat ...please keep writing those articles relating to the Classic...

Clive Bilby
Basildon, Essex

...I am delighted to see that there is now a magazine for the home user; please keep us informed of educational software as it comes out...

Jonathan Evans
Barlby, N Yorks

...A wonderful magazine! Recognition for the home user at last. Thank you and well done...

L M Burn
Redmile, Nottingham

...Congratulations on a first-class start to MacFormat. I think you're covering us 'end users' very well. There is, however, one particular aspect of Mac use that I would dearly love to see covered more, and that is programming...

Mr Renshaw
Great Sankey, Warrington

...Congratulations on publishing a new Mac magazine. The first issue is splendid, but please let's have less on games and more on graphics...

Valerie Campbell-Harding
Andover, Hampshire

...I purchased your magazine yesterday and all I can say is that I am overwhelmed... a great combination of business and leisure software reviews, interesting tidbits and a bright, colourful flaunting of the Mac's capabilities...

Mark Edward James
Bushey, Herts

...Keep track of the games, no one else does...

Jan Fullemann
Berlin, Donnerstag

...Three cheers... at last a Mac mag that doesn't assume we're all experts at rodent running. More for beginners please and software reviews of older products. Keep up the good work.

Jo Lloyd
Calder Glen, Mossend

...So, when is the CD-ROM version hitting the stands?...

Lambros Karavis
Greece

MacFormat 2 was produced on two IIx's, an LC II, a Classic II and a Quadra 700. All hooked up to a massive Spectraset 2200 knocking out film at 2,400 lines per inch at 150 dpi. In-house copy was written in *Word 5.1* – not a bad little effort from Microsoft that – with external words arriving electronically. Editorial pages were laid out and caressed by the one and only *QuarkXPress 3.11* – with more than a little help from *Photoshop 2.0.1*. And *Capture* came in handy too. Favourite office pastimes this issue were recording answerphone messages, aerobics, drinking and guessing people's underwear. Next MacFormat is out July 6th. See ya there...

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Push your Mac to the max!

Whether it's a printer, a hard drive, a scanner or just a bit more memory, MacFormat takes you step-by-step through essential purchasing decisions



Expansion

Buying and installing extra memory and accelerator cards



Printers

We test and rate five low-cost printers



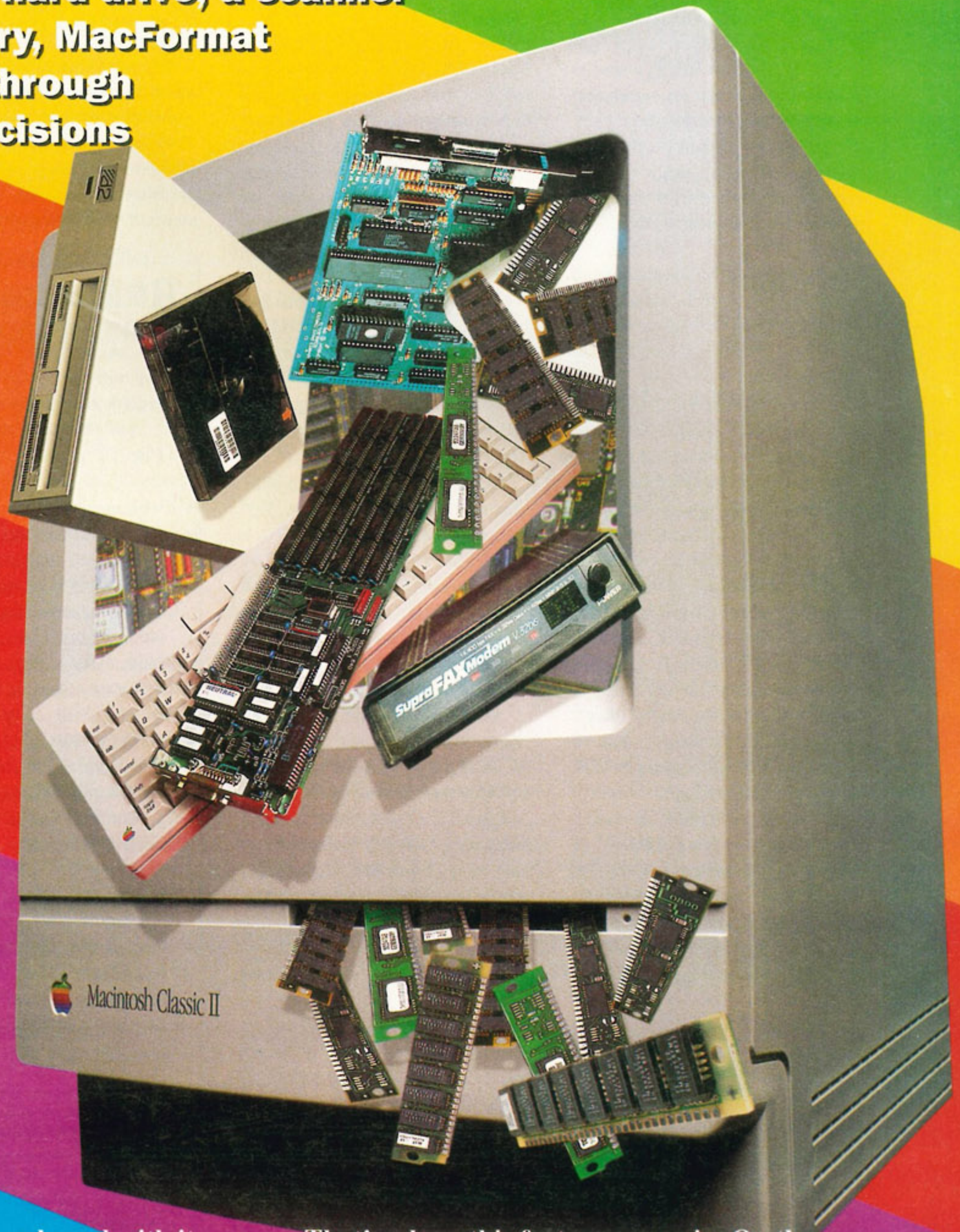
Scanners

From hand scanners to high-end drum scanners: how and what to buy



Hard Drives

Need extra storage? We explain the options



When you first buy your Mac, you're so pleased with it that you tend not to see any limitations at all. But fairly soon you discover that what you could *really* do with is a few more megabytes of memory, or that your internal hard drive just isn't quite large enough, or that it's no use having a word processor if you can't print anything out, or – eventually – that basically your Mac just isn't fast enough for the jobs you want to do.

That's where this feature comes in. On the following nine pages, we'll give you all the information that you need to make an informed purchasing decision when you're looking to buy an extra hard drive, more RAM, a scanner, or an accelerator card. And on pages 26 to 29 we get our hands dirty and review five 'low-cost' printers that are well worth considering when you're looking for an output device.

Internal expansion

There are plenty of ways that you can expand your Mac without hanging loads of peripherals off it; more RAM, a maths co-processor, even an expansion board will all increase the functionality of your computer without taking up space on your desk. And often it's an easier procedure than you'd think.

The first, and most obvious expansion is to increase the amount of memory that your Mac has installed. If you've a Mac with a built-in screen, such as the Classic, Classic II or Performa 200, this is an operation that really should be performed by a dealer – the voltage present in the screen's tube is very dangerous, and you shouldn't consider taking the back off your Mac unless you're very confident indeed. Anyone with a 'modular' Mac (that is, any Mac without a built-in screen), though, will find that fitting extra memory is a fairly simple procedure. On the other hand, do remember that this can invalidate your warranty – so make sure that you know what you're doing before you start.

Memory is supplied on small circuit boards called SIMMs – Single In-Line Memory Modules. They contain the memory chips themselves, plus some ancillary circuitry that makes everything work together, and are easily slotted in to sockets on the Mac's main circuit board.

All Macs except the new LC III, Centris 610, Centris 650 and Quadra 800 use basically the same kind of SIMM – but there are some small differences between models, so you should make sure that you specify what Mac you'll be using them in when you buy them from a dealer. Most noticeably, the IIfx needs a differently shaped SIMM; and some Macs require faster (and so more expensive) memory chips than others. Memory speed is measured in nanoseconds (ns), and a typical SIMM will be rated at 70ns, 80ns, 100ns or 120ns. Earlier

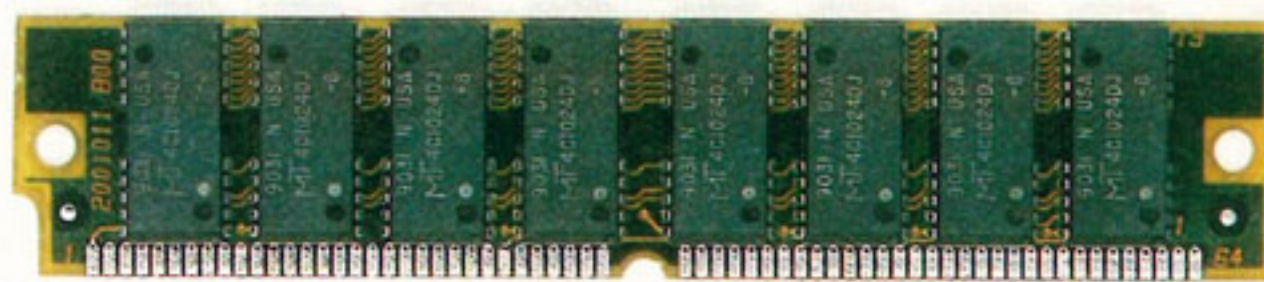
Macs will be happy with 100ns or even 120ns RAM, but the newer, more powerful machines need the 80ns or 70ns chips. (Actually, most memory sold these days is 80ns or faster, but you still need to be sure and check.) If you install memory that's too slow for your Mac, you will find that you start having unexpected crashes and System errors – so make sure that you get the right speed.

There are some limitations to what memory you can fit inside each different model of Mac; SIMMs are fitted in 'banks' of sockets – there are either one, two or four sockets per bank, and most Macs have two banks.

Each bank must be filled with SIMMs of the same size – so, for example, if you've a Mac IIfx, which has two banks, each of four sockets, you can only add 4Mb SIMMs if you have four of them, so that they fill an entire bank. (Or, of course, eight of them, which will fill both banks.)

To confuse things slightly, Apple changed the rules when the LC III, Centris 610, Centris 650 and Quadra 800 were being designed. These machines (and, presumably, all that come after them) use 72-pin SIMMs, which are the standard in the IBM PC-compatible world, and so should be slightly cheaper than dedicated Mac-only memory. These SIMMs can be used in any configuration – you don't have to fill an entire bank with the same size, although you do get a slight performance increase if you do.

The table on the right summarises the amount of memory supplied as standard with Macs, and the maximum amount that you can add. Remember when buying to specify the model of Mac that you have, and to ask if the dealer that you're talking to has an installation guide to help you through the process. If not, keep an eye out for the next issue of **MacFormat** – which will contain a step-by-step walkthrough to SIMM installation.



SIMM city. Adding extra memory is easy – just stick the SIMMs in the slots...

Compatibility issues

When accelerator cards first appeared for the Mac, there were a large number of compatibility problems – some applications and Extensions just wouldn't work with them. Things have changed since then, and these days accelerators are much more likely to work harmoniously with all your software. But you should make sure that you tell your dealer exactly what software you're using, and get a guarantee that it's all compatible before you part with your money.

RAM sizes for Macs

This table contains the maximum RAM sizes for all currently available Macs, as well as a couple of the now obsolete models. Remember to check with your dealer before you buy memory, to make sure that it's compatible with your particular machine.

Mac.....	RAM soldered on board (Mb)Maximum RAM (Mb)
Classic	1.....	4
Classic II.....	2.....	10
Performa 200.....	2.....	10
Colour Classic.....	4.....	10
LC	2.....	10
LC II	4.....	10
Performa 400.....	4.....	10
IIfx.....	4.....	68
Performa 600.....	4.....	68
IIfx	4.....	68
LC III	4.....	36
Centris 610	4.....	68
Centris 650	4/8	132/136
Quadra 800	8.....	136
Quadra 950	0.....	64
PowerBook 145.....	2.....	8
PowerBook 160.....	4.....	14
PowerBook 165c.....	4.....	14
PowerBook 180.....	4.....	14
Duo 210	4.....	24
Duo 230	4.....	24

Note that although some of the maximum RAM specifications look pretty impressive – 136Mb on the Centris 650 and Quadra 800, for instance – this requires the use of 32Mb SIMMs, which are extremely expensive at present.

Shopping checklist

- ✓ Tell your dealer which Mac you're buying your SIMMs for
- ✓ If the dealer doesn't seem to know much about the subject, shop elsewhere – or you may end up with unsuitable chips
- ✓ Ask if the dealer supplies a guide to fitting the memory or not
- ✓ If you're not totally confident about performing the upgrade yourself, ask your dealer to do it for you. (You will probably be charged extra for this)
- ✓ Make sure that you buy enough SIMMs to totally fill at least one bank of slots – again, ask your dealer for advice. Remember, though, that you don't need to do this if your Mac uses the new 72-pin SIMMs

Accelerators

Co-pro conundrum

A number of Macs – such as the LC, LC II, IIsi and Classic II – aren't fitted with a maths co-processor as standard. The co-processor is a chip optimised to do mathematical calculations extremely quickly – which means that it takes some of the workload off the main processor chip.

If your work involves a lot of maths-intensive calculations, such as working with 3D modelling programs, then you may well find that performance increases if you add a maths co-processor. However, things will not become drastically better – expect a speed-up of between 5 per cent and 15 per cent. Also, remember that unless you're doing maths-intensive work, you may find virtually no speed increase at all. In that case, if your Mac is just too slow for comfort, you'll have to examine a fully-fledged accelerator.

Accelerating things

Accelerators range in price from a couple of hundred pounds to a couple of thousand, and can do anything from doubling the speed of your humble Classic to making your LC run as fast as a Quadra. How they are fitted depends largely on the kind of Mac that you're using. If you have a machine with a built-in screen, then fitting the upgrade is likely to involve plugging a new processor 'piggy back' on top of the old one – and is definitely a job best left to your dealer. The exception to this rule is the Colour Classic, which has the same expansion bus as the LC III – and so acts like that machine when

it comes to upgrades.

Most accelerators for Macs without built-in screens come as NuBus or Processor Direct cards, although some newer Macs now have a specific, separate slot for accelerator cards. Whichever route the product that you choose takes, installation is a simple matter of slotting the board into a slot, possibly installing some driver software

and then restarting your Mac.

The range of accelerator products available for the Mac is incredibly large and diverse. Don't be afraid of shopping around different dealers and manufacturers; and remember that just because a product claims to 'double the speed' of your Mac, that doesn't necessarily mean that all your applications will run twice as fast. Some, such as games, have timing loops in them to attempt to regulate the game's speed across all models of Macintosh, while some are restricted by things like the speed of disk access and screen redraw – which your accelerator is unlikely to double.

Speedy graphics

These are cards designed purely to speed up the Mac's drawing to the (usually external) monitor. This may not seem necessary if you're

only using a 14-inch monitor, but you'll know if you use anything larger that scrolling around a document can be a real pain.

Chip replacement

Accelerators replace the processor chip in your Mac with a new one – either an upgrade, say from a 68000 to a 68030, or the same model chip but running faster; for example replacing a 25MHz 68030 with a 33MHz version.

First, if you've got a Mac that's using a 68000 or 68020 chip, think seriously about upgrading to an '030. This provides you with a number of extra features, such as the ability to use virtual memory, and is now the standard base model for all Macs that Apple produces. Also, you need at least a 68020 to use *QuickTime*, Apple's multimedia System Extension.

If you've already got a 68030, you have two choices: a faster version of that chip, or upgrade to an '040. To be honest, in this situation you should let yourself be guided by how much money you have to spend, and how much faster the boards that you're looking at will make your Mac run. There is no real advantage in upgrading from an '030 to an '040 – no Mac software requires an '040 chip to run – but, of course, the 68040 is inherently faster. On the other hand, some older software – especially PD and shareware – is incompatible with the 68040 chip.



This is a TokaMac accelerator. The large grey object is the 68040 processor

Although just about every current Mac developers' products have been upgraded to make sure that they work, if you're using an old program you ought to check first before you buy a 68040 upgrade

Apple upgrades

Apple does offer official upgrades for many of its older Macs. These normally consist of a total swap of the motherboard – and sometimes the case, too – so that you've got a brand new, higher spec'd machine. However, these upgrades can be rather pricey – and if you have an old Mac like the II or IIfx, the upgrade is no longer available (the large-boxed Macs could only be upgraded to a IIfx, which is now itself no longer made). The advantage of going for an official Apple upgrade is that you essentially have a new, current-model Macintosh. But for many, it's cheaper – and just as effective – to go for a third-party solution instead.

Shopping checklist

- ✓ Consider whether you really need to upgrade the speed of your Mac at all – would your money be better spent on, say, extra RAM?
- ✓ Make sure your dealer guarantees that the accelerator is compatible with your software
- ✓ Do you need to add extra RAM to the accelerator card itself? (The Radius Rocket and one or two others require this.) If so, is any RAM included in the basic price?
- ✓ How is the accelerator card installed? If it's not a straight NuBus or Processor Direct card, you should ask your dealer to install it for you
- ✓ Is there an upgrade path available for the accelerator card that you buy? (That is, can you exchange it for a faster one later on, so accelerating your accelerator?)

Where to get it ▼

There are so many different manufacturers that we can't hope to give a comprehensive listing – but this list should give you a reasonable start.

Merisel

Tel: 081 568 8866

Distributes the popular DayStar series of accelerators, many of which are themselves upgradable.

A M Micro Distribution

Tel: 0392 426473

Distributes a wide range of accelerators, for all Macs from the Plus upwards.

Computers Unlimited

Tel: 081 200 8282

Distributes the Radius Rocket accelerator card.

Performance Direct Ltd

Tel: 081 993 3105

Sells a range of upgrades, including maths co-processors, cache cards and accelerators, including TokaMac cards.

Forester Systems

Tel: 081 993 1516

Distributes a range of accelerators, including the TokaMac boards.

Pristine printers

After you've bought your Mac probably the first peripheral you'll want is a printer. For most people it's the most important, too – often it's the only hardware that is ever added to a system. However, choosing exactly which machine to buy isn't made any easier by the plethora of different models available, each offering different advantages, and all of them insisting that they're

the only possible option for the discerning Macintosh purchaser.

With this in mind, we have taken a look at five reasonably priced models – the results are on the next four pages. Note that the printers detailed aren't all that is available in the market by any means. However, they are fairly representative of the type of equipment that's available, and by reading what we thought of the

models on test, you should at least have a good idea of what you should be looking for.

A couple of points should be made before we start. First, remember that not all the printers are designed for the same job. You'd never use a StyleWriter II in an office which had high volume output requirements, for example, and likewise it's unrealistic to expect the Epson LQ-570+ to

produce top-quality graphical output – that's not what they are designed for.

Also, don't be deceived by a 'page per minute' (ppm) quote from a manufacturer. This is the printer's 'engine speed' – that is, how fast it can actually take a sheet of paper and pass it through the machine. But you'd never get a five-page word processor document out of a 5ppm printer in

StyleWriter II



The StyleWriter II is an inkjet device, capable of providing up to 360dpi (dots per inch) resolution. The original StyleWriter has become extremely popular among Mac users who can't justify the expense of a laser printer; and this new version adds loads of extra features – and Apple has managed to reduce the price by around £30 as well!

Setting the printer up is easy – connect it to your Mac with the cable provided, install the driver software, restart your Mac and you're ready to go. Initial impressions of a very compact device are given the lie somewhat by the time you've extended the paper feed and receive trays to their proper positions, but the StyleWriter II still takes up rather less

space on your desk than a laser printer would. And, of course, it can be 'folded up' when it's not being used.

The printer connects via a serial cable, but can be shared by other Macs on the network using a new piece of Apple software which 'publishes' the printer so that it can be seen by everyone else. You can assign the printer a password, so that only authorised users can access it, and the sharing can be disabled if you wish. The disadvantage of sharing a printer in this way is that your Mac will slow down to some extent when other users access it – but this is a small price to pay.

The printer can output in three modes: draft, normal and best. Output from draft is at 180dpi, the other two are at the full

GCC PLP II



GCC has been in the Apple printer market for several years, and has gained a reputation for high quality, low-cost equipment. Well, the PLP (Personal Laser Printer) II certainly lives up to that reputation. It's a QuickDraw-based machine which connects to the Mac, rather surprisingly, via the SCSI port – although it is still selected via the **Chooser**. It's internally terminated, and removing the terminator requires messing around with a screwdriver – so it's best to make sure that it's the last thing on the SCSI chain. SCSI ID is set via the printer's LCD control panel, as are options such as how long the printer should remain idle before the internal fan switches off (to save power and reduce

noise). That's fine, except that you must remember to turn it on and check the initial ID before you connect it if you already have other SCSI devices attached – otherwise you may get a conflict which will prevent your Mac starting up.

The design is fairly attractive, although the paper tray does stick out a fair way, so you need plenty of room on your desk (a rather short SCSI cable precludes putting the printer too far away from your Mac, and since SCSI cables have a limited maximum length, you can't replace it with a longer one).

In use, the printer performed faultlessly. It prints by first creating an image of the page in the Mac's memory and then sending that image down the SCSI

— five of the best

a minute – since the figure takes no notice of the fact that the printer has to ‘image’ (calculate) each page before it can be output.

Having said that, we were impressed by all the printers on test. Each one represents good value in its specific arena – it’s up to you to decide what you want a printer for, and to make your selection based on those requirements.

Most of the printers tested here

were QuickDraw, since PostScript printers tend to cost a fair bit more. However, the price is dropping rapidly, and for that reason we also looked at one PostScript device, the DEClaser 1152. Why this, rather than Apple’s LaserWriter Select 310 or GCC’s BLP Elite? Because the DEClaser is the cheapest PostScript Level 2 device available. Level 2 is the new version of Adobe’s PostScript

language, and printer drivers which take advantage of its new features should be available by the time you read these lines.

The kind of tests that we put the printers through represent ‘real world’ jobs – outputting three pages of a word processing document (created in *Nisus*), and printing a *QuarkXPress* file which contained three graphics files: an EPS, a TIFF and a PICT. We

checked out both the printer’s speed and the quality of the output. Our results are below...

■ **STOP PRESS:** We intended to review a Hewlett-Packard DeskWriter 500 for this feature, but just before we went to press the company announced a replacement, the DeskWriter 510 (see News, page 13). It didn’t arrive in time for this issue, but look out for a full evaluation next time.

360dpi. Apple claims printing speeds of up to 3ppm (pages per minute) in draft mode, 2ppm in normal and 1.5ppm in best. This is definitely a ‘best case’ figure, though – on our tests, the three-page *Nisus* document took two minutes to output, while the *QuarkXPress* file had us waiting for almost eight minutes.

This lack of speed may be a problem for some people, although it’s far faster than its predecessor; if you’re likely to be creating complex pages regularly, you should probably look at a faster device – or plan your work so that you can print overnight.

The quality of output is excellent; Apple’s *GreyShare* software means that graduated tints appear smooth, with little or no noticeable stepping, and greyscale images are probably high enough quality – even in normal mode – to be photocopied. Indeed, there seemed to be very

little difference between normal and best mode; apparently the print head makes an extra pass when best is selected, to further ink the black portions of the document, but with a relatively new ink cartridge normal mode provides perfectly dense enough coverage – printing in best mode almost over-inks, resulting in slight warping of the paper as it gets damp.

The only complaint with the StyleWriter II – other than speed – is that it’s fairly noisy. Unlike a laser printer, whose fan provides a constant background noise, the StyleWriter whines as it prints each line and is silent at other times – something which, even in a fairly noisy office, we found to be obtrusive.

Other than that, the StyleWriter II is a fine printer, and one that can be thoroughly recommended – especially for the home or small business user.

cable – so you need a reasonable amount of RAM to print immediately.

If there isn’t enough memory available in your Mac, or if you’ve selected background printing, the page image is stored on your hard disk, and can be printed later using a special utility supplied. (The software supplied also includes *Adobe Type Manager*, so PostScript Type 1 fonts can be printed properly.) The utility allows printing to be set for a specific time, and you can also set various printer characteristics from the Mac, rather than battling your way through its menus using the LCD display and control panel.

Although the printer’s fan isn’t the quietest in the world, the noise isn’t particularly noticeable – and after a pre-set idle time the fan switches off, reducing noise further.

The printer’s output quality is fine: greyscale quality is really rather good, thanks to recently upgraded driver software. It’s reasonably fast, too: the *Nisus* file took just under two minutes, the *QuarkXPress* document likewise. Normally the printer is supplied with no built-in RAM, but adding the optional 1Mb expansion should speed this up a little more. Unlike most laser printers, the PLP will allow you to print right to the edge of the paper.

The only real complaint is that, because it’s a SCSI device, you must either switch on or disconnect the printer before you turn on your Mac each time. There’s no way of turning it on or off while you’re working.

The PLP II is an excellent ‘workhorse’ printer. If you are looking for a low-cost laser printer, this is well worth a look.

StyleWriter II

Price: £323

From: Apple UK; Dial 100 and ask for Freefone Apple for your nearest dealer.

Inkjet: 360dpi

Imaging method: QuickDraw

Speed tests:

Nisus 120 secs

QuarkXPress 478 secs

Rating

88%

One of the cheapest printers around, with great grey-scale quality. On the down side, it’s fairly noisy and very slow.

GCC PLP II

Price: £763

From: GCC Technologies, 081 569 4030

Laser printer: 300dpi

Imaging method: QuickDraw

Speed tests:

Nisus 115 secs

QuarkXPress 108 secs

Rating

93%

Low cost, high quality; there really isn’t much wrong with this printer at all, except that it can’t be networked.

LaserWriter Select 300



The Select 300 is Apple's new bottom-of-the-range laser printer. It's a QuickDraw, 300dpi device based on a Xerox 5ppm engine, and connects to your Mac via a serial cable – although it can be shared with other people over a network in a similar way to the StyleWriter II.

Unpacking the box reveals a really rather bulky, clunky-looking device, with the very minimum of controls – a power switch and three LEDs (power, paper out and paper jam) are all you get. In some ways, of course, this is good – some printers are horrifically complicated.

As ever, you select the printer via the **Chooser**. When you've done that, you will notice that the **Page Setup** and **Print**

dialogue boxes are significantly different from Apple's standard laser writer drivers. For a start, the cumbersome check-boxes for available paper sizes in the **Page Setup** dialogue have been replaced with a much more elegant pop-up menu. And the **Print** dialogue now allows you to specify that the first page should be taken from one source – say, manual feed – and the rest from another (normally the paper cassette).

Unusually, you can also set the print density from the **Print** dialogue box, via the **Options** button – most laser printers require you to physically change a setting inside the printer itself to do this.

In use, the printer performs perfectly well. It uses Apple's FinePrint technol-

DEClaser 1152



The DEClaser is unique in these tests for a number of reasons. First, it's the only PostScript printer that we looked at. Second, it's the most expensive – £1,146, although if you shop around you should find it at a street price of just over £1,000. More interesting, though, is that it's the cheapest PostScript Level 2 printer currently available.

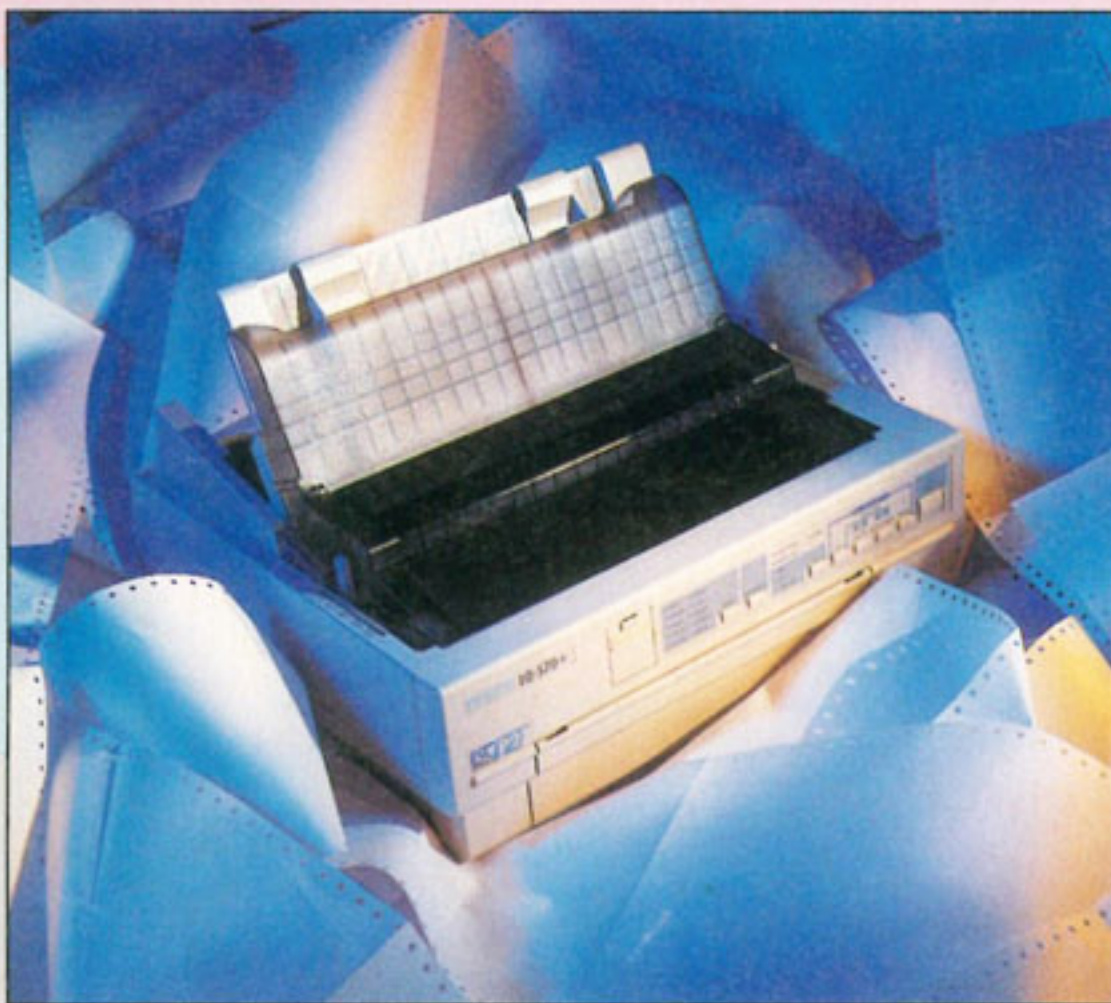
PostScript is vital if you intend to do graphics work in programs like *FreeHand* or *Illustrator*, and if you are going to send pages from a program like *QuarkXPress* or *PageMaker* to an image-setting bureau; only with a PostScript printer will you get an exact representation of what the page will look like.

Level 2 takes the basic concept of PostScript and extends it, adding support

for things like colour management and data compression – which means that files should print more quickly, since it doesn't take as long to send the information to the printer. Unfortunately, no Level 2 drivers are yet available for the Mac: they are in beta test by Adobe now, and should be shipping by the time you read these lines. You can, though, happily use a Level 1 driver such as Apple's standard LaserWriter driver with a Level 2 device – it just won't take any advantage of the extra facilities.

So, on to the DEClaser. This is based on a standard 300dpi Canon engine and runs at four pages per minute. It connects to the Mac via the usual serial interface, and is fully networkable. In fact, the printer has AppleTalk, serial, parallel and

Epson LQ-570+



This printer is rather different from all the others on test, and is designed for a specific group of users: those who need an impact printer.

The problem with laser and inkjet printers is that you can't use them if you need to print on multi-part stationery – and, although some inkjet printers can accept continuous-feed stationery, the majority struggle. (A notable exception is GCC's WideWriter, which is a 360dpi inkjet printer capable of taking continuous stationery up to 16 inches wide.)

To answer this demand, Epson has produced a Mac interface and software which makes its LQ-570+ dot matrix printer totally Mac compatible. It will, if you really want, print graphics, page

layouts and the like – indeed, the results are excellent – but it's very slow at doing so, because that really isn't what the machine was designed for. However, accounts departments and the like will find this a godsend.

Because the printer is an Epson, you can be sure that the hardware is good quality: Epson is one of the most famous dot matrix printer manufacturers in the world. However, since the manual necessarily has to cover options for all the kinds of computer to which the printer can be connected, people not used to dealing with PC peripherals may well end up being rather confused by the whole thing. The art is to take things step by step and frequently refer to the

ogy to smooth the edges of text, which is supposed to give better quality output – although in reality, unless you're printing at very large or very small text sizes, you're unlikely to notice much difference. Output speed wasn't particularly fast – around two and a half minutes for the *Nisus* test, five and a quarter for the *QuarkXPress* document.

Many people buy Apple printers simply because they have the Apple name – and must, therefore, be the best available. But, as with many Apple peripherals, if you shop around you will find that there are bargains to be had which put the 'official' Apple offerings in the shade.

This is certainly the case with the LaserWriter Select 300. It's a perfectly good product – good greyscale output, shareable over a network and so on – but it just doesn't really

stand up on price. You can buy a QuickDraw printer for far less than its £911 asking price from any number of manufacturers – and with prices dropping all the time, you can even buy a PostScript printer for roughly the same price.

On the other hand, many companies insist on buying Apple printers to go with Apple computers – that way, they can be assured of absolute compatibility. If you fall into that category, then you can be confident that you won't be disappointed with the LaserWriter Select 300 – which can be upgraded to the PostScript Select 310 at a later date, if you want. But if you're buying on a budget, and you are willing to shop around, then there are plenty of alternatives available to the Apple solution that you may well find offer you just as good performance for a rather more competitive price.

LaserWriter Select 300

Price: £911

From: Apple UK; Dial 100 and ask for FreeFone Apple for your nearest dealer.

Laser printer: 300dpi

Imaging method: QuickDraw

Speed tests:

Nisus 158 secs

QuarkXPress 375 secs

Rating

75%

High build quality, reasonable speed, networkable, good results – but somehow this printer just doesn't smack of the innovation that is Apple's stock-in-trade.

DECnet interfaces built in – so it can be easily used in a mixed environment.

You can even plug in computers to more than one interface at the same time: the printer will automatically sense which is being used and will adjust itself accordingly.

Seventeen PostScript fonts are built in: the Times, Helvetica, Helvetica Narrow, Courier and Symbol families. Of course, any PostScript fonts that aren't built in will be downloaded by your Mac as they are needed.

As standard, the printer is shipped with 2Mb of RAM, although it can be expanded to 4Mb. (You may well find that you need to increase the amount of on-board RAM if you're outputting complex pages from a graphics or page layout program, and 4Mb does seem a little miserly, given some other printers' maximum memory capacities of 8Mb or more.)

No special drivers are supplied, since the printer works perfectly well with the standard Apple LaserWriter driver. According to the distributor, DirekTek, as from the beginning of May this year a Level 2 driver will be supplied as part of the standard System 7.1 package; the drivers have now been in development for around two years.

Performance is fine; although it's not as fast as the GCC PLP, this is because it's a PostScript printer and so has more work to do – and the speed should increase when PostScript Level 2 drivers are used. Output quality is good, although some slight stepping was noticeable on the graduated tint samples that we tried.

Although this isn't the cheapest PostScript printer available, it is certainly one of the best for the price – and is well worth checking out if you need a PostScript device.

DEClaser 1152

Price: £1,146

From: DirekTek 081 845 5969

Laser printer: 300dpi

Imaging method: PostScript Level 2

Speed tests:

Nisus 124 secs

QuarkXPress 200 secs

Rating

90%

Level 2 PostScript means that this is a printer which is relatively future-proof. Although it isn't the fastest available, you'd struggle to find a machine with a similar specification for this price.

diagrams when you're setting things up. And keep a note of any settings, DIP switches and so on that you change – so that you can change them back again if you need to.

The printer is fully networkable; once set up with the software supplied, it appears just like any other in the **Chooser**. You can decide to print in draft mode – in which case the printer uses its own, built-in fonts and prints at very high speed – or graphics (QuickDraw) mode; in the latter, you can choose the resolution from one of 180 x 180, 360 x 180 or 360 x 360 dots per inch. You can also specify whether the head works in unidirectional or bidirectional mode – the former gives a more accurate output, the latter is faster.

The printer can use tractor-fed paper or single sheets, although only one sheet can be

inserted into the printer at a time, so you're obliged to sit in front of it, feeding it paper if you're outputting a long document.

In use, the printer is rather more noisy than an inkjet or laser printer – you wouldn't want to have it sitting on the desk next to you. That, sadly, is the price that you pay for a dot matrix printer – and it must be said that the LQ-570+ is far quieter than similar printers on the market three or four years ago.

You will notice that we don't give timings for this printer; we felt that it would be unfair, given that it was never designed to compete with 'normal' Mac output devices in terms of speed – and you should bear that in mind if you're thinking of purchasing it. However, if you find yourself wishing that you could print on carbonated forms, this is an ideal machine.

Epson LQ-570+

Price: £551

From: Aptec 071 627 1000

Dot Matrix printer: 24pin

Imaging method: QuickDraw, or own built-in fonts

Speed tests:

N/A

Rating

89%

If you just want a normal Mac printer, this isn't for you. But if you have the sort of specialised needs that it caters for, it's well worth investigating.

Scanners

There are plenty of different types of scanner on the market – ranging from hand-held devices for a few hundred pounds, up to commercial-quality colour jobs that cost many tens of thousands. They split into two areas: hand scanners and flatbed devices.

That's handy, Harry

At the lower end of the price-range, hand scanners dominate the market. But don't be fooled – these can be perfectly adequate for many jobs, and offer a flexibility that their larger, flat-bed cousins can't.

The reason that a hand-scanner is cheaper than a flat-bed machine is simple – much of the machinery is dispensed with, and instead you do the tricky work of accurately moving the scanning head across the original artwork. Also, hand scanners can normally only scan a width of four inches or so at a time – although most come with software that allows you to 'stitch' such four-inch strips together on-screen to end up with a much wider image.

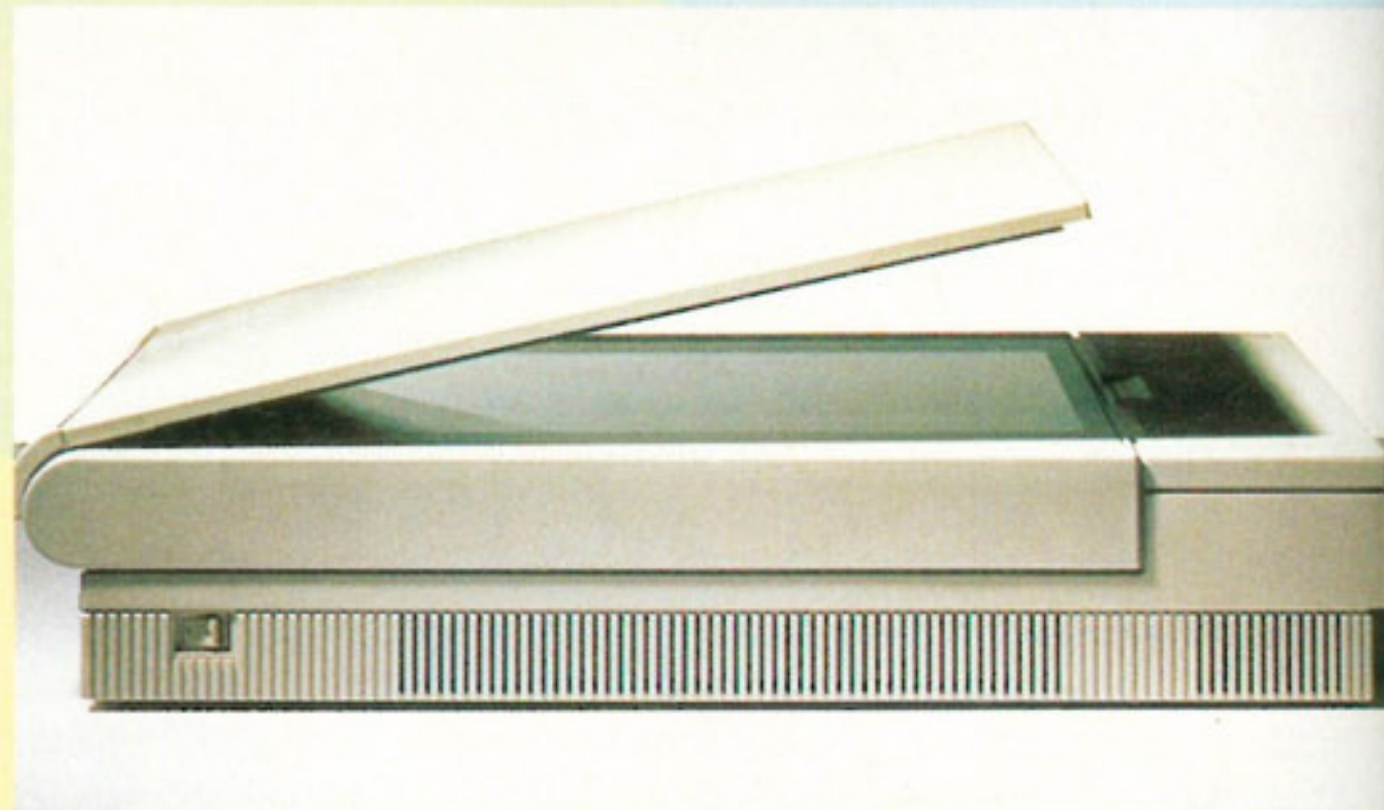
The big advantage of hand-scanners is that they can access material that's impossible to scan

with a desktop model. This includes, for instance, pictures in thick books, sections of large objects like paintings, and even wood grain, wallpaper patterns and the like. On the down side, the resolution and accuracy of a hand-scanner isn't likely to be as good as that of a flat-bed device, and even with software which 'stitches' strips of scan together, the results can be less than perfect.

Hand-scanners are available as both colour and greyscale devices; some have extra features, such as the Typist, from Computers Unlimited (081 200 8282), which has built-in OCR (Optical Character Recognition) software.

Flatbed fings

Flatbed scanners come, basically, in two flavours: greyscale, and colour. Greyscale models tend to be cheaper, but aren't as widely available as they used to be – the price of colour scanners has dropped remarkably in the last 18 months or so, and a 300dpi, 8-bit colour scanner can now be purchased for less than £1,000 (plus VAT) – some are as cheap as £800. Colour scanners can, of course, also be used as greyscale



The Apple OneScanner – a very good value, 300dpi greyscale device

Hand scanners offer a flexibility that their larger, flat-bed cousins can't

devices, so as the prices of colour and greyscale scanners are now so similar, the arguments for buying a greyscale-only model are becoming hard to sustain.

In the past, colour scanners used to use a 'three pass' mechanism, sending the scanning head across the image three times, once each for red, green and blue. However, many devices now scan for all three colours on a single pass – which radically decreases

the scanning time per image. It also (arguably) increases the accuracy, since a one-pass scan substantially reduces the possibility of registration errors.

The software supplied with scanners used to vary from manufacturer to manufacturer, but the industry has now more or less standardised on using 'plug-ins' for the Adobe *Photoshop* image manipulation program. Virtually all flatbed scanners are supplied with a version of *Photoshop* (either the full program or a slightly limited version with fewer capabilities) and a 'plug-in' which lets you control the scanner from within the program. (The exception to this is Hewlett-Packard, which insists on controlling its scanner via a proprietary piece of

Resolving resolutions

The resolution of a scanner is measured in dots per inch (dpi), and tells you how 'fine' the final scanned image will be. By and large, the higher the resolution you scan at, the better and less 'jaggy' the final output will be. But there's no point in scanning at 600 or 1,200dpi if you're only going to be outputting your image on a laser printer; the higher the resolution of the scan, the larger the file, and a 1,200dpi full-colour scan can easily run to several tens of megabytes. There's a simple rule which determines the resolution at which you need to scan an image for good quality output:

Scan resolution = 2.5 x output line screen in lpi x (output size in %/100).

A laser printer's optimal output line screen is around 56lpi (lines per inch); so if you're going to output to a laser printer at 200% of the original image size, the resolution you'll need is:

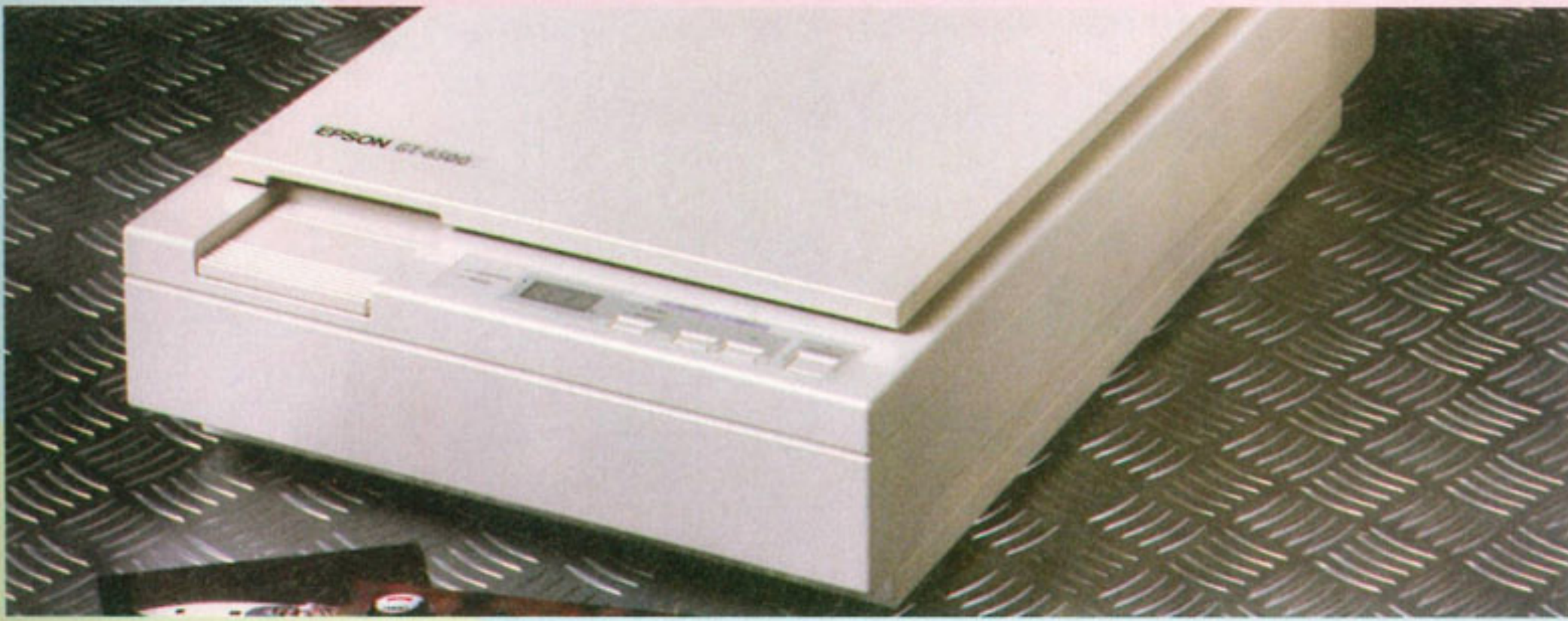
$$\begin{aligned} & 2.5 \times 56 \times (200/100) \\ & = 2.5 \times 56 \times 2 \\ & = 280\text{dpi.} \end{aligned}$$

So you just set the resolution of your scanner to this value – or the next highest, if you can only choose from a pre-set range of options.

If you're going to output work via an imagesetter and have it printed professionally, your line screen is likely to be around 133lpi – so the same image, reproduced at 200% of original size, will have to be scanned at 665dpi or higher. When in doubt, ask your output bureau or printer what line screen you'll be using.

Shopping checklist

- ✓ Do you need a flatbed scanner, or is a hand-held device a better idea?
- ✓ Do you need colour or just greyscale? There are some bargain greyscale devices to be had at the moment
- ✓ What resolution will you need to scan at? Always overestimate – just because you're using a laser printer for output now doesn't mean that you'll never want to output via an imagesetter. See the 'resolving resolutions' boxout for details on how to work out scan resolution
- ✓ Check the colour depth of the scanners you're investigating. 6-bit is just about adequate for colour, but if you're scanning in greyscale you really should go for an 8-bit device. The higher the colour depth, the 'richer' the final image is likely to look
- ✓ If you're buying a flatbed, is it possible to add on a unit which will let you scan transparencies (slides)? If not, do you think you might ever need this facility?
- ✓ What software is supplied with the scanner? If it's *Photoshop* (it nearly always is), are you getting the full package, or the limited edition (called *Photoshop LE*)?
- ✓ How fast is the scanner? Does it matter to you if the scan speed isn't particularly high?
- ✓ Ask to see output samples from the scanner – both from photographs and also from line art (it's harder to scan line art well). See if it's possible to have one of your own images scanned – output samples are no good if you haven't seen the original



The Epson GT-6500 – and we have one to give away! Turn to our competition on page 106 for details

software.) This is great for the user – as well as a colour scanner, you're getting a £700 piece of software for free!

One other exception to this rule is Apple, which supplies a package called *Ofoto* with its greyscale OneScanner and Apple Colour Scanner. *Ofoto* is great for people who don't have the time to mess around with the image once it's been scanned in – the software performs all the necessary image adjustments itself, after you've performed a simple initial calibration scan. *Ofoto* can be bought as a stand-alone package, too, and will work with a range of different makes of scanner. Check with the distributor, Computers Unlimited (081 200 8282) to see if your particular model is supported.

Another factor to consider when choosing a flatbed scanner is whether you can add a transparency adaptor – which will allow you to scan slides. This normally takes the form of a replacement to the scanner's lid, and contains a moving light source which illuminates the image so that the scanning head can pick up the details. Remember, though, that even if you can add such an adaptor, you'll never get brilliant quality – for real top-class results, you need to buy a dedicated unit.

Quality concerns

The quality of image that a scanner produces is measured by two matters: resolution, in dots per inch (dpi) – see 'resolving resolutions' on this page – and 'colour depth'. This is a measure of how many different colours the scanner can differentiate between, and is stated as '8-bit', '10-bit' and so on. An 8-bit colour scanner can 'see'

two-to-the-power-of-eight, that is, 256 different shades of each of red, green and blue. So in total it can produce $256 \times 256 \times 256 =$ just over 16.7 million colours – the maximum that the Mac can display, and certainly enough for a very good quality final image.

Why, then, is it possible to buy 10-bit and even 12-bit scanners? Well, although the Mac can't

Desktop drum scanners can produce extremely good results

display all these colours, the information is retained in the image – and can help if you need to do a lot of manipulation of the image, for example increasing the brightness of a very dark original.

Unfortunately, just because two scanners have the same specifica-

tions – 600dpi, 8-bit, for example – doesn't mean that they will produce exactly the same results. Some are better than others – and that's why it's important to check out actual samples of scans.

At the high end...

At the top of the 'desktop' range are desktop drum scanners. These work on the same principles as 'real' repro scanners, and can produce extremely good results. However, they do have disadvantages. The first is that you need to tape your image to a revolving drum – so you'll have to cut up any books or whatever that you want to scan from.

Secondly, they can be rather more tricky to set up correctly and use. Finally, you should be warned that some drum scanners use essentially the same technology as ordinary flatbed scanners – and don't produce noticeably better quality images.

Where to get it ▼

There is a large number of scanner manufacturers and distributors in this country; all we can do here is give you a brief list of companies that you might like to try. Keep an eye on adverts in **MacFormat**, too, as many dealers offer a range of machines.

Aptec	071 627 1000
Computers Unlimited	081 200 8282
DirekTek	081 845 5969
Forester Systems	081 993 1516
Hewlett-Packard	0344 369222
IMC	0753 830999
Logitech	0344 891313
MacEurope	0603 741222
Mirror Technologies	0376 325500
NuSys	0379 650777
Principal Distribution	081 813 5656
Profyle	0235 530933
Tekware	0562 882125

Jargon Busters

Flatbed scanner

This is a desktop device, as opposed to a hand-held scanner, which is far smaller. It resembles a small photocopier – except that it doesn't actually make a paper copy of the image. Instead, the image is stored, usually in TIFF format, on the Mac.

Interpolation

This is a technique of taking a scanner which works at, say, 300dpi and fooling it into thinking that it can scan at higher resolutions. It's done by taking each pair of individual scanned dots and working out the mid-point in colour between the two. This difference is then placed between them as a new dot – so it's fairly easy to effectively double the resolution of the scanner. Often, a 300dpi scanner interpolated to 600dpi is almost as good as a true 600dpi device – but not quite.

Line art

Basically, 'drawings' – images created by lines, rather than photographs or whatever. It's difficult to scan line art well – you'll often find that the scanned version has 'jaggies', where the original had smooth lines.

OCR

Optical Character Recognition. This is the process of taking a scanned page of text and translating that text into computer-readable form. So you start off with, say, a sheet of typewritten copy and end up with a Microsoft *Word* file containing that text – without you having to re-key it into the computer. There is lots of different OCR software available, and some is so sophisticated that it can recognise multiple columns of text on the page, ignore pictures and so on.

Registration

A scanned colour image is normally made up of three 'layers' – red, green and blue. Percentages of each of these on top of each other combine to produce the final colour image. Registration is the process of making sure that the three layers sit exactly on top of each other – if they didn't, the image would look blurred and have strange colour 'shadows'.



Above left is a typical SyQuest removable drive – this one is made by d2 Systems. Each cartridge can store around 40Mb of data. On the right is a Mac's internal hard drive – this one is an 80Mb unit, manufactured by IBM

Hard drives

You can never have enough storage space – and however large your Mac's internal hard drive, you'll soon find that you're having to delete files to make room for new stuff. Fortunately, the cost of extra storage has dropped over the last couple of years, to the point where it's not a ridiculously expensive operation to add an extra drive – or even two. But along with this drop in price have come numerous different options, all with their own good and bad points. Should you buy a conventional hard drive or a removable device? What about an optical drive? What's a floptical? How about just replacing your internal drive with a larger unit?

To simplify matters, we've noted the good and bad points of each type of drive. What you need to do is make a list of your requirements, and then see which of the formats is right for you. Then shop around the dealers, seeing who can offer you the best after-sales support, what software is bundled

and so on. Of course, price must come into your decision of which unit to buy, but remember that it's sometimes better to pay slightly more if, by doing so, you're dealing with a friendly, helpful company with good after-sales service.

All hard drives connect to the Mac via SCSI (pronounced 'scuzzy', the Small Computer Systems Interface); you should check whether the price that you're quoted includes a SCSI cable. If you've already got one or more SCSI devices attached, you should check that it's a 'SCSI to SCSI' cable, rather than a 'Mac to SCSI' – the two are different, since the Mac's SCSI connector isn't the same physical shape as those found on just about every SCSI device.

Internal drives

Probably the cheapest option is to replace your internal Mac disk drive with a larger unit. These days, you can fit up to a 230Mb device into just about any Mac (except the

PowerBooks); all you need to do is find a dealer who will transfer your existing data from your old internal drive on to the new unit. Check to see if your dealer can sell you a casing and power supply for your old internal drive, too – that way, you get an external unit as well. The disadvantage with doing this is that you can't connect the drive to another Mac, as you can with an external unit. But if you're the only one who needs access to the data, that isn't a problem.

Standard externals

You can buy a standard external, or 'fixed', hard drive for your Mac from just about any dealer in the country. Sizes range from 52Mb (although some dealers still stock 40Mb units) up to 1Gb (Gigabyte – a thousand megabytes) or even more. The price increases rapidly over about 230Mb, though, and you're likely to have to pay over £1,000 for a really large drive.

If you decide to take this route, you should buy the largest capacity

The advantage of a removable disk drive is that you have essentially unlimited storage

drive that you can afford – even if you don't think that you'll need all that extra space right away. There are a couple of reasons for this; first, the cost of the casing, power supply and so on makes up a sizeable portion of the unit's cost, so it's far more expensive buying two 50Mb external drives than one 100Mb unit. Also, as a general rule, the larger the drive, the faster it is (although unless you're doing something like multimedia work, you're unlikely to notice that much of a difference).

Removable drives

The advantage of a removable disk drive is that you have essentially unlimited storage, at a very low pound-per-megabyte ratio. All the electronics, power supply and so on are in the base unit, and you simply buy removable disks which slot in to that base unit. Each disk can hold anywhere from 20 to over 100 megabytes of data – and the disks

cost far less than if you were to buy a whole new drive.

The only real disadvantage is that removable drives tend to be slightly slower than their fixed cousins – but this is unlikely to make much real difference.

The most popular removable drive is based on the 44Mb SyQuest mechanism – the drives are generically called SyQuest drives. The cartridges cost around £60 each, which have a capacity of 40Mb or so. If you're going to be swapping data with other people, a SyQuest drive is pretty much mandatory – the units have been around for some time, and have become a de facto industry standard. It's now also possible to buy an 88Mb SyQuest drive which will read and write 44Mb cartridges too (previously the 88Mb units could read but not write 44Mb cartridges and so weren't popular).

Another form of removable drive which is becoming popular is the 'floptical'. This is a unit which will read and write standard high density floppy disks, but which can also accept 'floptical' disks – the same size and shape as a normal floppy – that hold around 20Mb of data each. These flopticals only cost around £21 each, and with the drives selling for as little as £350, it's a very cost-effective way of adding storage capacity. On the down side, flopticals are slower than most other forms of removable hard disk, which in turn are slower than fixed units.

128Mb optical drives are also now gaining popularity; again, they're slower than fixed drives, and cost rather more than SyQuests. But the added storage capacity per cartridge may well appeal to you – and if so, they're definitely worth a look.

If you need to archive large amounts of data, you may decide that a WORM (Write Once, Read Many times) drive is required. These are based on optical technology, and normally accept up to about 670Mb per cartridge. Once data is on the cartridge, it can't be overwritten – when the cartridge is filled up, you must buy another one. Again, WORM drives aren't particularly fast, and wouldn't be used in place of a normal hard drive. But – despite their relatively high cost – they are ideal for backup purposes. **mf**

Shopping checklist

- ✓ Will an internal upgrade do? If so, make sure that your dealer transfers the data from your old drive to the new one. And take a backup before you send your Mac away!
- ✓ If you decide on an external fixed drive, buy the largest capacity that you can afford
- ✓ Remember, the price-per-megabyte of a removable setup rapidly becomes lower the more cartridges you buy – if you decide on a SyQuest, you're only paying an extra £60 or so for every additional 40Mb of storage
- ✓ Check to make sure that a SCSI lead is included in the purchase price. If you need a SCSI to SCSI lead, rather than Mac to SCSI, remember to specify this
- ✓ What software is included with the drive? The very least that you should get is formatting software, but some drives are now being bundled with backup packages or disk diagnostic software such as Norton Utilities
- ✓ Do you need an extra hard drive at all? Check out our review of TimesTwo on page 78 for details of a remarkable piece of software that doubles the capacity of your existing drive

"I can't say how much it hit me to be sitting up there, a couple of miles high, looking down on the battlefield, in fact, on four or five battlefields, and sweeping them all in one glorious bird's-eye view."

World War I Pilot

Red Baron™

It goes without saying that a good flight simulator recreates, in perfect detail, the elements that make an aircraft what it is — elements such as flight characteristics, weaponry, and the ability to sustain damage. To do less would be an affront to simulation purists everywhere.

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Accessories

Apple Computer, Inc.	
ACC0336	Toner Cartridge-LaserWriter II £59
ACC0335	Toner Cartridge-LaserWriter Plus(Old) £69
Avery	
Full Line of Labels Available. Please call. Call	
Fuji USA	
BND0077	Fuji MF2DD 100 Pack Bulk Disks w/ Labels £59
BND0076	Fuji MF2HD 50 Pack Bulk Disks w/ Labels £49
I/O Design, Inc.	
ACC0617	MacLuggage LC w/12 in. Color Monitor Black Case £79
Kensington	
ACC0623	Anti-Glare Filter-Apple 12 inch £49



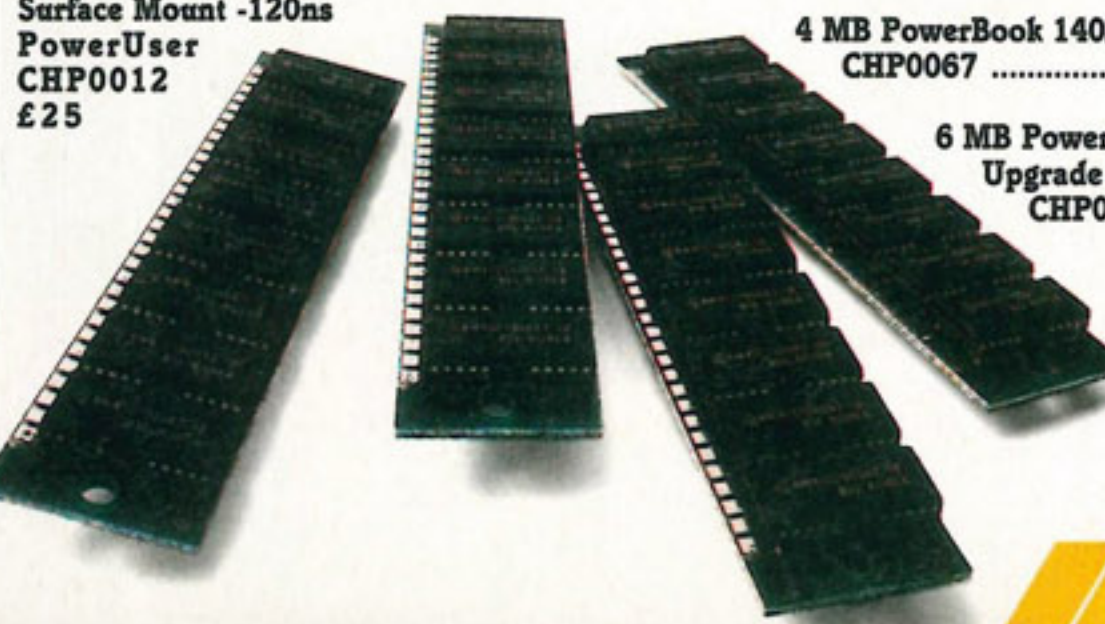
System 7.1 (Apple Computer, Inc.)
In addition to all the new features Apple introduced in System 7.0, new System 7.1 includes a new Fonts Folder (it's located in the System Folder). It stores all your fonts, including TrueType™ fonts, Bitmap fonts and Type 1 fonts, in one convenient centrally located place. Installing a font is a snap. Just drag it to the system folder and your Mac automatically installs it. Plus System 7.1 comes complete with 17 TrueType fonts and includes new QuickTime™ 1.5 software. Now adding animation, sound and video to your reports, proposals and presentations is as easy as cut and paste.
System requirements: 2 MB RAM (4 MB recommended), hard drive.
SYS0004 £35

ACC0621	Mac Classic Anti-Glare Filter £49
ACC0677	Notebook Traveler - Deluxe £79
LB Innovators	
WristSaver/ Mousepad Bundle-Call for colors. £25	
MediaMate	
ACC0738	DataFinder 3.5 in. Disk Filing System (60) £10
PowerUser	
MED0035	PowerUser 44MB Removable Cartridge £55
MED0071	PowerUser 88MB Removable Cartridge £99
Targus, Ltd.	
ACC0736	Business Traveler Case-Standard Version £179
ACC0252	MacPlus/SE Carry Case (black) £35
ACC0734	Premier PowerBook Leather Case £129
ACC0675	Universal PowerBook Carrying Case £59

Business & Presentation

After Hours Software	
BUS0222	DateBook £79
DAT0076	TouchBASE 2.0 £79
Aldus	
BUS0066	Persuasion 2.1 - MAC £255

1, 2, 3, & 4 MB SIMMs Modules
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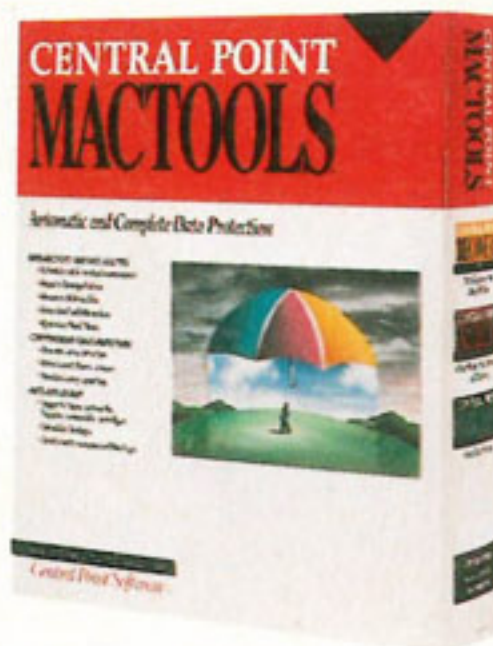
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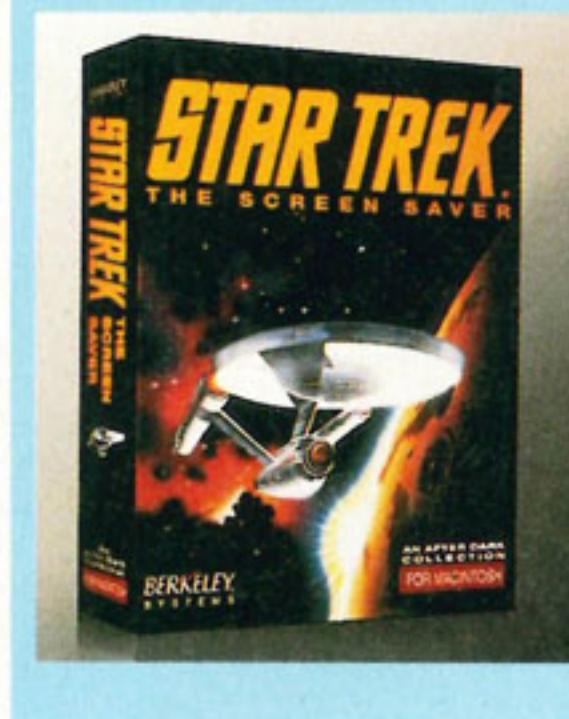
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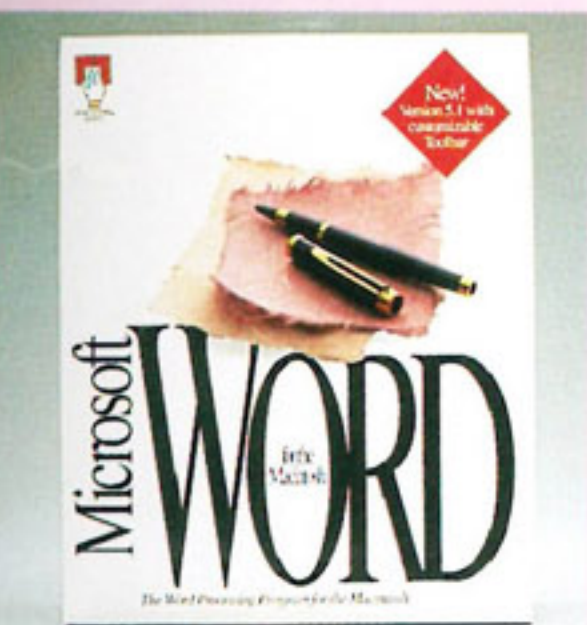
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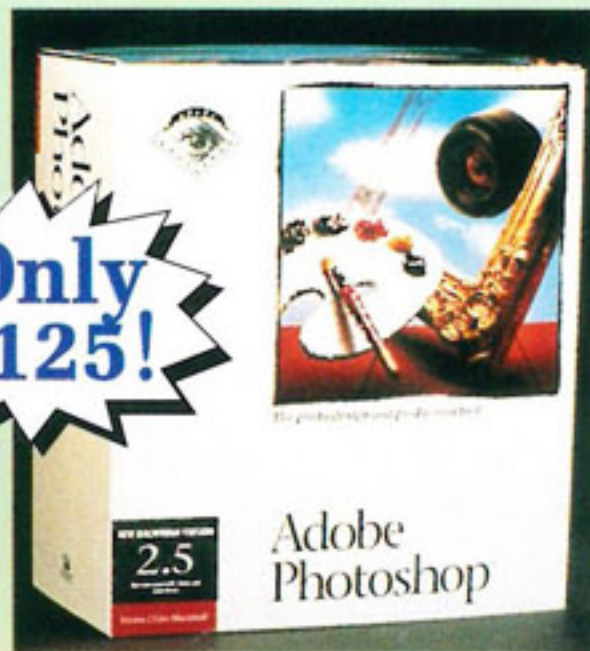
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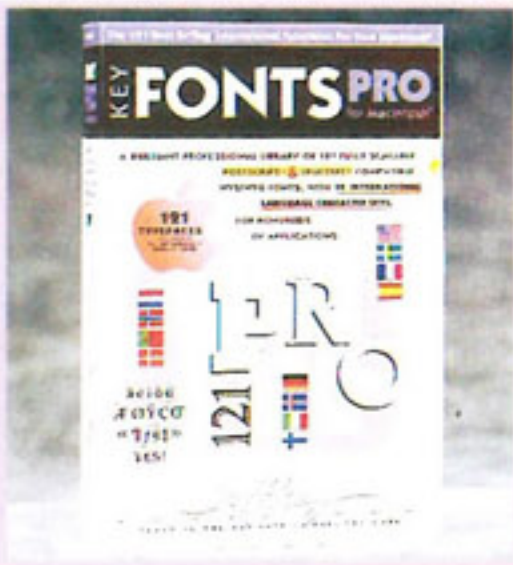
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UTI0302	Stuffit Deluxe 3.0	£ 69
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LNG0057	Macintosh Programming Fundamentals	£449
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UTI0202	OmniPage Professional	£625
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(PowerUser) The PowerUser® Pro-Series Hard Disk Drives feature the top-rated Quantum LPS drive mechanisms. They come preformatted, with software, utilities, cables, external SCSI terminator, and the manufacturer's two-year warranty.

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Tape Drive features a TEAC mechanism with 160 MB capacity. Both come complete with Dantz Retrospect backup software and a one-year warranty.

PowerUser Pro DAT Tape Drive
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44MB Syquest Removable w/44MB removable Drive cartridge: BND0094.....£325

88MB Syquest Removable w/88MB removable Drive cartridge: BND0095.....£499

GAMES PREVIEW

Kellie Simmons brings news of what's up-and-coming in the world of Mac games

Bullfrog

Deep in the heart of glorious Guildford lies a spankingly new-looking building containing a group of laid-back characters who make up a team called Bullfrog.

So what's so interesting about this? Well, Bullfrog has been producing games for the Amiga and PC for years, but it's only recently that the team has decided to convert games to Mac format.

There are actually four games on the cards, the first being the ever-

popular *Populous*, due for release later on in the year (watch this space



At last! *Populous*, the classic game from Bullfrog will soon be available on the Mac

Dark Seed

This 'dark' adventure game comes from Cyberdreams, a US company which has just set up a division in the UK. It's based on the artwork of HR Giger (of *Aliens* fame) and features a guy who, after waking from a seriously bad nightmare, realises that things are not exactly how they appear to be. He finds a world inhabited by an ancient and dying civilisation of evil biomechanical creatures, who have – rather generously – chosen him to help in their procreation.

Dark Seed has received a good reception from other computer

formats because of the sound, speed and detailed – but dark – graphics. It should hopefully be released on the Mac in May.

Cyberdreams
071 328 3267



Time for tea! The main character of *Dark Seed* gets his head chewed by an underworld thingy

for a full feature review). *Populous II*, *Syndicate* and *Powermonger* will be the next three releases to follow.

Populous is a classic adventure game where you fight for survival with a rival tribe and meet all sorts of disasters along the way, made all the more exciting with masses of detailed graphics and sound. Converting games to the Mac is more difficult and time consuming than with other formats. At one point 'monochrome' seemed to be a bit of a swearword, because all of

the little detailed graphics that you see on the game in colour can disappear when converted to black and white. This means that an artist has an extremely time-consuming job making them perfect.

Bullfrog – which mainly consists of artists, plus one music guy – has only just finished wrapping things up with *Populous* – so as yet there are no release date details, but there shouldn't be too long a wait.

Electronic Arts
0753 549442

Rex Nebular

Rex Nebular and the Cosmic Gender Bender, believe it or not, is the latest adventure game on offer from Microprose, maker of the excellent *Civilization* (see the review on pages 36 and 37).

The title – very self explanatory as far as the plot is concerned – is due for release in July. It's set on Terre Androgena, a distant planet

populated entirely by women. The planet happens to lose a priceless vase, which ultimately bugs a colonel character who wants it back sharpish. Step in Rex Nebular – a character described by Microprose as an 'interstellar adventurer and womaniser extraordinaire' – who is the only man available to do the job.

When you step into the shoes of Rex Nebular, you automatically

become a male stud. If you think that's rather sad, well, it is – but the consolation is that the game promises to take you through a number of fantastic experiences with the help of colour animations, digitised speech, detailed graphics and a very – very – weirdo idea for a story line.

Microprose
0666 504326



Available in July, *Rex Nebular and the Cosmic Gender Bender*. Need we say more?

Sherlock Holmes

Sherlock Holmes Consulting Detective, volume three is in the pipeline and should be available pretty soon.

Like volumes one and two, it makes good use of full-motion video. It's an interactive 'film' where, as a player, you are the main character, entering the world of Sherlock Holmes and solving mysterious crimes.

This one should be a real thriller for would-be detectives, and fans of Conan Doyle's seemingly endless series of novels.

Mindscape
0444 239600

MacPlay

MacPlay is a new division born from US company Interplay Productions, that is dedicated entirely to the Mac consumer entertainment market.



MacPlay marks Interplay's serious commitment to the Macintosh entertainment market, with a wide range of games on the cards

Interplay is the first entertainment company to make such a huge commitment to the Mac consumer games market, but it shouldn't be too long before other companies see the potential and follow suit.

MacPlay's line of products include the adventure arcade game *Out of this World*, *In Search of the Fabulous Fuzzbox* – a futuristic game in which you have to retrieve John Lennon's missing fuzzbox (watch this space for the release date) and an updated version of that old favourite, *Battle Chess*.

MacPlay has announced that it will be introducing Mario, the little Italian guy made famous by Nintendo to the Mac. Believe it or not, Mario and Mac's relationship will be of an educational kind as the software in question will be called *Mario Teaches Typing*. So you can learn how to type in a fun and novel way.

MacPlay
0865 390029

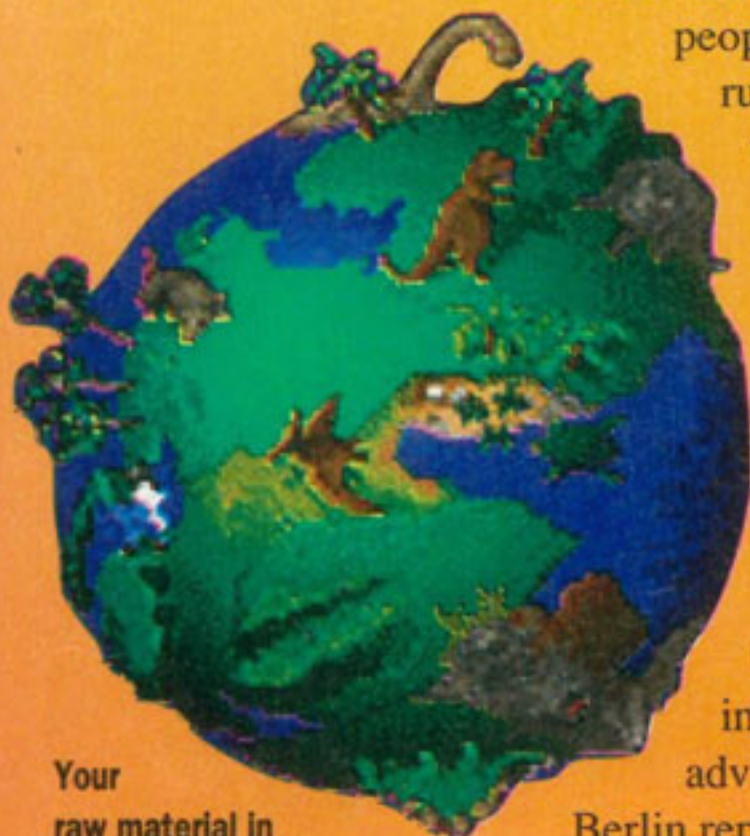
...The Mac's just a DTP machine? Forget it! The fun starts right here...

AMUSEMENT

CIVILIZATION

Civilization lets you recreate all of human history on your Mac. Stuart Anderton takes on the Romans...

The crowds are leaving the theatre when the news comes through: the Germans have landed three miles down the coast. There is panic as the infantry leave their barracks and march south; an angry mob gathers and demands action from the mayor, who is forced to flee from City Hall. All work in the shipyard grinds to a halt. In the distance, the townspeople can hear the



Your raw material in *Civilization*: a virgin planet waiting to be colonised

rumbling of tanks as they move towards the invading force. The scientists in the university abandon their work on the nuclear programme to see what the fuss is about.

Meanwhile, in the parliament building you consult your advisors. The embassy in Berlin reports that the Germans are working on a bomber which can easily reach the capital. You decide to switch all production to armaments to try to win the battle before the Germans

have a chance to finish their plane. If it's not too late...



This is a typical scene from *Civilization*, a complete simulator of human history and society on four disks.

When you begin the game, you are the despot running a small tribe which has just made the necessary advances to found a city. As time goes on and your empire grows you become king and, if all goes well, eventually the elected president of a major superpower. You run your empire with a combination of direct control over settlers, diplomats and the military, and indirect influence over the population themselves.

Your people consist of farmers, factory workers, scientists, entertainers and merchants, and you can alter the balance between them for each city you found. The farmers produce the food necessary for the city to grow. Factory workers in each city are assigned a single project to work on – perhaps building a battleship, constructing a library or assembling a trade caravan. Scientists produce the advances in knowledge required to produce more sophisticated goods, especially military units.

Entertainers keep the population happy and merchants generate the money to keep the whole system ticking over.

In the beginning you have just one band of settlers and your first decision is where to found your capital city. There must be enough natural resources to supply the building trade, and enough good farmland or fishing to keep the townsfolk fed. A site with good potential is essential – later you can irrigate local plains, build mines and construct a road network to aid trade.

Once the city is established, it's a good idea to devote all its energies to producing a brigade of militia to defend it from marauding barbarians. Then you set your scientists working on a project – say, to invent the wheel or discover ironworking. When after a number of years they succeed, you can build more sophisticated defences – chariots in the case of the wheel, and a legion in armour for ironwork.

Once you have a reasonable defence and a fair sized city, you can put your energies into assembling a group of settlers and set off to explore and try to find a suitable site for another city. Eventually in your explorations you will encounter one of the other civilisations on the planet, and your diplomatic skills will be tested. Get it wrong (or just feel aggressive) and you could have a full-sized war on your hands. Get it right and you can establish an embassy, open trade routes, exchange technology and make treaties to attack other civilisations.

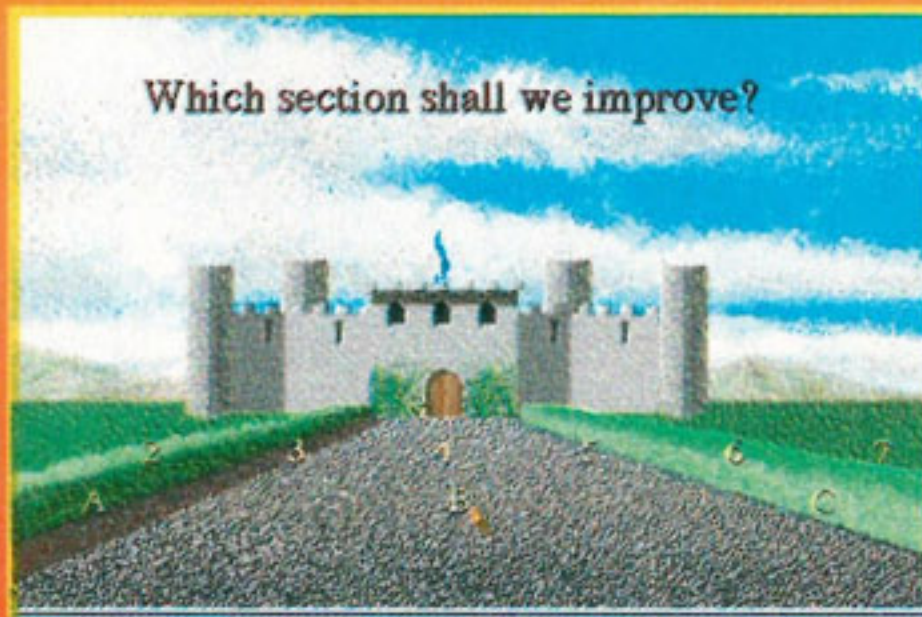
A kingdom for a stage

The stage of *Civilization* is a planet which is completely unknown to you when you start out; you must explore to find out more about it. Before you begin the game you can define the average temperature, percentage of oceans and so forth, and the Mac generates a new planet each time.

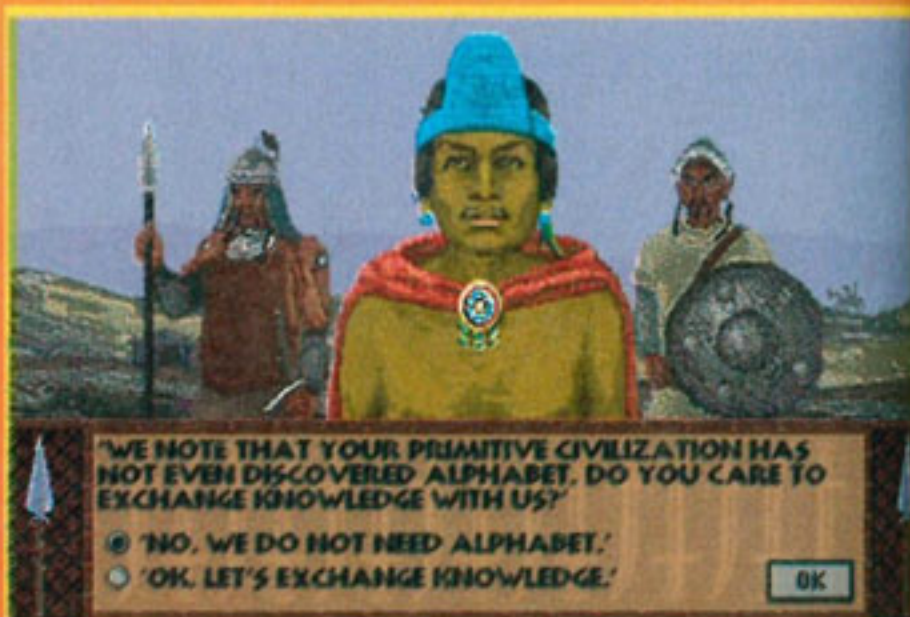
The other civilisations are run by the Mac using an artificial intelligence system which provides you with some stiff opponents, and you can select the level of difficulty from Chieftain (easy) to Emperor (impossible).

Have you seen Sid?

Civilization is the brainchild of Sid Meier. His previous game, the excellent *Railroad Tycoon*, had been a success and he was looking for a follow up. "We wanted *Civilization* to require the decision maker to juggle several balls at once. We found in *Railroad Tycoon* that this helped keep the challenge and interest high," says Sid. He certainly succeeded in that; *Civilization* is probably the most engrossing game available on the Mac.



The building of your palace is a measure of the success of your civilisation – which is also measured as a percentage score



You can trade knowledge with other civilisations, but if you refuse they may declare war on you

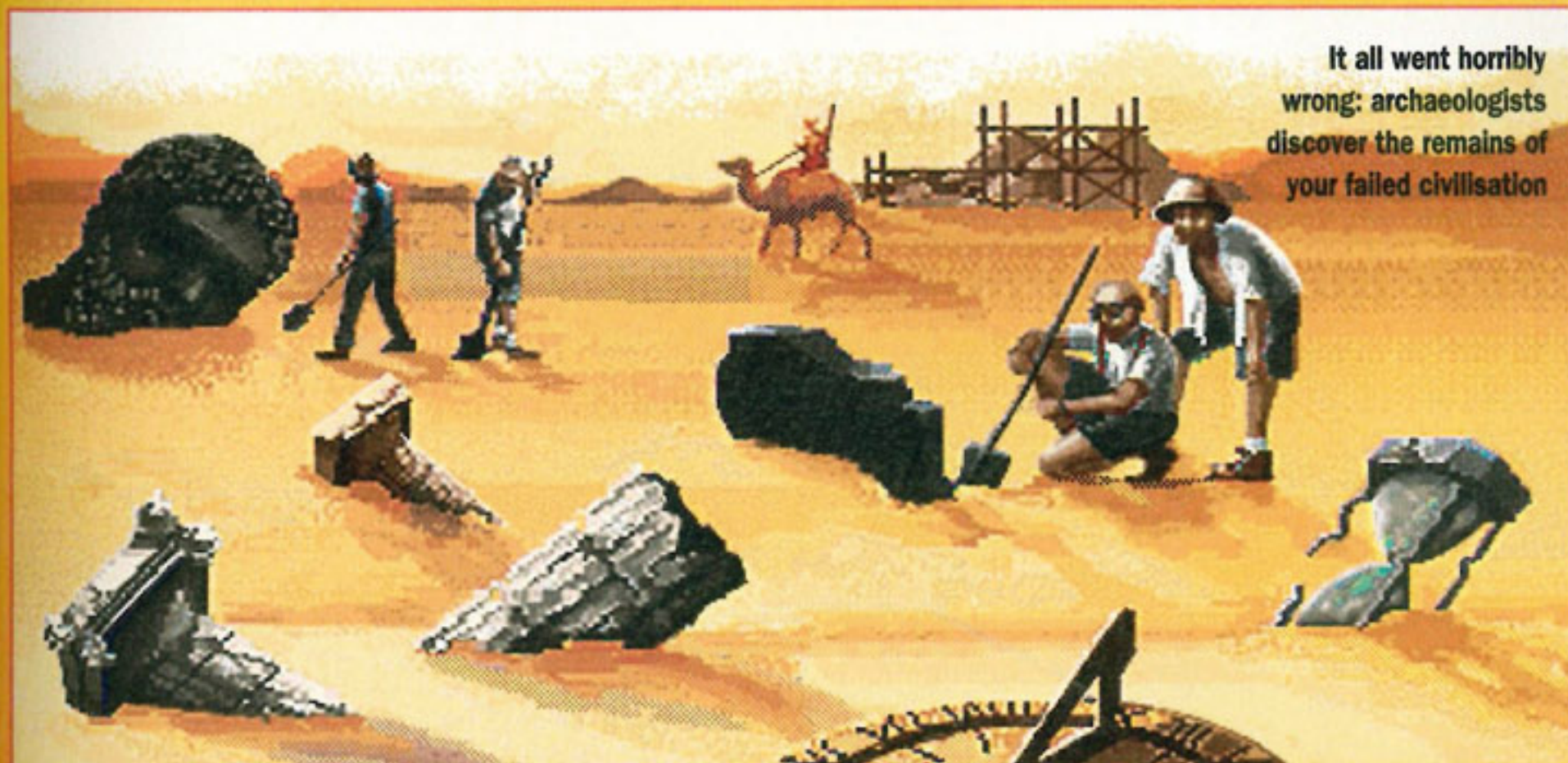
ARCADE

Your objective: a planet bristling with high technology, nuclear weapons, railways and huge cities. It'll take you 6,000 years



This is planet Earth

One option in *Civilization* is to play on planet Earth itself instead of a random planet. The rival civilisations are placed in roughly their historical positions and you get to replay history. A word of warning – if you patriotically select to play the English, be prepared for hundreds of years scraping a living on a tiny island before you raise the resources to build a boat and explore!



It all went horribly wrong: archaeologists discover the remains of your failed civilisation

If this all sounds rather complicated, that's because it is – and your first few minutes with *Civilization* are likely to be as confusing as hell. As you slowly get involved in the game and begin to understand what's going on, however, the gameplay becomes extraordinarily addictive. I know of at least two relationships which have been threatened by long evenings spent playing this game!

A game can easily last ten hours at a stretch and you don't notice the time pass. Battery power permitting, a PowerBook and a copy of *Civilization* are the best way of passing a trans-Atlantic flight yet devised.

The complications and the competition are added to by the ultimate objectives of the game: either to wipe out all other civilisations, or to build a spaceship and colonise Alpha Centauri. I found the first option easier, especially after managing to invent nuclear weapons.

The simulation is not just military, however. To get the most out of your cities you have to keep them happy, and if you've chosen democracy as the government system (you can switch between systems provided you are technologically advanced enough) you need to pay very close attention to the people's wishes. If their

boys are on the Eastern front fighting, it'll take all the entertainers, theatres, churches and so on that you can build to keep them from insisting on peace. Keeping the population happy is just as difficult and time consuming as waging war against the Romans.

Civilization is an amazingly detailed, complex yet engrossing and addictive game. If it has a fault it is the interface, which is directly ported over from the PC version of the program. It's not as responsive as it could be, and it has a tendency to move from one area of the planet to another before you had finished what you were doing. You can always return later, but it's irritating to have to do so.

Overall however *Civilization* is thoroughly recommended. Much more than a war game, you get to replay all of history, on your own terms.

Be warned, though: don't even consider buying it unless you can cope with the sleepless nights that it's bound to cause.



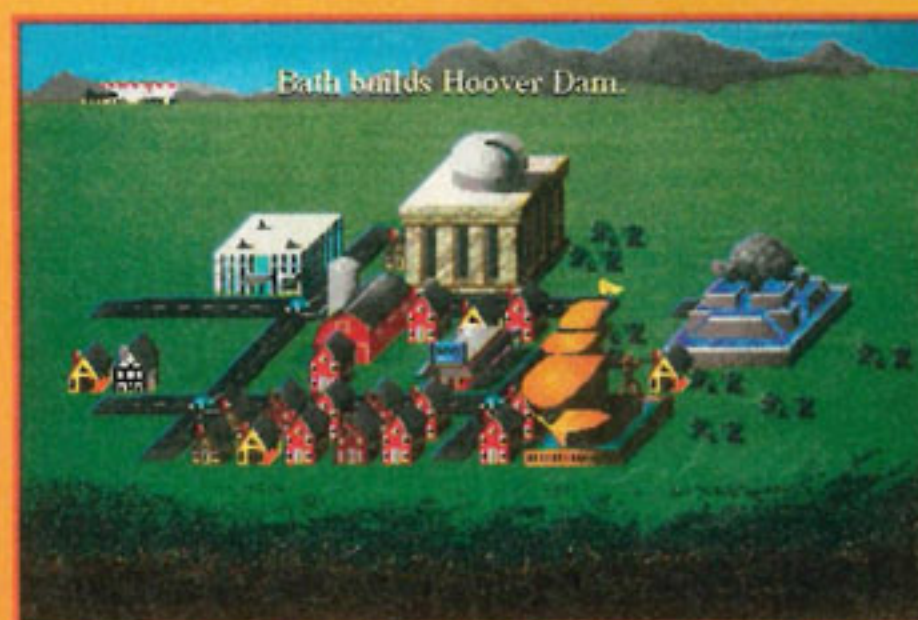
MacFormat rating **95%**

Wonder-full world

One of the best ways to succeed in *Civilization* is to build one of the seven wonders of the world. In fact there are 21 – a set for ancient, medieval and modern. Each wonder has an effect on your population or the game in general. For instance, building Shakespeare's theatre makes your citizens more content, a lighthouse lets your ships to move further on each move and the United Nations makes all other civilisations offer to sign a peace treaty!



You can examine your cities, and change what they are producing and where the citizens work in the complex Cities window



Building "wonders" like the Hoover Dam in your cities gives them special properties, in this case extra natural resources

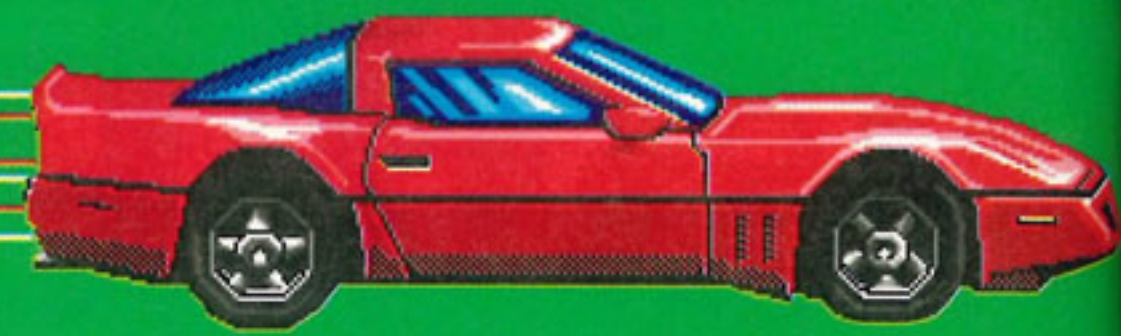


The map shows the arrangement and size of your cities; it is here that you play out the war game elements with your armies

Where to get it

Civilization costs £35 from Microprose, 0666 504399. It works on any Mac with System 6 or 7 and a minimum 4Mb memory. Mono or 256 colour only. Controls: Mouse/keyboard

Vette!



Bob Wade races around the streets of San Francisco in a Corvette

The idea of the game is to race on four street courses and beat the other car to the finish line. However, there's a considerable suspicion that this is really intended for San

Franciscans who want the chance to drive at 250 mph along streets they usually crawl along, without getting nicked or crashing. On that level I don't think it's got much interest over here, so it's really got to stand or fall on the gameplay.

To start with you have to learn how to navigate the accurately (they say and we'll have to take their word for it) mapped streets of San Francisco. Once you know the routes you can concentrate on learning how to drive them faster. They aren't particularly complicated, but if you do miss a turning it can easily lose you the race.

The next problem is that this is a street race and so you've got to cope with all the usual problems like traffic, buildings, pedestrians and the police. Fortunately for the beginner you can adjust the skill level so that most of the race-ending disasters won't happen.

You can alter the performance of the car so that it will perform differently in skids, turning, jumps and braking. There are also various

graphic elements like the horizon and the solid 3D that can be changed to make things run faster on slow machines.

There are some nice touches that add to the driving experience, particularly the ability to view the car from a helicopter position while driving. This view can be changed to give a totally different look at the city. You've also got options like automatic transmission, cruise control, an on-screen map and damage display. There's even a tour option to take you to various landmarks around the city.

All this will keep you interested for a few hours, but after that there's only the challenge of bettering your course times and upping the skill level. This isn't really enough to keep you hooked – unless you've got a modem or are part of a network. This is where the game really scores because it's got a head-

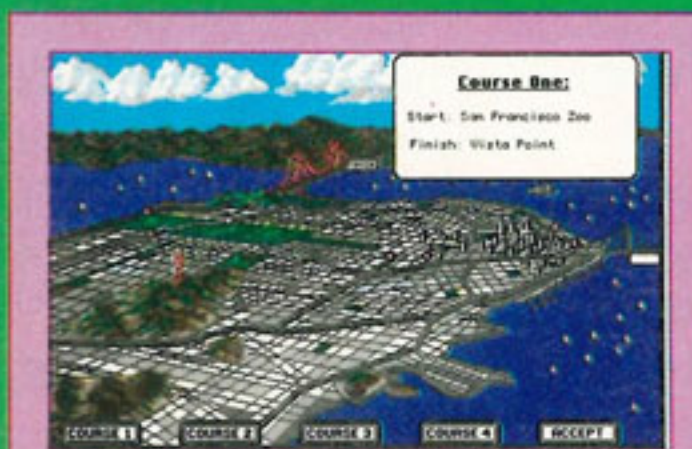


Never mind, once you get the Sledgehammer going it's soon catching up the F40 – it's just ahead now

to-head option where you can compete against another player.

Conclusion

If there was a version where you could hare round London or Birmingham it would have more relevance, but as it is I think solo players will tire of *Vette!* quite quickly. That's not to say there isn't a lot in there to enjoy – the graphics are smooth and detailed, the sound is good and the cars handle well. This one is those who like some alternative race action.



You're going for the simplest course, along the seafront to the Golden Gate Bridge, because there aren't many turns

Vette!

£24 Spectrum HoloByte
Requires: Any Mac with 1Mb RAM, an 800K disk drive and System 6.0.2 or later. In colour it needs a Mac II series or LC with 2Mb RAM, 16 colour video card and a hard drive.

Mac Format rating **68%**



The garage is where you choose from the four types of Vette – here we're testing the sledgehammer to see how fast it can go



Crunch – the inevitable happens as you approach the junction to the Golden Gate Bridge. It's just as well we're on Trainee level

The American dream

One of the essential elements of the American dream is to own and drive a fast car. If you're in the Miami vice squad, of course, you get to drive an Italian stallion like a Lamborghini. But for the average Joe, you can't get a more recognisable car than the Chevrolet Corvette. It first made its debut

in 1953 and it's still going strong today – even as a computer game.

The four Vettes are all fairly late model versions, from 1989, with considerably different performance. The two production models are the slower of the versions, with the 'Sledgehammer' custom car having the top speed of 254 mph.

As well as being able to drive any of the four,

you can compete with four other makes of sports car – the Porsche 928S4, Lamborghini Countach, Ferrari Testarossa and Ferrari F40.

The F40 is the fastest of the bunch, but still only has a top speed of 201 mph. Don't think you're going to get an easy ride though, because the opponent drivers will use their machinery to good effect and choose fast routes.

The Tinies



Kellie Simmons pits her wits against some infuriating creatures from the planet Sklumph

Arrgghhh! They're rude, arrogant, downright stupid and your mission is to save them. I'm afraid that when I first started to play this game, I could only say the name 'Tinies' through gritted teeth.



They come from the planet Sklumph but have set their sights on our planet. The king of the Tinies has chosen you, as a player, to find them and put them back on their colour coded sleep pods, but you only have a certain amount of time to do this in. If you fail, they explode and literally wave bye bye to any ideas they had of living on this planet.

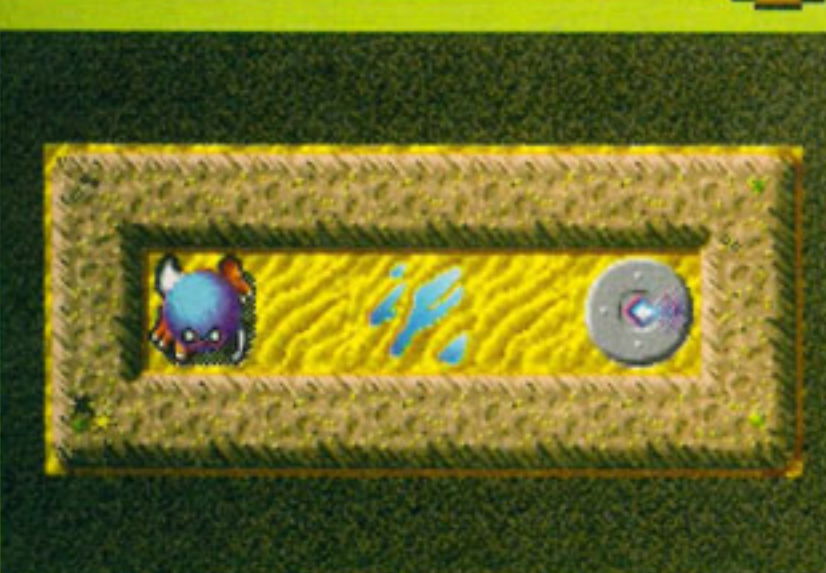
You'll either want to try as hard as you can to get them back to their pods – they do actually look quite cute when asleep – or you'll give up and let them blow up because believe you me, until you get the hang of the game these creatures really are annoying.



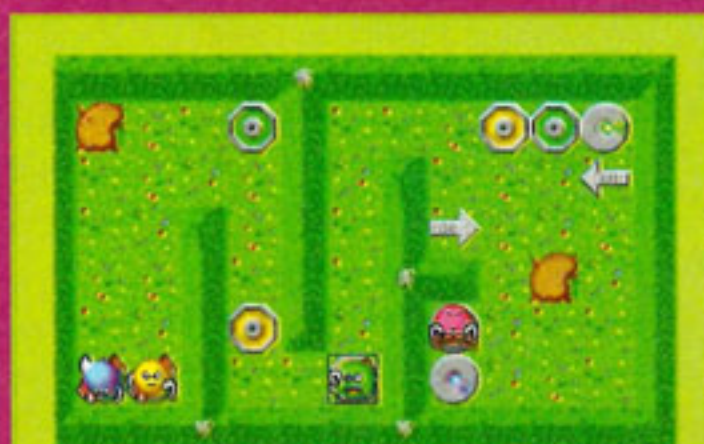
The idea of the game is similar to *Lemmings*, but unlike the



Watch out for these trap doors. If a Tinnie walks into one a red tongue type thing will come up and slap it in the face



Treat the first 20 or so levels as a practice run. They're a bit too simple to get excited over, so jot down each password to avoid re-playing the easy ones



The whole point of *The Tinies* is to get them back to their sleep pods within a certain time limit

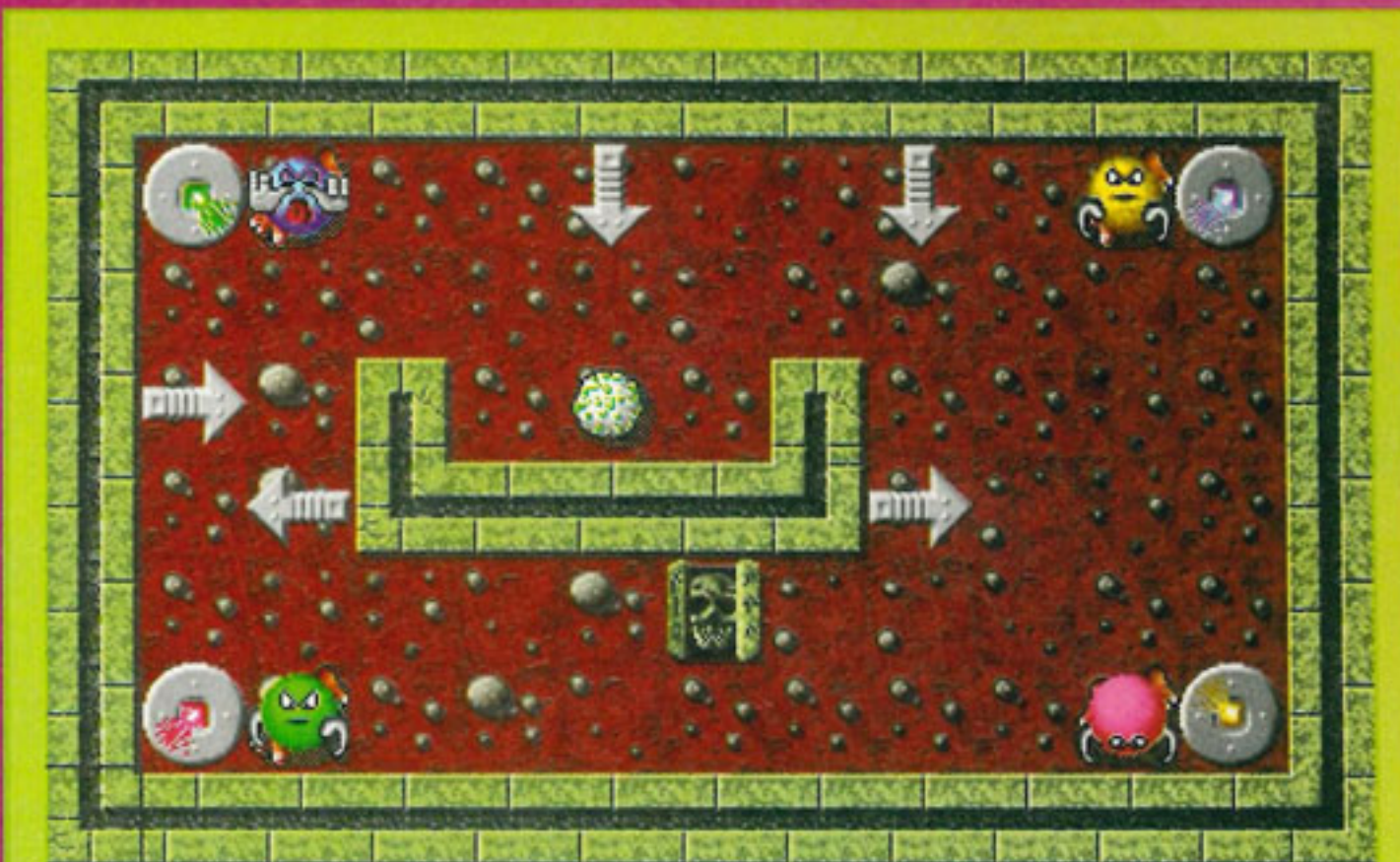
The Tinies

£34 Softline
 Requires: 3Mb Ram (256 colour),
 2MB Ram (mono),
 System 6.0.5 or later.
 Controls: mouse, keyboard

creatures everybody loves to save, you're left – when you first start playing the game at least – wondering whether you can be bothered to save them at all.

There are over 100 levels to contend with, which is just as well because things only start to get a little more interesting after the 30th. By that time it begins to get a little more tricky.

The first ten or so levels can only really be treated as practice levels to get you used to controlling the loathsome little critters. After that there are lots of little items to look out for that can either help or hinder your progress. These include arrows, colour coded transporters, explosions, sleepers that have not



They look so cute when they are asleep, but are extremely obnoxious when awake. Expect no gratitude but a lot of rude face pulling



Things start to get interesting after the first twenty levels. Lots of good graphics and detail



Watch out for weird things like transporters which take Tinies from one location to another

been switched on and punches which look like bright red tongues that emerge from a kind of trap door slapping any Tinnie that walks into it. Plus points to pick up along the maze of levels are clocks to give you extra time, hearts to give you a new time warp and resurrection eggs which speak for themselves.



It's very difficult to cheat in this game. When you pause the maze is hidden, preventing you from sussing things out without losing time. You get quite a few chances at cracking a level before

the entire mission is over so you could waste one chance by observing a maze while the time ticks away and, as with most games, if you keep a note of every password you won't have to worry about re-playing each level.

Conclusion

The Tinies gets better as the levels get higher, it's just a shame that you have to get past more than 30 before it gets interesting and by this time the music may well start to irritate you.



Mac Format rating 69%



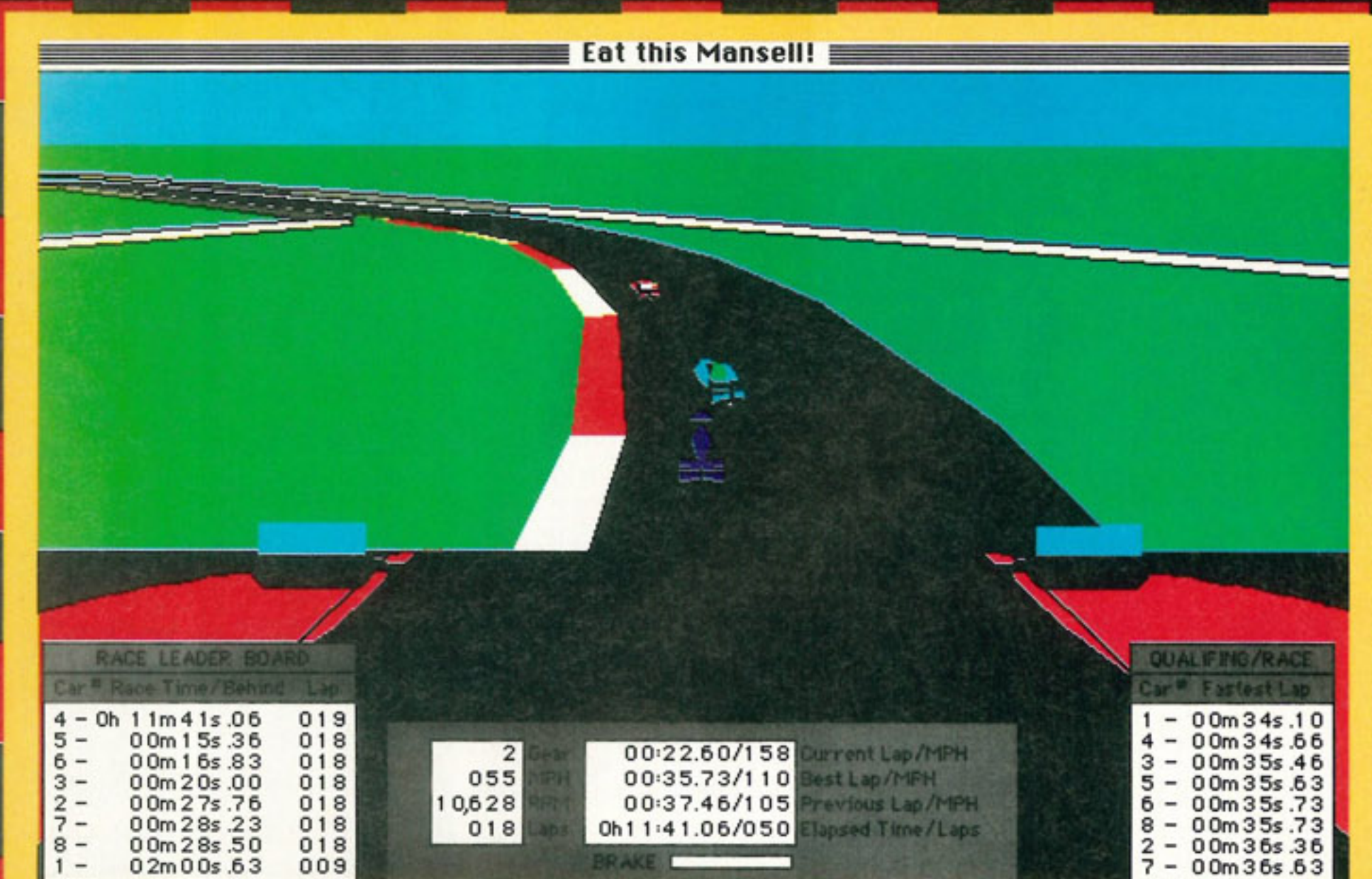
Although the graphics and game gets better after a while, you may find the music rather irritating. Just turn it off and stick with the fairly impressive sound effects



They may be extremely rude little critters but they do actually look like butter wouldn't melt in their mouth when they're fast asleep

Ferrari Grand Prix

Demon driver Andy Storer trashes his Ferrari at 150 mph



You may currently be in last place but at least you've got the fastest lap time - it's just that you took out 3 cars and totalled a wall just after you'd done it. Still, kicking 10,000 rpm in second ain't bad going is it? - show me a Cossie that'll do that!

approaching Quadra speed and you end up so much twisted junk. I was racing on a Mac Ivi but if you have a Classic or an LC you can switch to wire frame graphics rather than 16 colour solid 3D - in the unlikely event you'll want to speed things up even further. Also you can choose to compete against fewer cars than the maximum eight so there's less screen frame updating needed.

If you're rich enough to whack *Ferrari* into a Quadra, you'll soon work out while fast cars and amphetamines don't mix. The key concept to bear in mind here is hospitalisation.

Which is, of course, what you want to happen to the other drivers you're up against. But funnily enough, turning on collision detection won't help because you can't viciously shunt them into a wall at 150 mph without incurring a crash yourself. So, while you can alter their driving skills, even the thickest computer-controlled opponent is still pretty competent and consequently playing a friend is probably the easiest way of beating someone who's initially as crap as you are. This is achieved quite simply by hooking up two Macs directly together via serial cable but you can't connect over a network or by modem.

But let's forget about mastering the damn driving - half the fun of handling a half million dollar formula one car is in smashing it up. And *Ferrari* provides you with a replay option so you can watch those moments of glorious carnage from a number of different angles. There's TV style action sequences, overhead helicopter views, shots from behind your vehicle - and you can even view the action from inside other cars.

The audio's neat too - OK so there's no hyper hyper voice-over and no macho-trash theme tune but there's plenty of gear-change screechings and brick wall batterings. So is it worth your loot? Well, for now this is as fast as you'll get on a Mac and it ain't half bad.

Mac Format rating **80%**

You know how it is. You've been driving for years, so you dispense with the rolling demo, ditch the qualifying session, choose auto gear change just to be on the safe side, and start the race. You're first off the starting grid and first into the opening corner and first all the way into the first brick wall. It's the last thing you expected.

After a few more circuits of head on collisions you soon realise the trick with *Ferrari Grand Prix* is to take it easy. And this

Ferrari Grand Prix v2

£46 Bullseye

Requires: All Macs running in 16-colour mode.

2Mb RAM, System 6.07 or 7

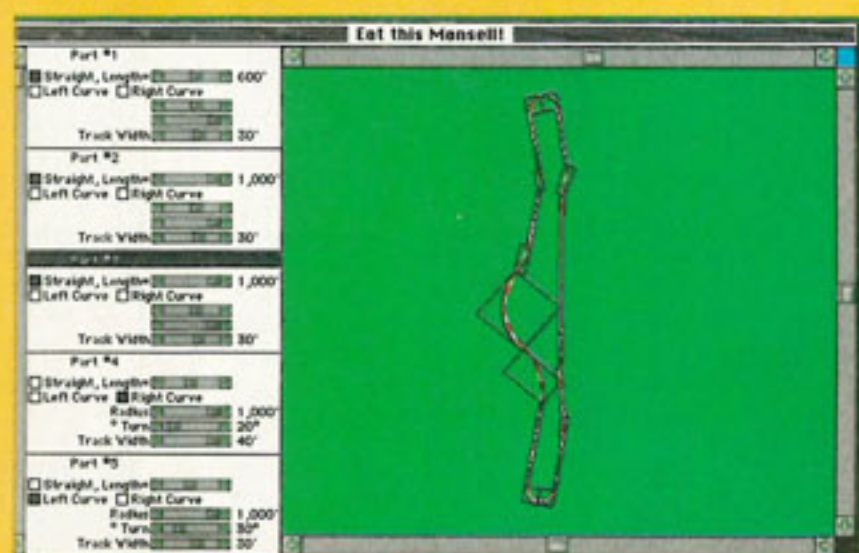
Controls: mouse or joystick

means first and second gears at speeds of up to 65mph until you get used to the rather delicate steering controls.

While you can change the tyres you're using for better handling, my advice is to buy a mouse mat which supplies plenty of tread because once you work your way up to 7th gear's 200 mph speeds you'll need all the grip you can get.

Luckily, besides automatic and manual gear boxes, there's an Infinite Traction mode which means you can hurtle around any one of the 16 Grand Prix circuits fully confident you won't spin off the corners - but even then you'll still need your reflexes just to keep on the straight and narrow.

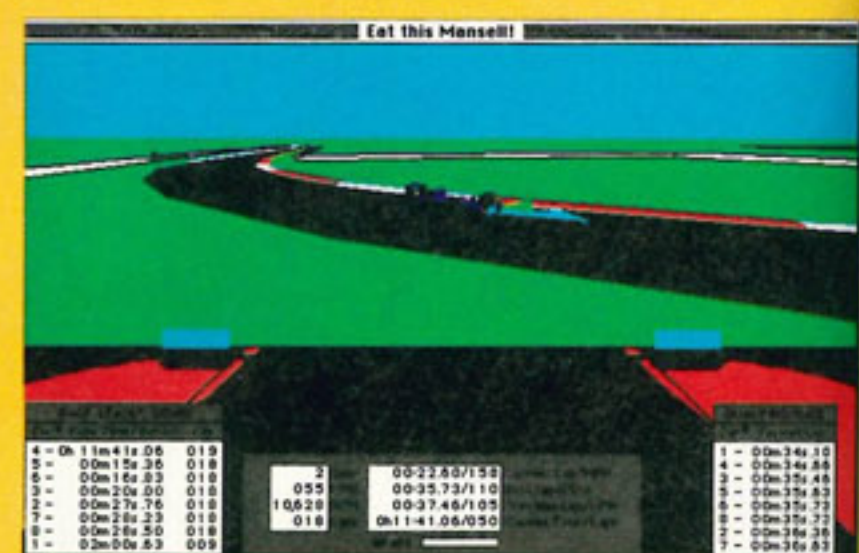
If all this sounds as though it's a bit daunting it's only because even on a Macintosh Classic those first bends come in at something



If all the world's Grand Prix courses are just a tad too demanding you can always design your own circuit. This gives you the opportunity to drive at 200 mph for miles



This is a common view in *Ferrari* - it's you about to hit a wall at over 150mph. Luckily you're so haaaard you can do this with none of those annoying Nikki Lauda side-effects



Of course, the whole fun of watching motor racing is waiting for high speed pile-ups. And there's no better view of proceedings than *Ferrari*'s TV-style action replay

CAPITALIST



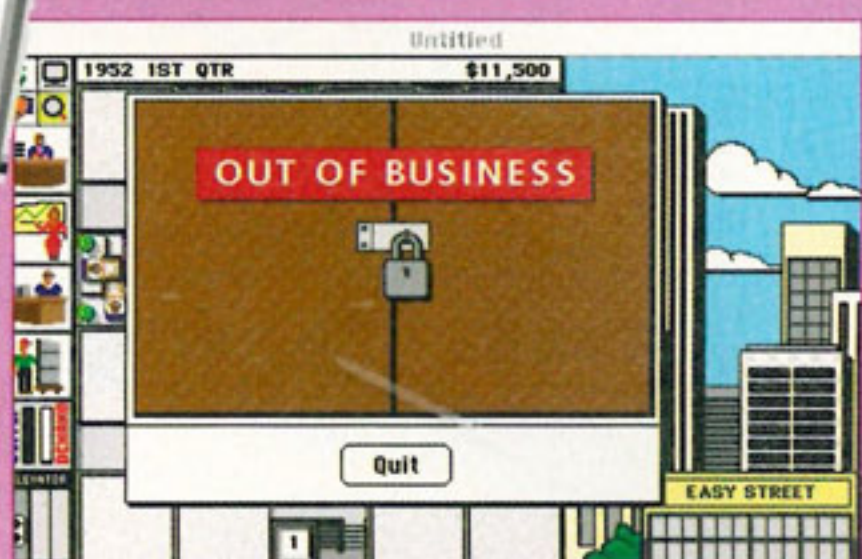
Kellie Simmons gets hooked on success as a big-business mogul

After you've played *Capitalist Pig* you'll find you suddenly know a lot more about business strategies, marketing, sales, public relations, hiring and firing – if that's what you want from life.

It's described as a business simulation game and the idea is to create your own company and see how long you can keep it afloat. All decisions are entirely up to you. You choose your own company name, stock symbol, what you are going to sell and what year your company was formed.

You're given some start up capital and a business, marketing and financial plan which is a chart to show how you are going to run your business. You can hire and fire as many employees as you like. You're given a choice of managers, sellers, shippers and assemblers and you can be as nice or as mean a boss as you like to them. But you're always going to get a memo to let you know the situation with your employees and by clicking on the right office on the screen, the workers themselves will tell you exactly how they are feeling.

You don't necessarily have total control over your employees though. They can go on strike if they feel that conditions aren't so hot, steal (management is



As the years tick away so does your money. Look after your company and treat your staff well, otherwise this screen will appear, announcing you're out of business



more likely to make you a victim of embezzlement) and they can even be victims of terrorist attack (you have a choice of selecting a world event from the **Events** menu).

Four advisers are available to give you helpful hints and advice. You have your own lawyer, accountant, economist and public relations agent; four figures that a business tycoon should never be without.

Your business year is divided into four quarters. At the end of the last quarter you automatically get a financial statement.

Conclusion

Capitalist Pig is not just for the Maxwells, Murdochs or city slickers among us. You can be as nice or nasty to your employees as you want. Even if it isn't meant as a training ground for potential business persons, it really gives you a

SET UP COMPANY

Start Simulation

Company Name: s & k ltd. Symbol: sk
 Product Name: computer software Year: 1980
 Startup Capital: \$250,000 (house icon) or \$1,000,000 (stock icon)
 Business Plan, Marketing Plan, Financial Plan

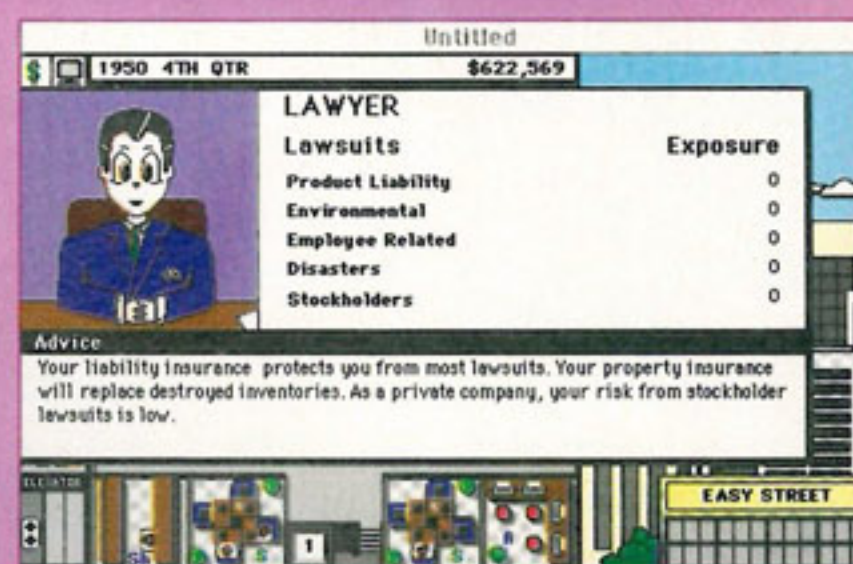
To kick off your life in the fast lane of business, you obviously need to set up your company. Here you can decide the name, year and what you want to sell

Capitalist Pig

£35 Pigworks and David Thomas

Requires: System 6.0 and later, colour or mono

Controls: mouse/keyboard



If you're in need of a little help, scroll up to the menu bar and get some personal info from one of your four advisors. They know everything to help you out of trouble

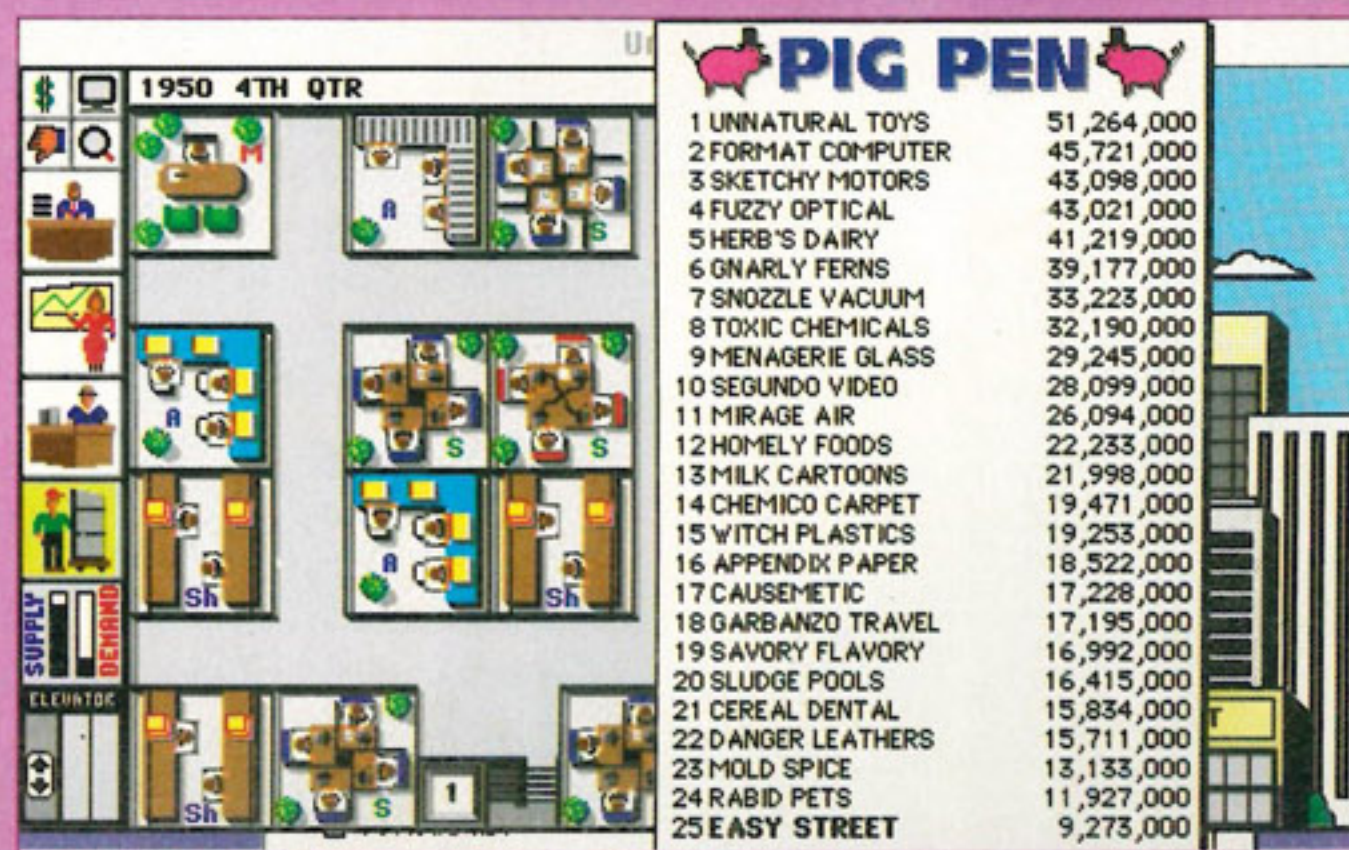


feel of what it's like to run your own company. Once you get used to the workings of this game, you'll be hooked on success. Even if you don't fancy yourself as a big decision maker who can take control of any situation, *Capitalist Pig* is definitely recommended.

Mac Format rating **84%**



Fill each bit of office space up as the game progresses. But remember to check up on the moods of every member of staff to make sure everything is hunky-dory



Find out just how well you can run a company through the **Pig Pen**, which will let you know where you stand against other big money-making companies

GAMEBUSTERS

Crikey! What a response! We've been snowed under with tips and hints on busting the best Mac games – here's the cream of the crop...Keep 'em coming!



Prince of Persia

Hot Tip WINNER £50

■ Level 2: After getting the extra portion of life, make your way to the exit. When you get to the chasm jump over it and

climb up one floor. Instead of going up again as normal go left into what appears to be a dead end. Go to the wall and knock away the loose floor section. Climb up and open the exit as normal, by jumping across and clinging on and then jumping back again. Run to the right and out of the exit. This way of ending the level is a lot faster so you don't have to fight the last man.

■ Level 5: After killing the first man to the right, go up. Go left from here because it's too time consuming to go right as your mirror image always gets to the potion however quick you are! After going left you jump over a gap, go down and then to the left again. Here you'll see another man. If you can try and push him backwards until he falls on the floor which opens the door, then run and jump over his head to avoid fighting him.

■ Level 8: Go to the first man. He's different from the others because he doesn't come to you. You have to go to him! To kill him successfully you must perform a sequence of attacks repeatedly. Go left, block, strike, left again, block and strike. The man will go back each time and eventually falls onto the spikes.

■ If you use the [shift] key while fighting, you may find that it becomes less responsive. If this happens use [O] instead. The same

applies to other keys. If you use them as your main controls swap to the alternative keys (see manual) for more responsiveness.

■ When faced with spikes, run up to them until they shoot up, then it's safe to run through them.

Tom Wells, Norfolk



Sim City

The Sim family is the main target for tips, especially *Sim City*, but then it is an all round favourite across the computer formats.

■ Every time my funds get low I could press down [caps lock] and type 'Fund' for an extra \$10,000. But be warned because if you type this more than four times a major earthquake will destroy your city. The best way to use this is to start a new city then type 'Fund' as many times as you like; when an earthquake occurs it will not destroy anything as there is nothing to destroy!

David Macdonald, Isle of Man



Sim Earth

This handy tip is useful for the *Sim Earth* challenges Mars & Venus. If you follow this advice, you'll complete them in virtually no time at all.

■ Create or drain away oceans without draining any of your energy away by holding your finger down on the [option] key while in 'edit' window. Select the raise/lower land altitude tool and keep your finger down. A control bar should appear to the left of the raise/lower land altitude icon. If you wait above the control bar you will see the oceans

Jerome Dewhurst, Bucks



Another World

Thanks to someone known as 'Wiz Kid' for sending in these cheat modes for *Another World*.

Level 1	LDKD
Level 2	HTDC
Level 3	CLLD
Level 4	FXLC
Level 5	KRFK
Level 6	XDDJ
Level 7	LBKG
Level 8	KLFB
Level 9	TTCT
Level 10	DDRX
Level 11	TBHK
Level 12	BRTD
Level 13	CKJL
Level 14	LFCK
Level 15	BFLX
Level 16	XRJT
Level 17	HRTB
Level 18	HBHK
Level 19	JCGB
Level 20	HHFL
Level 21	TFBB
Level 22	TXHF



Spectre

To start off at the level of your choice, press the option key while clicking 'Play'. Also, typing 'God' during a game will give you a bird's eye view of the entire board at once.

Gordon Barr, Renfrewshire, Scotland



Lemmings

Try out these access codes for the Fun Level:

Level 2	IJLDNCCCN
Level 3	NJLDLADCY
Level 4	HLLHCIOECU
Level 5	LDLCAJNFCK
Level 6	DLCIJNLGCT
Level 7	LCANLLDHCO
Level 8	CINNLDLICJ
Level 9	CEKHMDLJCO
Level 10	MJHNDLCKCW
Level 11	NHMLHCALCT
Level 12	JOLHCMOMCV
Level 13	MDLCAJLNCR
Level 14	ELCIJNMOCN
Level 15	LCENLNDPCL
Level 16	CINLMDLQCQ
Level 17	CAGHLFLBDT
Level 18	KJHNLBCDQ
Level 19	NJNNHCCDDT
Level 20	HLFLCANNEDW
Level 21	LFLCCJLFDN
Level 22	NHCKKONGDQ
Level 23	LCCNMLFHDU
Level 24	CINLLGLIDL
Level 25	CCKHMGHJDM
Level 26	IJHOHCKDN
Level 27	NKMFLCALDV

Level 28	HOHCIOMDT
Level 29	OOHCGJLNDR
Level 30	GLCMJMMODT

Next issue we'll bring you the codes for the Tricky Level



Carmen San Diego

You actually need to complete 80 cases before you can reach the hall of fame, but it is possible to cheat!

Sign in and complete one case. Now quit from *Carmen* and go into a word processor that will read text files. Locate the file called *Carmen Data*. Open it. Inside there should be a list of the players that have signed in and some numbers next to them. Locate your name and change the first number to the number of cases you want to have completed (say 70). Alter and save it, making sure it is in the original format. Go back into *Carmen* and go to the basement where you should now be accredited with 70 cases.

Gordon Barr, Scotland



Hellcats

Leyte Gulf Mission: Lightning Strike:

Once you have taken off from your carrier, move slowly around the back of the enemy ships. By the time you're behind them, the two P-38s would have caused some damage to the enemy ships. All you have to do is go in and finish them off and you get all the credit. Ha ha Mission: Scramble Two Get behind one of the enemy bombers, but at a safe distance. Once it is on a straight heading you should aim a little above the bomber because the missiles lose the height quite quickly, then fire your missile and, hey presto, it's gone. Then go for the next one. But be careful not to hit your base.

Andrew Theo, Southgate, London N14

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If you have any hints, tips or short cuts that you are just bursting to share with other MacFormat games players, write in to Gamesbusters, MacFormat, 30 Monmouth Street, Bath, BA1 2BW. We'll part with some real goodies for the best tips printed.

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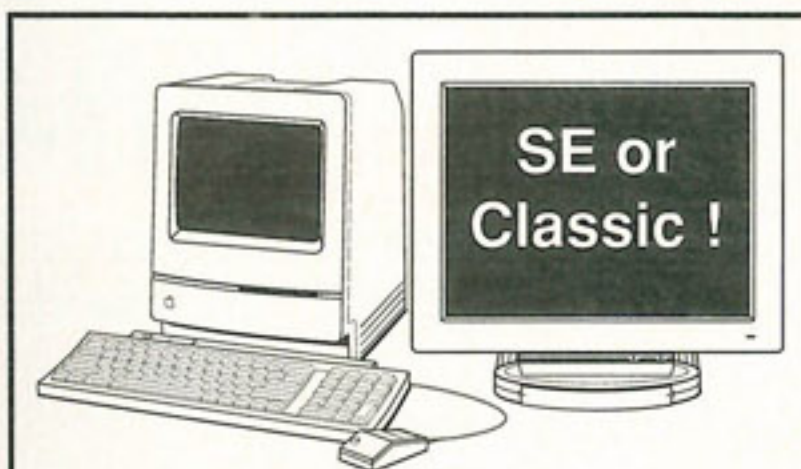
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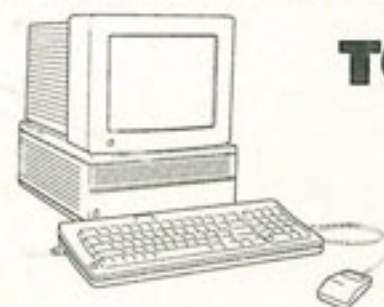
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RAM fitting instructions are available

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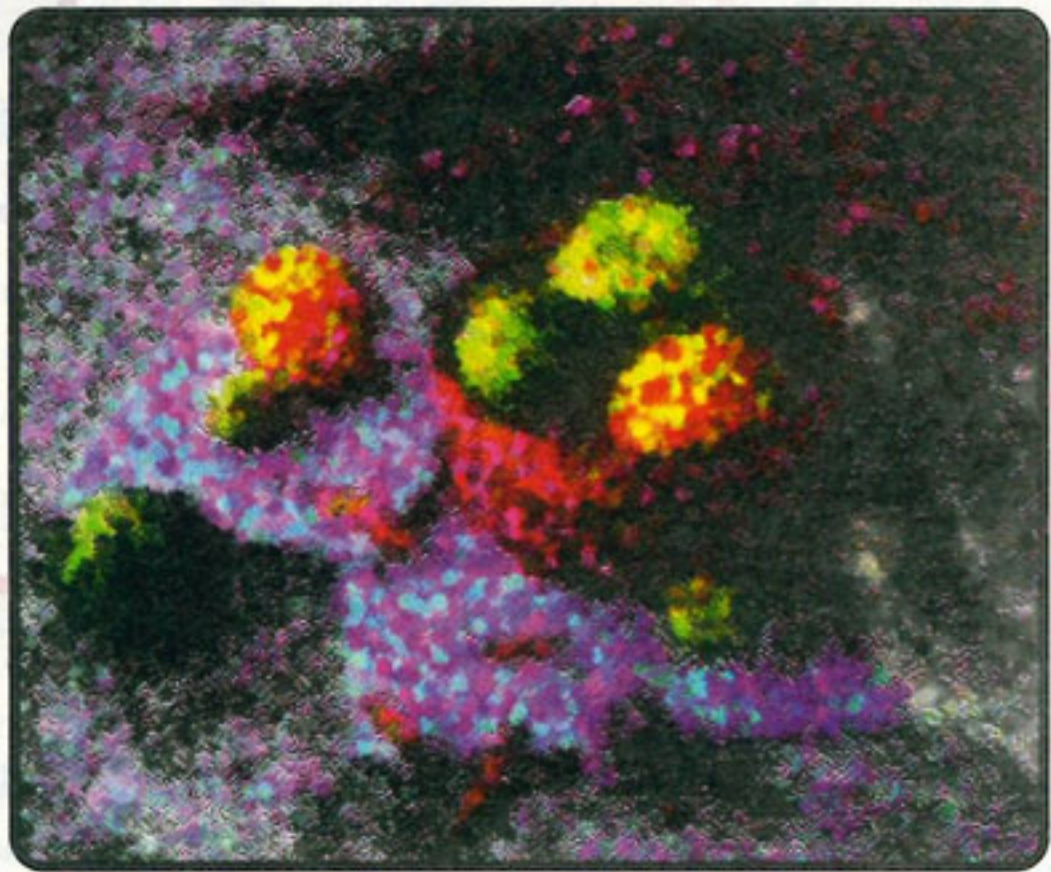


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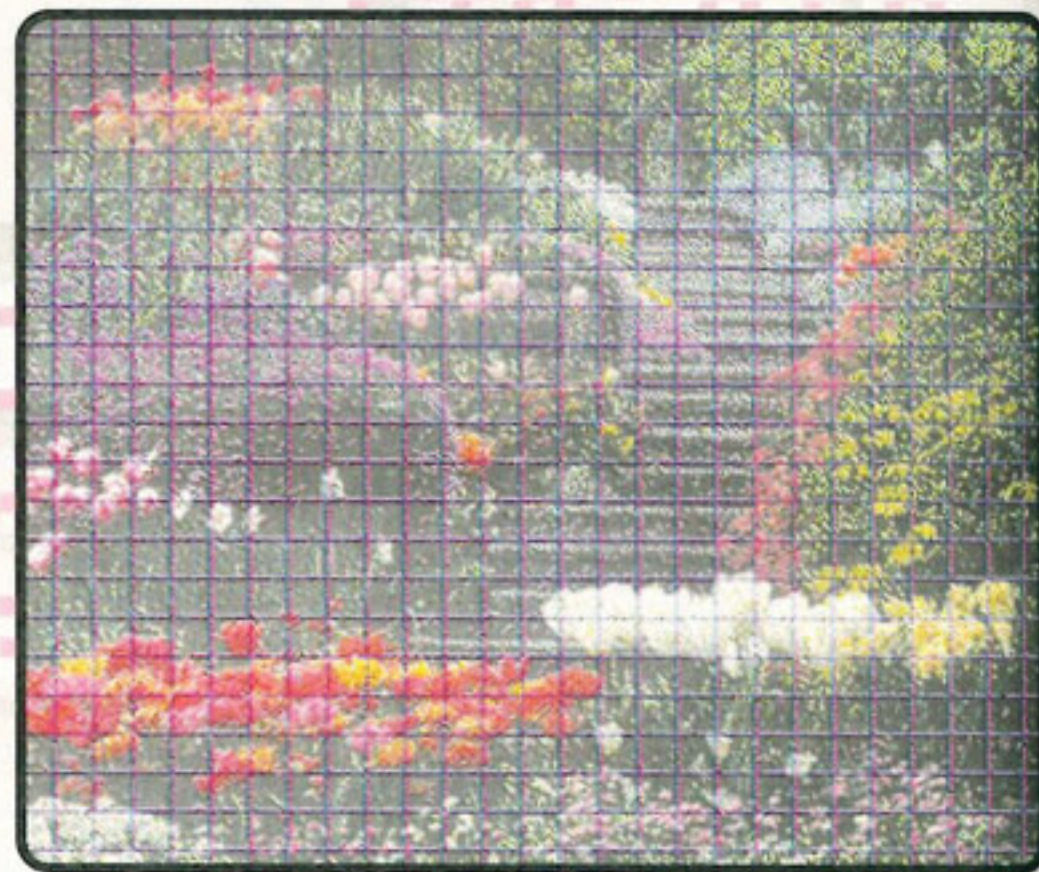
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**AUTO VAN GOGH**

Well, okay, it's not likely to make it to the Stedelijk museum in Amsterdam. But you can produce images shockingly similar to those created by the great master. Is this the beginning of the end for the history of great painters – destined to become a "pop-up menu" of the future?

GRID

Painter gives you a grid layer to help guide you in your work. To activate this you click on the 'grid' icon at the top right hand side for the image window. With the grid click on, you will see your brush strokes at 50 per cent of their value (click off and it's back to 100%) – and don't worry, the grid won't print



Good impressions

Gordon Druce takes a look at *Painter 2.0*, a package that allows you to manipulate your designs endlessly and even emulate the work of Old – and maybe some of the New – Masters

First seen almost two years ago, this paint and image editing program features some of the most realistic emulations of fine art and commercial art materials ever seen on the Mac. It includes simulations of oil paint, water colour, pencils, charcoal, air brush and many more, all with plenty of control and scope for personal customisation.

Along with *Painter's* extensive selection of tools, papers and textures, there is a powerful image editing facility which lets you sharpen, soften and distort scanned

material. You can also add visual effects like marbling, or give your picture the appearance of being viewed through rain or glass.

Basically, *Painter* simulates almost all the tools and materials you might expect to find in a traditional artist's studio.

Action art

The minimum system requirements that Fractal Design recommends are the Mac II, Performa and Quadra machines, with colour monitors, although if you are a mono cartoonist or scraperboard artist, then

Painter 2 will run perfectly well in greyscale. The manual also recommends that you have 4Mb of RAM, but once you have double-clicked the application into life you will find that it suggests you have 8Mb on board. Also recommended is a pressure-sensitive graphics tablet, although some of the pressure-sensitive effects can be achieved using the standard mouse.

Getting started

There are several ways of starting work in *Painter 2*, the first and most obvious of which is to open up a

new document by going to the **File** menu, selecting **New** and starting work. Another is to edit work which may have started life in another Macintosh paint or draw program, and the third is to use material that has been scanned in. *Painter 2* accepts files in TIFF, EPS, PICT or *Photoshop* format (either RGB or greyscale).

Once you have opened up a new document and set your paper colour, you'll find that all *Painter's* drawing and painting tools are in the brushes palette. There's everything from felt pens to oil paint.

More about Painter's methods

This is a further look at the depth of control you have over the art materials (brushes) at your disposal in *Painter*. There are far too many to give a full list, but this is a taster of the kind of thing you can expect.

BUILD UP METHODS – the build up methods all add colour density to an image as you draw:

Soft build up – for non-grainy work, applies a smooth spread of dye on your image

Grainy hard build up – applies dye like a coloured pencil, with semi-anti-aliased grainy edges

COVER METHODS – the cover methods are for use with chalk, charcoal, oil paints, acrylics and spray paints:

Soft mask colour – this draws in the strokes that cover the underlying image. The colour of the

stroke is a mixture of the primary and secondary colour, determined by the frisket. This can be useful for colouring up cartoon cells

Soft paint remover – this removes density from your image. It works like bleach and can be used for cleaning an image or in a traditional photographic darkroom sense, to 'bleach out' an area of a photo

CLONING METHODS – You use the cloning methods to bring textures and sections of an image from an original. You can also 'random clone', a process which lets you build up very complex textures:

Grainy soft clone – this creates a soft, cloudy stroke and looks like a form of burnished charcoal

Drip clone – you can paint the distorted parts of your image (see Drip Methods)

WET METHODS – to use the wet layer control you must choose **Wet Paint** from the **Options** menu:

Grainy wet build up – the strokes build up over the colour beneath them, and produce a traditional water colour feel

Wet remove density – this lets you do something which would usually be impossible for the true water colour artist – it removes colour from the wet layer

DRIP METHODS – the drip method is for liquidising your artwork and pulling it around the screen:

Grainy drip – this applies a smooth distortion to the image in the direction of the stroke and is useful for a slick, clean brush look

Grainy hard drip – this applies a coarse distortion to the image, like the effect generated by blowing paint around a canvas using a straw



GLASS DISTORTION

This effect gives you the very popular photographic and cinematic effect of viewing your work as if it had been laid behind a sheet of glass – except that within the Glass Distortion dialogue box you have full control over the amount of distortion that the glass gives

LIQUID

This is well on the way to looking more like 60s Action art than a great work in oils, but with the liquid icon highlighted and “distorto” control selected you can have a wild and wacky time! Given the resurgence of interest in the 60s and 70s, this could soon become an over-used feature...



Kandinsky in can

Painter is shipped in some of the most novel and fun packaging of any Macintosh software. The six floppy disks and manual arrive with a Painter 2 surf/skate-style sticker, all neatly packed inside a paint tin – so you need an old spoon or a screwdriver to get in. Not too eco-friendly, though...

Three-level palette

The brushes palette works on three different levels, all active together, but at the first level all your tools are set to What You See is What You Get – a kind of ‘default to real life’. For instance, if you select the charcoal tool then you will use the charcoal tool just as if you had taken it out of the box.

On level two, you select your material, say chalk this time, in the same way, by high lighting the icon, but now by selecting the Variants pop-up menu which is below the icons in the **Brush Palette** dialog box, you have a selection of presets, so you can select your choice from **Sharp chalk, Large chalk or Artist pastel chalk.**

Level three will be most useful to the more advanced Macintosh

artist. This puts you in full control of customising all the brushes. You can go to the **Brush Size** window to alter your stroke width, or the **Penetration Slider** to customise the way your brushes interact with paper grain. Finally, there is the **Brush Behaviour** window, where among other things you can fine-tune your size and style of brushes.

Image editing

The other side of *Painter*’s character is that of image editing. *Painter* has a basic toolbox that will be familiar to most Macintosh users, with the usual magnifier, grabber tool, eye dropper, selection tool and paint bucket, and clicking on the end of the toolbox reveals four more tools for creating friskets (see the **Jargon Busters** panel), and a text

tool for importing TrueType and Type1 fonts as friskets. You can also call up a number of other great features once your image has been opened in *Painter*, like dropping a grid over your image to make it appear at 50 per cent of its opacity.

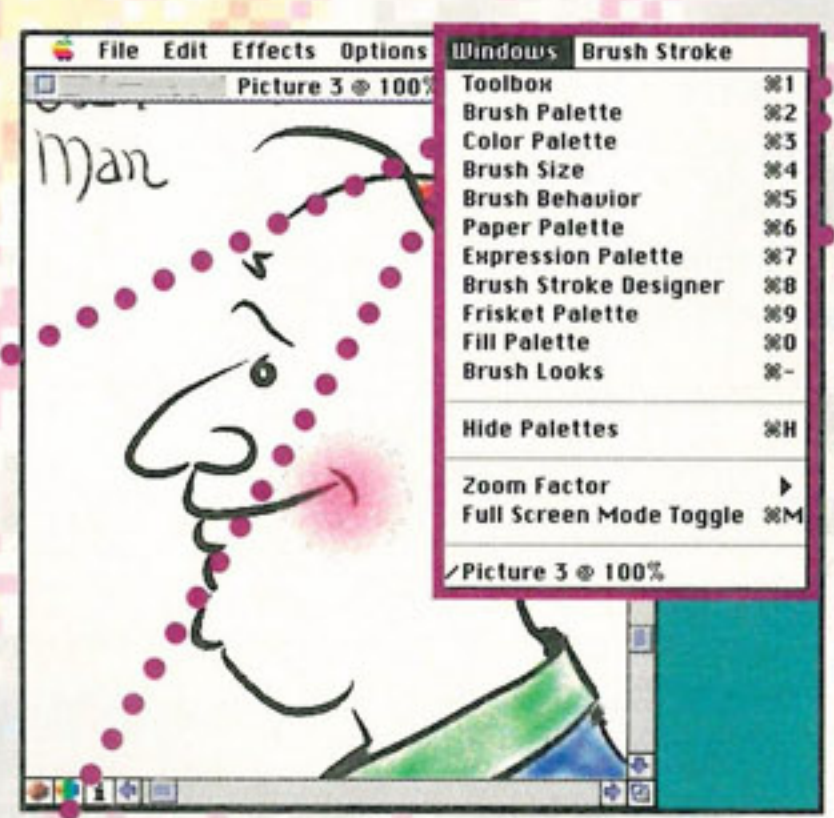
Visual effects

Some incredible visual effects can be produced by means of the **Surface Control** item under the **Effects** menu. All effects have a good clear preview of your treatment in the dialogue box. First up is a **Colour Overlay**. This is exactly as it sounds, allowing you to overlay a new colour, but also letting you mix in a new paper grain, so you can add texture as well as a colour saturation. Also you can **Adjust Dye Concentration**; this

Windows

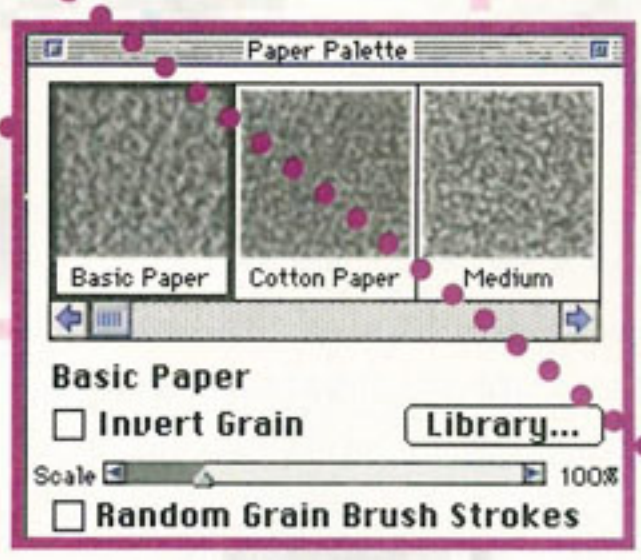


The colour palette is clear and very compacted – which is great news for small screen users



The main window in *Painter*, with a document open. In the bottom left hand corner a ‘i’ information icon gives details on size and resolution

and control panels



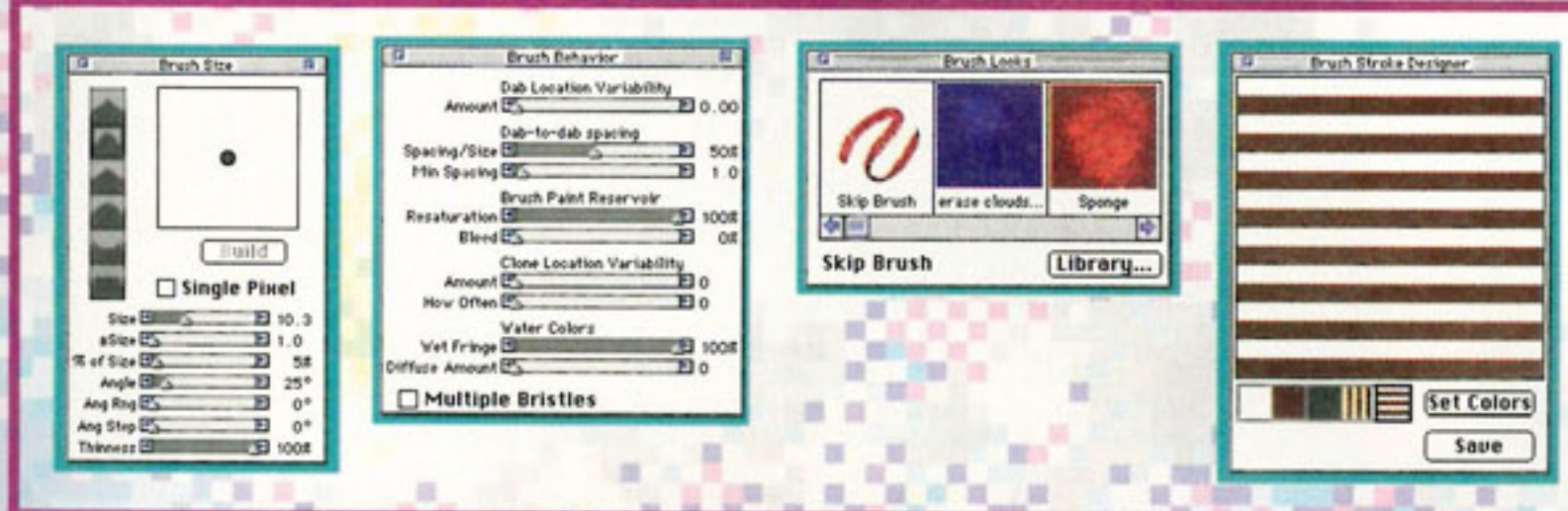
The Paper Palette customises your paper grain. You can also access other textures from *Painter*’s paper libraries



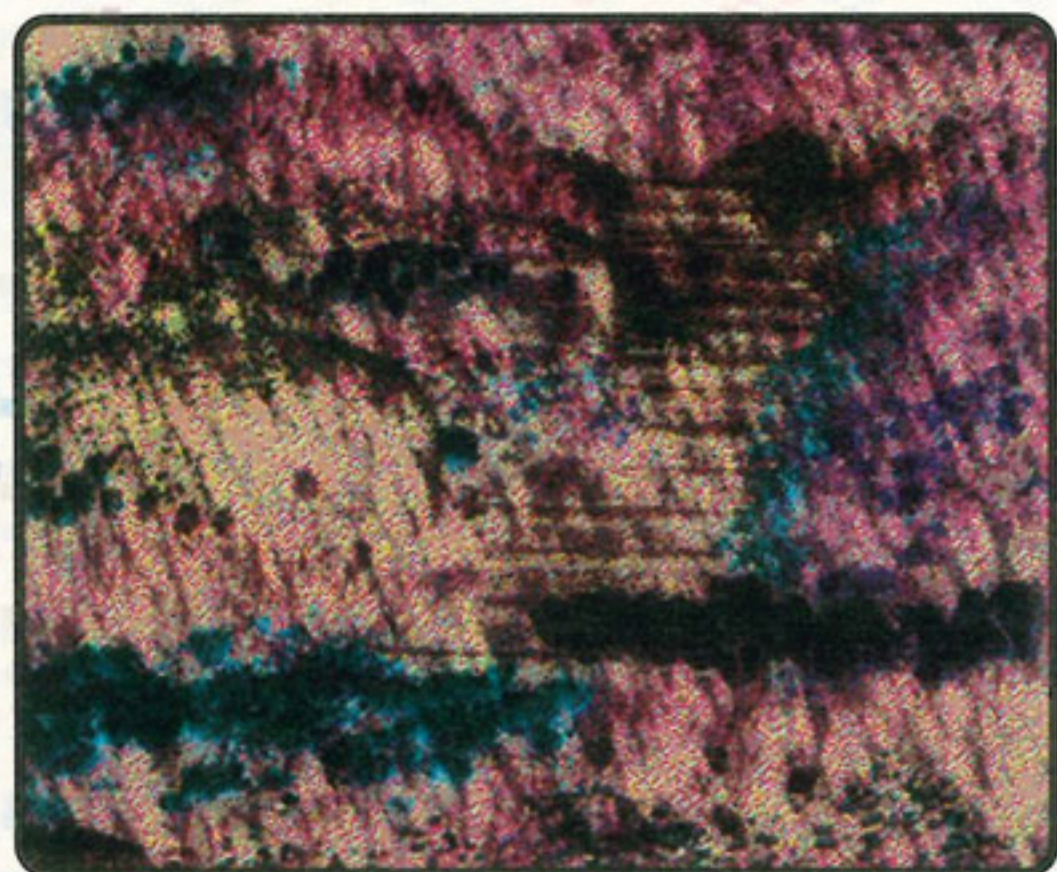
This is the full *Painter* toolbox. Most of the tools will be familiar to anyone who has used a Mac paint package – although there are a couple of novel ones here



All *Painter*’s painting, drawing and cloning tools are called brushes. Once you have chosen the brush and variant you want, you can tear-it-off and move it about the screen



These are just some of the many dialogue boxes which control your brushwork. As you can see, there is plenty of control and flexibility available



FELT PEN 1

Using the felt pen tool, set up in felt marker mode in the pop up Variants menu, you can create punchy, active looking work which is ideal for advertising visuals or story boarding. The finished effect looks very much as if it had been created using Magic Markers or something similar

FELT PEN 2

Alternatively, using the felt pen tool set up in fine tip mode from the Variants menu, you can produce a look now very much associated with the design for 'green' product packaging. It's far cheaper to do than getting a specialist photographer with expensive camera lenses



works by adjusting the pigments and could be used for darkening an over-exposed photograph.

One of my personal favourites is the **Apply Lighting** item. This gives you a dialogue box with your preview and a selection of pre-set lighting styles, such as **Billboard** (three top lights in a row) or **Drama** (one strong centre light, shining in from the bottom of the frame).

The rest of the controls in the dialogue box will be familiar to anybody with a passing interest in studio photography, as you can set the exposure, brightness, distance and so on of your lighting setup.

Apply surface texture is yet another great effect which lets you choose a paper grain – matt or gloss, – then select a lighting direction from which it will pick up your grain.

Anybody used to working in other image editing programs (like *Adobe Photoshop*) will find many of the same image control devices, like distort, flip, rotate, soften and

sharpen. One feature I do like is in the effects menu, again under **Focus**, called **Glass distortion** – it's a filter which gives the impression of your picture being viewed through glass. You have plenty of control here; a slider bar in your dialog box sets the amount of distortion, and a variance slider gives the impression of shattering glass the more you apply it.

One of the most realistic of *Painter's* emulations of traditional art techniques is its ability to simulate the effect of marbling. You can control the angle of rake and the rake itself, by means of spacing, offset, waviness, wavelength, phase, pull and quality.



WATER COLOUR/SPATTER

In the right hands (not mine!), *Painter* can create a great water colour effect. They were never my thing anyway...

Cloning

With *Painter's* cloning feature it is possible to transform any scanned image into almost any art medium you can dream up, and in some

cases you can take what is really a fairly indifferent picture of, say, a landscape or building, and by carefully choosing a new medium for it (and perhaps enhancing it with other *Painter* effects) it can be transformed into usable artwork or a new piece in its own right. This cloning feature can enhance all

manner of styles by adding, for instance, a painter's eye to a montage of scanned-in material or changing the feel and lighting of your water colours.

Cloning is simple to perform: open an already existing *Painter*-compatible document, then select Clone from the **File** menu and a duplicate of the image will appear with the new file name **Clone of...** You can now apply all manner of effects to produce your work, but remember that you must keep your original document open if you are using cloning methods (see the boxout on page 46).

Playback function

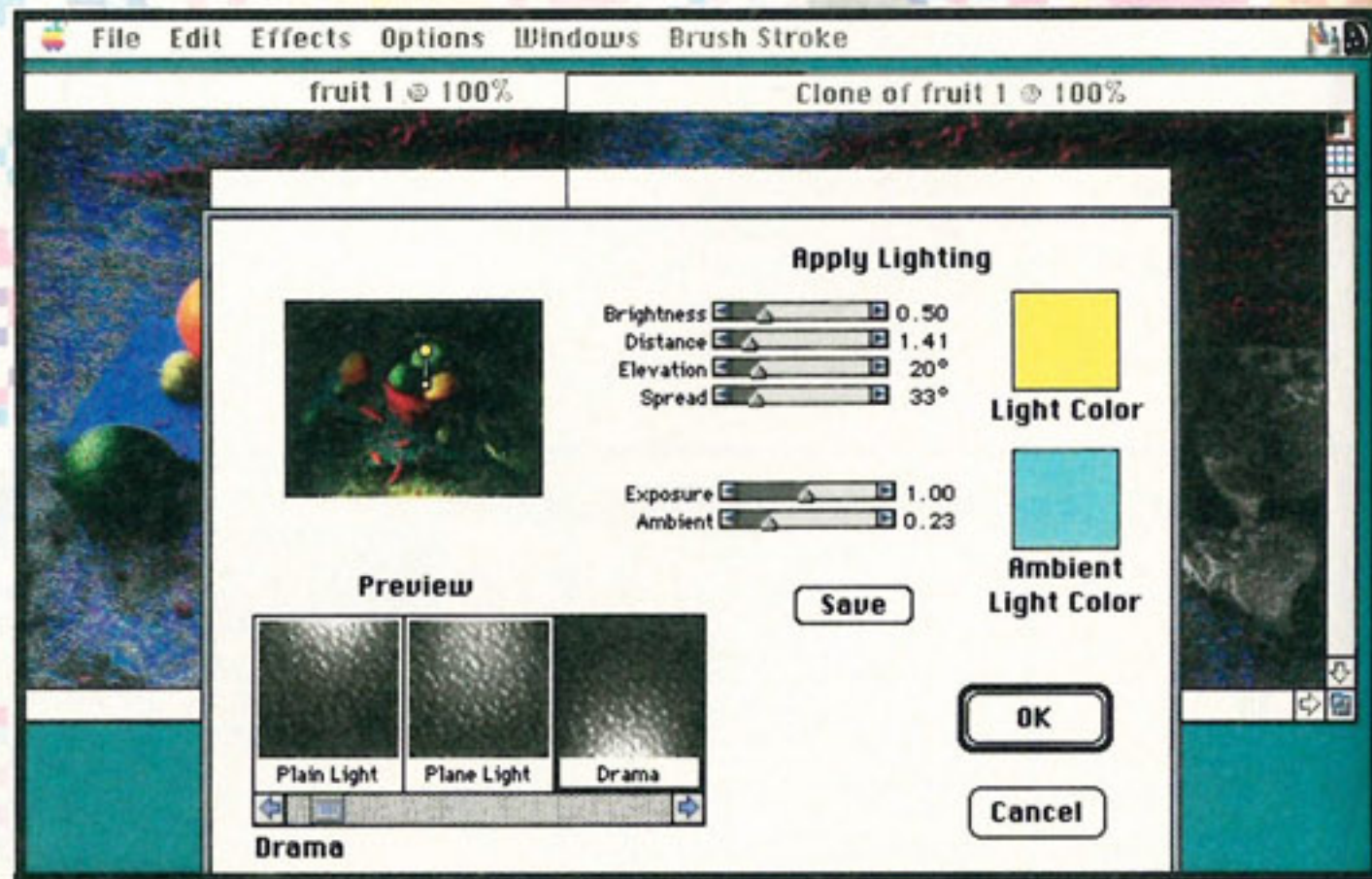
Strange as it may seem for a paint program, *Painter* has a record and playback function. This not only lets you take the leg work out of the labour intensive, repeated brush movements stroke, but you can record your whole session, to then play back whenever you like.

This is not only good for displaying your work, but will be a welcome feature for art teachers and students alike. It's an excellent way to learn how *Painter* works, and to discover some of the secrets behind

Four steps to new lighting for your scans



Step 1 Open your image in *Painter* and select part of it, as you would if you were making a photographic contact strip



Step 2 Now select Surface Control and apply lighting from the **Effects** menu. This will give you a dialogue box and preview of your image



CHALK
With the Chalk icon highlighted, you can reproduce some of the rich textures of traditional artists' pastels. Dragging the mouse or stylus quickly gives you a thinner line (like that of sharpened chalk), dragging slowly produces a much heavier line – something that takes some getting used to

ADD PAPER TEXTURE
Applying a new surface texture to your image is very simple, and is accessed from the **Choose Surface** control in the **Effects** menu. You have control over the amount of grain in the paper, the light direction, and whether or not the medium should appear shiny



building up a complex painting or drawing – and at the same time beginning to find out a bit about the styles of a few of the art world's great painters.

Conclusion

For the working artist, illustrator or cartoonist, *Painter* is not that expensive, as a couple of commissions would cover the purchase cost, But

if you are a keen painter/illustrator in your spare time, then it's a lot to pay, as many budget paint programs have some of the same features. But it's well worth thinking about forking out a bit more cash for *Painter*, as you may find yourself getting quickly frustrated with the limitations of the budget paint programs – and if you are the type of artist who detests much of the

computer-looking art that many programs produce, then *Painter* is definitely the software for you. With the emphasis on versatility, *Painter* lets you customise to your heart's content, whether it's your water colour set or your new set of oils brushes. My only gripe with the program is that to really get the most out of it, you must have a well-specced and speedy machine. But that said, this software, in the right set of hands, can produce some of the most stunningly naturalistic artwork I have ever seen on the Macintosh. **mf**

Jargon Busters

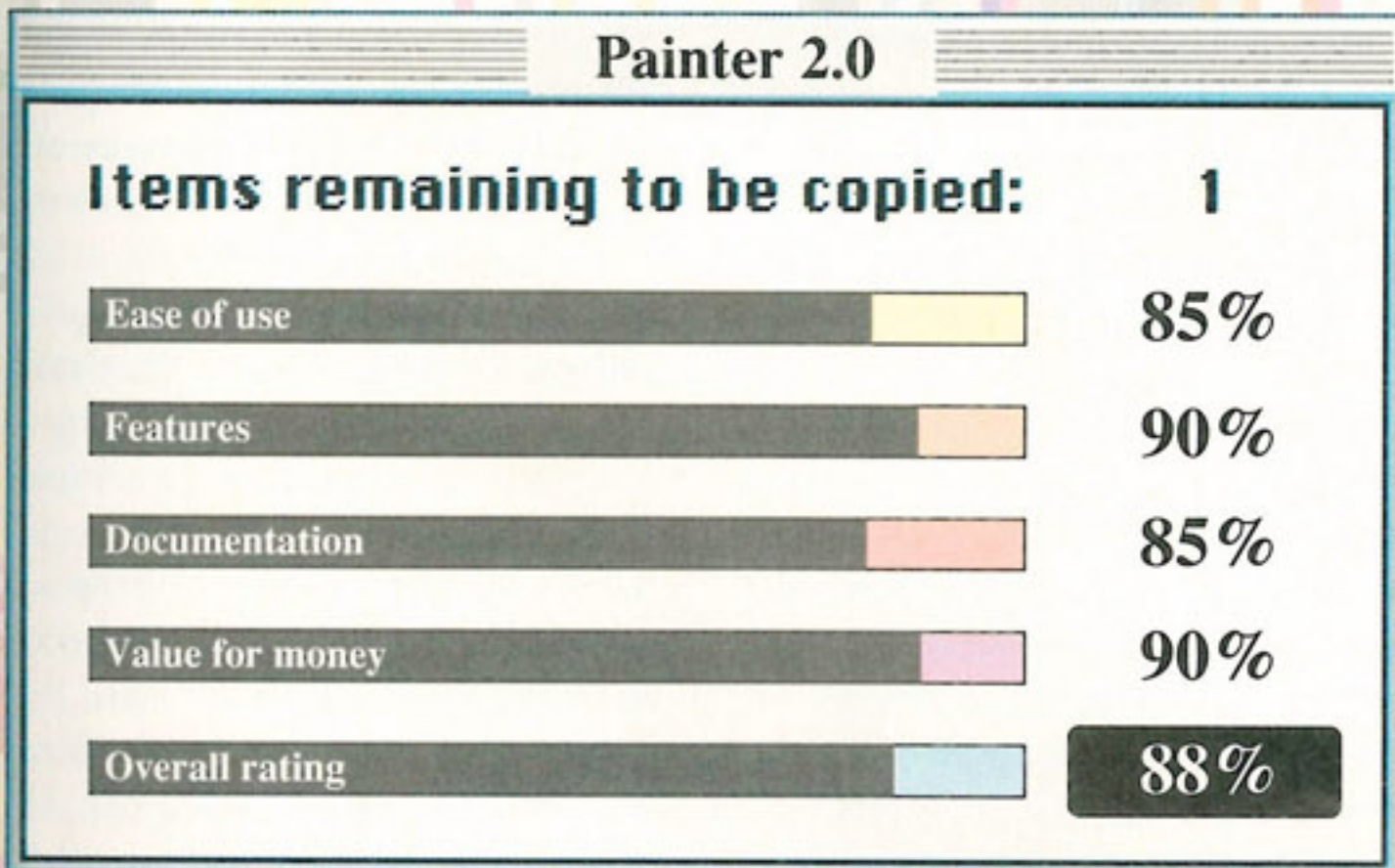
Anti-aliased: brush strokes are anti-aliased when the transition between them and the adjacent image is smooth and does not have jaggies (a sharp-stepped look to them)

Feathering: the softening of an edge by defocusing or diffusion

Frisket: a mask that you place on artwork to shield certain areas during painting or retouching of scanned-in images. Friskets can be used for working with text, applying paper textures, darkroom treatments, and unusual lighting effects to specific parts of your image

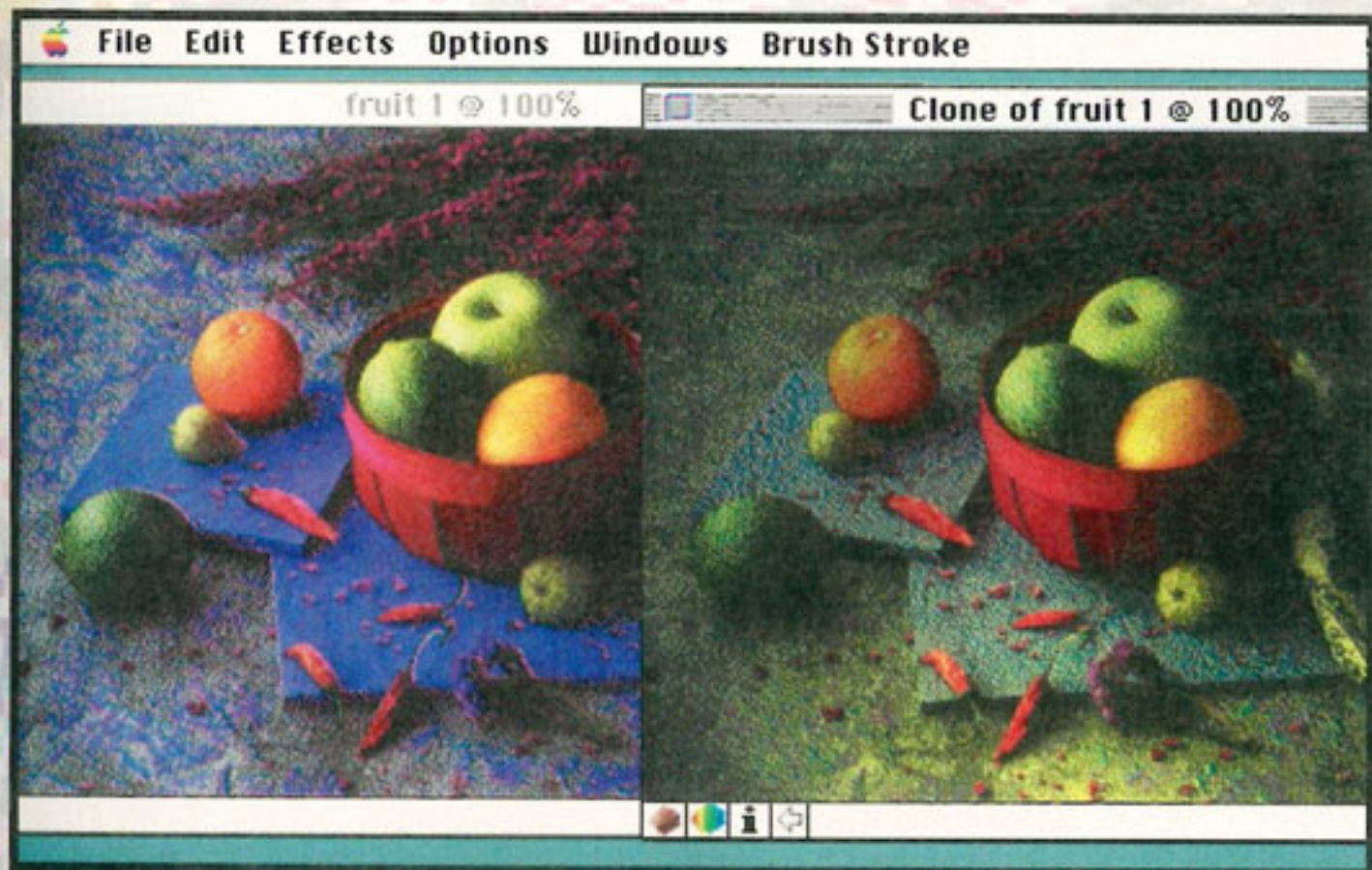
PICT: the Mac standard graphics file format. PICT files are usually reasonably small in comparison to TIFFs (see below)

TIFF: A graphics file format often created by scanners

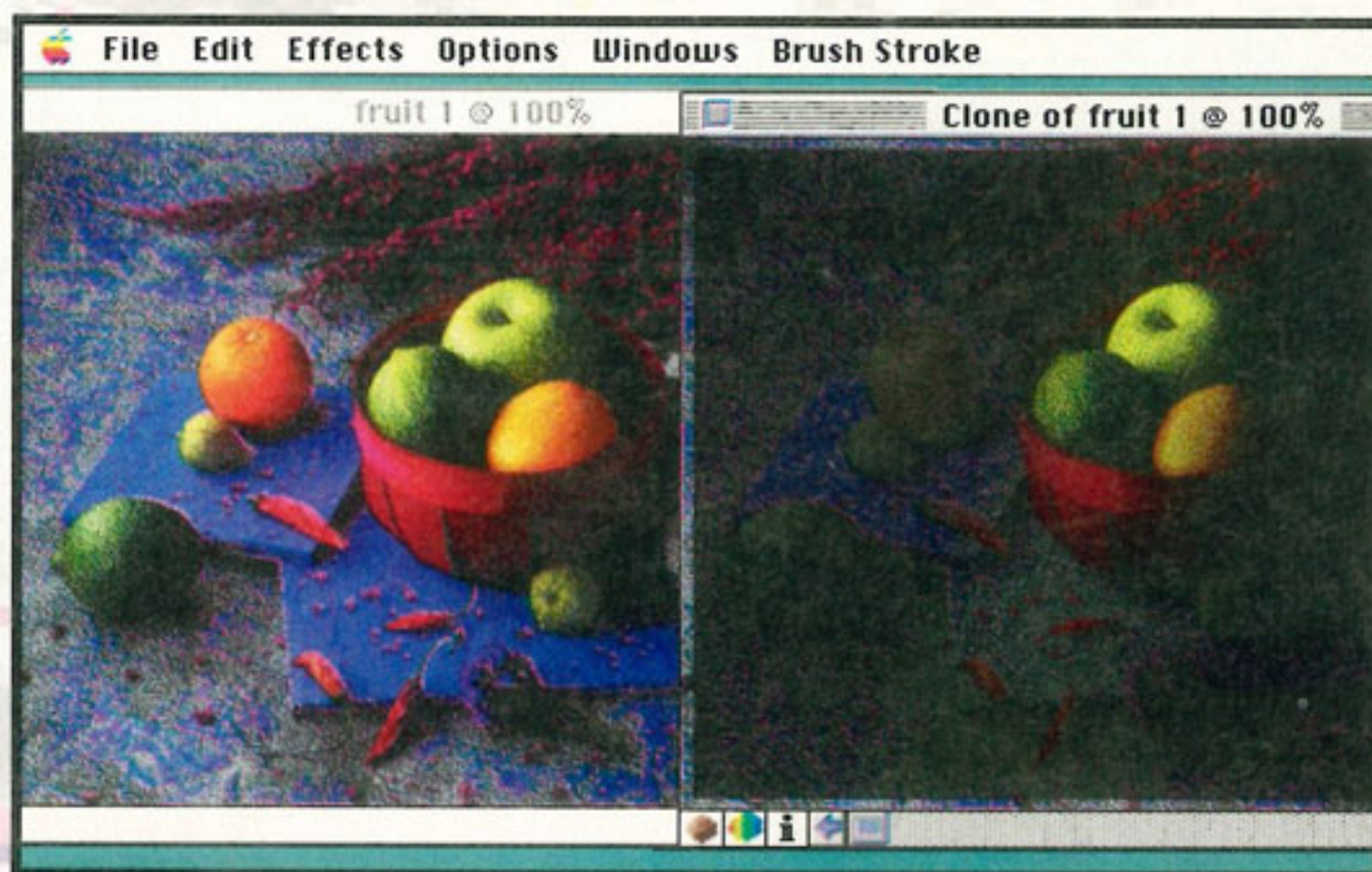


Where to get it ▼

Painter 2.0 costs £382 from most Mac software dealers. For more information on the program, call Letraset on 071 928 3411.



Step 3 By clicking on the Light Colour and Ambient Light Colour boxes, you can choose a colour for your lighting. You can also control things like direction and diffusion



Step 4 When you are happy with your lighting setup, click OK, and wait. Unless you're running on an accelerated Quadra, you've time to make a cup of coffee

How to cut a QuickTime clip in 7 easy stages with VideoSpigot



- 1 Load *ScreenPlay* and click **Live** to display the incoming video signal
- 2 Click on the **Record** button to start sampling the required sequence – hit **Stop** when you've
- 3 Click **Play** to view the sampled clip

Making Mac movies

It may have the ugliest name in the history of hardware, but SuperMac's VideoSpigot really is a beauty. Andy Storer shows you how to use it to produce instant Mac movies...

For most people, just playing back and enjoying movies you've picked up from PD disks, bulletin boards and CD-ROMs with your *QuickTime* system extension will be enough. Apple's own *QuickTime* starter CD-ROM, for instance, contains dozens of clips featuring everything from NASA missions to nuclear test footage and whacko 1950s US television extracts. But how do you go about creating your own movies?

Well, at whatever level you're working, there's two distinct stages involved in the movie business – production and post-production. Applications like Adobe's *Premiere* take care of the post-production side of things – giving you the means of pulling all your footage together,

editing clips, adding effects and laying down soundtracks.

But as far as the actual production of your own video material is concerned you'll need a video digitising board of some kind. And SuperMac's VideoSpigot relatively low-cost, entry level composite video input board is one of the best for the budding Mac videographer.

The Spigot card I look at here fits into Macs with NuBus expansion slots but there's a version which fits into the PDS slot of LCs.

I took a composite video output from an ageing JVC U-Matic recorder I picked up in a car boot sale for £25. No really! Ten years ago these babies cost several thousand so I had a retired video engineer check it over and service

the servos, record and playback heads. Hey presto! – a mean beast that knocks out rock-steady still images and clean moving images from industrial gauge tape. A modern S-VHS or Hi-8 deck would give you comparable quality but not for less than £50!

The supplied software with the card, *ScreenPlay* 1.02, requires no system extensions other than *QuickTime* so as soon as it's loaded and an incoming video signal is detected, you immediately have full motion video running in a 7cm x 5cm window in the centre of your Mac's monitor.

Simplicity itself

The interface couldn't be simpler to use. Clicking on the **Live** button

displays incoming video, you can resize the display to either 192 x 144 pixels (3.5cm x 2.5cm) or 388 x 288 pixels (7cm x 5cm) by dragging on the **Size** button and determine the area of the image you want to view with the **Crop** button.

Clicking the **Record** button collapses the window to a thumbnail view of the incoming video being processed in realtime with a readout of elapsed time and frame rate. After a few seconds you hit **Stop** and the resulting clip is presented as an untitled movie with duration, frame rate and file size details. Here you can play back the video clip immediately and frame advance individual shots. If you want to change the chroma tint, saturation, colour or hue of the incoming video

Sound advice

Although VideoSpigot doesn't include a sound input socket, your movies needn't be silent. You just have to direct the audio from your video source to your Mac's built-in audio socket. If you have an older Mac then you'll need a sound sampling board. In either case, you use your **Sound Control Panel** to select the device you're recording audio with and check the **Record Audio** box in *ScreenPlay*'s **Preferences** menu. The appropriate sound input device will be triggered and the incoming audio combined.



How to grab a still in 5 easy steps

- 1 In the **Preferences** menu, choose the size of screen grab you require
- 2 Play your clip and select the still you're after
- 3 Click on the image, hold the mouse-button down, and drag it onto the desktop





- 4** You can also use the slider to zoom backwards and forwards through the sequence
- 5** When you've viewed the clip you can move the **In** and **Out** point sliders to choose the clip's precise start and end points
- 6** Click on **Play** again just to make sure you've got it right
- 7** Go to the **Save** menu, choose your method of compression and Cut! – it's a wrap!

you just have to click the **Colour** menu and experiment with the settings. This only works with live video though – you can't adjust these settings on playback.

The neatest feature is the ability to edit the clip you've just recorded by means of the sliding **In** and **Out** point markers. You can quickly adjust precisely where you want your clip to start and finish.

Shock horror!

It's at this point that you may encounter your first shock. A minute of recording typically takes up 12Mb of storage space. You can reduce this overhead by altering the compression rate at which the clip is eventually saved but imagine my surprise when the 2 minutes 20 seconds of video I'd just recorded came in at a whopping 69Mb!

Time to consult the **Preferences** pull-down menu. Here you can alter the frames per second at which the video signal is being processed.

Spigot automatically adjusts itself to record at the maximum rate which your Mac can handle. I was using a '88 Mac II accelerated with

a fast 33MHz 68030 card so I was able to grab at nearly 17 frames a second. But you have to bear in mind that if you want your movies to run on slower Macs you should record at the frame rate they can comfortably display.

Otherwise they'll be dropping frames left, right and centre as they attempt to keep up. With an LC this is 10 frames a second, with a IISI it's more like 15fps. Movies recorded at slower rates have fewer frames and therefore smaller file sizes.

Thrills and stills

While in the **Preferences** menu I found the **Still** image controls.

Here you can determine the size of still images you can pull from sequences you've grabbed. All you have to do is move your mouse over the clip window and drag the image away. A new window containing the still frame opens and this can be saved as a PICT file for inclusion in any DTP or art package.

Here you also have the option to grab from a still, rather than a moving source, which improves the quality of the image. What

ScreenPlay does is to merge stills from several consecutive frames together to construct a composite.

So all you need do is point your camera at a still object or pause your VCR, click **Live** and then **Stop** at the desired frame.

But after looking at that daunting 69Mb overhead again I decided to resample the whole lot at a lower frame rate, adjusted the **In** and **Out** points of the interim sequence and headed for the **File** menu to select **Save**.

Here you're given the option of choosing the quality of compression you wish to deploy before you commit the clip to disk.

All the standard *QuickTime* formats are supported – animation, graphics, photo-JPEG, compact video and video.

Only the latter two should be used with video clips, while graphics and photo can be employed if you're dealing with still images you've sampled with *ScreenPlay*.

With each of these options you can also choose how much you want the material to be compressed by using a sliding scaler to define the resulting quality.

Basically, if you've no worries about spare hard disk space and don't intend distributing your movies on floppies then go for the highest quality possible.

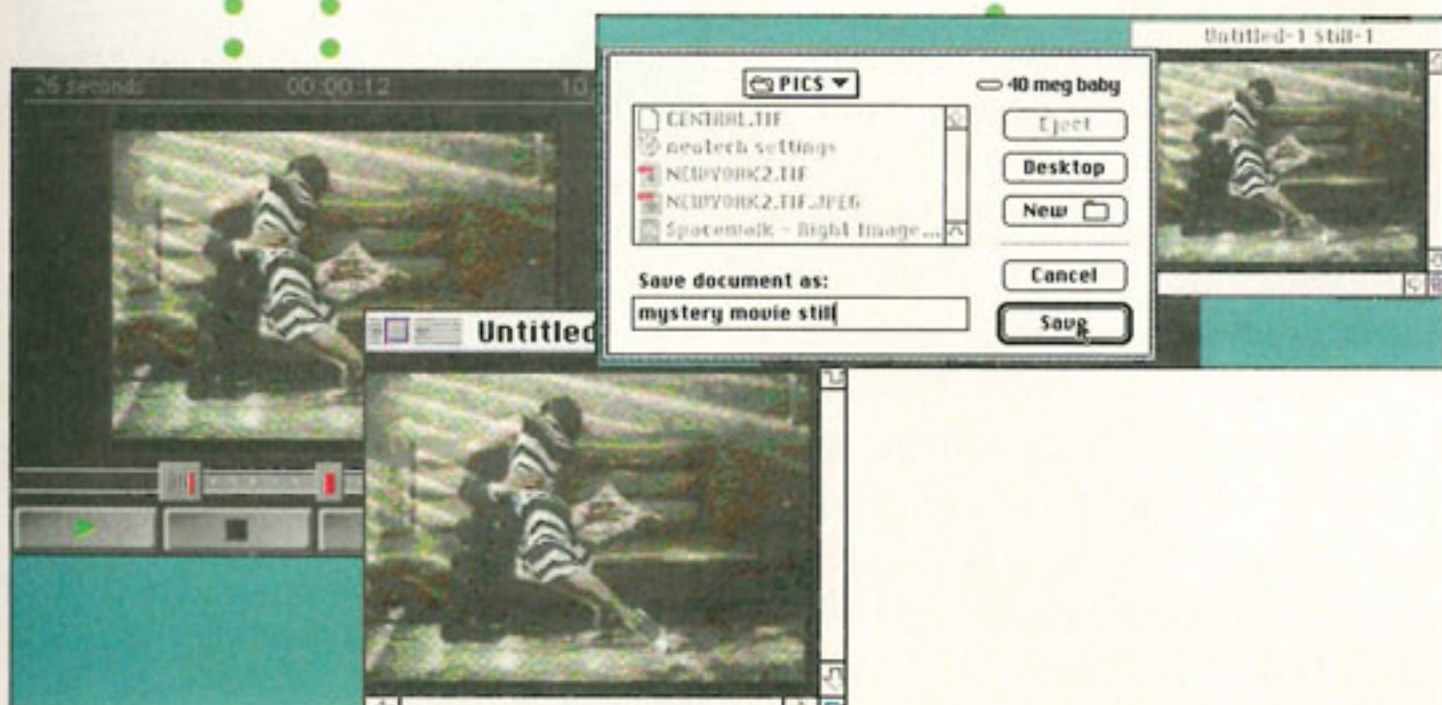
Conclusion

VideoSpigot is an excellent yet inexpensive video digitiser which produces impressive results.

Its bundled software is straightforward and friendly to use and once you've installed the hardware, sampling video is incredibly easy.

Indeed it's hard to see how it could be improved other than by knocking a couple of hundred quid off its recommended retail price!

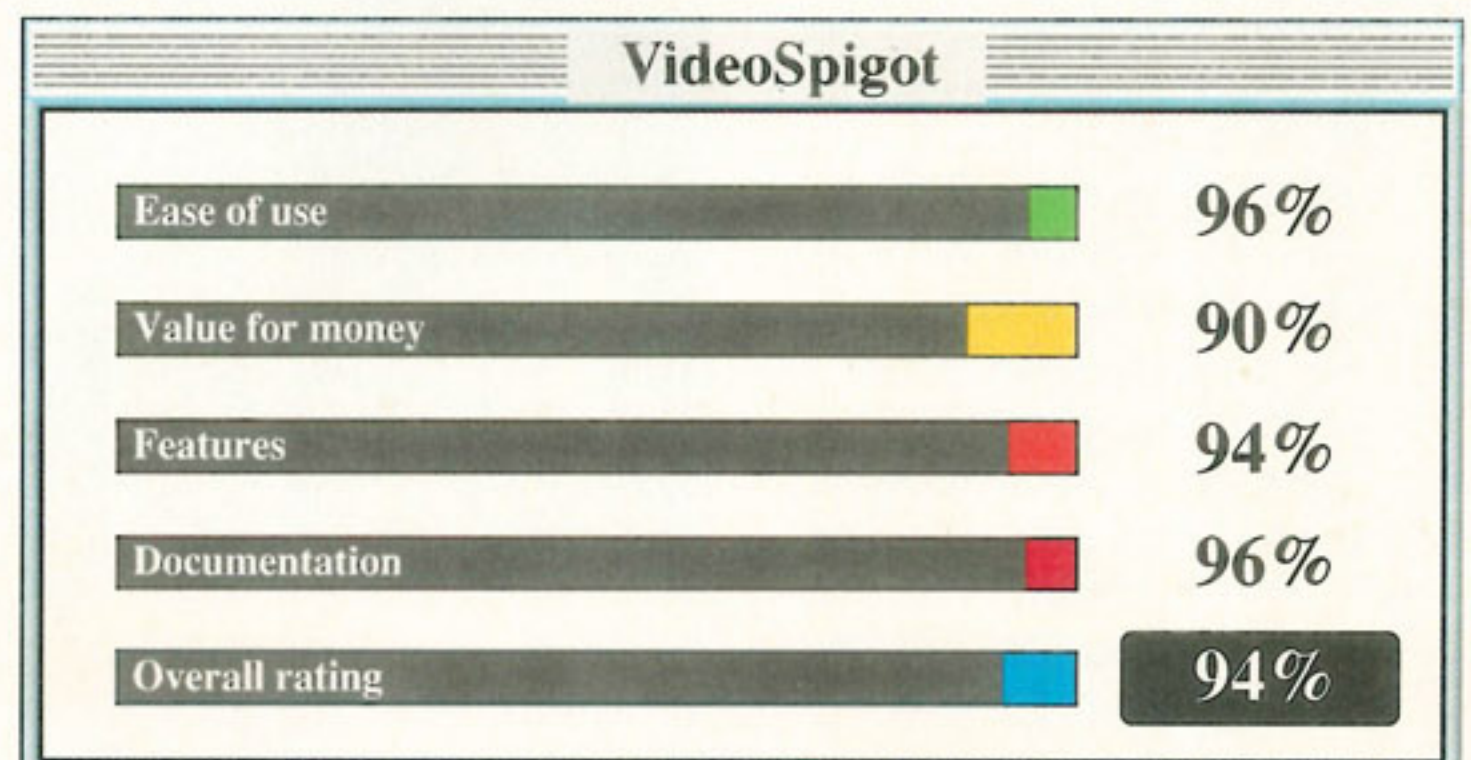
In short, it's an ideal set-up if you want to produce your own *QuickTime* movies with your Mac and home video equipment. **mf**



- 4** Release the mouse button and the captured still appears as an untitled PICT file
- 5** Save the still to your hard disk for porting into any application that'll handle PICT images

Where to get it

VideoSpigot is manufactured by SuperMac and distributed by Principal on 0706 831831. The recommended retail price for the NuBus card version is £468, the LC version is £306.



Music

ON THE MAC

Ian Waugh shows you how to fine tune your musical masterpiece with quantisation and brings news of music software developments from the Frankfurt Music Fair

Last issue we looked at the basic equipment you need to start making music on the Mac. We'll assume you've acquired a sequencer and some bits of musical equipment and installed them in a suitable location. Next, you'll need to find a candle with wicks at both ends and a pot of coffee. Now what do you do?

There are as many approaches to recording a song as there are musicians. Two skills you need to master are arranging and quantisation. Arrangement refers here to the organisation of the sequencer tracks rather than the creation of brass fourths and harmony lines.

The arrangement method you use will depend on your sequencer's facilities and on the way you prefer to work. Most people begin by recording and arranging in a linear fashion and that's fine.

You'll probably find that your recording is not quite perfect. If you hit any bum notes, these are easily removed in the editor. However, it's not so easy to adjust the 'feel' of the piece using a note editor – it would take forever to adjust the timing of each note by hand. Fortunately, there's an easier way – quantisation.

Quantisation

Quantisation means moving the notes so they sit on certain divisions of the beat. For example, if you want a smooth eighth-note walking bass line you would use a quantisation value of eight to make sure the notes sit exactly on each eighth-note division of the bar.

Such severe treatment of the notes, however, can result in mechanical music so some sequencers let you apply a partial quantisation to the notes. This is sometimes called a strength factor and is usually given as a percentage which the user can adjust.

Instead of pulling the note from its current position to the nearest

subdivision of the beat, a partial quantisation of 50 per cent for example, would only pull it half way. This helps tidy up poor timing while still retaining a few of the errors we refer to as human feel.

Most classical music can be strictly quantised with no ill effect. If you have several orchestral parts playing together then the timing must be tight otherwise the result will be very raggy indeed.

Most dance music is sequenced and this is heavily quantised – that's part of its charm. Rock and pop often have a looser feel and here it's worth experimenting with partial quantisation although keep the bass and the drums tight.

Into the groove

Quantisation is a great equaliser – if your performance skills don't match your musical ideas, quantisation can put them in the groove. But beware of fully quantising everything. Select the strength of quantisation to

Linear versus pattern based recording

There are two ways to put a piece of music together.

Linear recording is similar to using a multi-track reel-to-reel recorder. You record on several parallel tracks ending up with a song which runs from the beginning to the end. With the development of the computer-based sequencer, an alternative method was devised – pattern-based recording. This simply involves creating a number of individual patterns and linking them together to form a song, in much the same way that a rhythm track is constructed on a drum machine.

Pattern-based recording has many advantages over linear recording. A verse section, for example, needs only be recorded once but can be used many times. If you decide to alter it, then the alterations automatically occur throughout the song. It's easy to insert material into a pattern-based arrangement and to try different versions.

The method you use will depend on the capabilities of your sequencer. Most people start by using linear recording and the ones who really get into it progress to using patterns, though some accomplished musicians prefer to mimic the linear audio multi-track tape recorder they were weaned on.

suit the music. Many sequencers let you select a section of music for quantisation, not the whole track.

Finally, make sure you save your music before quantising; it's easier to reload it than it is to re-record it!

See the quantising capabilities of sophisticated *MasterTracks Pro* and good value *Cubase Lite* compared on pages 53 and 55

→ → → → → → → → →

All the fun of the fair

While new music software products come on-line all the time, the Frankfurt Music Fair is a good opportunity to catch most of the



When you get tired of walking around you can have a game of chess with one of the exhibitors

major new releases in one place. Except Frankfurt is an expensive place to go to, an expensive place to stay and an expensive place to eat. Press releases are cheaper!

Opcode's *EZ Vision* is one of the best-selling sequencers on the Mac mainly, I suspect, because it's cheap (£100). It makes way for *MusicShop*, essentially a souped-up version of *EZ Vision* with notation, which should be available in the summer.

Opcode's top-end sequencer, *Studio Vision*, has been updated to version 1.5. It features integrated digital audio recording, one of the growing trends in computer music software development.

Edit One is a cut-down version of Opcode's famous *Galaxy Plus Editor* for users who only need a



Opcode had a large number of Mac software programs on show at the Frankfurt fair

single editor or librarian. And the development boys haven't forgotten about education as Opcode releases an ear training program called *Claire* (there's a song there somewhere).

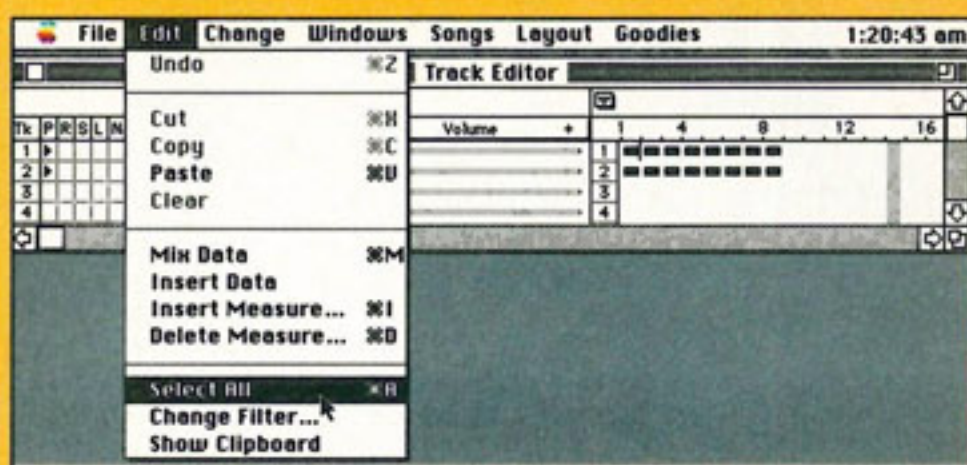
Steinberg continues to develop *Cubase*, *Cubase Score* and *Cubase Audio* which integrates the *Cubase* sequencer with direct-to-disc recording. Emagic was showing *Notator*

Quantising with Master Tracks Pro

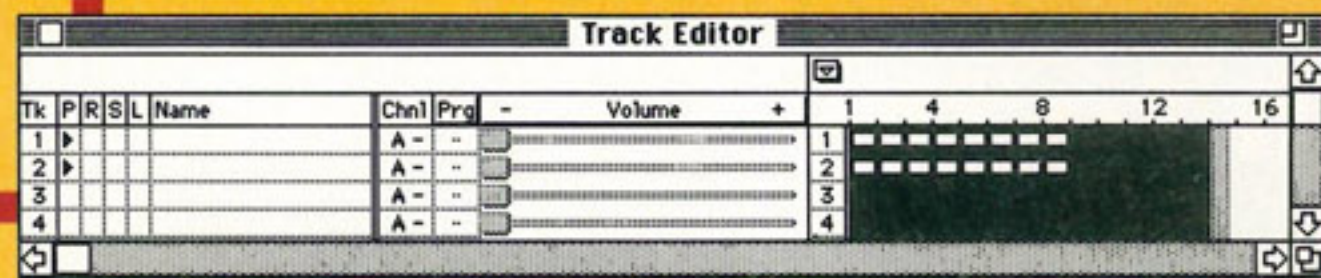
Master Tracks Pro 5 is Passport's premier sequencer. It's highly graphic, very easy to use and it has lots of sophisticated edit and manipulation functions.



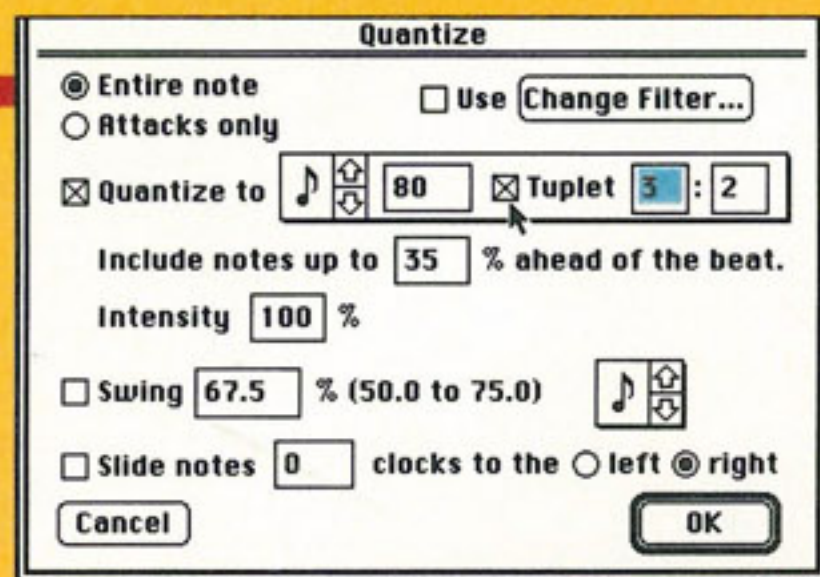
3 Select **Quantize** from the **Change** menu – or 'Quantize', as this program has decided to call it



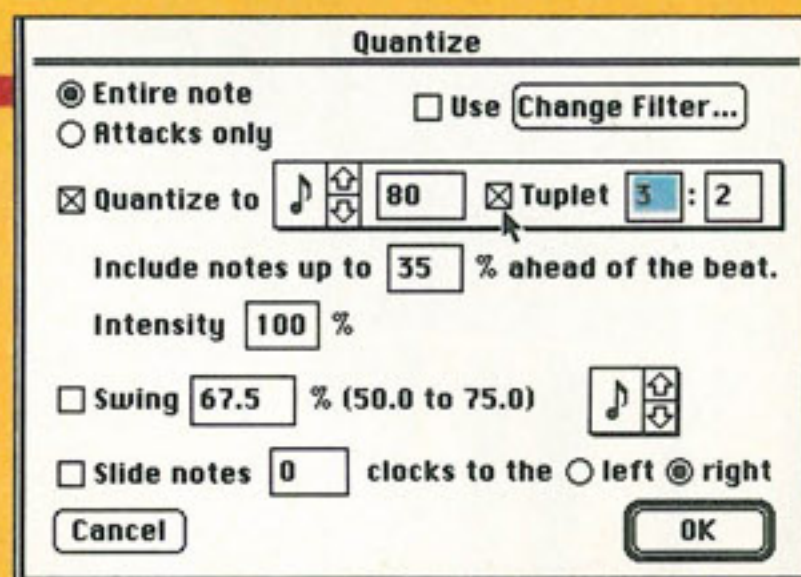
1 When you've recorded the music – Bach's Jesu Joy of Man's Desiring again – select the section to be quantised. In this instance, we're going to quantise everything so click on **Select All** from the **Edit** menu



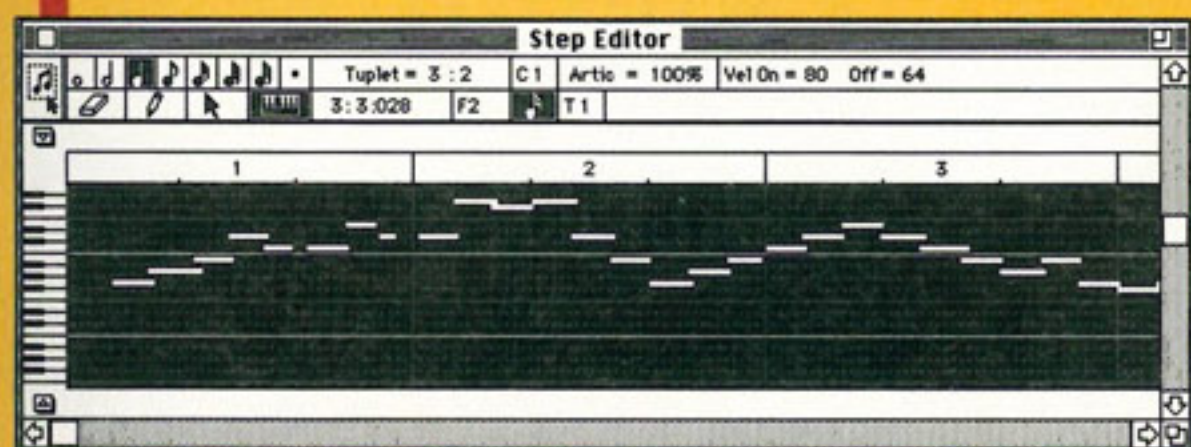
2 Choosing **Select All** will automatically highlight all the bars in the **Track Editor** window



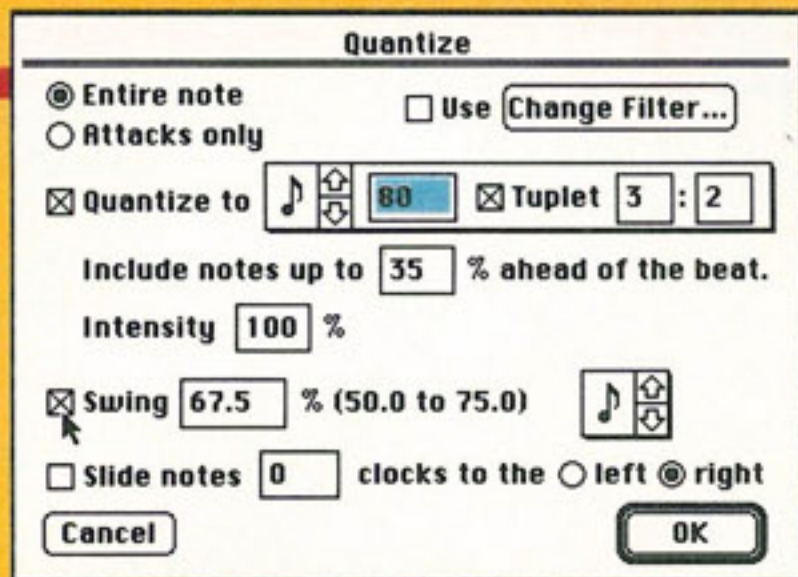
4 Click on the **Quantize to** box, scroll to the eighth note icon and click on the **Tuplet** box. This has the default setting of 3:2 which is triplets



5 Master Tracks doesn't have a score editor but you can see how the notes are offset against the divisions of the bar in the **Step Editor**



6 After quantisation the notes sit on the correct bar divisions for eighth note triplets. Note that in the **Quantize** box the **Entire Note** option was selected as opposed to the **Attacks only** button. This maintains the duration of the notes. If you compare this figure with the previous one you will see that the complete notes have been moved rather than just the start of the notes



7 Master Tracks' **Quantize** box includes a **Swing** option. This can be applied most effectively to runs of regular notes – such as Mr Bach used to write



8 This is what a swing quantisation can do to Bach's Jesu Joy. It's easier to see the effect in a notation program than a grid editor

Logic and Notator Logic Audio which also integrates the sequencer with direct-to-disc recording.

Cubase Audio has the edge over Notator Logic Audio at the moment. Cubase is already well-known and well-loved by thousands of musicians who migrated to the Mac from the ST. The main Logic sequencer is still being updated,



Digidesign continues its successful range of Sound Tools recording systems

albeit quite rapidly, so we are unlikely to see a definitive version of Logic Audio for a while.

Lost in France

Digidesign's range of direct-to-disc Sound Tools software continues to develop. The company recently removed its UK distribution to a HQ in France but has seen the error of its ways and is in the process of appointing a UK contact – whose phone number they did not have. We'll tell you when they tell us!

Akai has taken on distribution of editing software for the company's S1000/1100 range of samplers. The software was developed by Italian company Intersound & Soft and although it is only currently available for the ST, it is being ported to

the Mac. Versions are also being developed for Akai's new S01 and S3000 series of samplers.

The musical instrument manufacturers have started to notice computer-based music making. Roland and Yamaha both have new packages based on a sound module with bundled software.

Roland is using the SC-7, a General MIDI-compatible expander with sockets which connect directly to the Mac, saving you the expense of a separate MIDI interface.

Apart from the most forgettable name in music land, Roland's DTM-7-APL (£335) pack includes the SC-7, Band-in-a-Box (an accompaniment generation program) and the Turbo Trax sequencer.

Yamaha is putting together a

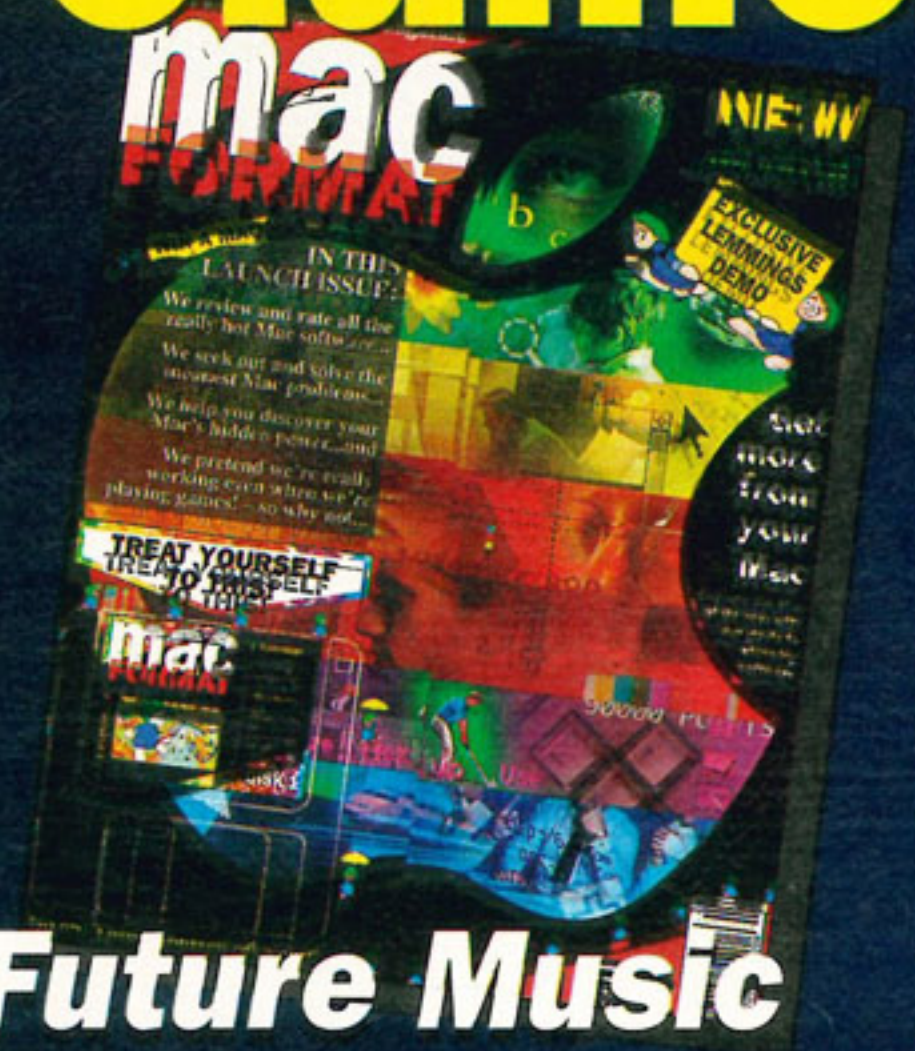


Apple was there, though it left the demonstration of music software to the other companies

bundle called Hello! Music!. It consists of the CBX-K3, which is a revamped version of the TG100 GM expander and it, too, can connect directly to the Mac. The software which will accompany it (sorry!) is still being decided along with the package price. A CBX-K3 keyboard and CBX-S3 powered speakers are also available.

Pump up the volume

Want more on music from your favourite monthly? Then tune in to the perfect companion magazine...



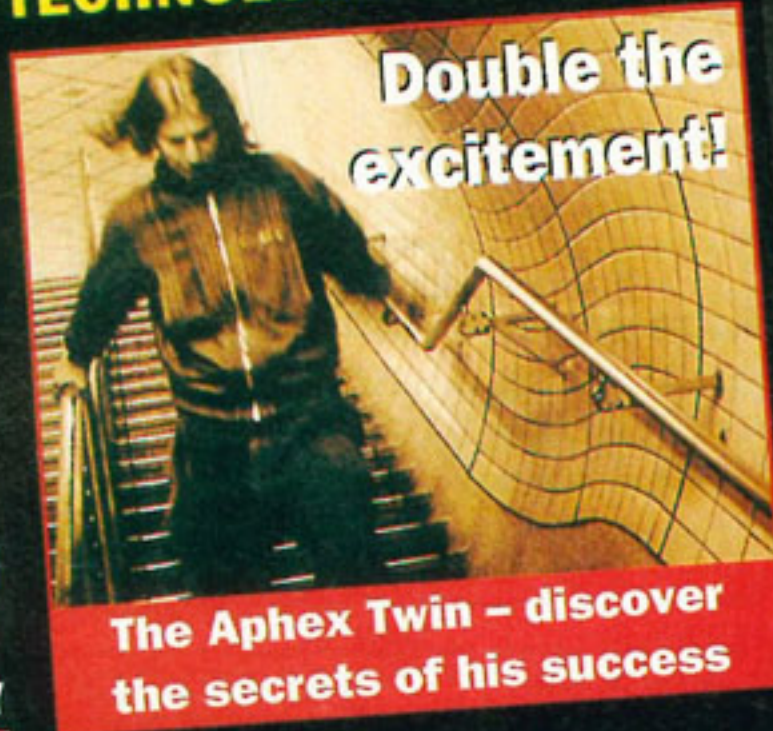
...*Future Music* offers the latest lowdown on music for your machine, every month.

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ATARI FALCON



GET INTO HARD DISK RECORDING ON ATARI'S NEW MACHINE

THE SHAMEN

EXCLUSIVE LIVE REPORT

Get expert gigging advice as The Shamen reveal their latest live techniques

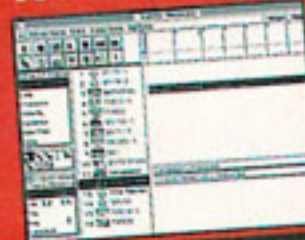
ON TEST

Spirit Folio budget mixer
Sunrize Amiga soundcard
The latest batch of sample CDs
Peavey PC1600 MIDI controller
Lexicon LXP5 & 15 multi-effects

NOTATOR LOGIC



VINTAGE KEYS
Classic analogue synth E-mulator on test



New Mac sequencer from Emagic. Find out if it delivers

PC SOUND CARDS



We rank and rate the top sampling soundcards for the PC

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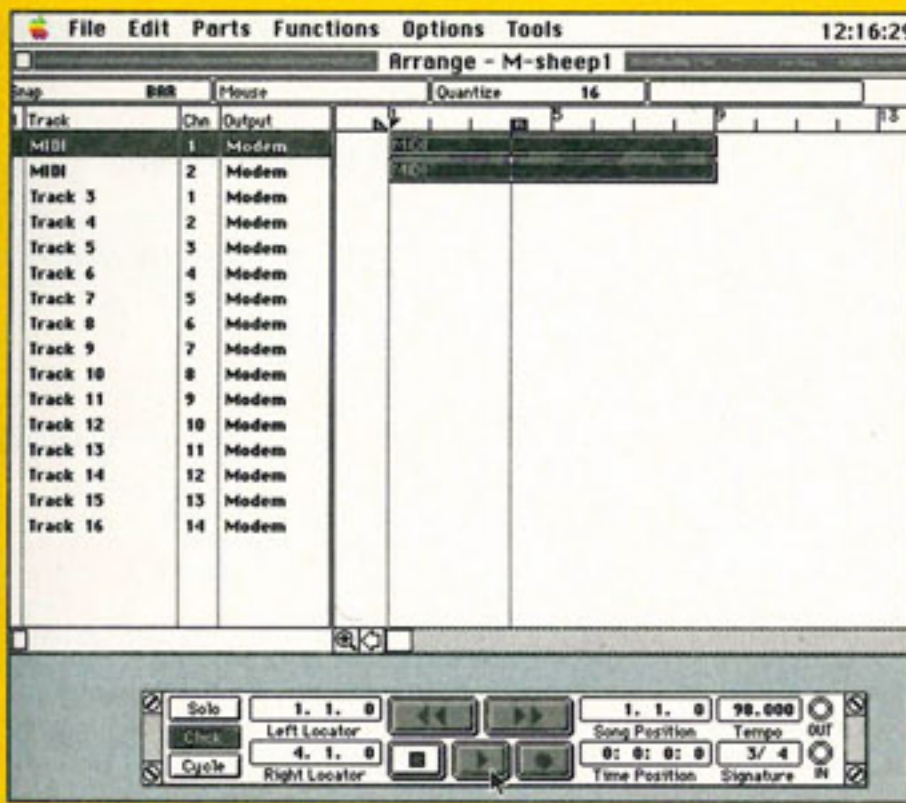
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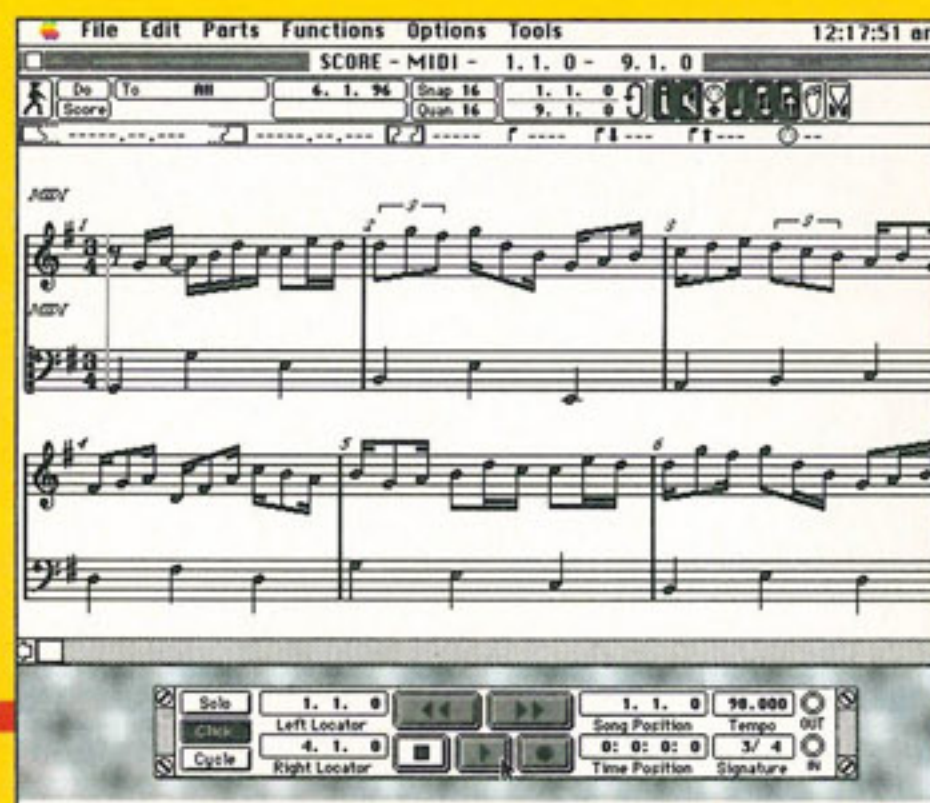
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Your guarantee of value



1 Record your music. This example is Bach with the right hand recorded on track 1 and the left hand on track 2



2 This is what it looks like before quantisation. Pretty sloppy, eh? – although the bass line is OK

Quantising with Cubase Lite

Steinberg's *Cubase Lite* has many of the arranging facilities of its big brother, *Cubase*, including a score display to edit the notes. Quantisation is

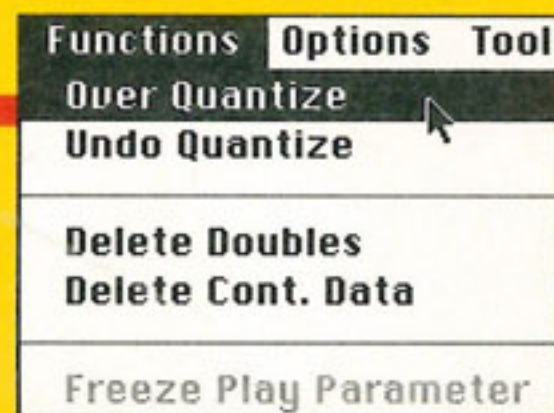


rigid, however, as it has no partial quantisation option. This is fine for scoring purposes because in notation, notes are written on the beat.

3 The notes should be eighth note triplets. Select this from the **Quantise** menu



4 Click on the staff you want to quantise. This will select the staff throughout the track



5 Select the **Quantise** function from the **Functions** menu. Note that you have the option of **Undo Quantize**



6 Hey presto! The notes magically take on the correct values, which in this case is eighth note triplets

Notes on quantising

Quantisation is such an essential part of modern sequencing that some sequencers even let you quantise notes while recording. This can be useful when recording regular runs of notes such as a walking bass line, or for notes which you find difficult to play such as triplet arpeggios, or to ensure that the notes in a chord start at exactly the same moment. It can also save you time as you don't have to quantise the track later on.

However, if the sequencer has good quantise facilities, you will retain more flexibility by quantising after recording. You will be able to quantise only a section of the music (if your

sequencer allows this) and you lessen the risk of having a really out-of-time note put onto the wrong beat division – either too late or too early.

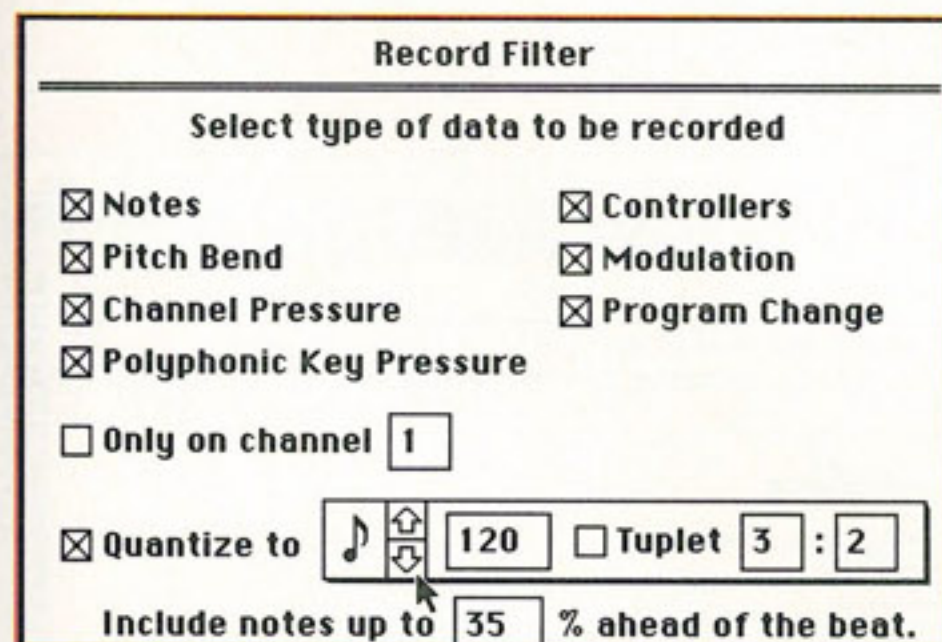
Quantisation is a very final process, one which permanently alters your data. If you get the quantisation right, that's okay. But if you get it wrong you will have to reload the file and try another quantise setting. It's not an ideal situation.

So some sequencers have a 'quantise on playback' function which only, er, quantises the notes on playback. As well as preserving your original data, this lets you try different quantise values before selecting the one which sounds best. This is by far the best option and a facility to check for if you're in the market for a sequencer.

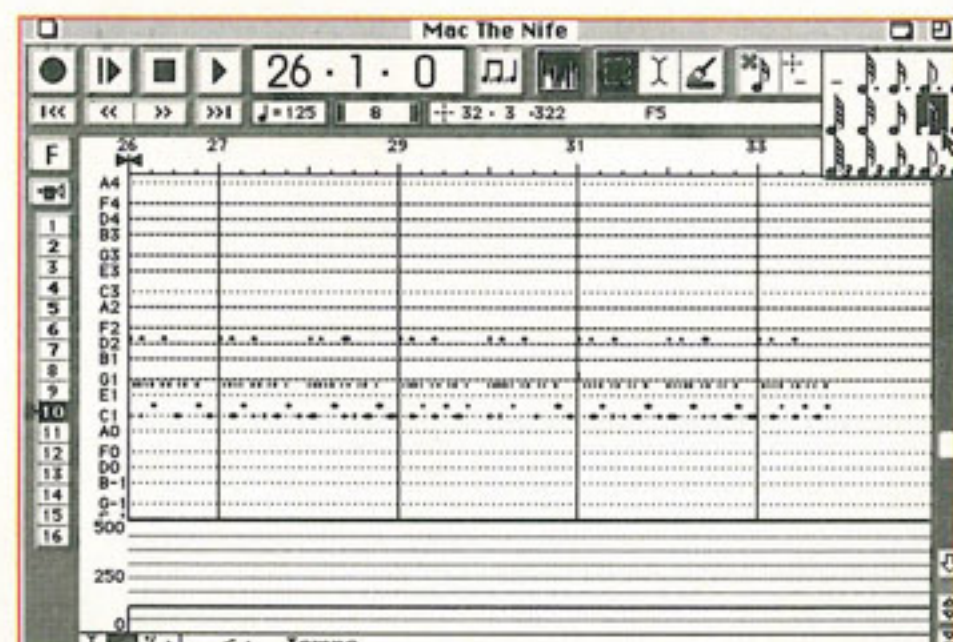
Although sequencers are capable of very subtle quantisation, it's still quantisation – it still pushes and pulls notes towards certain divisions of the beat. If you enter a section of music in step-time, that's the equivalent of 100 per cent quantisation and consequently it will lack any kind of feel.

Humanisation

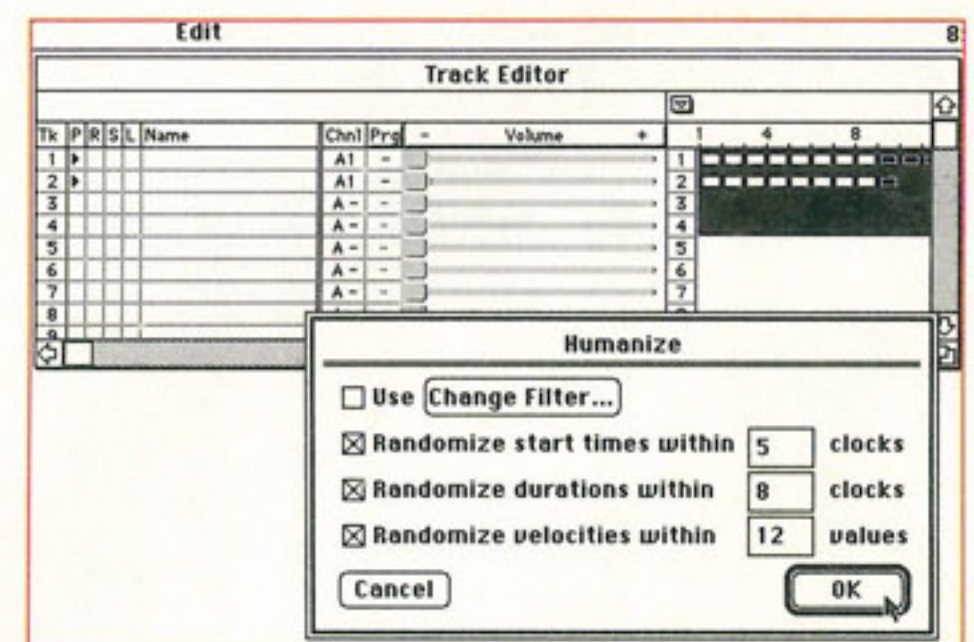
Some sequencers compensate for this lack of feel with a humanisation function. Used carefully, it can put back a bit of error into an otherwise mechanical performance. *Master Tracks Pro* has quite a sophisticated humanisation function which lets you adjust not only the start times of the notes but the durations and the velocities, too. **mf**



The Record Filter in *Master Tracks Pro* lets you apply a quantise value to notes during recording



Opcode's *EZ Vision* sequencer has a **Quantise Playback** function which does not alter the original



Master Tracks Pro has a **Humanise** function which helps put back that which quantisation takes out!

Contacts

Steinberg
Harman Audio: 0753 576911
Passport, Opcode
MCMXCIX: 081 963 0663

Emagic
Sound Technology: 0462 480000
Akai: 081 897 6388
Roland: 0252 816181
Yamaha: 0908 366700

Where to get it ▼

Cubase Lite, from Harman Audio, should be available for the Macintosh in May at £99. The phone number is 0753 576911. *Master Tracks Pro* is available from MCMXCIX for, £380 phone 081 897 6388.

Publishing for peanuts

Martyn Lester asks whether Aldus' low-cost page layout program *Personal Press* 2.0 can really give professional DTP packages a run for their money...

Last issue we looked at *PUBLISH-IT! Easy*, and found that it was an astonishingly capable package for its modest £147 price. It was stated in that review that comparable budget offerings from the DTP big names came in at around £50 more than *Easy*, but prices had begun to realign even as we wrote.

The recommended tag on Version 2 of *Personal Press* is now just £116, and for that price it's a surprisingly good piece of software.

This package sells on the slogan that it's 'the first automated page-layout program'. This refers to a unique feature called AutoCreate, in which you select a document template (either one of those supplied or one you have created yourself), tell the program which text documents and graphics you

want to use in the text and graphics areas built into the template, and it will make them fit for you.

AutoCreate is too big a feature to go into in detail here; it would almost need an article of its own, so we will be returning to it for a more detailed examination in the near future, and concentrating for now on examining the more orthodox features of the package.

Text and graphics

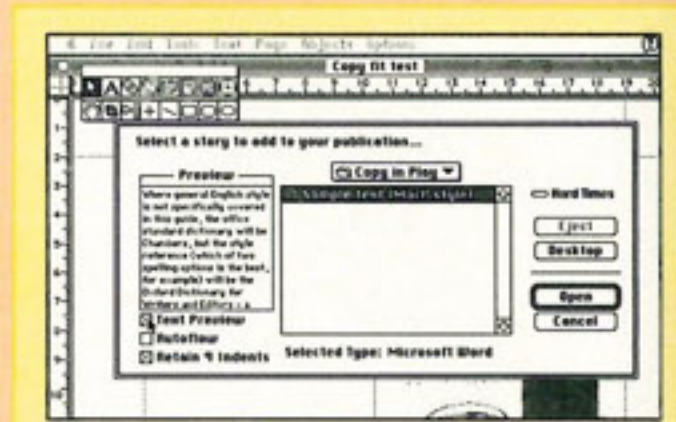
Like *QuarkXPress*, *Personal Press* is based on the concept of creating a set of design frames to be filled with either text or graphics. These frames are known as 'objects' in this program, and in many ways it does not discriminate between text and graphic objects – both can be rotated by any whole number of degrees, for example.

Copy can be typed directly into any text object, or imported from outside the program – it can read and import *Microsoft Word/Works*, *MacWrite*, *MacWrite II* and *WriteNow II* documents, plus ASCII (text only) files, which any sensible word processor can export text as, and RTF (Rich Text Format files, carrying font and style information as well as ASCII characters) which an increasing number of word processors also support.

If you are importing text, you have the option to look at the first few lines of any story selected in a preview window. In fact, *Personal Press* is thoughtful all round on previewing. You can take a peek at graphics before importing them and documents before opening them; when you change type specs in the text dialog, a WYSIWYG (What



Text or graphics rotation and drop capitals are easy to achieve in *Personal Press*



Personal Press lets you look at the first few lines of text files before you import them into a document

You See Is What You Get) sample of the font, style and size comes up so you know what you're asking for.

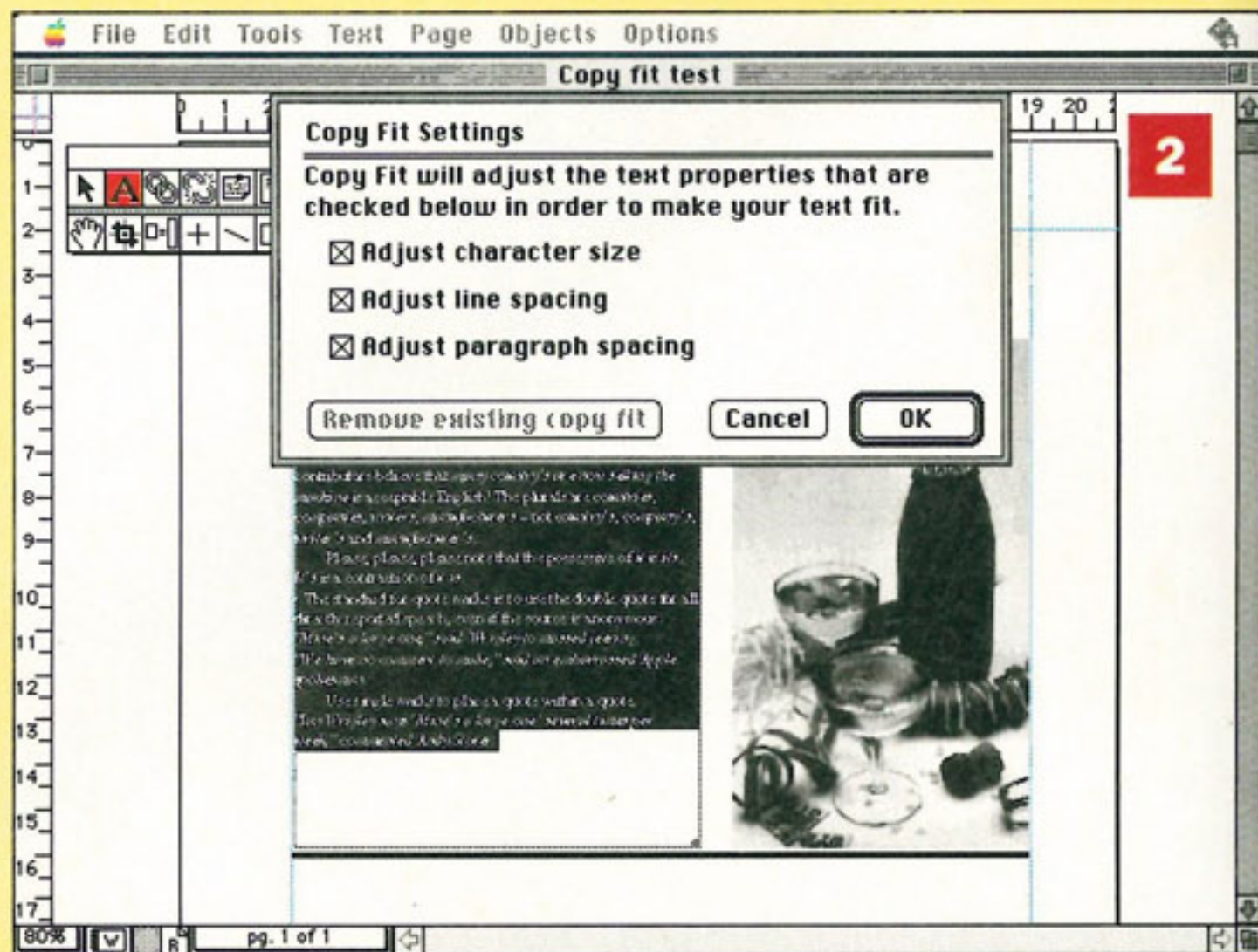
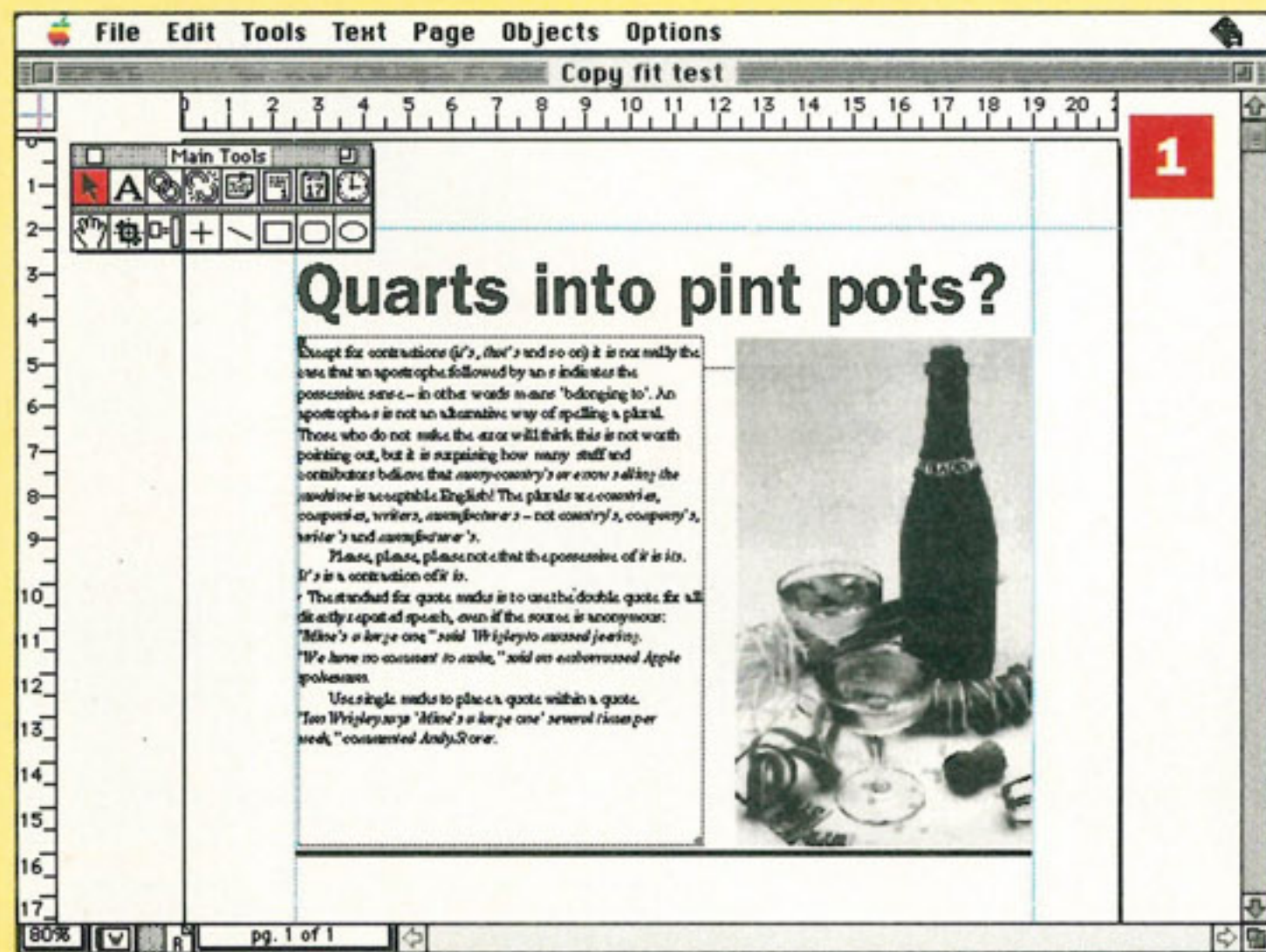
Word for word

Basic word processing facilities are built into the program – rather more than basic in some cases. For example, the find and change dialogues can be zoomed to incorporate typographical information, so as well as being able to find all instances of a given word or phrase, you can replace only those examples in 12pt Helvetica, or change them to the same or another word in a different typeface.

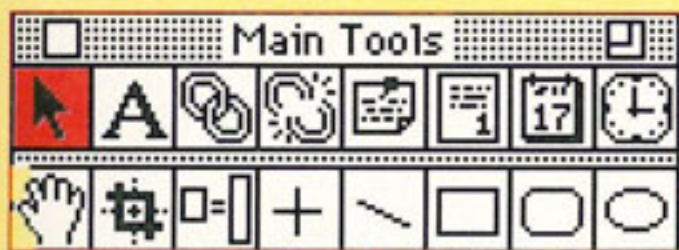
The program will use any of your fonts in sizes from 6-500 points, with the usual style options such as bold or underline, and with alignment choices

Text objects can be chained

How Personal Press makes text fit the space



Touring the toolbox in Personal Press 2.0



Selection arrow: selects both text and graphic objects, resizes them and moves them around the page

Text tool: creates new text objects and can be used to enter or edit text in existing text objects

Link tool: links text objects into a story chain, or can be used to draw linked text

Unlink tool: unlinks text objects from a story chain (link passes to next object in the chain)

Posted note tool: creates the equivalent of a stick-on comments note to be attached to the document

Page numbering tool: automates consecutive numbering of background pages in your publication

Date tool: sets up the automatic addition of the current date to each page of the publication

Time tool: sets up the automatic addition of the current time to each page of the publication

Grabber hand: holds onto the page and moves it around in the window – an alternative to the scroll bar

Cropping tool: resizes graphic objects to show portion of image without changing size of

Equals tool: makes one object the same size as another. With [command] key, copies object attributes

Perpendicular line tool: draws horizontal and vertical lines from a choice of styles and patterns

Line tool: draws straight lines in any direction – hold down [shift] for perpendicular and 45°

Rectangle tool: draws rectangles – use with [option] [shift] combination to restrict shape to

Rounded rectangle tool: draws rectangles (squares using [option] [shift]) with rounded corners

Oval tool: draws ovals – hold down [option] [shift] combination to restrict shapes to circles

together to flow copy between them. You can't see the links, but there's a pop-up navigator which you can use to follow the copy flow if you've forgotten which objects you've chained together.

I do have a couple of gripes about the typographical handling of *Personal Press*, which are detailed later. These are picked out not to be gratuitously mean, but for the particular information of serious designers who might not regard the package as quite such a bargain in view of the shortcomings in the leading and kerning departments.

Graphics capabilities

Graphic handling extends to PICT (1-24-bit), TIFF (1/4/8-bit), EPS, *MacPaint*, *Thunderscan*, *SuperPaint* PICT and *Digital Darkroom* PICT and Archive. There's a standard

Apple Scanner driver built in, and *QuickTime* movies can also be placed in documents.

Like *PUBLISH-IT! Easy*, *Personal Press* does not handle full colour work, so only mono and greyscale images are supported – there are useful controls for modifying the look of greyscale images.

Graphics may be cropped and scaled in the dialog/preview, or imported full size and manipulated on-page. Text can be wrapped around the rectangular boundary of an object, or around the shape of the graphic it contains.

There are far too many features in *Personal Press* to list all of them here, but some worth noting are spot colour support, automated drop, raised and adjacent caps, automated drop shadows, spelling checker with supplied dictionary (user dictionary

ies can be created), thesaurus, the ability to stick the electronic equivalent of Post-it notes to documents, automated object alignment and object nudging (shifting objects by one pixel at a time).

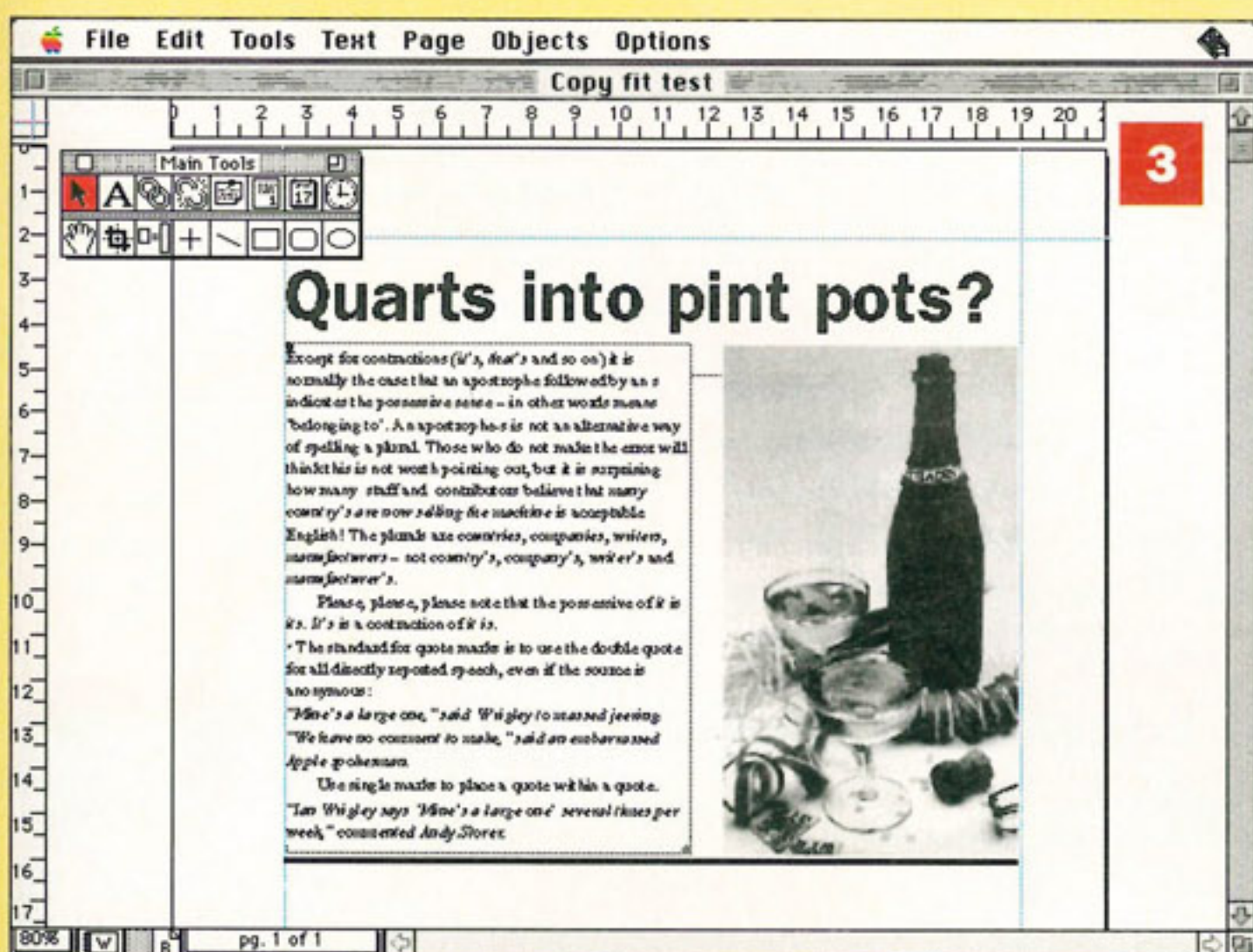
Leading and kerning

The clearance between lines is known as 'leading' (pronounced 'ledging' – see Design Counsel in *MacFormat* issue 1 for an explanation of how it works) and the space between letters as 'kerning', and in both respects *Personal Press* is a little disappointing. To help the novice, many DTP packages now incorporate a feature to lead text automatically to default values which will be approximately correct, but with an override for the experienced designer.

To this extent, *Personal Press*

comes up to scratch. It adds default leading to any text you enter or import, and there is a dialogue which allows the 'line spacing' to be modified in full point increments from -72 to +72 points. What it won't let you do, however, is specify the leading on an independent basis. In a package such as *QuarkXPress*, if the type is specified as 10pt on auto, you can leave the 'auto' specification on and nudge the leading up or down in the same way, but it is also possible to override the auto command and enter a specific leading size.

This option is not simply missing in *Personal Press*; because you have no indication what the value of default leading is, the only way to be sure you've achieved a specific leading value is to print out type on its default leading, measure



A feature *Personal Press* makes extensive use of in its 'automated page-layout' is its copy fitting capability. I put this feature to the test in a scratch document by asking the program to make a top-of-page story fit the same depth as a graphic incorporated in the story space.

1 The first step was to set up a simple document, headline it and import one of the practice clip-art graphics provided with the package. The graphic has been sized to a little less than half the page width, with a single-column text object running alongside it to the same depth. An old style guide extract has been imported as sample text.

2 I have chosen copy which is currently too short to fit the space provided. Before attempting a copy fit, it is possible to determine which permutation of three parameters should be allowed as variables. In this case, I'm permitting the program to juggle with all three – the size of the type, the amount of leading and the space between paragraphs.

3 This is what *Personal Press* has to offer – a solution that you could have arrived at manually, but rather less quickly, particularly if you are not accustomed to fiddling with typography in this way. The results aren't always what a professional designer would come up with, but they would prove perfectly acceptable in the average club newsletter.

The range of palettes in Personal Press 2.0

Line Indicator: shows line style currently selected

Fill Pattern Indicator: fill pattern currently selected

Pattern Palette: scrolling selection of fill patterns

Line Styles Palette: scrolling selection of available line styles

Main Tools: see diagram on previous page

Image Controls Palette: for adjusting the appearance of greyscale images

Additions Palette: used to access such features as automated drop capitals

Preset graph for 1:1 grey value mapping. also returns modified images to normal settings

Spot Colours Palette: for assigning spot colours to objects, lines or text selections

Preset graph to invert grey values, ie turn images to negatives

Slider control for adjusting the brightness of an image

Slider control for adjusting the contrast of an image

Grey Values Graph: for drawing in a graph of the mapping of grey values

Preset posterisation graph - converts an image to just four shades of grey

Preset special effect graph - produces an image a little like a photographic solarisation

..... the distance between baselines with a typescale and then add or subtract leading as appropriate.

There's a more serious problem in the kerning department. In the example shown here, I have set a headline requiring four pair kern adjustments in *Personal Press* (top) and in *QuarkXPress*, for comparison

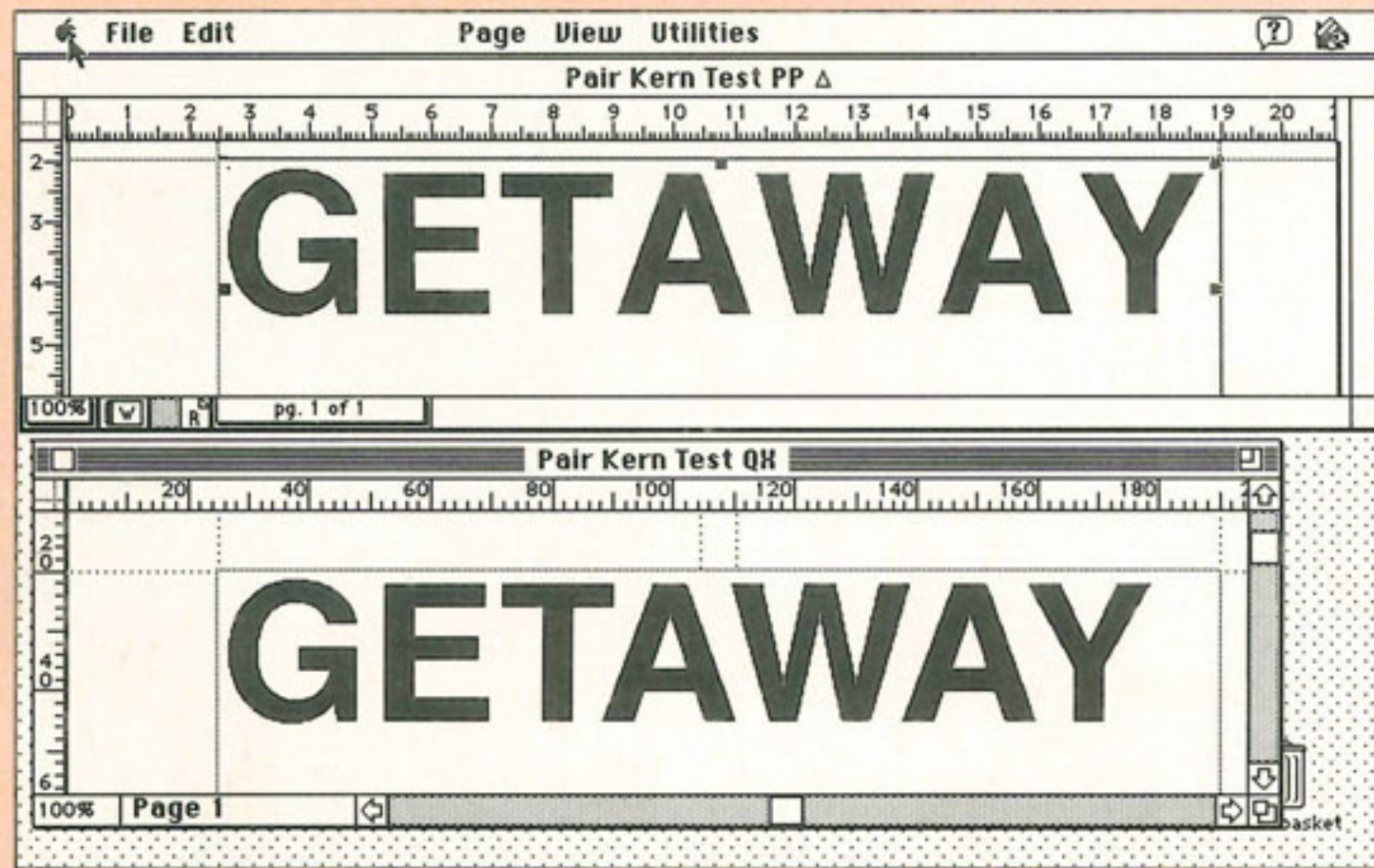
of what a high-end package can do. The results are identical up to the 'T', but then see how *XPress* pulls back the 'A' so that the crossbar of the 'T' hangs over it, while *Personal Press* leaves too large space between them. The same is true of 'AW', 'WA' and 'AY'.

This can be cured by selecting

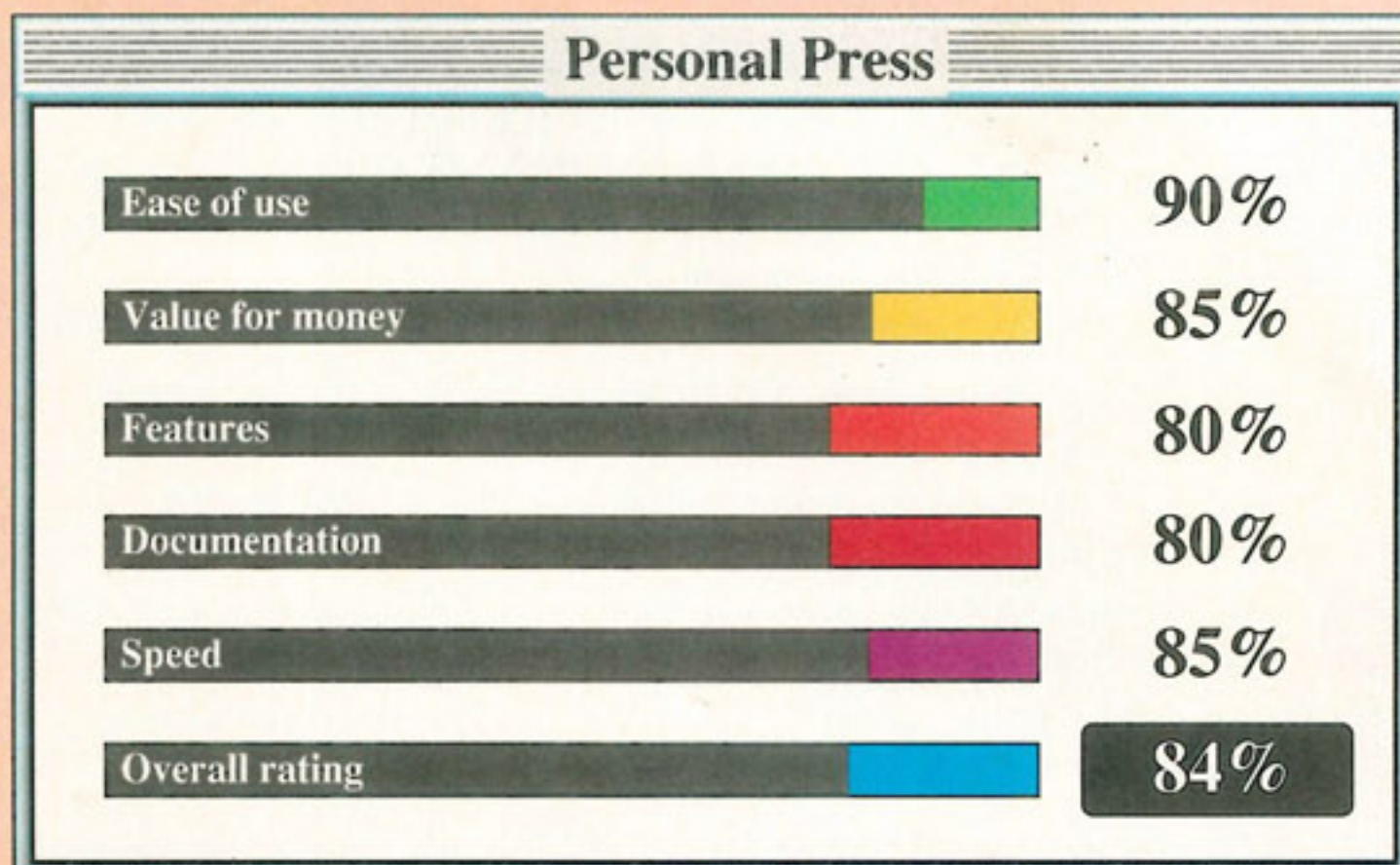
each offending space and reducing the kerning in the **Character spacing** dialogue, but it's a poor show that you should need to do this by eye when there's data built into the font to tell the software how to do it for you automatically.

product with so many bells and whistles to fall short of the mark on leading and kerning features.

The oversights in this package would put off the majority of publishing professionals, but it is well worth considering for those whose aspirations run to company stationery and newsletters. **mf**



The same headline in *Personal Press* (top) and *QuarkXPress*. Note how the former fails to close up the spaces properly between the last few characters



The verdict

PUBLISH-IT! Easy was described in *MacFormat* issue 1 as 'by far the best value DTP package around' on the basis of a £200 price tag on *Personal Press*. Although 'best value' probably still stands, the words 'by far' must be retracted in view of the extremely competitive price of this new version. It lacks the comprehensive range of drawing tools offered by *Easy* (just rectangles, rounded corner rectangles, ovals, straight lines and object fills here), and doesn't have the built-in database, but otherwise it matches many of the features of its nearest rival and has a few unique ones of its own - notably, the whole AutoCreate system.

Personal Press is excellent in parts - some of its features weren't available at any price when I edited my first desktop-published magazine - but it does have some shortcomings. It would be churlish to criticise a package which can be picked up for under £120 for not matching software at five times its price, but it does seem odd for a

Jargon Busters

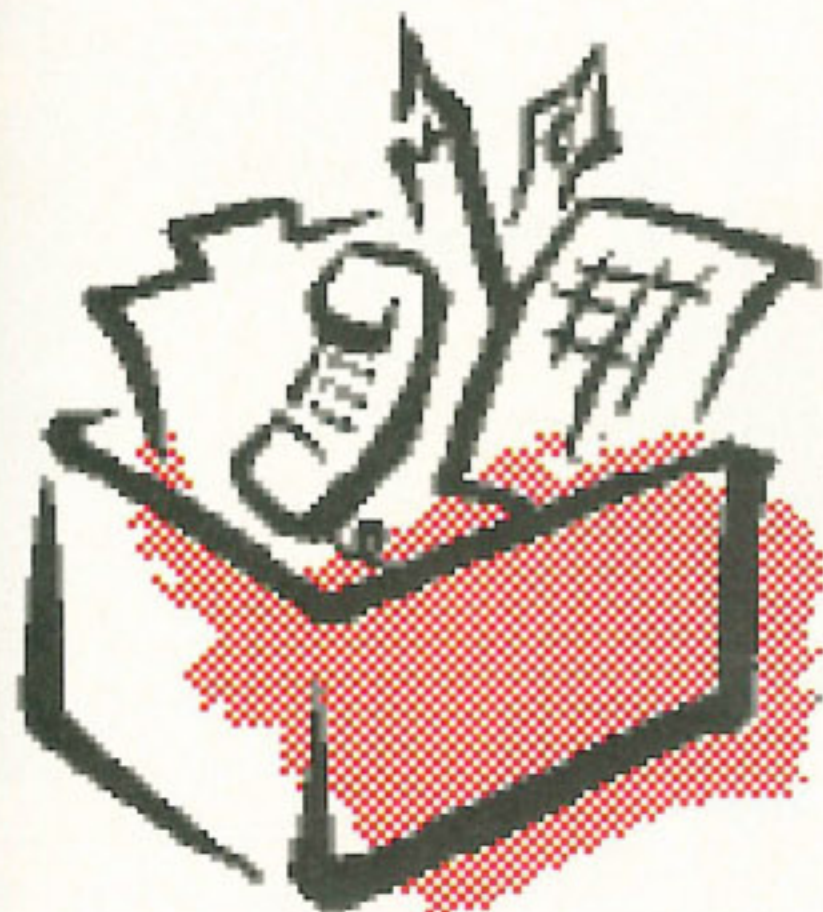
EPS: Encapsulated PostScript. File which contains one representation of the graphic written in the PostScript 'page description language' which is used by higher-end laser printers and professional imagesetters

PICT: file format commonly used for graphics from a draw package. These are object-oriented (they describe the relative sizes, weights and positions of shapes, lines and so on), and can use the full resolution specified by your QuickDraw or PostScript output device, no matter what size you scale them to. NB: Some bitmaps can be saved as PICTs, so knowing that a graphic is a PICT is not a guarantee that it is object-oriented

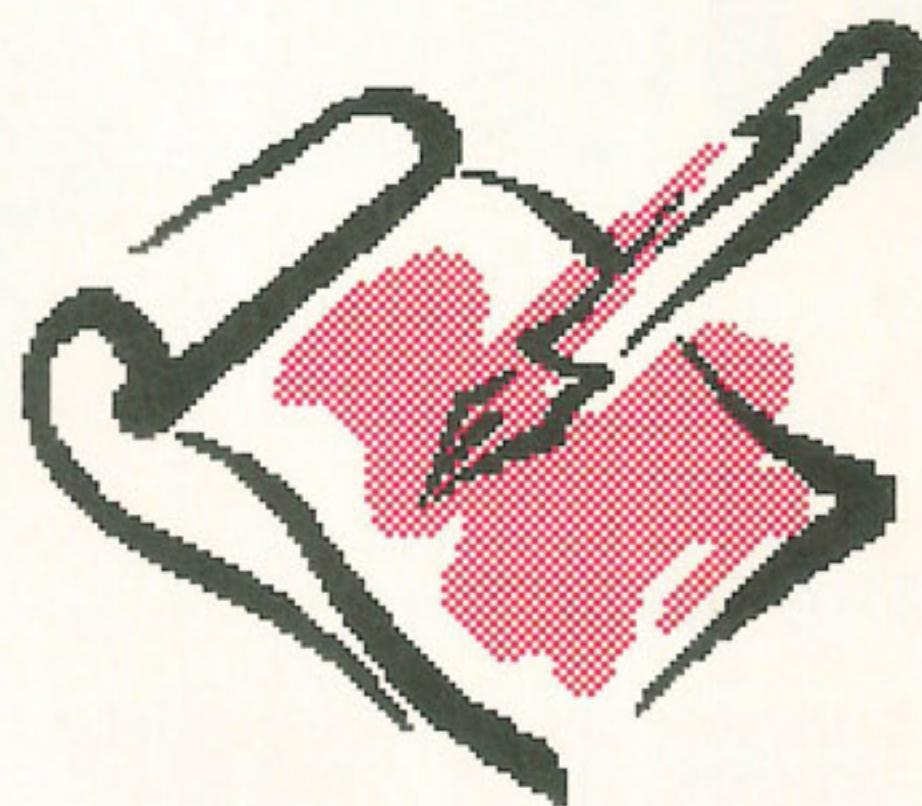
TIFF: Tagged Image File Format. A particular type of bitmap image in which a grey or brightness level is specified for each dot. Commonly used for the images produced by scanners

Where to get it ▼

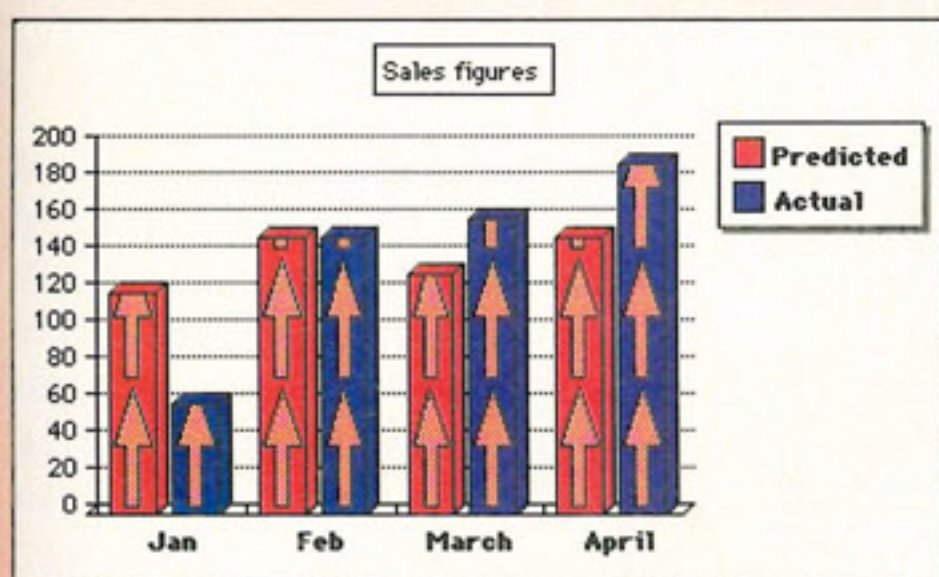
Personal Press 2.0 is available from Aldus (031 220 4747) for £116.



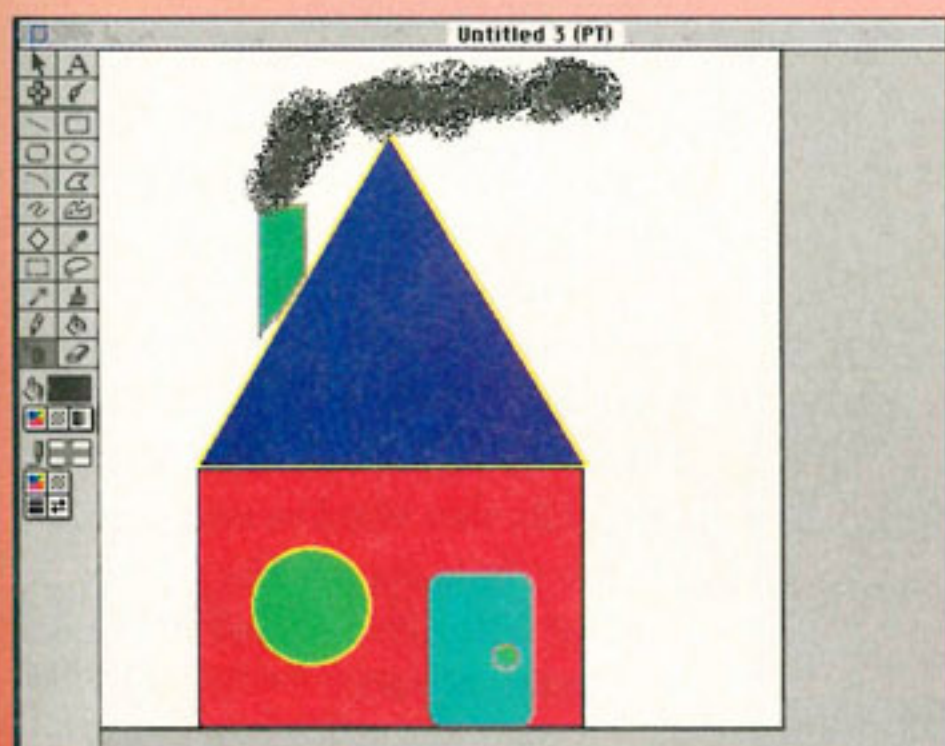
COP ONE OF THESE



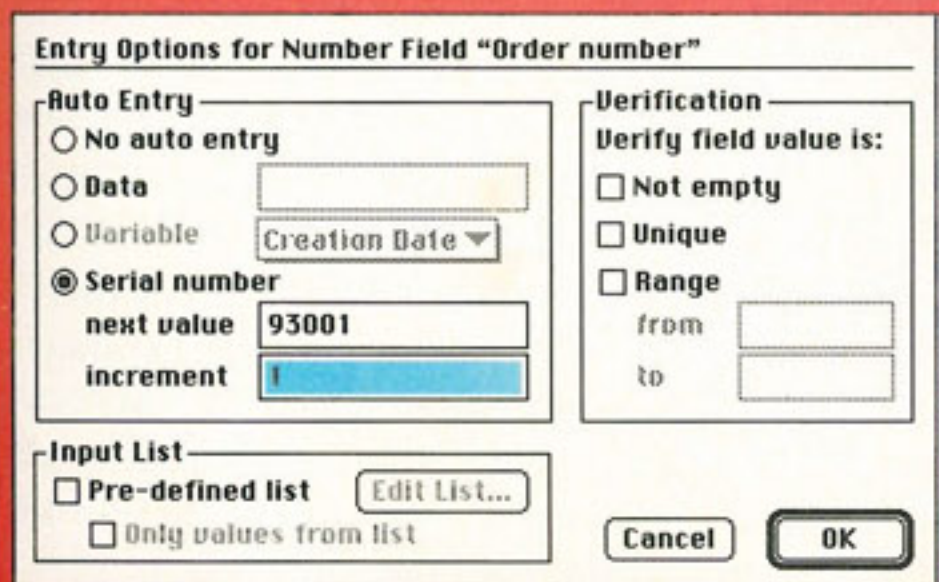
CLARISWORKS 2



Creating a chart from data entered in a spreadsheet is child's play using *ClarisWorks 2*...

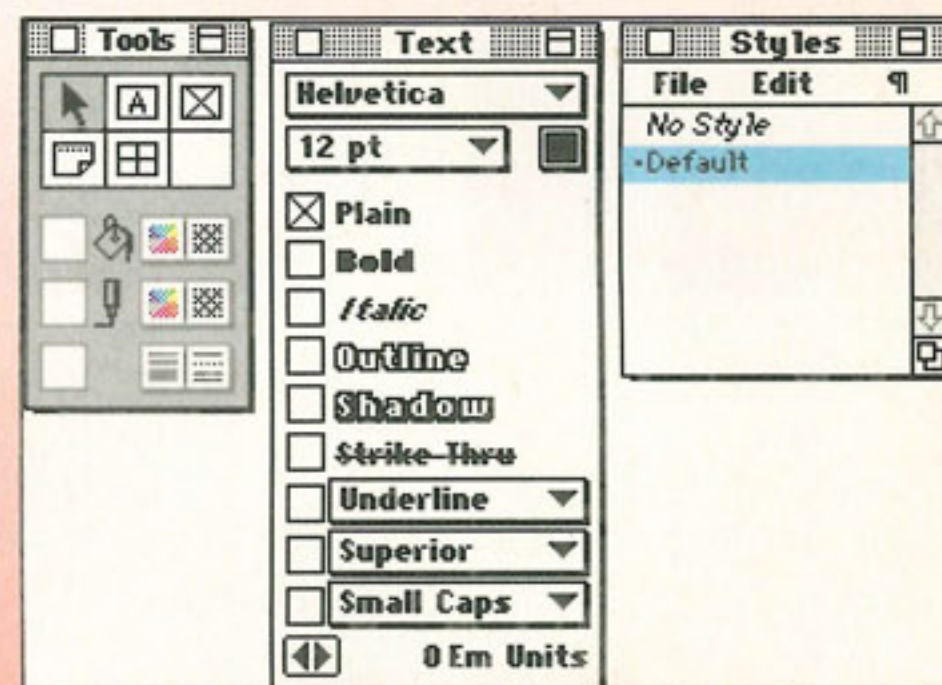


...as is using the new Paint module. More adult users will find it useful too, though

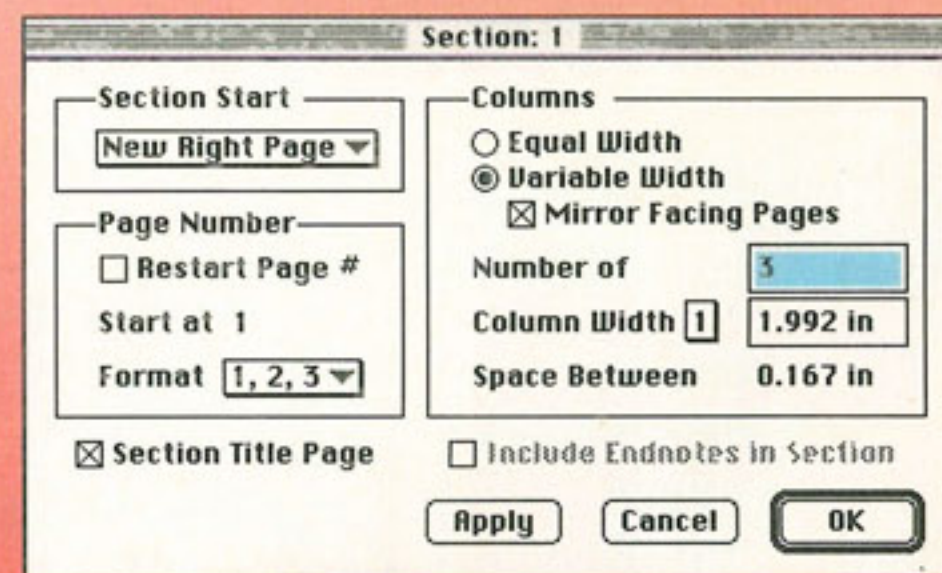


The database module now supports auto-entered data – a feature inherited from *FileMaker Pro*

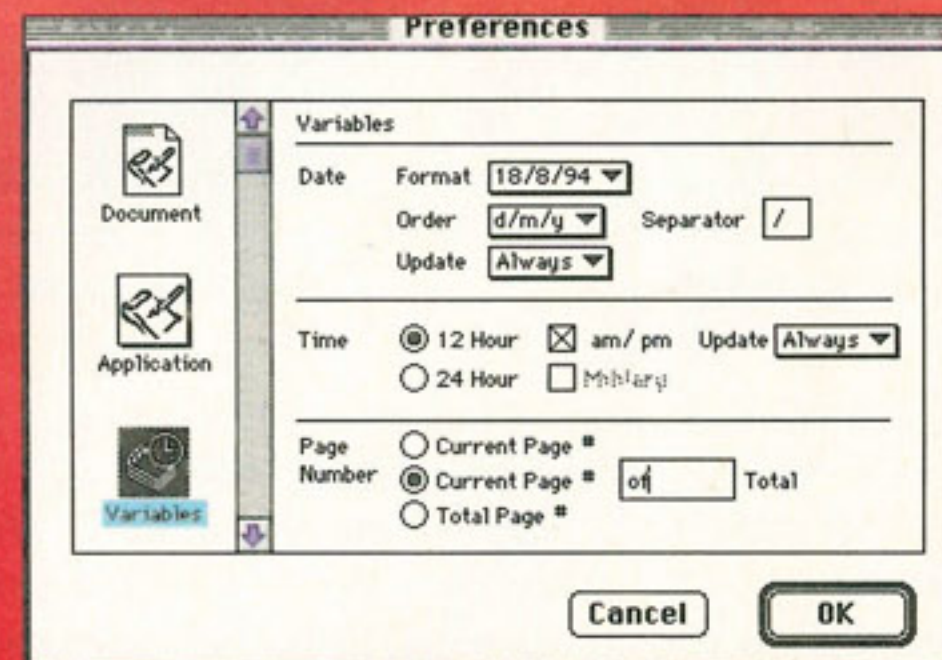
MACWRITE PRO



MacWrite Pro is a major update to Claris' word processor. Floating palettes are just one of the many new features



Variable-width columns make *MacWrite Pro* an ideal tool for creating complex page layouts



MacWrite Pro is one of the few word processors which can include the total page count in its page numbering

What a lovely company Claris is. No sooner does it announce its latest releases of *ClarisWorks 2* and *MacWrite Pro* than it's offering you a mere £2,175 worth of copies for free!

Yes, that's 5 copies of *ClarisWorks 2*, normally selling for £229, and 5 copies of the £206 *MacWrite Pro*. And fine prizes they are too – as you can see for yourself if you turn to the reviews on pages 63 and 66 – yep, damn fine prizes.

So what do you have to do to get your little mitts on one of 'em? – Easy...

...Just do this

Move your eyes 1.5 inches to the three questions below and send your answers on a postcard, making sure you indicate which prize you would like, to: MacFormat Claris Competition, 30 Monmouth Street, Bath BA1 2BW.

Bet you can't answer these:

- Who wrote our *ClarisWorks 2* review?
 - Ian Fleming
 - Ian Wrigley
 - Ian Botham

- What are Bezignons?
 - Invaders from the 5th dimension
 - Smoothly curved objects
 - Small turtles found in Mauritius

- Which is the best Mac magazine?
 - MacFormat
 - Galoshes User
 - Raincoat World

Rules:

The closing date is July 6th. Only one entry per household please. The Editor's decision is final. And please make sure you state which prize you want!

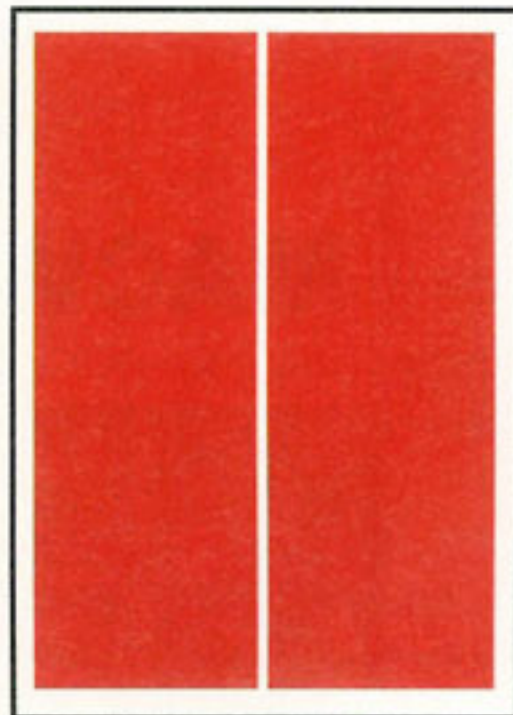
Design counsel

To get the best out of an A4 page, you need to know about grids, picture placement and use of space. Designer Gordon Druce teaches you the rudiments of good page design

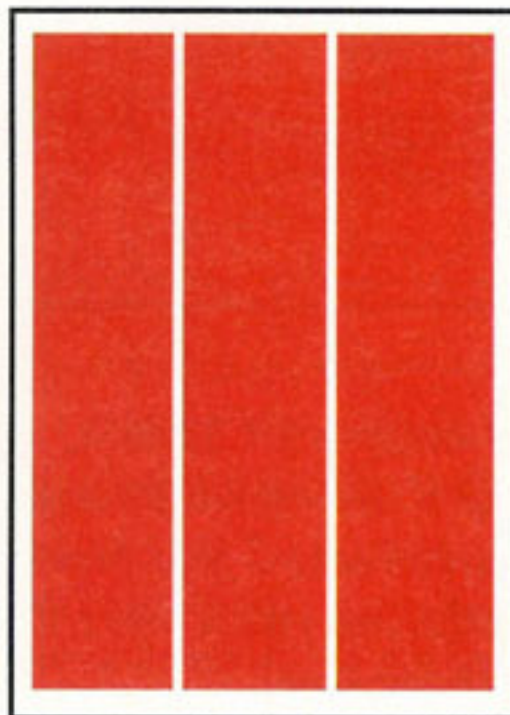
The basic grid



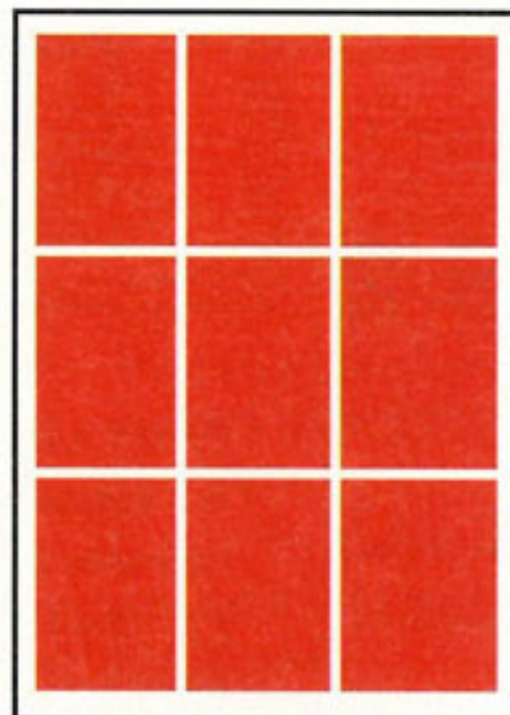
One column



Two column



Three column



Standard grid

There are four basic ways of dividing up this standard A4 shape by slicing the A4 page into sections or vertical columns. You can have one full column (usually the default grid style), or two and three column arrangements. The other option open to you is to split the page horizontally. To construct a basic grid, you need to combine an arrangement of both vertical and horizontal columns, (see illustration) to split up the space rather like a nine-paned

window frame. You will now see how this configuration, based on one, two and three columns has become the standard; these proportions are what we expect to see; we are happy looking at these patterns. Take a look at other printed material and you will see how often this standard grid crops up; for simple arrangements of material it's great. So by sticking to this traditional format you will help yourself and the reader will feel more at home.

As mentioned in the first issue of **MacFormat**, in this design section we'll be looking at a wide variety of topics linked to art and design. This month's topic is grids. Most Macintosh owners already use a grid of some sort, even if it's only the default grid style of their word processing program.

First let me debunk a bit of design jargon. A grid is just a way of organising space on a page. It's a simple and common-sense tool, to help you arrange your words and pictures in the most effective way possible. So how can using grids help you get your message over more effectively?

Take a look at almost any printed matter, from the newspaper you read, to the junk mail that comes through the letterbox. They all have some sort of grid or structure, they are all trying to persuade you to read them, and employing all sorts of visual tricks in doing so.

For example, which do you prefer to read, wide columns of type, say 30 words in a line or narrower, say around eight words a line, (like this **MacFormat** page)? On the whole people like shorter lines of type, just because it's easier and faster to read.

Plan ahead

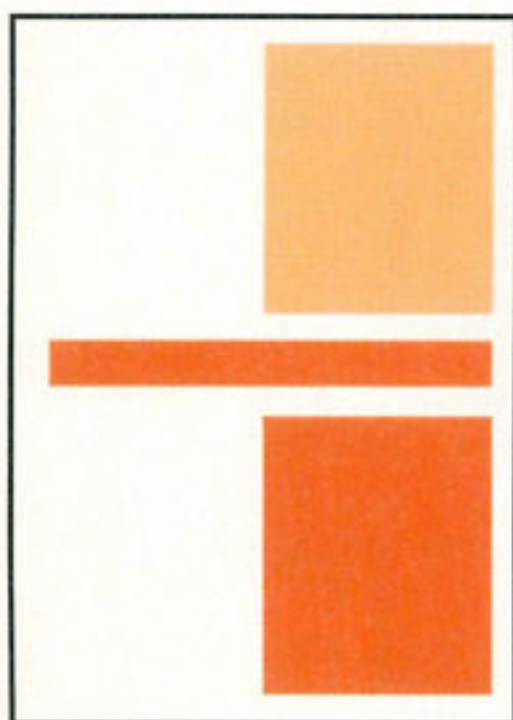
Before you start working with grids, there is one bit of common sense that sometimes gets forgotten in the eagerness to switch your Macintosh on and get started, and that's to clarify the content of the material. It's no good dreaming up some snazzy-looking page layout, poster design or visiting card layout, then go forcing the material into that design, just because you think it looks 'cool' or interesting.

The pattern or lay-out you choose should be sensitive to the material you have to work with. So, for instance, you don't design a funeral service sheet that looks more like a rave flyer. You must have some understanding of the informa-

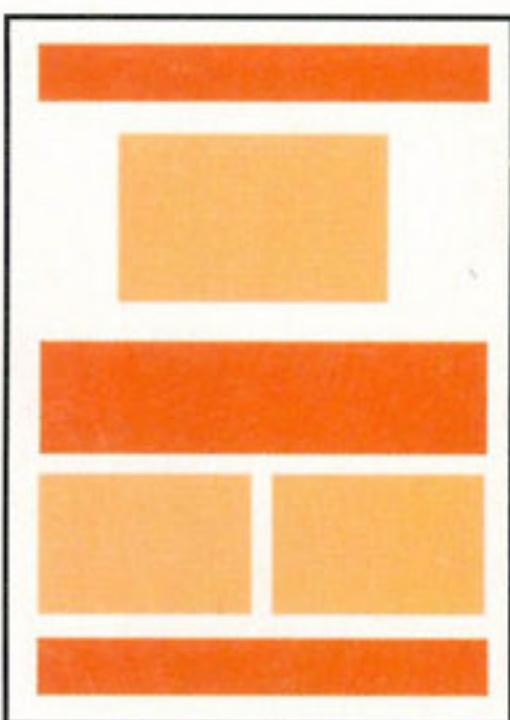
Pictures



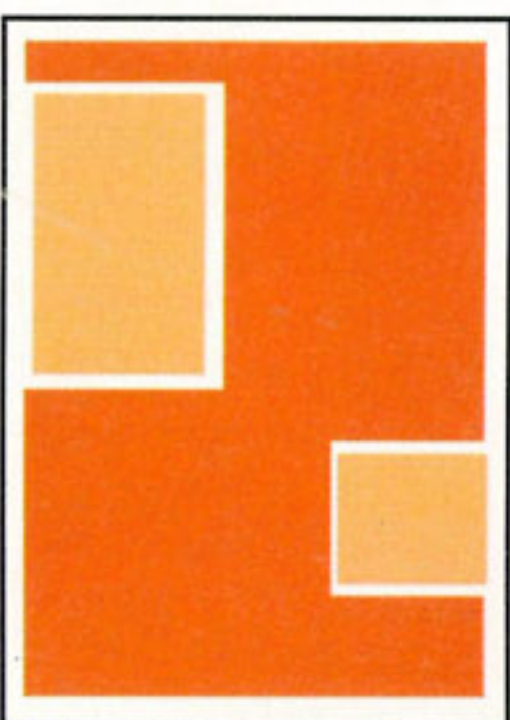
One column, with large picture and heading



One narrow column with hanging indent and picture



One full column, divided up with three illustrations

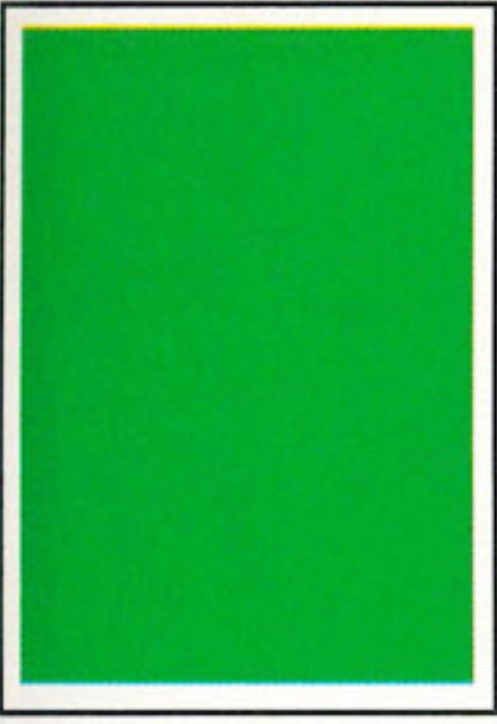


One wide column with text running around the pictures

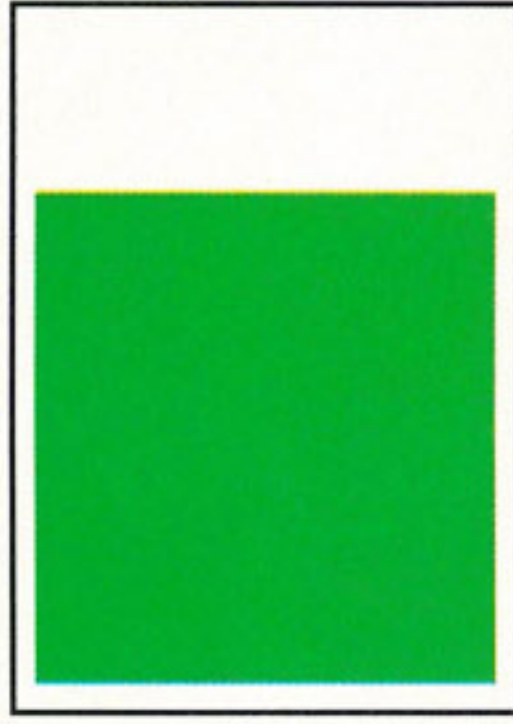
Illustrations, diagrams and pictures can be inserted into a one column grid at any size you want them. But you will quickly discover that if you use your pictures to the full width of your default one-column grid, they will appear overwhelming and the whole page will be taken up with your illustration or picture. This is fine if the subject matter of that picture is very important to you. But it is more likely that you will need a more balanced mix of words and pictures. Here are a few ideas to help you slot in pictures to the one-column format. As you can see it is possible to place pictures and/or illustrations of many different

shapes and sizes into your grid. If you want to use a portrait-shaped picture and a smaller reference photograph, then you could try using a runaround. This means text flowing around a picture. Try this by placing your picture boxes jutting into the single column of text and let the pictures push the words into the remaining shape. But don't overload this style of layout with too many pictures and illustrations, as this brakes up the flow of your material and makes the page feel chaotic and unfriendly to the reader. So keep it simple – one large element and two or three others at the maximum.

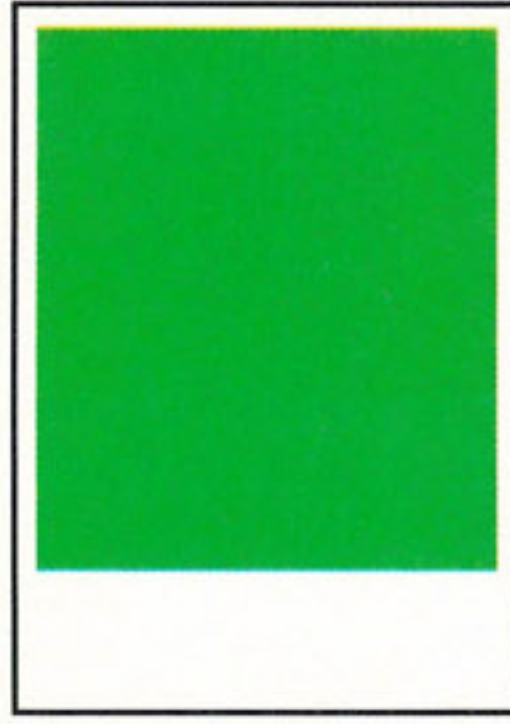
The one column grid



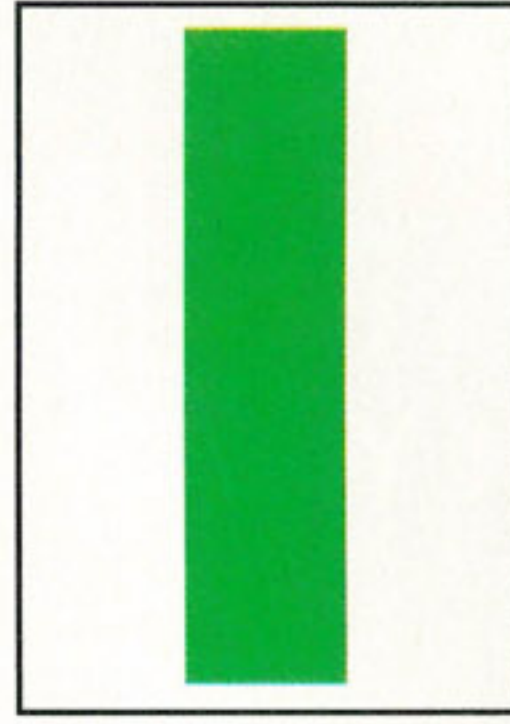
One column filling the whole page – not very attractive



More space at the top makes for a much friendlier page



Space at the bottom – not such a good idea



Wide margins add elegance and value to the page

The one-column format is the most straightforward and easiest to use. All you have to do is choose how wide your margins are going to be and what's left is your column size.

By leaving a lot of depth at the top of the page you give a lighter appearance to your work. If you leave space free at the bottom of the page it can be utilised for reference information.

By changing the size of your margins it is possible to give your page the feeling of grace and elegance. Try making your margins much wider; this will give your work the appearance of more value.

tion before you can help the reader to digest it more easily.

This might sound like stating the obvious, but you would be surprised how many trained designers forget to read the material they are about to lay out. So read it through, and make sense of it. If you did not write the words or originate the picture and/or illustrations yourself, then talk to the person who did. Find out what's important. What may seem unimportant to you maybe crucial to the understanding of the total document. Getting the content clear in your mind early on in the process will help you get a better result in the long run.

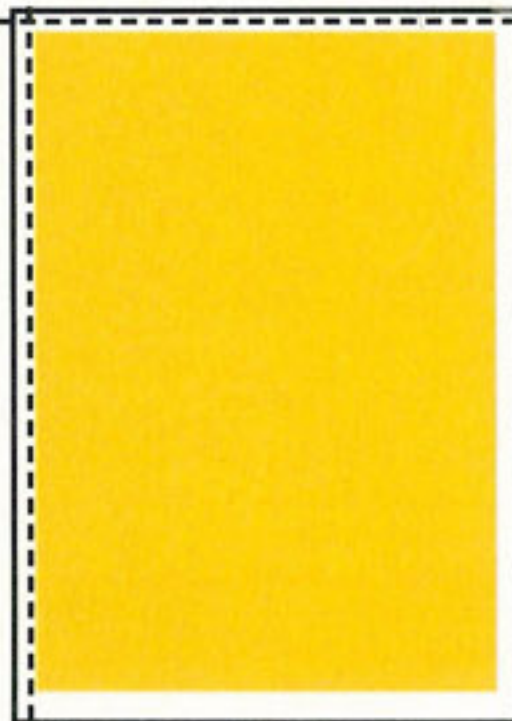
You will quickly find that you are already starting to give your information a natural sense of order and structure, which is going to make your life placing it on a grid much easier.

Default grids

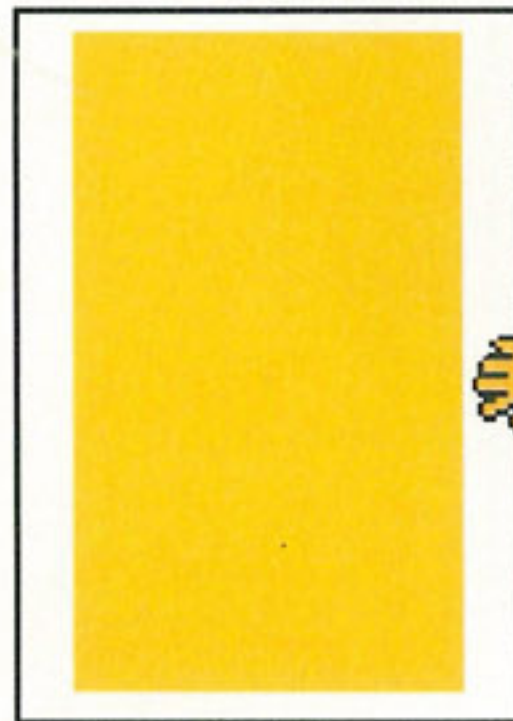
Most Macintosh word processing software and DTP programs – whether it is powerful 'industry standard' software like *QuarkXPress* and *Aldus PageMaker*, or the excellent budget DTP software *PUBLISH-IT! Easy* – all have a default grid style. This is commonly one text box covering the full page of A4 with a small margin, so your documents are 21cm wide and 29.7cm high (including the margins). This is because A4 is the most common British paper size.

So you have your sketch, plus the rest of your information, and your A4 document set up and ready to go. Around this page are five basic tips for using a simple A4 grid, to help in the organisation of your material. **mf**

Margins



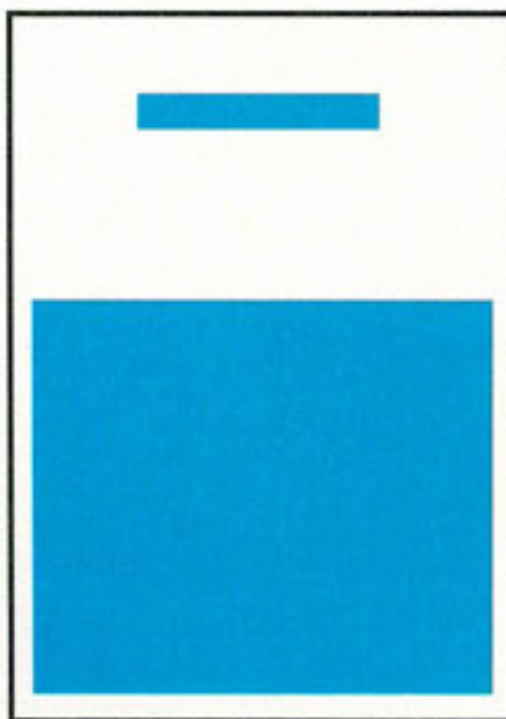
Plenty of margin, so no type is likely to be trimmed



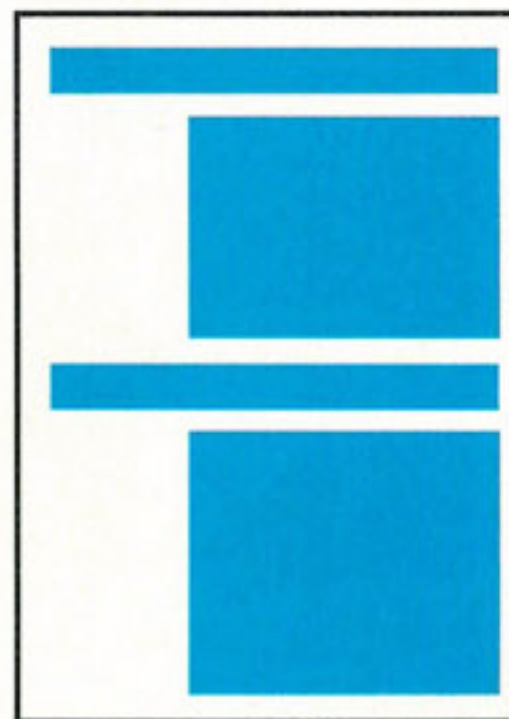
Leave a good margin so the paper can be held

Margins are not just a little slice of white or coloured space left around the border of a page, just because a designer thought "oh that will look really neat!". There are good reasons to have 10 or 15 cm margins around your A4 page. For one, it allows for any inaccuracy in the manufacturing or output of your document. You do not want any of your work to be trimmed off by mistake. Next you not only want the reader to feel at home with the document's format, but you might want them to pick it up. So you should leave plenty of space around the edge, so their fingers will not cover any of the text and make it uncomfortable to read, (more common sense really). Also remember your work may have other uses; if your document is to be stored in a binder, you may need extra space in the left hand margin

Space



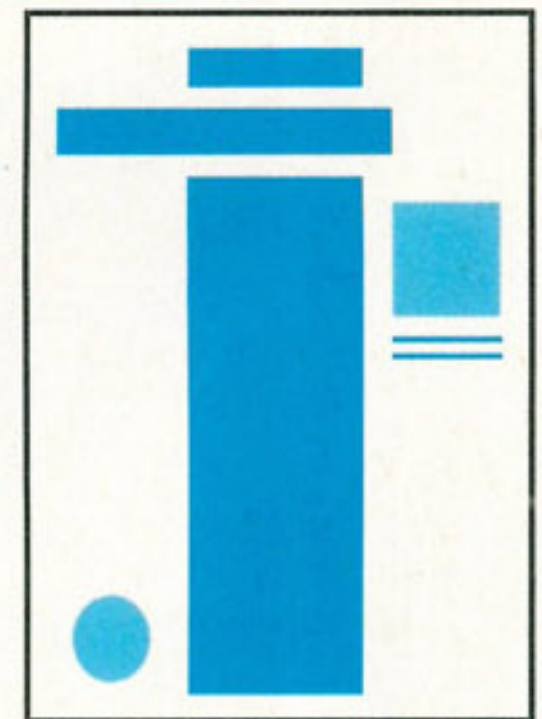
One column – with space to let the heading stand out



One narrow column with hanging indents



Narrow column, using extra space for a picture



Central column, using extra space for pictures

The space left on your page is a desirable element in your design whether it is at the top of the page or at the side. If your work is part of a multiple page document you can use this 'white space' to drop in your chapter headings, or maybe leave a large margin one side of your page and construct what is known as a 'hanging indent'. This lets you highlight important information by letting the main facts or headings of your document stand out in the space. You will see this technique put to good use in well designed technical manuals. By leaving a large

margin on the right or the left, you afford yourself the opportunity to drop in a picture or small illustration and any other snippets of information you would like to give special prominence to. This extra white space surrounding a one column layout can be surprisingly useful. But take care, do not start filling this space up with diagrams, pictures, and margin notations, because you will destroy the very effect you are trying to achieve, by choking the information, instead of letting it breathe and making it more accessible.

KEY

Text

Pictures

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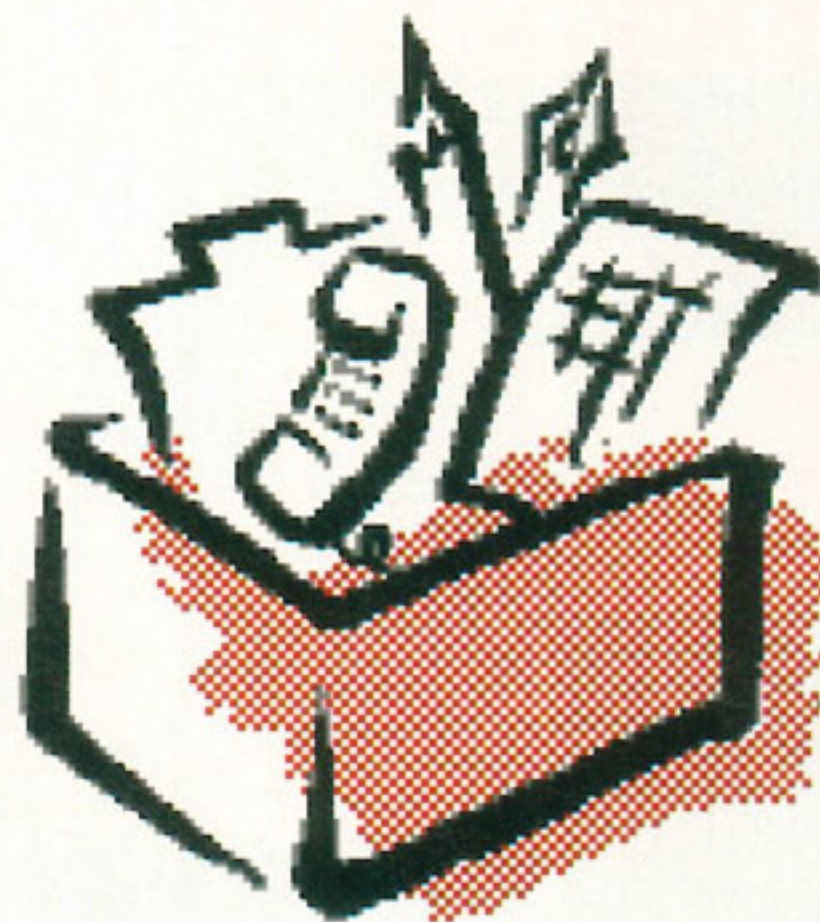
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Works for me!

Claris has just released version 2.0 of its popular *ClarisWorks* package. Ian Wrigley puts a beta test version through its paces



Ever since it was first introduced, *ClarisWorks* has been the market-leading integrated package. This is partly because it was the first 'real' application in the market – *Microsoft Works 2.0* was a collection of linked, rather than integrated, programs – and partly because it really is very good, and very good value for money. Now version 2.0 has come along, promising an added paint module, an outliner, a slide show, shortcuts (macros) and extra features in some other modules.

Looking good

Numerous changes have been made to the user interface; the most obvious one is that – if you're using a colour Mac – all the buttons in the toolbars and rulers are now in an attractive greyscale, bas-relief style.

All tear-off palettes, such as colour, arrows, line widths and so on, now have 'gravity zoom boxes'. These are similar to the ones found in *MacWrite Pro* palettes (turn to page 66 for a review of *MacWrite Pro*) and, when clicked, shrink the palette and place it on the right hand side of the main monitor. To speed things up more, [option]-clicking

on the **Gravity zoom** box will collapse or expand all the palettes currently open, and [option]-clicking on the close box will close all tear-off palettes.

The zoom percentage box at the bottom-left of the window is now a pop-up menu with a variety of different sizes to choose from; previously it just cycled between the current size and a 100 per cent view. You can choose a size not currently on the menu by selecting the **Other...** option.

The **Preferences** section has undergone a major overhaul, to reflect the wealth of new features throughout the rest of the program. It now resembles the System 6 **Control Panel** display – again, something which is becoming almost standard in many programs. Separate sections are provided for text, graphics, palettes and communications – showing that comms is no longer the black sheep of the module family.

Word up!

The module which most people will use for most of the time is word processing. This has been improved quite radically since *ClarisWorks*

1.0 – although even that version was perfectly usable. Version 2.0's word processing module really is just as good as a stand-alone package – it has many of *MacWrite Pro's* features, and could certainly knock *MacWrite II* into a cocked hat.

The ruler has a new pair of buttons in evidence, which control the number of columns in the document. You click to increase or decrease the number, or you can select this directly from the **Columns...** item in the **Format** menu. Columns can be of identical

ClarisWorks 2.0's word processing module is just as good as a stand-alone package

width, or you can have some wider than others, and vary the space between them. Again, this is all selectable from the **Format** menu, or by [option]-clicking on a column's margin and dragging it to the required place on the page. Text reflows automatically and virtually

instantaneously, although obviously this will depend on the size of your document. A maximum of nine columns is allowed on a page.

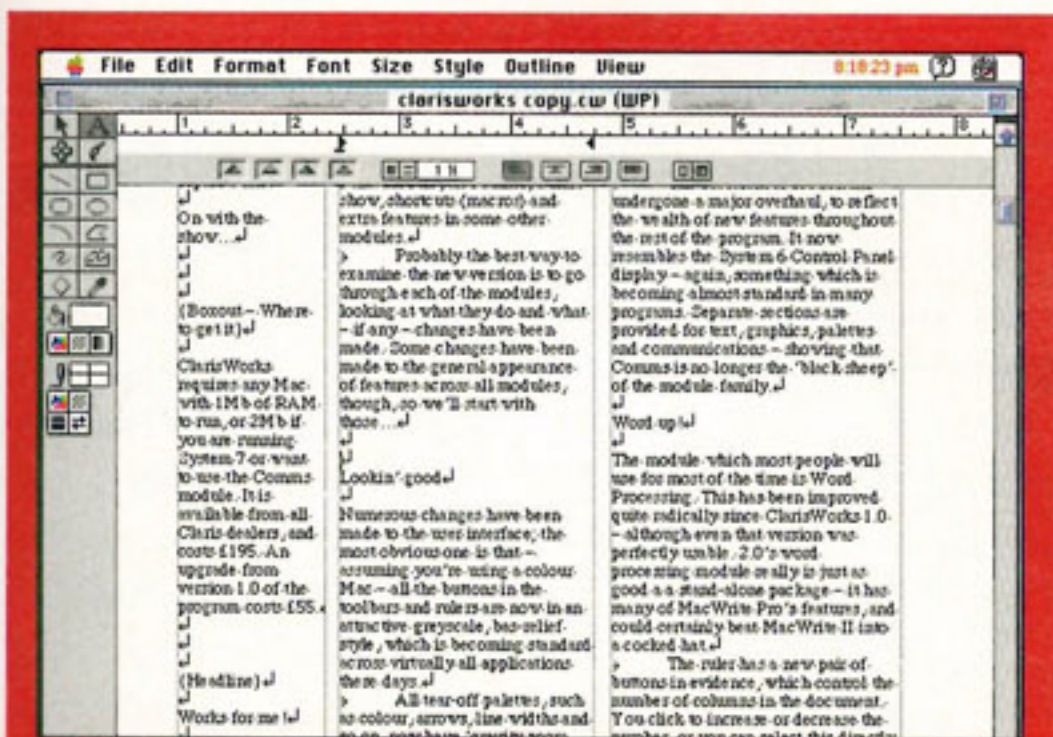
A **Paragraph Format** dialogue box has been added, which allows you to specify such things as the left indent, first line indent and right indent numerically, rather than via the ruler. You can also set line spacing and the space before and after paragraphs; line spacing can also be set by clicking a button in the ruler, as was the case in version 1. However, you can now specify measurements not only in lines and points, but also in inches, millimetres, centimetres or picas.

Also new is a **Tab** dialogue box, which again allows you to specify tab stops numerically. You can also select the fill character from one of four alternatives, and specify what character the decimal tab aligns on (normally a full stop, of course).

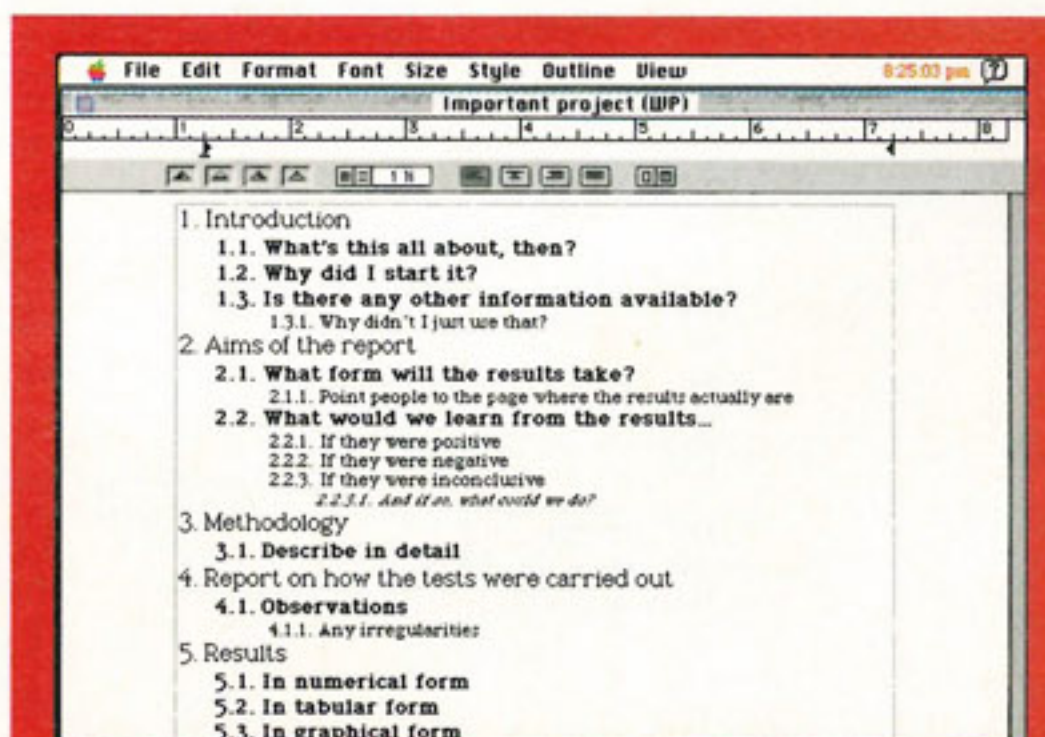
There are plenty of other 'hidden' features too – such as holding down the [option] key when using the **Insert Date, Time or Page #** commands from the **Edit** menu, which will insert never-updated values in the currently-selected format – and a thorough read of the manual will be necessary to get the absolute best from the program.

Minor problems

There are still a couple of niggling little problems with the module, though (aren't there always?). Double-clicking on a word and then hitting the [delete] key removes the word but not the space that followed it – so you're left with two spaces between the previous and next words. And why oh why hasn't Claris implemented a proper word count feature? You must still check the whole document's spelling to find out how many words you've

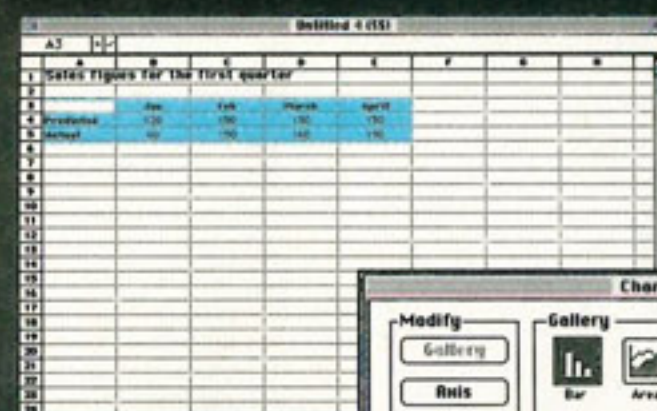


The word processing module has had many options added. Notice the 3D buttons and the three differently-sized columns on the screen. There's still no decent word count feature, though!

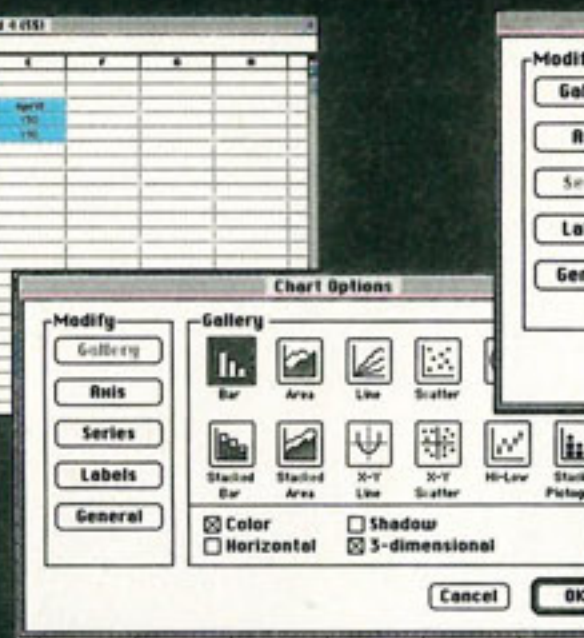


An outliner has been added to the word processing module. There is a range of formats; I've chosen 'legal', which numbers each section. Others include Harvard and a standard bullet-point layout

How to create a chart in ClarisWorks 2.0

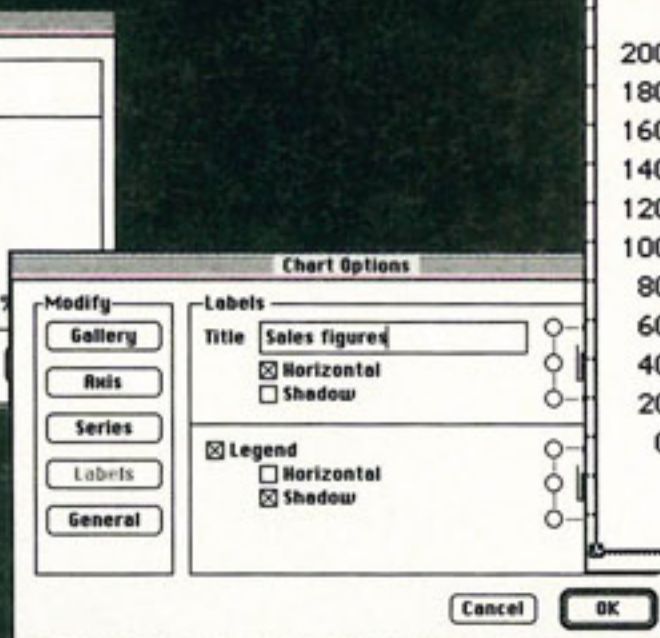


To create a chart in *ClarisWorks 2.0*, first select the range of data that you want to chart, and select the **Make Chart** menu option...

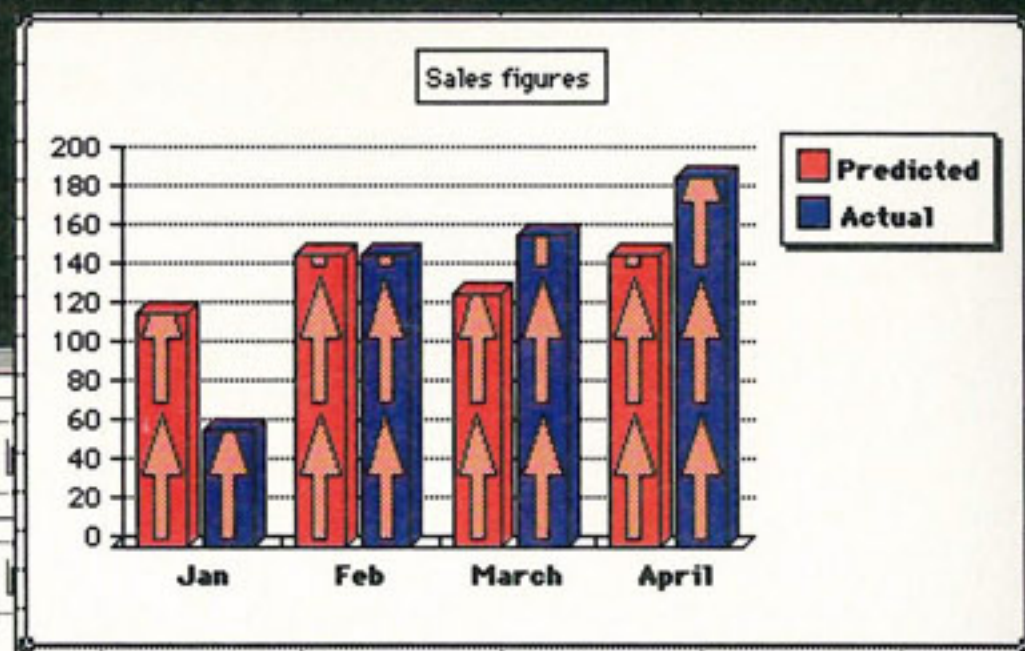


...which produces this dialogue box. Notice that you can select things like 3D charts from here

The **Series** button produces this display. You can paste in any graphic that you've created in the program, and select whether or not it should repeat



The **Labels** button lets you specify a chart's title and whether or not to include the legend



Voila! The finished article. Individual elements such as the axes can have their font and size changed

written. Now, checking a document's spelling is an admirable thing to do – but finding out that the word 'Mac' isn't in the dictionary seventeen times in an hour and a half becomes rather tiresome if all you want to know is the word count.

Following the outline

One of the main new features added to *ClarisWorks 2.0* is, in fact, part of the word processing module: an outliner. This is a way of organising your thoughts before you start writing. You set down section headings, sub-headings and so on. These are displayed as a 'tree structure', so that you can write paragraphs under each heading.

ClarisWorks' outliner seems reasonably powerful (although I

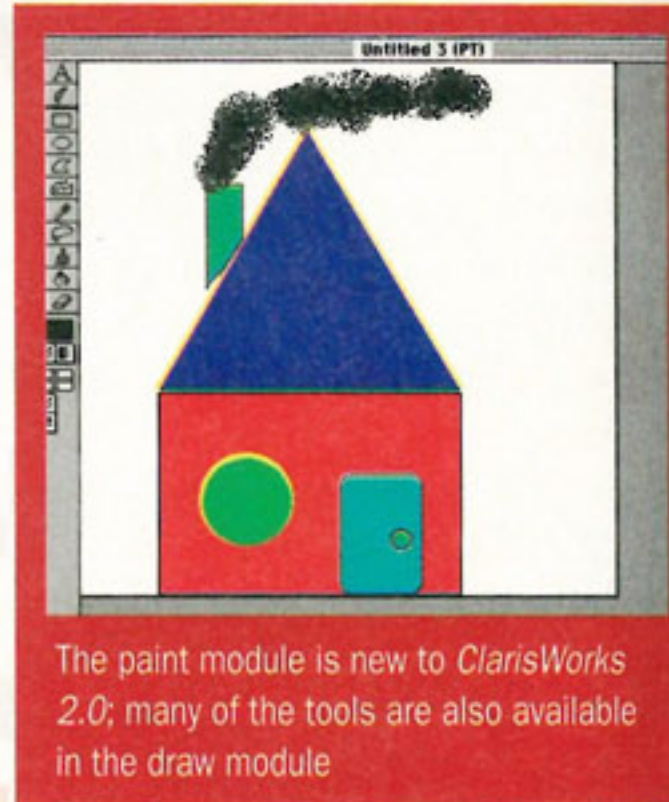
The charting module is now almost as powerful as that in Excel

must come clean and confess that I don't use one myself). You switch between outline mode and normal text mode by selecting **Outline view** from (surprisingly) the **Outline** menu. From there you can enter your topics, using [command] [L] and [command] [R] to select new topics on a higher or lower level than the present one. All the usual outliner features, such as promoting and demoting a topic or moving it around the document are supported,

the latter by clicking on the topic and dragging it to its new position. You can collapse the outline down to its basic core topics, or expand it to a user-selected level, which makes for easier perusing of a complicated document.

Each topic has a marker in front of its name; this can be selected from a large range, encompassing such things as diamonds, bullet points and even the 'legal' style, which gives you things like subsections labelled '3.1.2.4'. Or, if you prefer, you can dispense with markers altogether. The marker format can be specified for each different topic – although quite why you'd want to do that is beyond me.

If the lack of an outliner has previously put you off using



The paint module is new to *ClarisWorks 2.0*; many of the tools are also available in the draw module

ClarisWorks, you should be completely satisfied now. Most people, I suspect, will never use this particular feature after an initial experiment or two.

Drawing conclusions

The old *ClarisWorks* graphics module has been replaced by two new ones: draw and paint. They share some of the same tools, although they use them in a rather different way.

The difference between 'draw' and 'paint' is that draw packages are what is known as 'object oriented'. That is, once you've drawn an object you can alter it, move it around and reshape it. Once an object has been placed in a paint package, on the other hand, it ceases to be an 'object' and instead just becomes a collection of pixels. So you can rub bits of it out and move chunks around, but you can't resize or reshape it, and it will erase anything that was underneath it.

Taking the draw module first, this has new tools for creating 'bezigns' and regular-shaped polygons. Bezigns are smoothly-curved objects created using Bézier curves, which are used in virtually every high-end drawing package.

New to ClarisWorks – the slide show

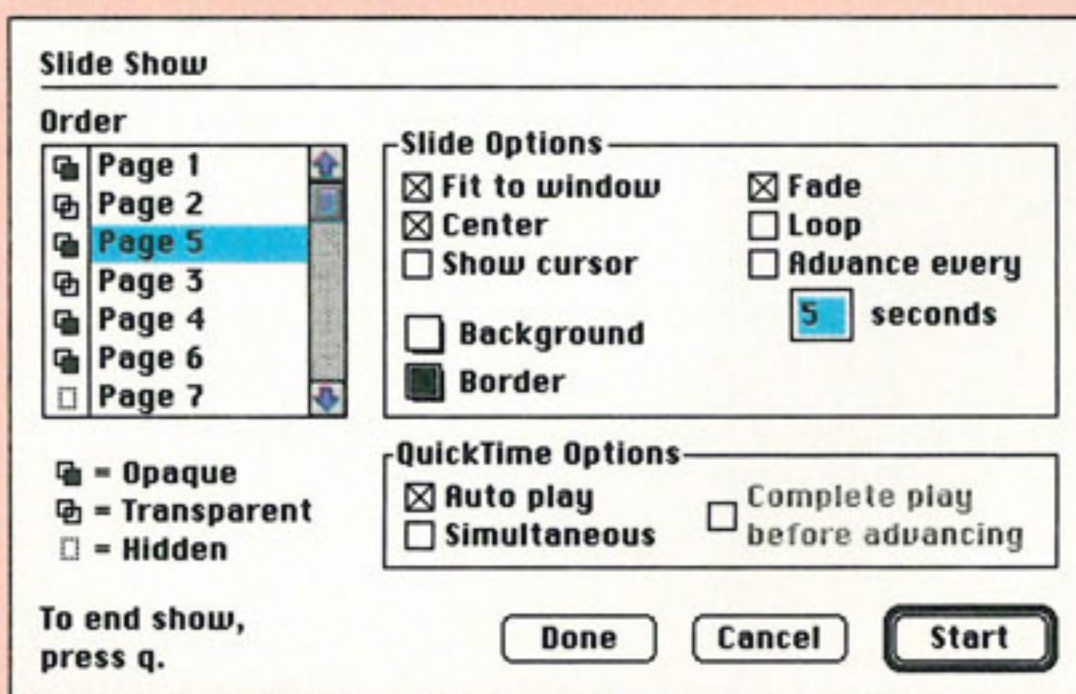
You can now use *ClarisWorks* as a presentation tool, thanks to a new slide show option which is available in every module except comms. To use it, you simply select **Slide show** from the **View** menu. A dialogue box will appear asking you to specify how the slides will appear – whether they should be scaled to fit, centred on the screen and so on – and how transitions should take place; whether slides fade from one to another, continuously cycle, and whether they should auto-advance – in which case you can specify how many seconds each one should be displayed.

The actual slides are the pages of your document, which is where the **Master page** option in the draw module comes in: you can define a standard background for your slides and then create however many different pages you want, each with different information over the standard background. To order the slides you just drag the page numbers around in a window until they're in the correct sequence.

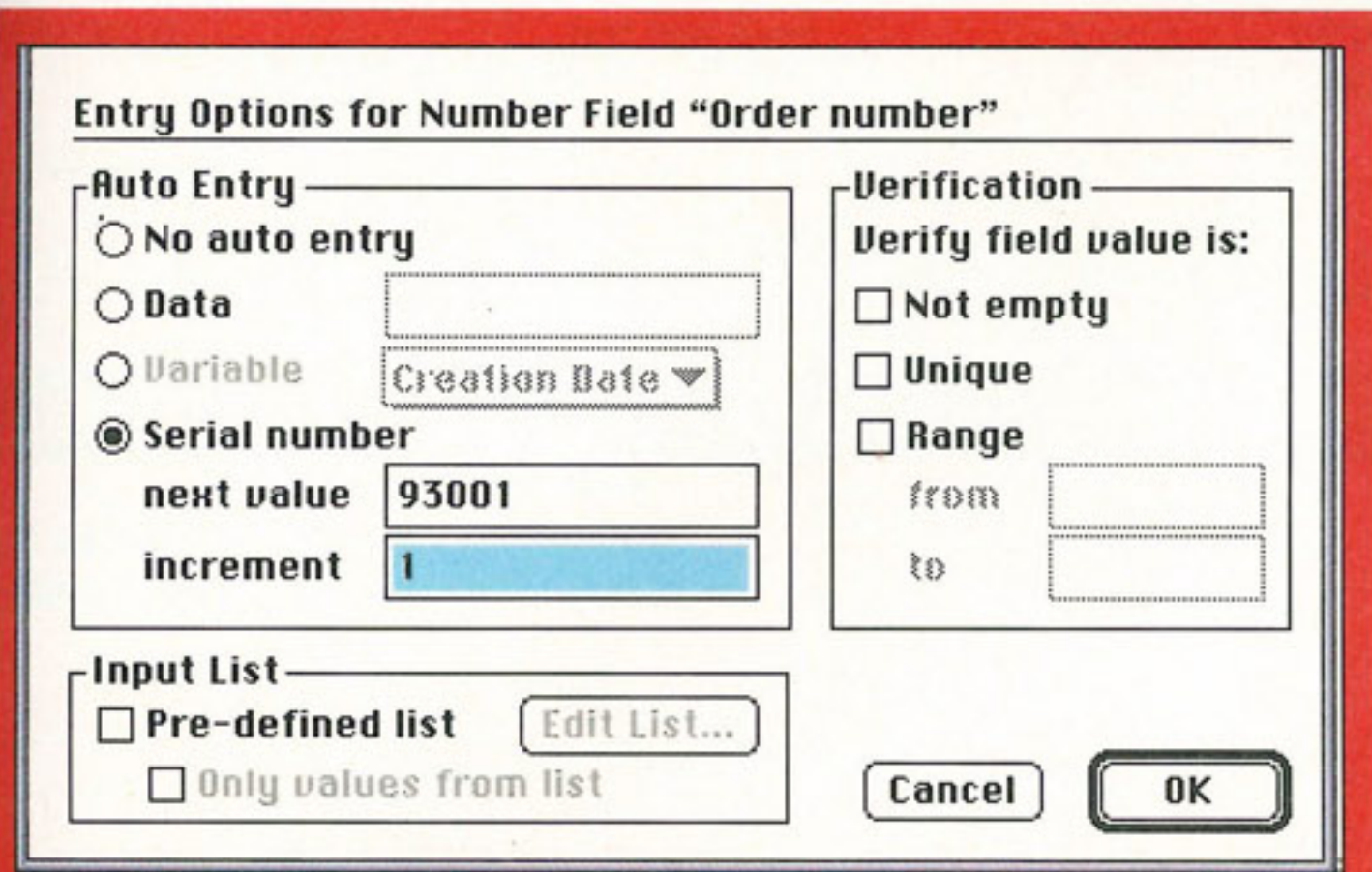
Slides can be defined as opaque – that is, the page will be displayed as an individual slide – or transparent, where the page will be shown on top of the previous slide, so complex diagrams can be built up from succeeding slides. If you don't want a page to be shown at all, you define it as

blank. If you've included a *QuickTime* movie in any of your slides, this can be set to play automatically when the slide is displayed, or only to play when clicked on. If there is more than one movie on a slide, you can choose to have them all play at once or to play consecutively.

While the slide show section isn't intended to be a replacement for dedicated packages like *Microsoft PowerPoint* and *Aldus Persuasion*, it provides a reasonable, low-cost alternative to those packages for people who only occasionally give computer-based presentations and can't justify the cost of a dedicated program.



The slide show module in *ClarisWorks 2.0* is pretty sophisticated, considering the package isn't intended to be a professional presentation program



In the database module, some of field types now have auto entry options. This means that you can specify that some information will already be entered when you create a new record

Jargon Busters

Dialogue box: a window which appears on the screen asking you for some information – for example, if you save a file, the window which appears asking you where you want to save it to is a dialogue box

Field: a database record contains fields, which are spaces where the user can enter data. For instance, a database set up as an address book would have fields for a person's name, address and phone number

Macro: a macro is like a recording of actions that you perform with the keyboard and mouse. Once made, this recording can then be played back. Suppose you frequently open a database of your home accounts, sort it to find all the unpaid bills, print those details and then close the database. All of these actions are identical every time, so you can record a macro which 'watches' you do the task once, and then repeats it whenever you want

Pixel: one dot on the monitor – the smallest distinguishable element

QuickTime: Apple's method of displaying moving video and sound from within Mac applications



regularly-dialled bulletin boards or whatever. There are cosmetic improvements to the display, including a split-pane option (where the window can be split into two) and the option to expand the window vertically. A timer displays how long you've been on-line.

Claris now includes a Kermit file transfer tool with the program – Kermit is a file transfer protocol understood by just about every computer in the world, so you should have no problem downloading files no matter what machine you want to connect to.

Shall I upgrade?

Whether to upgrade a program or not is often a tricky question; with *ClarisWorks 2.0* there really is no question – the extra features in the word processing module alone should have you reaching for your cheque book; combine this with things like the new range of charts in the spreadsheet module and the new paint module, and it's well worth the upgrade fee.

And if you are still trying to decide which integrated package to buy, this is a major upgrade to a best-selling application and solidly confirms *ClarisWorks* as the best integrated package on the market. It's hard to know what the competition can possibly do to knock it from that position now. **mf**

Put simply, a Bézier curve provides 'handles' on any line, with which you can define how sharply it curves and in what direction. The polygon tool allows you to select the number of sides that your shape will have, and allows you to rotate that shape before you place it.

Data management

The database module has inherited a number of new features from Claris' fully-fledged product, *FileMaker Pro*. For a start, support for Avery labels has been added. Anyone who

This upgrade solidly confirms ClarisWorks as the best package

has wasted sheets and sheets trying to get labels to print out accurately will upgrade for this feature alone!

Some field types – text, number, date and time – now have 'auto entry' options – which means that data will automatically be placed in the field when a new record is created. You can auto-enter things such as the creation date or time, or a serial number – the program will allow you to specify the starting number and the increment. You can also check that a field is not empty, is unique or is within a specified range. Finally, you can also set up a pre-defined list of data which pops up when the field is selected. This way, the user needs only click on a value for it to be entered in the field – great if you want part numbers or something similar to be input.

Communication

The comms module has been upgraded somewhat – it's rather more user-friendly and now supports a phone book where you can enter the phone numbers for any

module. All in all, the charting module is now almost as powerful as those in *Excel* and *Resolve* – and should certainly cater for most people's needs.

Put simply, a Bézier curve provides 'handles' on any line, with which you can define how sharply it curves and in what direction. The polygon tool allows you to select the number of sides that your shape will have, and allows you to rotate that shape before you place it.

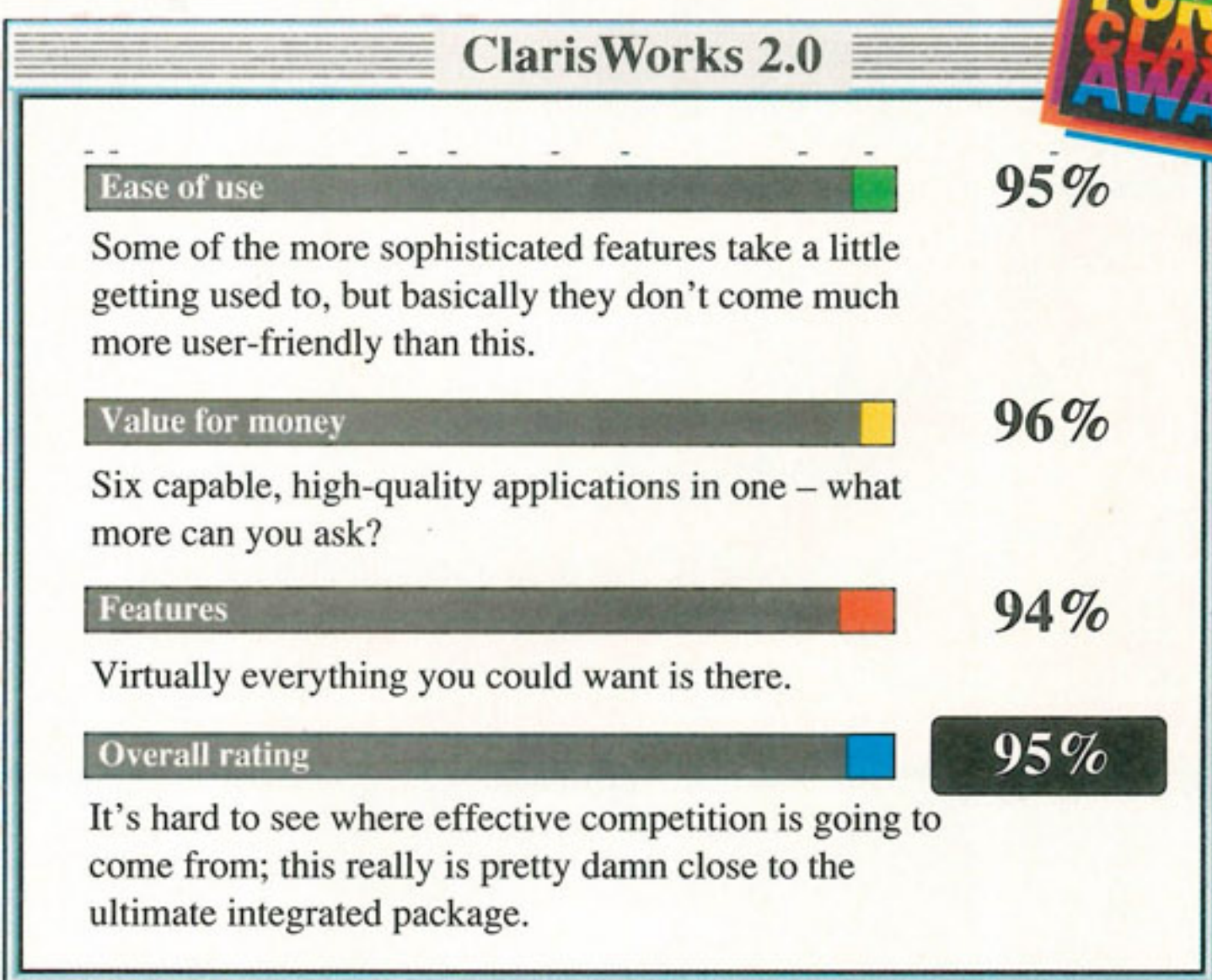
The draw module now has a 'master page'; when you create new pages, any items on the master page will be automatically placed on them. This is useful for page layout, where you want things like a newsletter's page numbers and columns of text to be in the same position on each page.

The paint module has all of the above tools – although once the object has been drawn, it is treated like a paint object and can't be manipulated. There are also the standard paint package tools, such as a marquee and lasso for selecting areas, a magic wand for auto-selecting areas with the same colour, and brush, pencil, paint bucket, spray can and eraser tools for painting.

Charting the spread

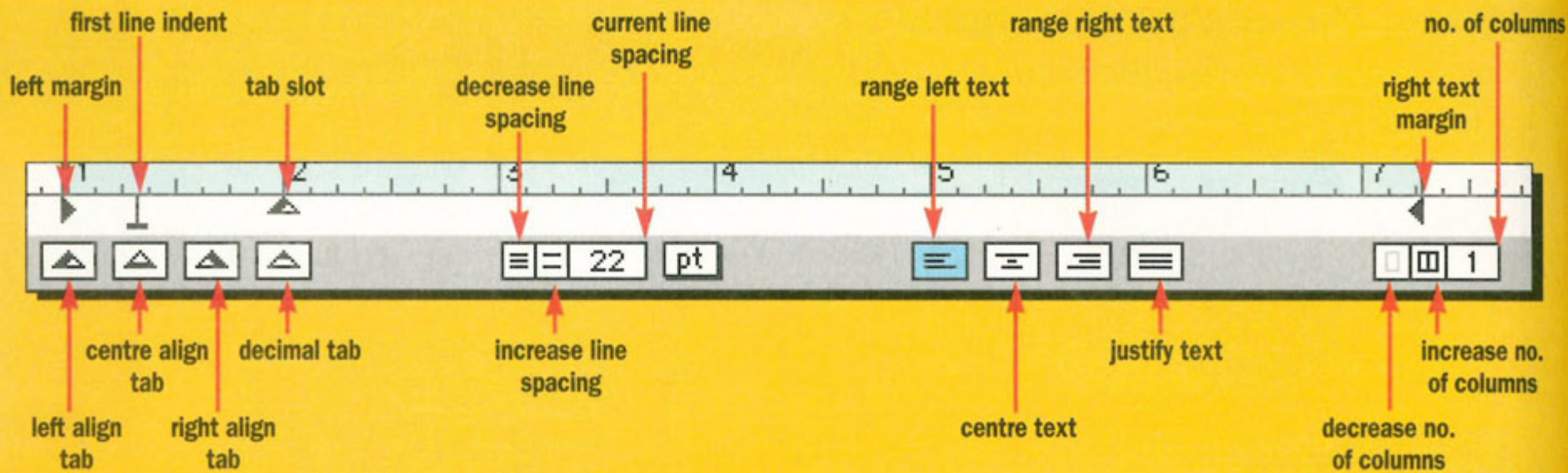
A number of different effects can be applied to any area of your paint document, including distortion, a perspective effect and free rotation. There are gradient fills available, and these can be edited if you want.

The spreadsheet module has had a few minor improvements made – the major change is in the charting section, where there are a large number of improvements. Users can now choose from ten different types of chart, all of which can be in colour and many of which can be shown as 3D. Labels and legends are easy to add, and bar and histogram charts can include pictures in them – pictures which you can create in the draw or paint



Where to get it

ClarisWorks requires any Mac with 1Mb of RAM to run, or 2Mb if you are running System 7 or want to use the comms module. It is available from Frontline on 0256 20534 and costs £229. An upgrade from version 1.0 of the program costs £55.



A real Pro

MacWrite Pro has been a long time coming. Now it's here, Ian Wrigley asks was it worth the wait?

MacWrite Pro was first announced at around the same time that System 7 was released – which makes it roughly two years ago. Indeed, some members of the press were even shown a 'late beta version' at that time. But it's taken until now for the product to be released – during which time Microsoft has established something of a stranglehold on high-end word processing with *Word 5.1*, while integrated packages such as Claris' own *Claris Works* have word processing modules almost as good as *MacWrite II*. So *MacWrite Pro* really does have to be something special to redress the balance. But is it really special?

Well, based on evaluating a beta version of the software (which should be shipping by the time this issue of *MacFormat* is on the newsstands) the answer is a resounding 'Yes!' *MacWrite Pro* has enough tools to satisfy almost everyone; from word processing features such as footnotes, powerful style-sheets and mail merging, via a

powerful table editor, to desktop publishing features like multiple columns with independently variable widths, and picture and text frames which can be inserted anywhere. This really is a powerful program; even people committed to other packages will be surprised at just how much is on offer.

The basics

MacWrite Pro is based on a 'true WYSIWYG' (What You See Is What You Get) display; unlike some other word processors, the program always shows you a display which includes page margins, an obvious gap at page breaks and so on.

There are many supporters of this mode of working – after all, it's important to know just how your document will look when you print it out. Detractors, on the other hand, say that this form of display is slower to re-draw and scroll through than the plain text display which programs like *Microsoft Word* use as default. Also, many people don't care about the formatting of their work until it's actually been written

– and sometimes not even then, if the word processor is being used to input text which will then be imported into a different package, such as *QuarkXPress* or *PageMaker*.

Assuming you're happy with the 'page display' mode of working, the basic *MacWrite Pro* window seems to have few surprises. If you're already using *ClarisWorks* or *MacWrite II*, you will be able to start using the program straight away – the ruler is virtually identical (the only addition is a control for selecting the number of columns on the page). It's only when you start exploring the menu bar that you really see just how much has been added to the product.

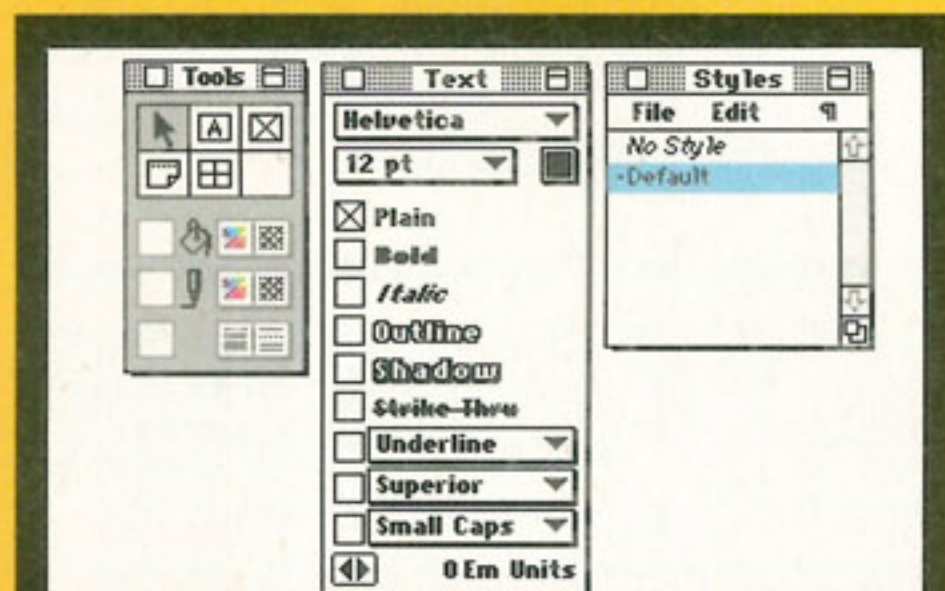
For a start, there are now a number of floating palettes, which give access to commonly-used features. The three palettes are **Tools**, **Text** and **Styles**. In order, the **Tools** palette has buttons for inserting new text or picture frames, a new table and also for putting a 'sticky note' on the page.

This is analogous to using a

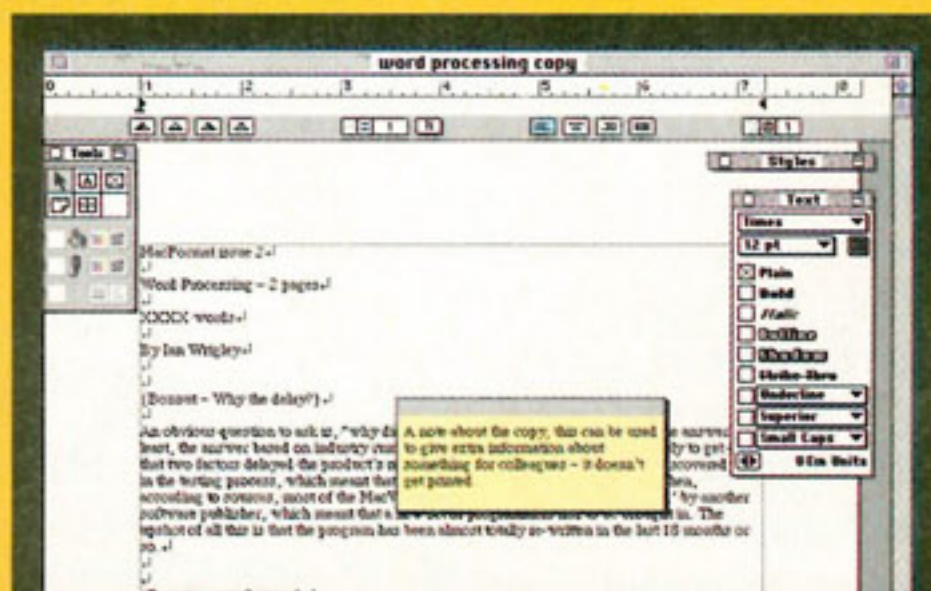
Why the delay?



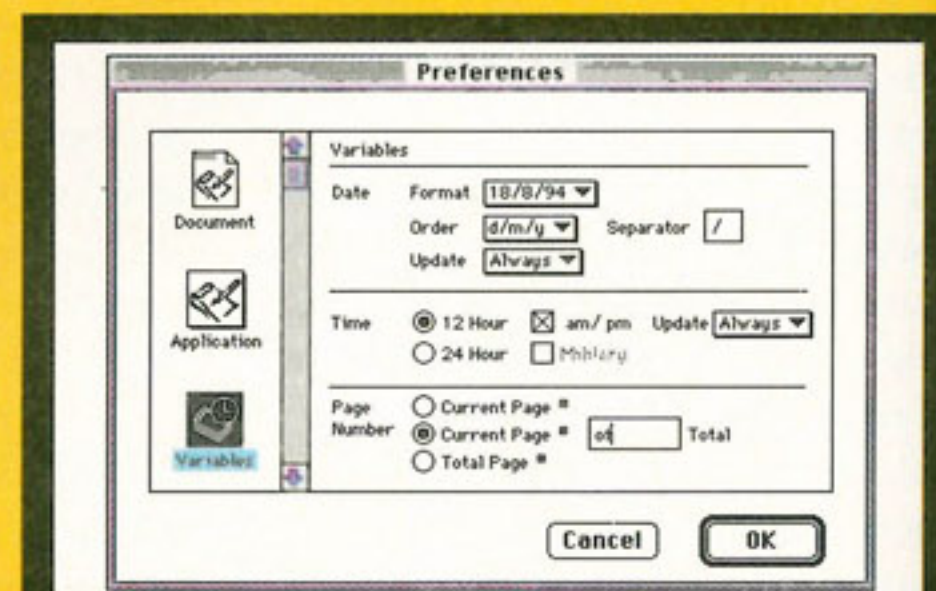
An obvious question to ask is, 'why did this program take so long to appear?' The answer – at least, the answer based on industry rumour, which is the only one that you're likely to get – is that two factors delayed the product's release. First of all, some problems were discovered late in the testing process, which meant that a delay of some sort was inevitable. But then, according to sources, most of the *MacWrite Pro* development team were 'poached' by another software publisher, which meant that a new set of programmers had to be brought in. The upshot of all this is that the program has been almost totally re-written in the last 18 months or so.



MacWrite Pro's floating palettes. The Styles palette displays character or paragraph styles. The Tools palette includes tools to insert frames and tables



MacWrite Pro – a worthy successor to the popular *MacWrite II*. The Styles palette has been shrunk down, and also the annotation placed on the text



In common with other programs, the Preferences dialogue box has been divided into various sections. Notice the range of page numbering options

MacWrite Pro – new features

MacWrite Pro has more than 130 new features or improvements on MacWrite II. Obviously it's impossible to list them all here, but we can give you a taster...

- Floating Tools, Styles and Text Format palette
- Paragraph and character styles, which can be saved and used in other documents
- Automatic table creator
- International spelling checker – French, German, Italian and Spanish can be added
- New icon on toolbar for easy

- multiple column creation
- On-screen changing of margins, headers, footers and columns
- Auto-save feature
- Mail merging
- Insertion of date, time and page number available
- Find and replace works for text styles as well as just words
- Text and graphic frames can be placed anywhere in the document. Graphics can be scaled and cropped
- Publish and Subscribe information sharing system is supported

Post-It note on a sheet of paper – you can type in a message on the note, which will be kept with the document but not printed out. You can even add a sound recording to the note, if you have a Mac with a sound input port.

The Text palette gives easy access to things like text size, font, typestyle and colour. It also allows you to define the text spacing, in 'em units' – the larger the value of spacing, the more widely spaced out the characters. Finally, the Styles palette allows you to select or edit both character and paragraph styles. Character style sheets are not yet very common in word processors; MacWrite Pro's implementation is good, and many people will buy the

program just for this feature.

All tool palettes have a 'collapse' box; clicking this reduces the palette to just its title bar, and places it at the top right hand corner of the main window – very useful if you want occasional access to a palette but don't have the screen space to keep it open all the time.

Tabula rasa

MacWrite Pro has a new, powerful table editor built in. Tables can be anchored to text or placed independently on a page, and things such as cell borders, size and so on are all easily customisable. When a table is selected, a new menu appears which gives access to all these features, and [option]-double-clicking on the

table (or selecting **Modify Frame** from the **Frame** menu) produces a dialogue box which allows you to specify its dimensions and decide whether or not to anchor it to text.

Tables have always been a pain in word processors; *Microsoft Word 5.0* was about the first to have any kind of usable table editor, but even that can be cumbersome to use. MacWrite Pro's version, on the other hand, is simple to get the hang of, while still being powerful.

Desktop publishing

It's the program's DTP facilities that will really have people excited; probably 90 per cent of users will find MacWrite Pro easily powerful enough for all their page layout requirements.

First up, the program will allow you to have multiple columns on a page – selected either by clicking on the control in the ruler or by altering the values in the **Section...** dialogue box. Columns can be set to be identical widths, or you can choose an individual width for each one. Again, this is done from the **Section...** dialogue box if you want to specify the dimensions by number. Alternatively, [option]-clicking a column border allows you to alter it by hand – and to set the gap between columns, too. Different pages can have different numbers of columns simply by setting each to be a new **Section**.

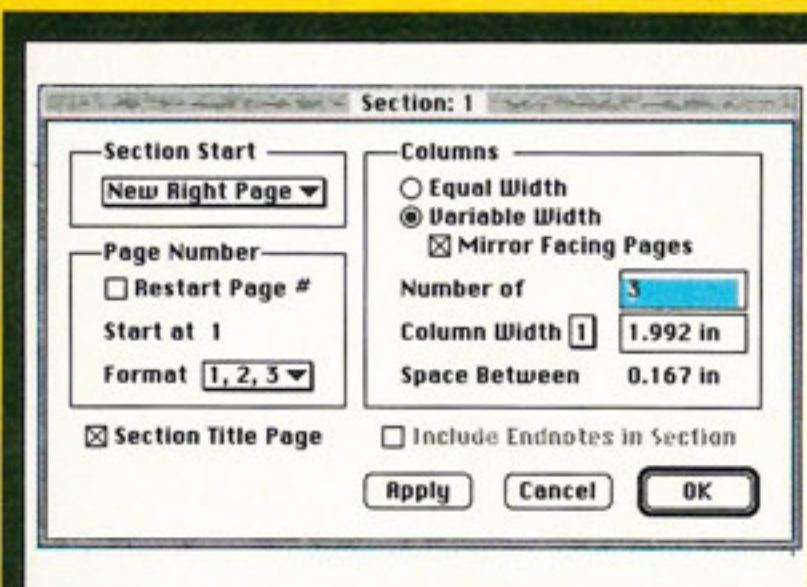
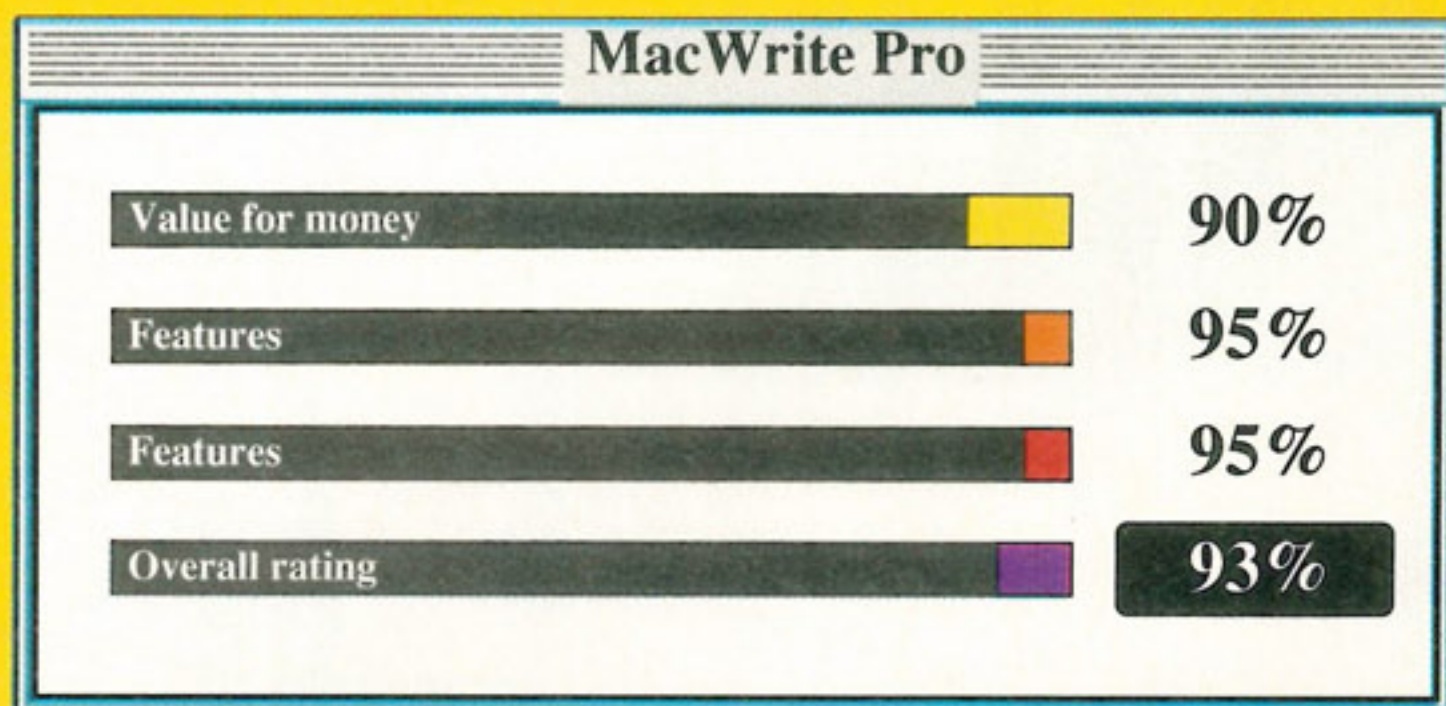
Once you've got your basic columns set up, you'll want to insert graphics and small chunks of text. Again, this is easy: click on the text or picture frame icon from the Tools palette (or from the **Frame** menu), draw it out and you're done. Graphics or text can be imported from other files – most popular word processor file formats are supported, and graphics in EPS, MacPaint, TIFF and PICT format can be used. Once a graphic is in place, a new menu appears with options for cropping or scaling both the image and its bounding frame. You can also set the frame to be 'transparent' – which means that text will flow around the image, rather than around the frame.

These features, together with things like the table editor and style sheets, make MacWrite Pro a viable alternative to dedicated page make-up programs for many people; true, it doesn't have features like colour separation – but not many people use such things anyway.

The word processor market has recently become very crowded and, as a late entrant, MacWrite Pro will have its work cut out carving itself a niche. But it really does deserve to succeed: it's powerful, easy to use, and is a logical upgrade from the most popular integrated package, *ClarisWorks*. If you're in the market for a word processor, this is one that you should check out. **mf**

The student's saviour

MacWrite Pro has one feature which alone could make it a vital purchase for academics and students: page numbering supports the 'page 6 of 23' format. Very few word processors will do this automatically; instead, you have to count the pages yourself and manually type in the total number. This is, of course, prone to errors – and it doesn't give a particularly good impression if your last page is numbered 'page 72 of 68'. MacWrite Pro will do all this for you – and you can even customise how the information is displayed, so if your document's pages must be numbered as, say, '3/15' instead of '3 of 15', it's no problem.



The Sections dialogue box is where you can determine things like the number of columns on a page and how wide you want them

Jargon Busters

Em dash: a dash which is the width of one 'm'

EPS: encapsulated PostScript. An EPS file contains a PostScript representation of an image for high resolution output

TIFF: tagged image file format. A graphics file format often created by scanners

PICT: common Macintosh file format for graphics. PICT files are usually small

Where to get it ▼

MacWrite Pro requires a Classic II, SE/30, LC, II series, PowerBook, Quadra or Performa to run. The program sells for £206; current users of MacWrite can upgrade for £65 before the end of June 1993, and owners of Microsoft Word, WriteNow or WordPerfect can upgrade for £112 before the same date. MacWrite Pro is available from all Claris dealers.



ClarisWorks v.1.1

Is it worth buying a fully-featured spreadsheet package when the spreadsheet module of an integrated package will do the job? Greg Morrison and Simon Cox pit *ClarisWorks* against *Microsoft Excel*

When trying to decide which spreadsheet package to buy it is tempting to go for the package with the most features. However the cost of spreadsheet programs varies immensely from a fraction of the price of an integrated 'Works' package to a few hundred pounds for a package like *Microsoft Excel* or *Lotus 1-2-3*. Of course, the question is, 'what features do I really need?' In this article we will compare how two of the most popular spreadsheet applications – the spreadsheet module in *ClarisWorks* and the fully-featured *Microsoft Excel 4* – can be used to solve the same problem.

The problem we have chosen is one in financial planning – the personal bank statement. We will produce a spreadsheet that can be used at the beginning of each month to show what the known credits and

debits are on a bank account. It can then also be used during the month to keep a running balance and can be updated as necessary.

ClarisWorks first

As a start we will produce a spreadsheet in *ClarisWorks*. We will use a single spreadsheet as a template which we will copy each month. We will divide the spreadsheet into three areas. The first two will be for regular monthly debits and credits that we know about in advance, such as being paying a mortgage. We will use different coloured text for these different areas: black for credits and red for debits. The third area is below the twentieth row and will be used for planning. These areas are shown below. **1**

In both the credit and debit area there are totals which are created via simple sum formula. Also, note that column G has been left blank and

that there is the formula '=E21-C22+D22' in the cell E22. We have chosen this structure as we will copy the debits and credits to the working area at the beginning of each month. The column E will be used to hold the running balance and will be calculated by subtracting a debit cell from the previous balance and adding in a credit cell. Having prepared the spreadsheet, it can be turned into a stationery pad in the **Finder** as below: **2**

We can produce a new spreadsheet at the beginning of each month just by opening the stationery pad. This will then create a new untitled window in *ClarisWorks* containing our spreadsheet.

So, having created this spreadsheet, how is it used? We will walk through the use of the spreadsheet at the beginning of a month. We carry out the following steps:

1. Enter the balance from the previous month's statement in cell E21. We have chosen the figure 345.56 to show the spreadsheet in use.
2. Copy the debits area from the top left hand corner to the area starting at A22 as below. **3**
3. Copy the credits area from the top right area corner of the window to below the debits as shown. **4**
4. Now sort the working area of the

spreadsheet by the date of the transaction. Do this by selecting the area horizontally from A22 to D22 and vertically to A30 and sort from B22. **5**

5. Select the column from E22 to E30 and perform a fill down operation. The fill down operation will copy the formulae in E22 to the other cells. The clever thing about this operation is that it changes the formulae to refer to the correct cell as it fills down. **6**

We now have the basis of a month's planning. Now each time we want to add a transaction we perform the simple operation of selecting an area, moving it down and inserting the new transaction. Say for example we take out £80 on the 6th. We then perform the operations below:-

1. Select the area after the date needed and move it down one row. **7**
 2. Enter the new information. **8**
 3. Fill in the total column again. **9**
- Now by entering withdrawals and any credits we can see whether or not we are likely to overdraw by the end of the month.

On to Excel...

Having now accomplished this in *ClarisWorks* we could duplicate this in virtually any other spreadsheet package. However as we shall see

Bank Statement CWorks (SS)							
E22		=E21-C22+D22					
	A	B	C	D	E	F	G
1	Monthly Debits	Day	Amount		Monthly Credits	Day	Leave Blank
2	Home Insurance	5	£ 15.00		Pay	15	
3	Pension Topup	7	£ 45.00				
4	Credit Card	12	£ 150.00				
5	Mortgage	12	£ 335.00				
6	Endowments	12	£ 70.00				
7	Savings Plan	14	£ 45.00				
8	Poll Tax	15	£ 30.00				
9	Car Repayment	20	£ 120.00				
10							
11							
12							
13							
14							
15	Total		£ 750.00		Total		
16							
17							
18							
19							
20	This month's planning						
21	Carried Forward					£ 0.00	
22						£ 0.00	
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							

1. The spreadsheet has three areas; debits, credits and planning

15	Total		£ 750.00		Total		£ 1050.00
16							
17							
18							
19							
20	This month's planning						
21	Carried Forward					£ 345.56	
22	Home Insurance	5	£ 15.00			£ 330.56	
23	Pension Topup	7	£ 45.00				
24	Credit Card	12	£ 150.00				
25	Mortgage	12	£ 335.00				
26	Endowments	12	£ 70.00				
27	Savings Plan	14	£ 45.00				
28	Poll Tax	15	£ 30.00				
29	Car Repayment	20	£ 120.00				
30	Pay	15					£ 1050.00
31							
32							

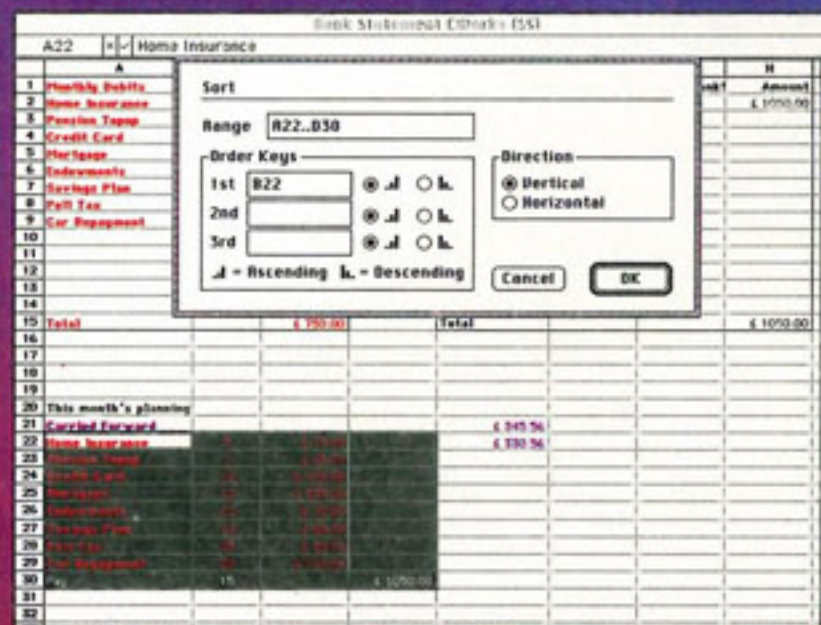
4. Copy the credits area from the top right to below the debits



2. The stationery pad

1	Monthly Debits	Day	Amount		Monthly Credits	Day	Leave Blank	Amount
2	Home Insurance	5	£ 15.00		Pay	15		£ 1050.00
3	Pension Topup	7	£ 45.00					
4	Credit Card	12	£ 150.00					
5	Mortgage	12	£ 335.00					
6	Endowments	12	£ 70.00					
7	Savings Plan	14	£ 45.00					
8	Poll Tax	15	£ 30.00					
9	Car Repayment	20	£ 120.00					
10								
11								
12								
13								
14								
15	Total		£ 750.00		Total			£ 1050.00
16								
17								
18								
19								
20	This month's planning							
21	Carried Forward					£ 345.56		
22	Home Insurance	5	£ 15.00			£ 330.56		
23	Pension Topup	7	£ 45.00					
24	Credit Card	12	£ 150.00					
25	Mortgage	12	£ 335.00					
26	Endowments	12	£ 70.00					
27	Savings Plan	14	£ 45.00					
28	Poll Tax	15	£ 30.00					
29	Car Repayment	20	£ 120.00					
30								
31								
32								

3. Copy the debits to the area starting at A22



5. Select the area in black and sort from B22

15	Total		£ 750.00		Total		£ 1050.00
16							
17							
18							
19							
20	This month's planning						
21	Carried Forward					£ 345.56	
22	Home Insurance	5	£ 15.00			£ 330.56	
23	Pension Topup	7	£ 45.00				
24	Credit Card	12	£ 150.00				
25	Mortgage	12	£ 335.00				
26	Endowments	12	£ 70.00				
27	Savings Plan	14	£ 45.00				
28	Poll Tax	15	£ 30.00				
29	Car Repayment	20	£ 120.00				
30							
31							
32							

6. The fill down changes the formulae

Microsoft Excel

Designing a spreadsheet

When designing spreadsheets here are a few simple things that can make development easier.

- If you have colour don't be afraid to use it. It can help you to distinguish between different pieces of information and also tell you where that data came from
- Whenever possible divide your spreadsheet into different areas which reflect the structure of the problem. Using borders will encourage you to stay in the correct areas
- It is better to copy something than work on it in place. Then if you make a mistake you can go back to the original data
- Protect cells that are not being used. This will help avoid the problem of accidentally changing a fixed value
- Add comments to your spreadsheet and name areas. They will help you when you return to change something such as adding a new credit card to your home finance system

there are a number of things that make this easier to accomplish in *Excel*. We could improve the appearance of the spreadsheet as *Excel* has superior colour and formatting capabilities.

We could also incorporate regularly-performed operations into special small programs that can be run when required. These programs are called 'macros'.

ClarisWorks has a macro facility by which operations (like mouse movements) can be recorded and replayed. This facility is very simple and can be easily 'confused'. *Excel* has a more sophisticated macros

facility. The operations are represented by commands which can be edited. To use this we can make the spreadsheet record the actions we performed at the beginning of the month. We can then add to that an input statement that asks us for the previous month's balance. The resulting macro with some comments is shown below. **10**

Most of the statements are reasonably self explanatory. The result of running the macro is then shown below. **11**

We could also create a macro that provides us with an automatic method of entering credits and

debits. The options are unlimited for this kind of automation.

Having created this macro we can add it as a command to a menu or assign it to a button. The macro shown here represents the simplest one we could get away with. It contains no error checking and therefore if used in the wrong way could produce problems. Also, in use it does not maintain the formatting of the spreadsheet.

There remain many more things we can do with this spreadsheet in *Excel*. We could provide similar spreadsheets for credit cards and loan repayments. These could then all be linked together into a workbook. The bank statement spreadsheet could then consult other spreadsheets to find out information on various payments. We could also incorporate annual or quarterly bills.

To sum up

We set out to compare the power of the two spreadsheets packages. Everything we wanted to do we accomplished in *ClarisWorks* – the only problem was that certain operations were repetitive. This problem was solved in *Excel* but at what cost? It took roughly four times as long to get the *Excel* spreadsheet macros to work as

Jargon Busters

Function: the power of a spreadsheet is in the functions available. A function such as 'sort' performs a sort on a range and returns the sorted result to the spreadsheet

Macro: a group of commands which work on a spreadsheet in order to change it. This can replace whole lists

Range: when you need to specify a range of cells instead of copying out all the individual cell references a range can cover an area such as \$E\$2:\$F\$14 which specifies E2 to F14

opposed to the creation of the original simple spreadsheet in *ClarisWorks*. This extra time can only be deemed to be worthwhile if the spreadsheet is going to be used time and time again. In this case it may be true but a lot of spreadsheets are used to make a calculation and then discarded.

The moral is that a large spreadsheet package can provide you with more functions but do you really need them? You can spend more time trying to use the features than they will actually save you. **mf**
 ■ Turn to page 63 for the review of a beta version of *ClarisWorks 2.0*.

	A	B	C	D	E
20	This month's planning				
21	Carried Forward				£ 345.56
22	Home Insurance	5	£ 15.00		£ 330.56
23	Pension Topup	7	£ 45.00		£ 285.56
24	Credit Card	12	£ 150.00		£ 135.56
25	Mortgage	12	£ 335.00		-£ 199.44
26	Endowments	12	£ 70.00		-£ 269.44
27	Savings Plan	14	£ 45.00		-£ 314.44
28	Poll Tax	15	£ 30.00		-£ 344.44
29	Pay	15		£ 1050.00	£ 705.56
30	Car Repayment	20	£ 120.00		£ 585.56

7. Select the area and move it down one row

	A	B	C	D	E
20	This month's planning				
21	Carried Forward				£ 345.56
22	Home Insurance	5	£ 15.00		£ 330.56
23	ATM Withdrawal	6	£ 80.00		
24	Pension Topup	7	£ 45.00		£ 285.56
25	Credit Card	12	£ 150.00		£ 135.56
26	Mortgage	12	£ 335.00		-£ 199.44
27	Endowments	12	£ 70.00		-£ 269.44
28	Savings Plan	14	£ 45.00		-£ 314.44
29	Poll Tax	15	£ 30.00		-£ 344.44
30	Pay	15		£ 1050.00	£ 705.56
31	Car Repayment	20	£ 120.00		£ 585.56

8. Enter the new transaction information

	A	B	C	D	E
20	This month's planning				
21	Carried Forward				£ 345.56
22	Home Insurance	5	£ 15.00		£ 330.56
23	ATM Withdrawal	6	£ 80.00		£ 250.56
24	Pension Topup	7	£ 45.00		£ 205.56
25	Credit Card	12	£ 150.00		£ 55.56
26	Mortgage	12	£ 335.00		-£ 199.44
27	Endowments	12	£ 70.00		-£ 269.44
28	Savings Plan	14	£ 45.00		-£ 314.44
29	Poll Tax	15	£ 30.00		-£ 344.44
30	Pay	15		£ 1050.00	£ 705.56
31	Car Repayment	20	£ 120.00		£ 585.56

9. Fill in the total column again

```

1 NewMonth (m)
2 The next line asks the user for last month's balance and puts it in the right place
3 =FORMULA(INPUT("Enter balance",1,"Last Month's Balance",),,$E$21)
4 Now copy the debits to the working area
5 =SELECT($A$2:$C$14)
6 =COPY()
7 =SELECT($A$25)
8 =PASTE()
9
10 Now copy the credit title and dates
11 =SELECT($E$2:$F$14)
12 =COPY()
13 =SELECT($A$35)
14 =PASTE()
15 Then copy the credit values
16 =SELECT($G$2:$H$14)
17 =COPY()
18 =SELECT($D$35)
19 =PASTE()
20
21 Sort the working area
22 =SELECT($A$22:$D$46)
23 =SORT(1,$B$22,1)
24
25 Fill down the balance calculating cell
26 =SELECT(OFFSET($E$22,0,COUNT($B$22:$B$46),1))
27 =FILL.DOWN()
28 Select the first transaction and move the window back to the top
29 =SELECT($A$22)
30 =YPAGE(-1)
31 =RETURN()
    
```

10. An example of one of *Excel*'s macros

	A	B	C	D	E	F	G
1	Monthly Debits	Day	Amount	Monthly Credit	Day	Amount	
2	Home Insurance	5	£ 15.00	Pay	15	£ 1,050.00	
3	Pension Topup	7	£ 45.00				
4	Credit Card	12	£ 150.00				
5	Mortgage	12	£ 335.00				
6	Endowments	12	£ 70.00				
7	Savings Plan	14	£ 45.00				
8	Poll Tax	15	£ 30.00				
9	Car Repayment	20	£ 120.00				
10							
11							
12							
13							
14							
15	Total						£ 345.56
16							
17							
18							
19							
20	This month's						
21	Carried For						345.56
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							

11. This is the result of running the *Excel* macro

Where to get it

ClarisWorks version 1.0 costs £229 from Frontline Distribution (0256 20543). Version 2.0 will be available soon. *Excel 4.0* costs £405 from Microsoft on 0734 270000.

Dead-cert data

Entering error-free information into a database can be a nightmare. Jack Weber recommends some applications and features that will help to adjust sloppy data entry

Some years ago, when the personal computer revolution was just taking off, everyone suddenly got worried about keyboard skills. The ability to think and waggle ten fingers at the same time had always been restricted to secretaries and concert pianists; now, it looked as if our future prosperity might depend on it. As it happened, touch-typing classes proved even less appealing than the prospect of national decline, and the panic soon subsided. The problem didn't go away though.

Paradoxically, sloppy typing isn't so bad when you're writing normal text – misspell a word in the middle of a memo, and a spelling checker will usually find it. If not, then the real meaning may still be clear from the context. But try searching a database for addresses in London, and any that have been accidentally entered as Londom, Lonfon or Lindon will never appear. The solution – at least, a partial solution – is called data validation and it's one of the most useful, though under-used features of a database.

There are various approaches to validation, but generally speaking, you establish the criteria when you define a field, and the program then checks each time that you enter or modify a record to make sure that the contents of the field match the criteria.

Defining data

The first step towards minimising entry errors is to go through all the fields in your database and see how narrowly you can define the data that needs to go into each. Obviously, the worst case is a free-form text

field which, by definition, can contain anything at all. Even there, some programs can help – *FileMaker Pro* is the only mainstream database to provide a spelling checker, but so do the database modules of Symantec *GreatWorks* and *ClarisWorks*. In all cases, you're restricted to checking whole records or selected blocks of text – neither of which is particularly convenient, but you can partially automate the process by creating a script to select and check specific fields.

Typing by default

At the opposite extreme come fields which are so predictable that you can let the computer do the typing for you. All the main database applications will auto-enter things like the current time and date, or a serial number that automatically increments with each new record.

Most will also let you specify default data. This is always worth doing if a significant number of records are expected to have the same value in a field.

Panorama, a database application that's been popular in America for many years, provides a variation on auto-entry called 'Ditto'. This copies the contents of the corresponding field in the preceding record – very handy if records which share some common data are likely to be entered in batches.

Another novel and powerful feature in *Panorama* is 'Clairvoyance'. As fast as you type data into a clairvoyant field, *Panorama* scans all the other records and completes the entry as soon as it finds an unambiguous match. For example, if other records already

File Force, a cut-down version of *4D*, offers a customisable list of entry filters for pattern-matching. Notice the wide range of other validation options

contain 'Bill' and 'Ben', Clairvoyance will beep and complete the word 'Ben' as soon as you've typed 'Be' in the corresponding field. If what you actually want to enter is 'Becky', just ignore it and carry on typing. Where Clairvoyance really comes into its own is in eliminating the minor differences like 'John Smith and Co' and 'John Smith & Co' which can so easily be duplicated.

In the right circumstances, the various forms of auto-entry can save time and reduce mistakes, but there are many other techniques available too. At the simplest level, most programs will let you specify that particular fields cannot be left blank. That's not always appropriate – after all, an address without a post code may not be ideal, but it may be all you have. On the other hand, when you know that it won't cause problems, it's worth using this option just to cut the risk of accidentally skipping a field.

Unique entry

Another common feature forces the computer to check if the field entry is unique to this particular record. Again, there are many cases where you can safely set this option. For example, if you have a database of business contacts, they're all likely to

Entry Options for Text Field "Group"

Auto-enter the the a serial number next value increment by data

Creation Date
Creation Time
 Modification Date
Modification Time
Creator Name
Modifier Name

Verify that the field value is

not empty
 unique an existing value
 of type
 from
to

Prohibit modification of auto-entered values
 Repeating field with a maximum of values
 Use a pre-defined value list:
 Look up values from a file:

There's no pattern matching, but *FileMaker Pro* has a decent range of auto-entry and validation options to help save time and reduce mistakes

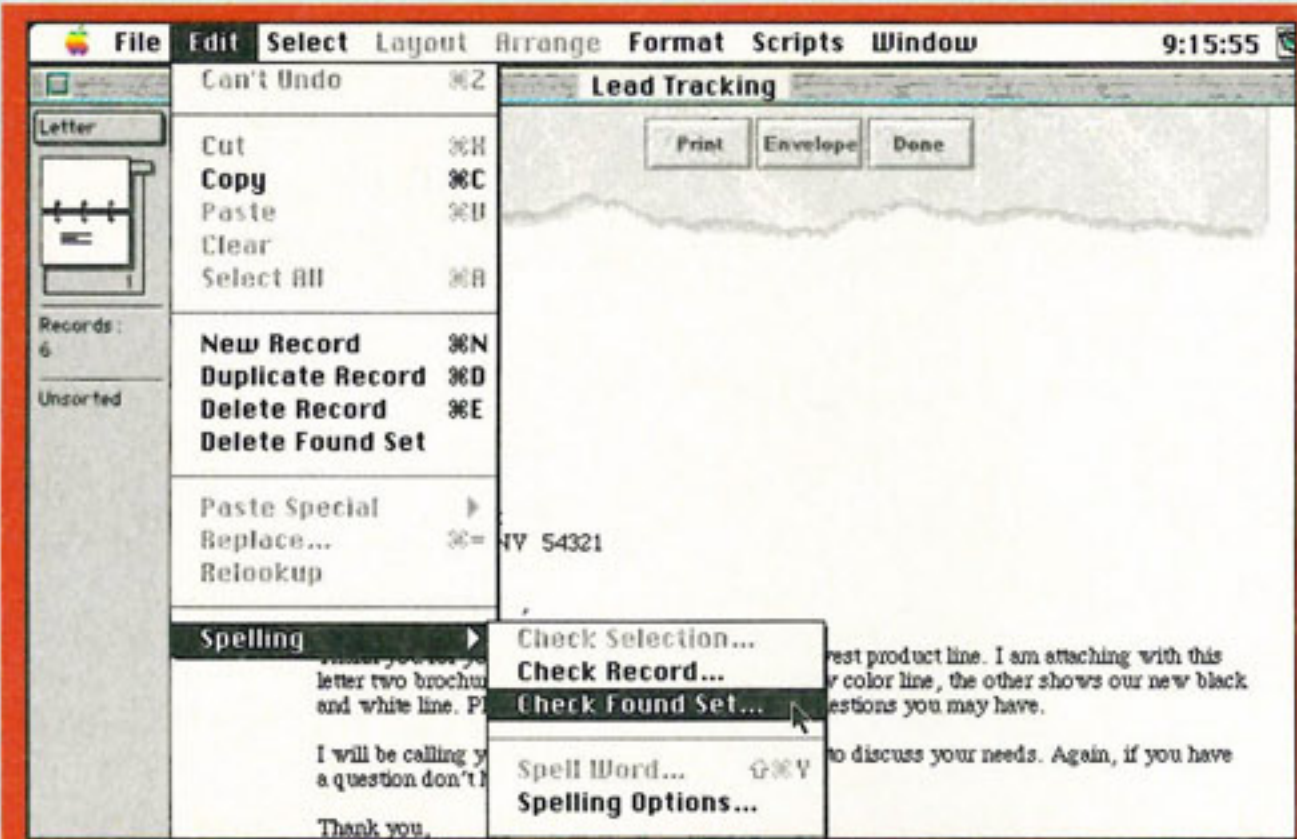
Change Procedure for the 'Patron ID' Field:

```
IF (Patron ID*Patrons*Invoices) = "?" THEN
  USE("Patrons Form",MODAL)
  SETNEXTFIELD((Patron ID*Patrons*Invoices))
ELSE
  IF NOT (Patron ID*Patrons*Invoices) IN "Patrons" THEN
    ALERT("This number is not in the Patrons file",CAUTION)
    SETNEXTFIELD((Patron ID*Patrons*Invoices))
  ELSE
    ACCEPT
    SETNEXTFIELD((Video Inventory*Invoices))
  END
END
END
```

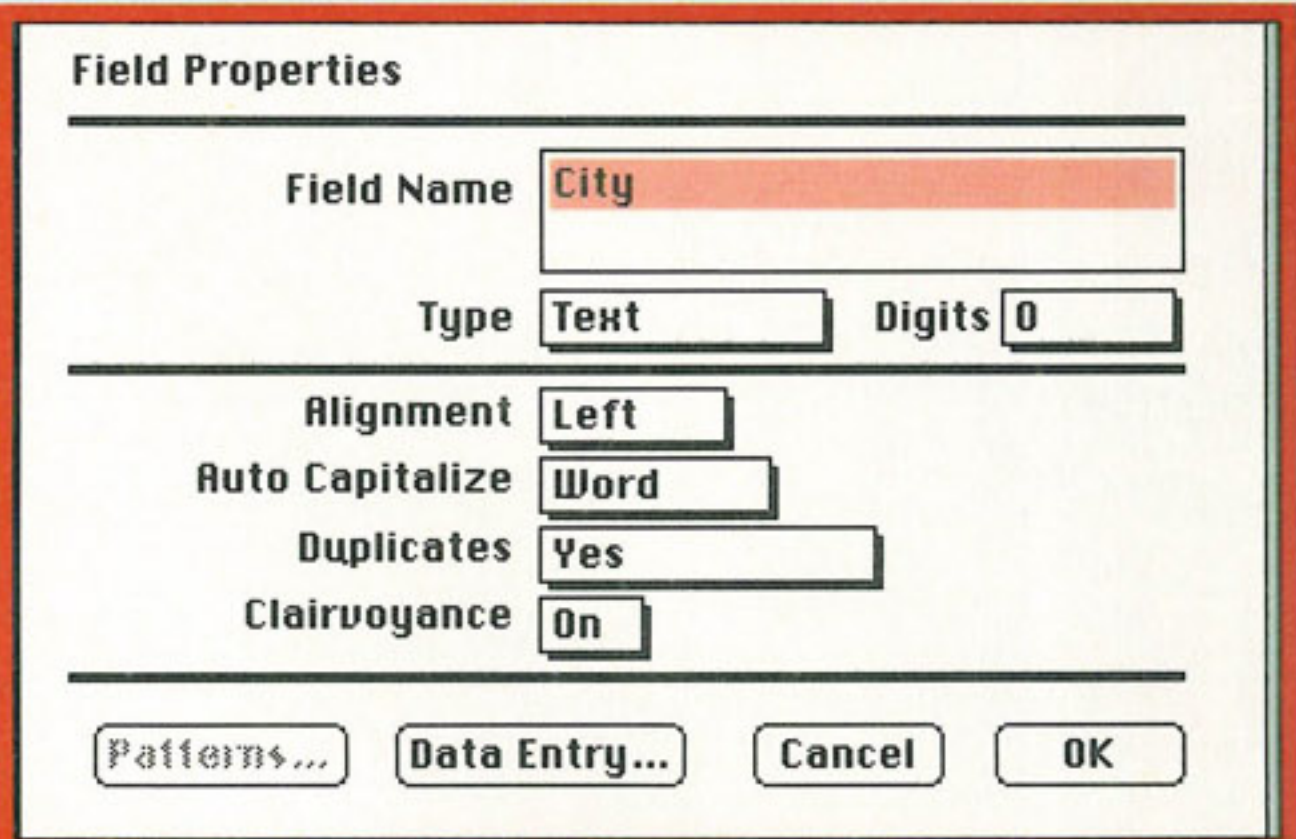
Path:

Type:

The ultimate data validation – a custom procedure written to check data entry against records in another file. This one is in *NuBASE*



Spell checking is useful if you have large amounts of ordinary text in a database, as with this form letter created within FileMaker Pro



Panorama is one of the few databases to provide Clairvoyance – an easy way to duplicate field entries with no risk of mistakes

have different telephone numbers. Making the field unique may not catch most mistakes, but it doesn't cost anything and it may just find the odd one, especially if you're copying numbers from a list.

Another valuable feature that is available in most database programs allows you to define a list of preset values for a field so that, rather than type it in, you select the required value from a pop-up list or menu. Among some of the other validation options, FileMaker Pro lets you set minimum and maximum values for a field, while Panorama lets you specify exactly which characters can, or cannot, be entered into a field. Both options can be useful for certain types of data.

Move upmarket

As you move upmarket to the more advanced database programs, two more levels of error-trapping come into play. The first of these is called pattern-matching. This is useful for things like part numbers which may have to fit some very specific pattern such as three uppercase letters followed by a hyphen, five digits, another hyphen and a final letter which cannot be I or O. Applications like 4th Dimension, File Force or NuBASE make it easy to set very precise criteria, and will reject any entries that don't comply. In this respect, American users have an advantage because their telephone numbers and post codes all fit into consistent patterns. UK ones don't.

The other technique that's available in

the more complex applications involves programming a procedure which will be invoked whenever you enter anything into a field. If you need validation that depends on lengthy calculations or on cross-checking against other fields and records, then this may be the only way to achieve it. But be warned – it's not for the faint-hearted. At the very least a bit of programming experience will be useful.

Make that choice

With such a wide range of techniques to choose from, you should be able to find a combination that suits your particular needs – obviously a database that is full of well-defined codes and numbers requires different validation methods from one that handles large amounts of text. However, since you can never eliminate errors altogether, a good database program should also help you to track down the blunders that creep in. FileMaker Pro scores well in this respect by letting you search for records that contain blank fields, duplicate values or values that don't match the field's data type. More importantly, it has a very useful, though obscure, feature called Paste From Index.

The rationale behind this is that it allows you to duplicate precisely any existing field value by copying it from the field's index. The practice, unfortunately, doesn't live up to the theory – it's slow and cumbersome, and I wouldn't recommend it as a means of data entry, but it does provide a very useful way of checking what's already there. All

you do is choose the Find mode, then click in the field you want to check and press [⌘] [I]. A small scrolling window will appear showing, in alphabetical order, every word that's been entered in that field. If you find a mistake, you can paste it straight in and click Find to take you directly to the offending record. It's particularly useful for minor errors – for example if 'widget' and 'wigdet' appear next to each other, it's much easier to spot the mistake than when you see them individually in a cluttered layout.

Finally, if all else fails and your database remains a mess of mistakes, I would suggest the original remedy from the early days – learn to touch type. It may not be the answer to recession or unemployment, but it's hard to beat for accuracy. mf

Jargon Busters

Clairvoyance: an option that checks your keystrokes against previously entered values in a field and completes the word or phrase as soon as you've typed enough characters to make a unique match. It can be a real time saver with repetitive entries, and a valuable way of reducing errors. Clairvoyance is only available in Panorama and a specialist business database called CAT IV

Data validation: any means of checking data as it is entered to ensure that it matches some pre-defined criteria

Index: a list of all the words and values that have been entered into a particular field. Some programs (for example FileMaker Pro) automatically index every field; most others let you select which fields you want to have indexed. The value of indexing is mostly in faster search times, but it can sometimes be useful for finding rogue entries

Pattern matching: a validation method that specifies a particular pattern of letters, numbers and punctuation marks, but not the actual values of those characters

Where to get it ▼

Package	Available from	Phone no	Price
GreatWorks	Symantec	0628 592222	£116
ClarisWorks	Frontline	0256 20534	£229
NuBASE	Softline	081 642 2255	£229
FileMaker Pro	Frontline	0256 20534	£323
File Force	ACI	0625 536178	£347
Panorama	Forester Systems	081 993 1516	£347
CAT IV	CanDo	0452 527603	£464
4th Dimension	ACI	0625 536178	£881

Good connections

You and your Mac have the power to reach millions of other computer users... Ian Wrigley gets hooked up to the vast network of bulletin boards and the Internet

This issue we thought it would be a good idea to give you some idea of the two major services that are available once you've got yourself a Mac and some comms software: bulletin boards and the Internet.

Comms is one of the most fascinating areas of computing: there's nothing quite like finding the latest great shareware game before anyone else you know, or conversing with a student from UCLA about the best movies on release at

the moment. Of course, comms can also be serious business – many people do most of their work via a modem, and only go into an office when it's absolutely necessary.

Bulletin boards

There are basically two kinds of bulletin board: non-commercial, which are set up by enthusiasts who consider that being the 'Sysop' is reward enough for the money they've invested; and commercial, which charge you a fee for the privilege of logging on. Sometimes this fee merely covers

the Sysop's costs – some initially free boards have taken this option so that they can keep running – while often the whole thing is a commercial enterprise, as is the case with services like CIX and CompuServe.

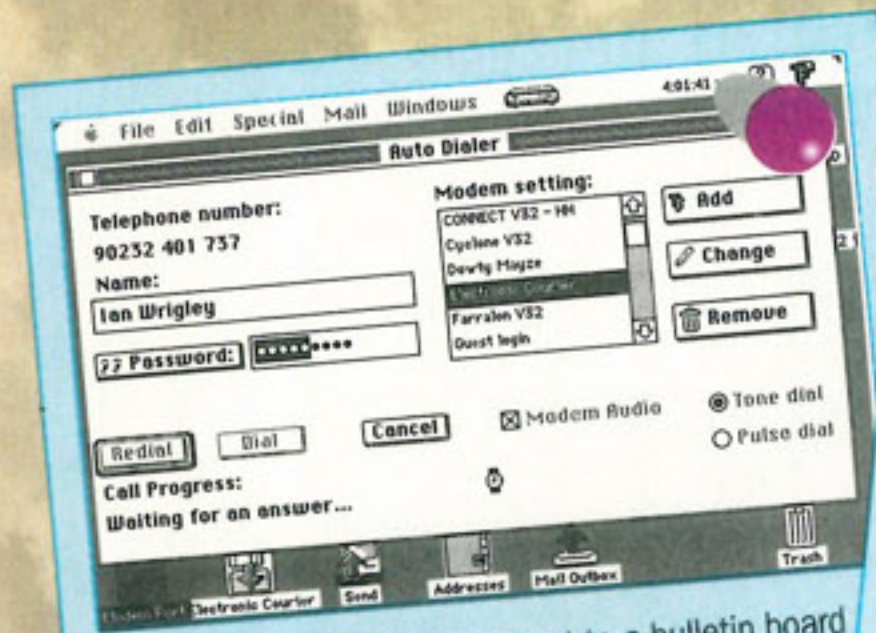
Normally, you use a bulletin board for electronic mail, discussing topics 'on line' with other people, and uploading and downloading files. Indeed, many people use BBSs only for the latter purpose – as a way of getting hold of the latest shareware and public domain software for little more than the cost of a phone call. (See the Shareware Zone on page 95 for details of how to do this.)

Remember, though, that it's considered bad manners on many private boards just to dial in, download programs and not contribute anything yourself. So for instance, if you've found a neat program somewhere else, upload it to the board so that other people have access to it. Some private boards even place restrictions on downloading files – you must upload one file for every five you download, for instance.

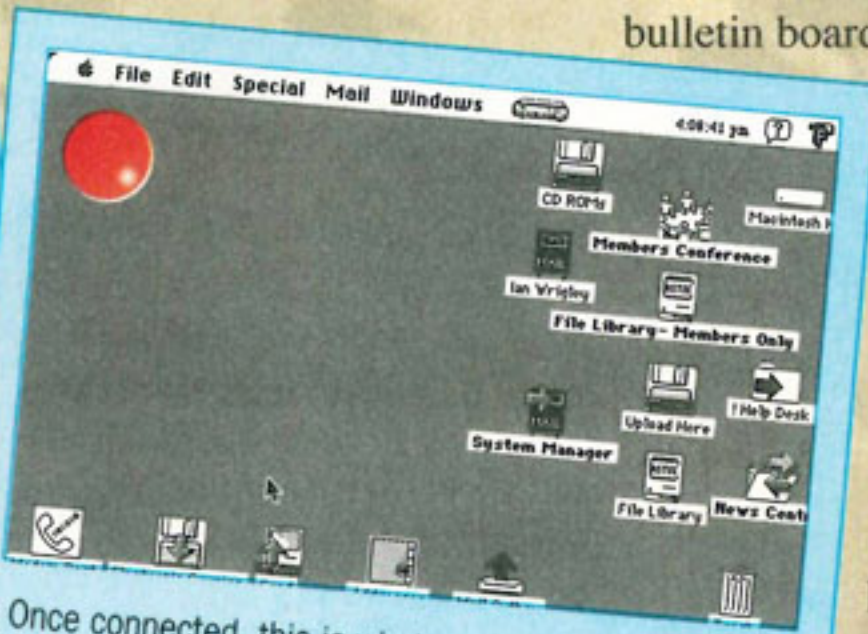
E-mail contact

Electronic mail is becoming more and more popular as a method of communicating with people; business cards which five years ago didn't even carry fax numbers now often have an e-mail address.

Unfortunately, actually contacting someone via e-mail isn't always as foolproof as we would like. If your favourite bulletin board has access to the



Setting up *TeleFinder* to connect to a bulletin board like *Electronic Courier* is easy – just fill in a few details and hit 'Dial'



Once connected, this is what you see. Mail is sent just by double-clicking on a mail box – no esoteric commands to learn

BBS corner

A regular feature in which we highlight a bulletin board of interest to the Mac community. This issue it's **Electronic Courier**...

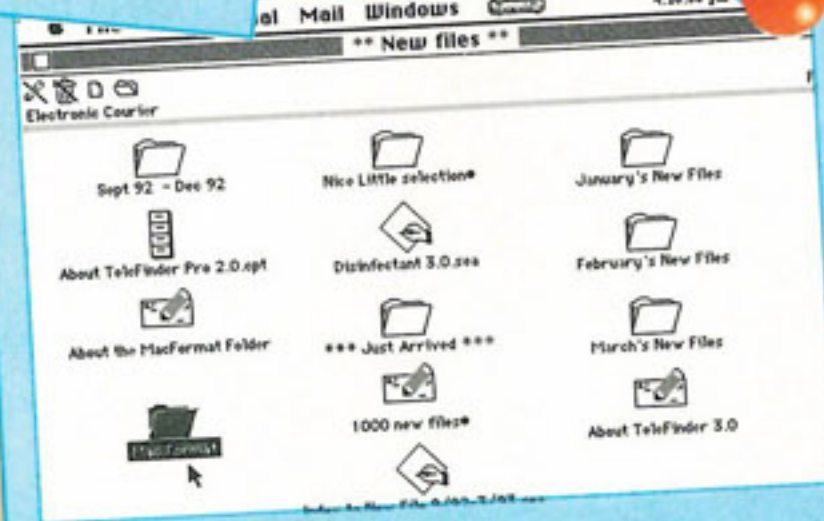
TeleFinder is a piece of software which allows you to run a bulletin board from your Mac. But rather than the text-based system that you normally find, *TeleFinder* presents Mac-based users with a graphical front end which is far easier to get the hang of.

One popular board running on the *TeleFinder* system is *Electronic Courier*, a subscription-based service which offers 12,000 PD and shareware files for download, as well as areas where users can converse about any subject that takes their fancy.

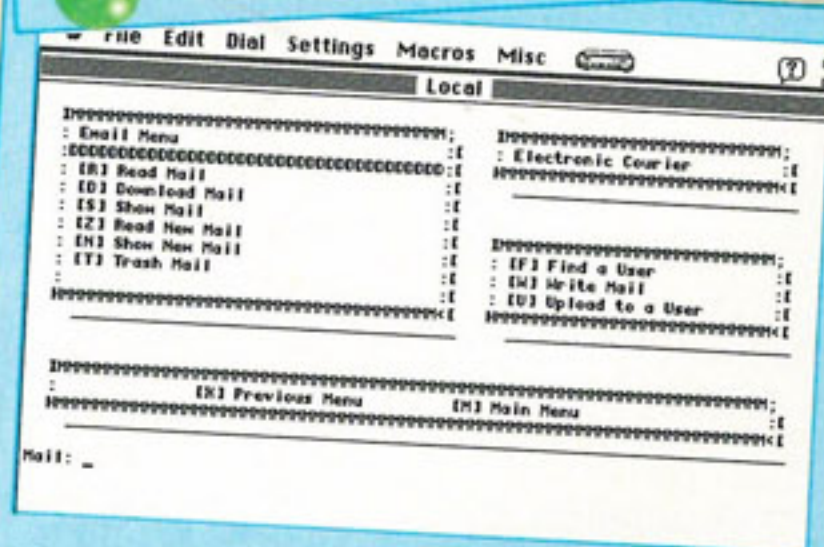
Logging on to *Electronic Courier* is simple: use any comms package and dial the number – 0232 401737. Log on as 'guest', with the password 'guest', and you'll be presented with a simple terminal interface, from where you can choose to download the special software that gives you the graphical front-end (downloading takes

about 25 minutes at 2400 baud), or to keep on with the terminal emulation-style interface. This means that PC users can access the board – they just can't take advantage of the graphical user interface. (The UK distributor for *TeleFinder*, A M Micro Distribution, tells us that a PC version of the software is likely to be available in the fairly near future.)

As a guest, you are only allowed five minutes on the system before you are automatically logged off. To explore it a little more before you decide whether or not to subscribe, you should register – by giving the Sysop your name and address – which allows you up to two hours of connect time. After that, you must subscribe to continue using the system. By registering, you get full access to the system, including all of the available files. New files are accessible by subscribers immediately, but won't be made available to others for three months after their appearance. The Sysop has even created a **MacFormat** folder, with all the shareware that we review in each issue for easy access. Subscription costs start at £20 per year.



Electronic Courier has over 12,000 files for download. The Sysop has even collected all the files we review in our shareware pages



If you haven't yet downloaded the *TeleFinder* software, you can still use the board – although it's rather less attractive

Quick access info

Name: Electronic Courier	Subscription details:
Phone: 0232 401737	£20 per year for access up to
Interface: graphical, using	2400baud
<i>TeleFinder</i> software	£35 per year for access at
Demo login account: log in as	9600baud and above
'guest', with password 'guest'	

Get in touch!

If you know of any Mac-based bulletin boards, you have any ideas for future comms articles or you just want a chat, Ian Wrigley can be contacted at all of the following e-mail addresses (in order of most frequently checked first):

ian@vampire.demon.co.uk
iwrigley@cix.compulink.co.uk
I.WRIGLEY@applelink.apple.com
100016.320@compuserve.com

Internet (see later), there shouldn't be too much of a problem – you just address your mail and away it goes. Make sure that it's addressed properly, though – otherwise you'll find that it never arrived at its destination. For example, if someone tells you that their e-mail address on CompuServe is '100016,320' (my address, as it happens), you can't just use a service like CIX or AppleLink to send a message to that address.

You have to find out the full Internet address – which in this case is: '100016.320@compuserve.com'. Fortunately, it's likely that someone else has experience of sending e-mail to whatever system you're trying to access, so before you send anything important, ask other users of your BBS for advice as to the exact addressing conventions required.

The Internet

The Internet is a rather nebulous concept – but being connected brings you vast benefits in terms of access to software, information, discussions and so on.

Internet is the term used to describe a loose network of computers across the globe that communicate with each other – some on a regular basis, some more sporadically. It has grown in a fairly ad hoc way over the years, and comprises just about every university in the United States, most major academic institutions in many other countries (including the UK), a large number of companies, and some 'service providers', which are in business just to link people in to this vast network.

Its scope really is vast – and will be the subject of a whole article in **MacFormat** soon – but

just as a taster, here are a couple of the things that it encompasses:

■ **FTP.** Using FTP (which stands for File Transfer Protocol), you can retrieve files from computers around the world. These files can be programs, information, texts of speeches – just about anything you can think of is available. Want the text of the American Constitution? No problem. The complete works of Shakespeare in computer-readable form? You got it. The latest version of *Maelstrom*, a stunning shareware game? Piece of cake. Information on global environmental pressure groups?... You get the idea.

■ **Usenet.** This is a huge list of 'newsgroup' discussions. You subscribe to the newsgroups that you're interested in, read articles that other people have posted and respond as you will. The range is enormous – if you can think of a subject, there's likely to be a newsgroup devoted to it. As an example, here are a few newsgroup topics, picked (more or less) at random: Macintosh programming; the Northern Exposure TV programme; hackers; US visa and immigration information; movie

Jargon Busters

BBS: short for Bulletin Board System – a remote computer that stores files, e-mail and so on for its users. You connect via a modem, using comms software

Baud: speed of data transmission, which is roughly equivalent to 'bits per second' (although not quite). The higher the baud rate, the faster the data is transmitted to and from your computer – and so the lower your phone bills!

Download: means to retrieve files from a remote computer, and store them on your Mac

E-mail: electronic mail. This has the advantage that it's far faster than normal, posted letters. It's stored on a bulletin board or host computer, and the recipient

can read it when he or she next logs on. However, it's not infallible – there is always the possibility that your e-mail hasn't reached the person you sent it to. (But then, that can be the case with the Post Office, too...)

Public domain: freely-distributable software which you can use and give to other people with no charge

Shareware: try before you buy software – it's freely distributable, but you must pay the author a fee if you like and use it

Sysop: SYStem OPERator – the person in charge of a bulletin board

Upload: means to transfer files from your computer to a remote machine, via modem

news; pinball; Frank Zappa. Access to the Internet is normally only possible either via a commercial service provider or – if you're lucky and a student – from a terminal at your university. Each person on the Internet has his or her own personal, unique 'address' – and e-

mail from anywhere in the world is forwarded to that address on the computer that they use.

■ **Next month:** A guide to getting on the Internet with Demon Internet Systems; the software is almost all free, and the subscription is just £11.75 per month. **mf**

Bulletin board information

Name: Apple Crackers

Phone: 0268 781318, 0268 780724

Interface: text-based

Subscription details: £10 for unlimited downloads; free otherwise

Offers: files, conferences, e-mail

Name: AppleLink

Phone: 0800 585682 (voice!)

Interface: graphical

Subscription details: membership pack is £117.50; charges vary according to access speed used. Call for details

Offers: e-mail, files, conferencing. Used by Apple dealers & developers.

Name: CIX

Phone: 081 390 1255

Interface: text-based

Subscription details: £25 registration fee; £2.40 per hour peak, £3.60 per hour off-peak

Offers: files, conferencing, e-mail, limited gateway to the Internet

Name: CompuServe

Phone: 0800 289378 (voice!)

Interface: text-based

Subscription details: phone for information and a membership pack

Offers: files, conferencing, e-mail.

Huge American-based board with over a million members

Name: Demon Internet Systems

Phone: 081 343 3881 (voice!)

Interface: depends on the software you use

Subscription details: £11.75 per month

Offers: full access to the Internet, including Usenet news, FTP file access, worldwide e-mail. Turns your machine into an Internet node; you then use shareware programs to read news, get mail and so on.

Name: Direct Line

Phone: 081 845 8228, 081 841 4114 (and others)

Interface: text-based

Subscription details: limited access is free; Annual memberships: Standard – £25; Gold – £50; Platinum – £80

Offers: primarily PC-based, but there is a Mac files area; e-mail; conferencing

Name: DTP User

Phone: 081 656 5190

Interface: text-based

Subscription details: free

Offers: This board is mainly aimed at people who use publishing software on the Macintosh or PC. Publishing-related files are available for download

Name: MacTel

Phone: 0602 455444 (MacTel HQ)
0602 455417 (MacTel Iconex)

Interface: MacTel is text-based; MacTel Iconex is graphical, using the FirstClass system.

Subscription details: limited access for free; unlimited access costs £24 for six months, £40 for one year

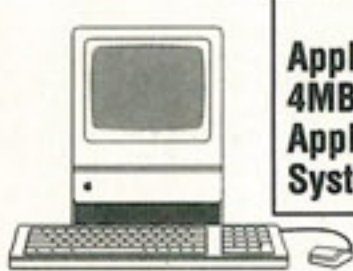
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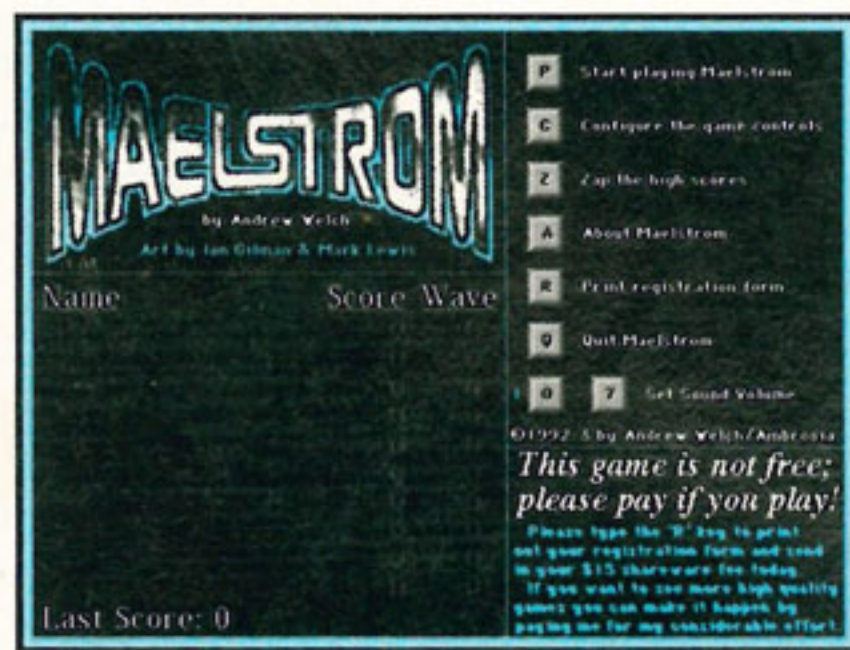
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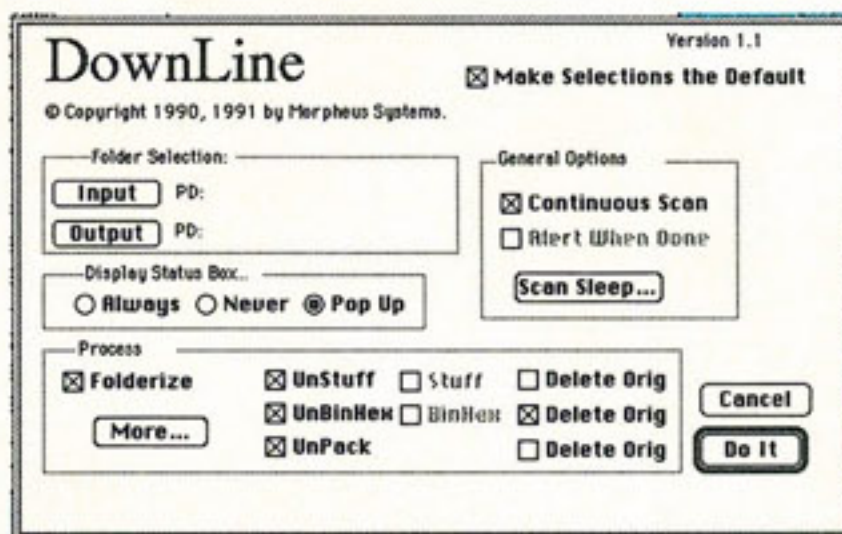
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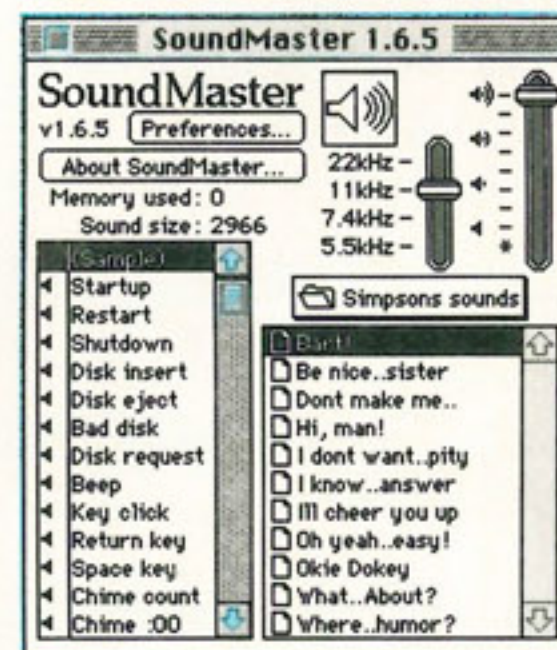
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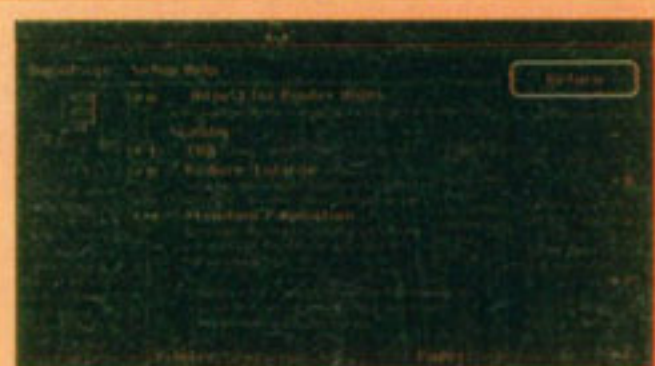
Pick of the

Ian Wrigley selects two of the best Mac utilities from his toolbox

Every issue we will be looking at the neatest and most useful utilities available to help you get the most out of your Mac. This issue we take a look at *DynoPage*, a fuss-free printing utility, and *TimesTwo*, which double the storage capacity of your Mac's hard disk

DynoPage

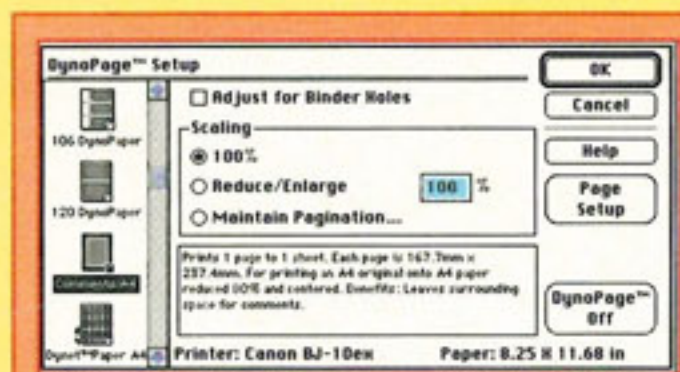
If you've ever wished that it was easy to print documents out double-sided, or to reduce pages and print four per A4 sheet, *DynoPage* is the product for you. It's from Portfolio Systems, the company which produces *DynoDex* (see the review



DynoPage has on-screen help which describes all the formatting options

in Issue 1 of *MacFormat*, page 79) and comes in the form of a Control Panel and an INIT which puts a new menu on your menu bar.

The idea is that the program intercepts any print job which you start, and does its own formatting to the document before passing it on to the Mac's built-in printer driver. This means that it should work with any printer, and just about every application – although there are a couple that it's not happy with, including the *4D* database, and *PageMaker*. The latter problem is because Aldus, in its infinite wisdom, has decided to access the printers directly from within the program, rather than by using the



DynoPage has options for more possible layouts than you can imagine – and it should work with just about any printer

Mac's normal method. However, you can get around this – hold down the [shift] key as you select **Print** and the program will use the Mac's normal printer drivers, so *DynoPage* will work fine.

How to use *DynoPage*

In use, *DynoPage* appears as a new set of dialogue boxes which appear when you select **Page Setup**. From there you select the layout that you want to use – personal organiser

paper, sixteen thumbnails per page, two narrow strips of text or whatever – and whether the output should be double-sided. Then hit **Print** and the program goes off and does its job with no more fuss.

The range of different formatting options is huge – although (certainly on the version I tested) you have to manually install the UK paper sizes from the disk, since this isn't done automatically by the Installer program. Still, it's just a matter of dragging the right files to a folder within your System folder, so there's no great problem. Once you're using *DynoPage*, you can have your output more or less however you want. For example, if you want to print sheets to Filofax-style paper – no problem. Likewise there are options for printing 16 'thumbnails' per page, so you can get an idea of your document's

TimesTwo

TimesTwo is a utility which sets itself an ambitious task: to double the storage capacity of any hard disk. If it can achieve this aim, of course, many people will buy it like a shot – after all, a new hard drive costs considerably more than *TimesTwo*'s £116 asking price.

There are, of course, already numerous file compression packages on the market. A typical

program is *AutoDoubler*, which automatically compresses files on the disk and decompresses them



TimesTwo: double the capacity of your hard disk at a stroke

when they're required. But the problem with this sort of solution is that decompression takes time, and it can be the case that some applications aren't entirely compatible. Also, a file must be decompressed if it is to be passed on to someone without the same software.

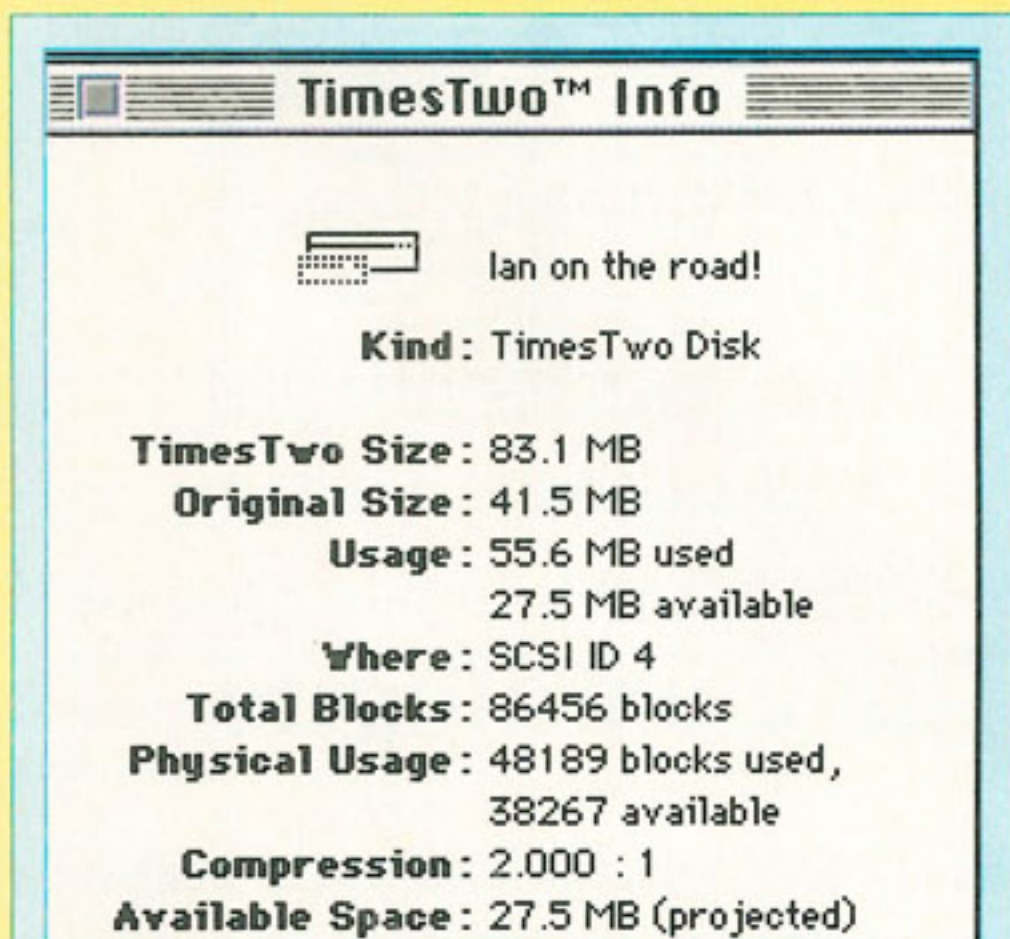
TimesTwo works in a radically different way – to understand it, you need to know something about how the Mac accesses hard disks. Each disk has on it a piece of software

called the 'driver' – which is installed when you format a disk for the first time. This software takes care of all the really messy business of deciding exactly where on the disk to store each file, what happens if there's not enough space to store it as a single chunk, where the free space is and so on. All the Mac has to do is send a message that it wants to delete a file, perform a save or whatever and the driver does the rest. This all happens totally transparently to the user, of course.

The *TimesTwo* way

TimesTwo replaces the normal driver with its own, which performs 'driver level compression'. That means that when the Mac wants to save a file, it sends the message to the driver, which takes the file, compresses it and then stores it on the disk. When retrieving that file, the driver decompresses it before handing it over to the Mac – so as far as the user (and the Mac) is concerned, the file is never observed in its compressed form.

This method of compression has a couple of advantages. First off, it is compatible with all applications – because no application bypasses the



Your Mac's hard disk will appear to have increased in size – *TimesTwo* gives you double the original capacity



Installation of *TimesTwo* is fairly simple, and should work on just about any hard disk that you throw at the program

bunch

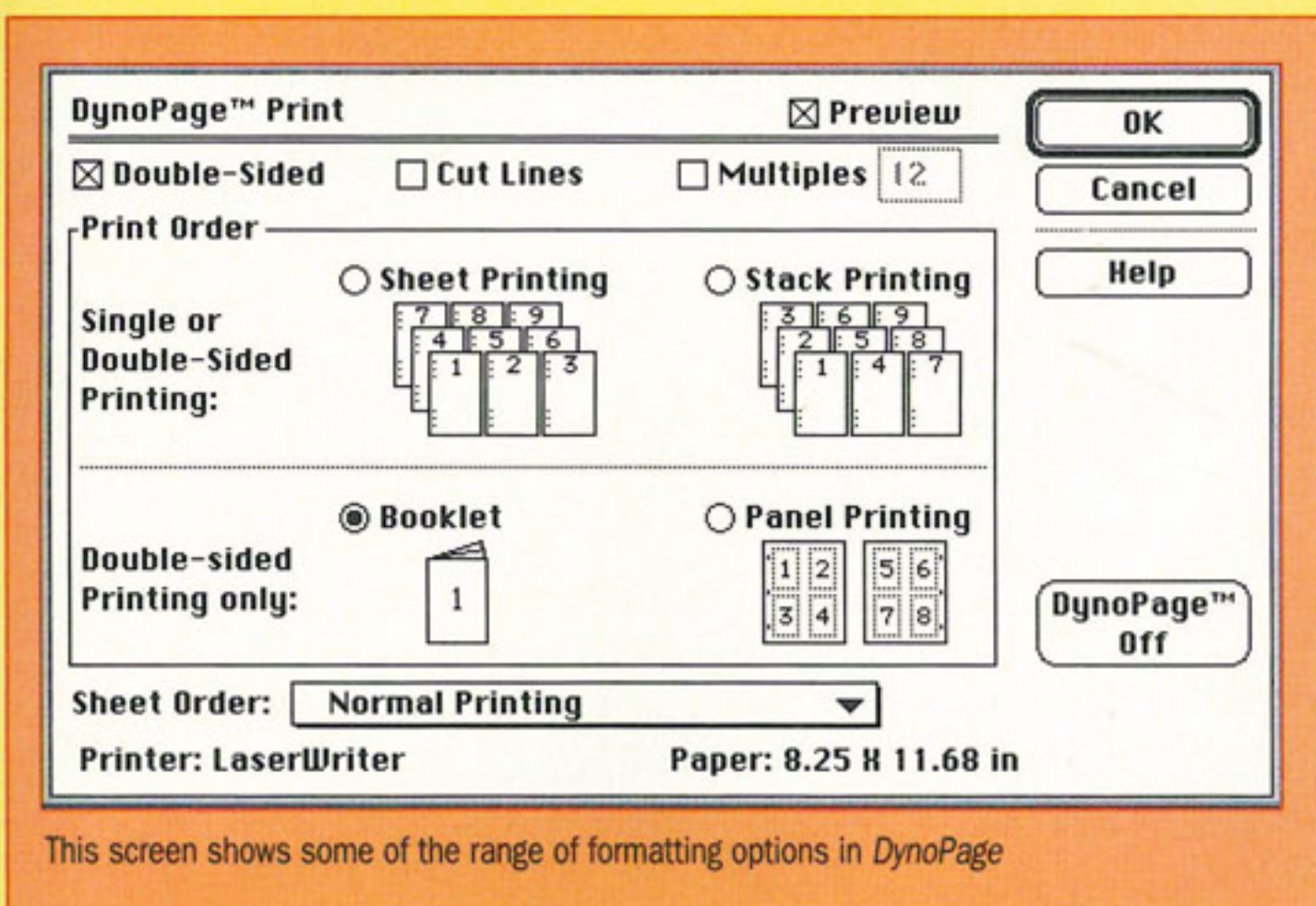
layout without having to print the whole thing a page at a time, or you can set the program to output your pages on to the paper so that they are in the right order to be collated and folded into an A5 booklet.

Along with the main utility, you also get **Printchooser**, which allows you to select different printers without going through the **Chooser**, and which also allows you to turn *DynoPage* on and off easily – one of

the major criticisms of earlier versions was that turning it on and off meant going to the **Control Panel** every time. If your Mac is networked and you have to swap between printers frequently, **Printchooser** is invaluable; just

select the printer from the menu.

DynoPage is efficient and easy to use. It does its job well, and just the ability to print double-sided pages or produce ready-collated booklets will be enough to encourage some people to buy it.



disk driver. Secondly, there's no problem when giving a file to someone else – as you copy it to another hard disk or a floppy, it's already been decompressed by the *TimesTwo* driver. The upshot of all this is quite simply that, to all intents and purposes, your disk drive appears to have increased in size – *TimesTwo* gives you roughly double the original capacity.

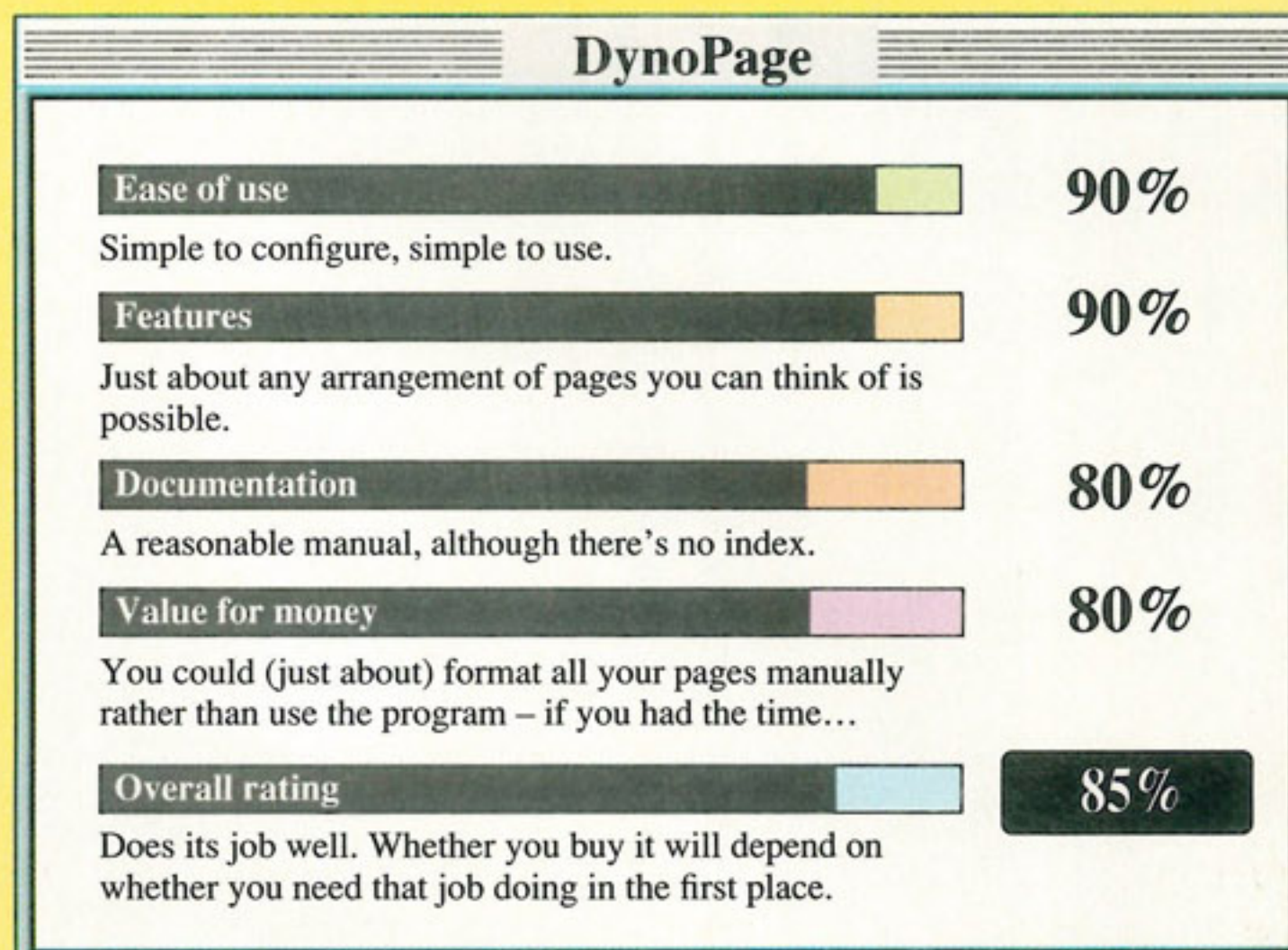
Installation is fairly simple, and should work on just about any hard disk that you throw at the program. However, take notice of the manual's warnings; you should back up all your data first, and follow each step to the letter. If you don't, or if something unexpected like a power cut occurs, you run the risk of losing all your data.

Like a dream

Once installed, the software works like a dream. I used it on my SyQuest removable drive, and each 40Mb cartridge suddenly had 80Mb of space – incredible! There are limitations, of course: *TimesTwo* won't work if one file takes up more than a quarter of the entire disk, or if you've less than about five per cent of the disk free. Also, the

program doesn't yet support auto-mounting of removable drives – you must use a utility like *SCSI Probe* to mount new cartridges on the desktop, and occasionally I had to restart to get a cartridge to appear. (An update to the program which cures this is imminent.)

There is, of course, a trade-off for all this extra space: speed. I performed a number of tests on cartridges with and without *TimesTwo* installed, and there is a noticeable slowing down during procedures like copying files to and from, and launching applications off, a *TimesTwo* disk. Copying a 3Mb folder from my internal hard drive to a *TimesTwo* cartridge took around twice as long as when copying to one with the normal driver present (just over a minute, compared with 33 seconds), and launching *QuarkXPress* took about 35 per cent longer. However, unless you use a program which makes incredibly frequent use of disk access, such as one which plays *QuickTime* movies (or you want to use a *TimesTwo* disk as a virtual memory store) this really isn't likely to bother you too much – you soon get used to the slightly longer wait.



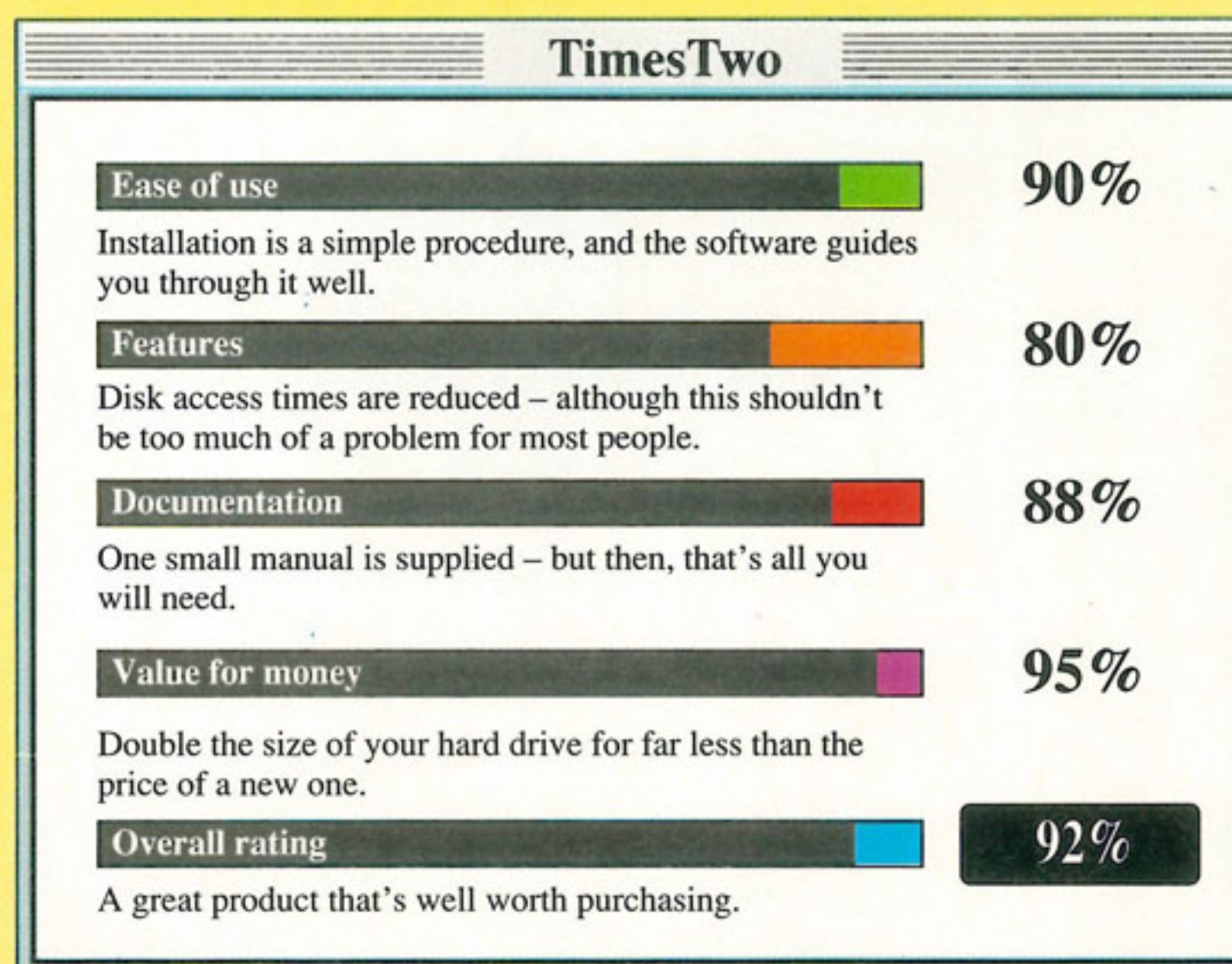
Where to get it

Dynopage is distributed in the UK by Computers Unlimited, phone number 081 200 8282. It costs £94

And, after all, you now have twice as much storage space to play with!

If you're running out of room on your hard disk, *TimesTwo* could well be just what you need. And for people with removable drives, the

advantage is even greater; I can now get 80Mb of free space for each £48 I spend on a SyQuest cartridge, which means that after I buy three carts the software has more than paid for itself. Recommended.



Where to get it

TimesTwo is distributed in the UK by DirekTek, phone number 081 845 5969. It costs £116.

Looking **Mac** Beginners professional

Even with a computer as sophisticated as the Mac, your printed documents can immediately give you away as a beginner. Ian Wrigley shows you how to avoid the stigma

Hardly a day goes by without some leaflet or mailshot dropping through the letterbox that screams 'amateur desktop publisher!'. The truth is that although the Mac gives you the power to make everything from your letter to Auntie Mabel right up to a huge, four-colour magazine look highly professional, it's still very easy to end up looking like an amateur.

Fortunately, the ground rules that should help you to avoid many of the glaring pointers to amateurdom are simple to get the hang of. Read and inwardly digest the following...

Straight and curly quotes

These are the easiest way to let people spot that you're new to the game. If you see a document which has 'text' surrounded by 'straight quotes' like these, you can immediately tell that the user hasn't properly mastered the Mac. 'Curly' quotes 'should' be used instead.

Many word processors give you the option to use curly quotes automatically instead of straight ones, but page layout packages, drawing programs and the like frequently don't. In that case, you need to know how to generate the curly equivalents – and fortunately, like much on the Mac, it's perfectly simple. For an open single quote ('),

hit [option] [.]. For the close quote, use [shift] [option] [.]. Likewise, double-quotes (speechmarks) are created with [option] [and [shift] [option] [.]. It's very easy to get into the habit of using these key combinations while you're typing – you can use them even if your word processor automatically generates the right quote for you.

There's one other time when using the explicit keypresses, rather than letting the program do the work for you, is useful: when you're entering text like: 'in the '80s, everything looked rosy.' Try it with a word processor: you'll find that an open quote appeared before the number 8, when what you actually wanted was a close quote. Using the [shift] [option] [.] keypress avoids this hassle.

MacFormat disclaimer: however practised you are at using the Mac, a few straight quotes are bound to sneak through from time to time. And, the law of Sod being what it is, you're bound to find some in this issue, now that we've told you how to avoid them...

Double spaces between sentences

No, no, no! Many traditionally trained typists insist on using a double-space between the full stop at the end of one sentence and the capital letter at the beginning of the

next. This is fine when you're using typewriter fonts, because they are what's known as 'fixed width' – that is, each character takes up the same amount of space, whether it's an 'i' or an 'm'. But almost all Mac typefaces are proportionally spaced, and putting those double-spaces at the end of sentences looks downright ugly.

Hyphens, en-dashes and em-dashes

Some writers – me included – make much use of the dash to separate sub-clauses or to add an additional point to a sentence – like this, in fact. If you do this, don't use the

Try to avoid some of the Mac's esoteric effects, such as shadow and outline

normal hyphen key (the one to the left of the [=] key on the keyboard). This should only be used for real hyphens such as those in phrases like 'run-of-the-mill'.

If you want to create a dash, you should either use an en-dash or an em-dash. These strangely-named dashes are longer than a normal hyphen and look far more pleasing on the page.

An en-dash is produced by pressing [option] [hyphen]. You should put a space on either side of it – like this. An em-dash is created by hitting [shift] [option] [hyphen], and should not have any spaces on either side—like this.

Normally, you'll find en-dashes used in British publications, and em-dashes used by Americans. Some people use an em-dash with a space on either side, but this tends to look a little ungainly. It's all, of course, a matter of choice.

(Note for desktop publishing purists: in fact, you should have 'thin spaces' on either side of an en-

dash, rather than full spaces, but the difference is negligible.)

The ellipsis

Another strangely-named device, the ellipsis is the three dots that make a sentence look like it's finishing half-way...

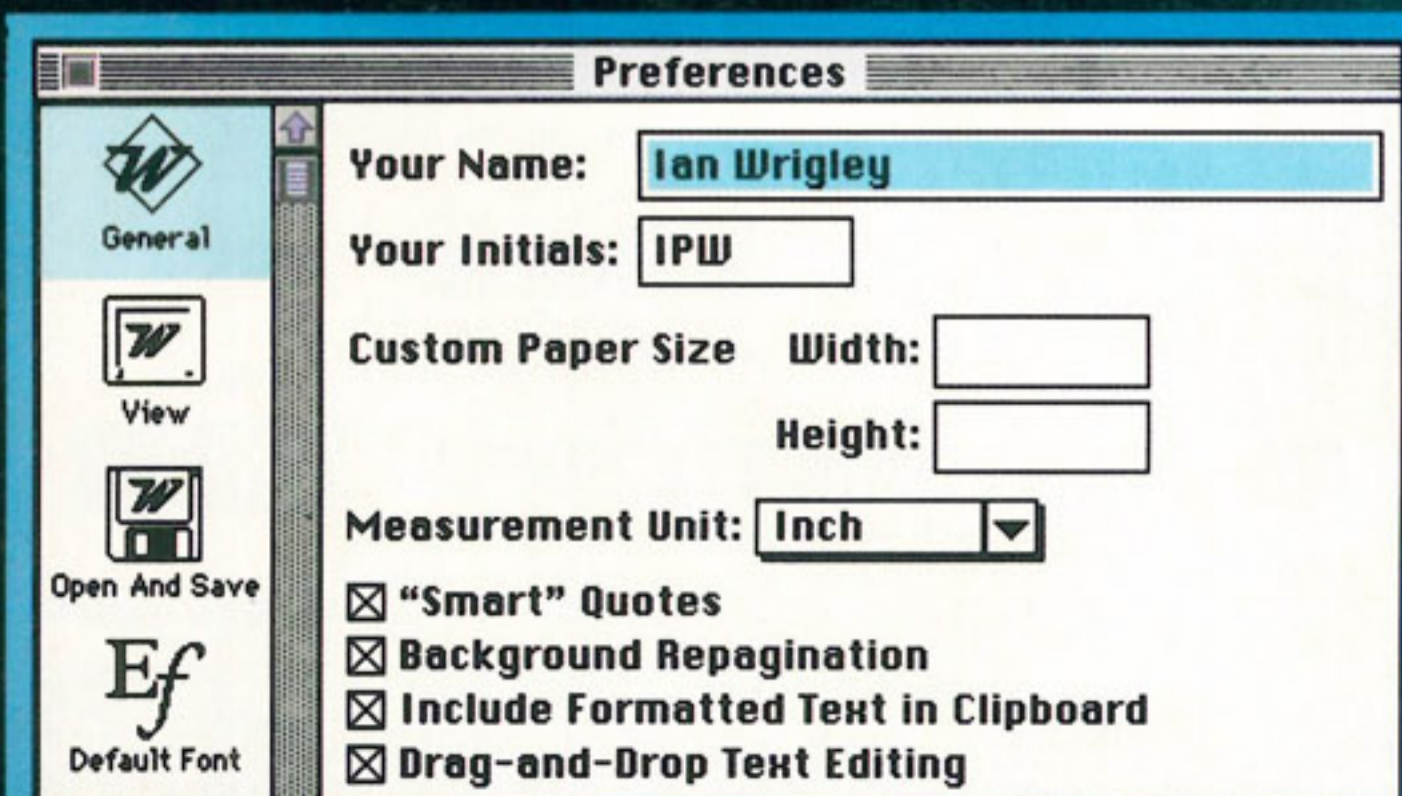
If you want to use an ellipsis, don't just hit the full-stop key three times. Although this often looks perfectly reasonable, you may run into trouble when you use it in justified text. And in some fonts it can look quite ugly. Instead, use the [option] [;] key combination, which in almost every font produces a nice-looking ellipsis. The only exceptions tend to be the fixed-width fonts, which have to place the dots very close together in order to fit them in a one-character space. If you insist on using a fixed-width font, you'll have to just hit the full-stop three times...

The bullet point

Many lists look better if you start each one with a 'bullet point'. The one which many people use is '•', produced by pressing [option] [8]. But this varies in size from font to font, and can often look either much too large or ridiculously small. If you've got the Zapf Dingbats font installed on your Mac (you probably will have if you are connected to a PostScript printer), experiment with the alternatives available. The standard 'blob' is obtained by pressing lower-case 'l' (el, not one), but there are plenty of others – for example, MacFormat uses lower-case 'n', which produces a square box. Again, you might find that a

Did you know?

An em-dash is, theoretically, the width of a capital 'm'. Strictly speaking, it's the same width as the type size you're using. So if you're typing in 12-point text the em dash is 12 points long. An en-dash is half this length.



Many word processors – this example is Microsoft Word – will automatically produce 'smart' (curly) quotes for you. Beware of the program making mistakes, though

dingbat in the same point size as your text is a little overpowering; there's no reason why you can't select just that character and reduce it in size by a couple of points to make it blend in better.

Underlining

Try to avoid underlining text for emphasis if at all possible. When people were working on manual typewriters, underlining was the only method of emphasis; but the Mac is a far more sophisticated beast. What about emboldening the words that you want to stand out, or perhaps italicising them? Both ways look far better on the page.

If you insist on underlining, try to pick words which don't have any letters such as 'y' or 'p' – letters with descenders, in other words. That's because the underline runs right through the descenders, and can look extremely ugly.

You should also try to avoid some of the Mac's other rather esoteric type effects, like shadow and outline. Used in moderation, they're OK – but more than one or two words and things can start to look cheap and nasty.

'Ransom-note typography'

Nothing looks worse than a document with a dozen different typefaces and type sizes on it.

Stick to two or three fonts – one for all your body copy, one for headlines and maybe an extra one for sidebars (if necessary). Remember, whatever you're writing is for people to read – not so that they can admire the number of different fonts you've got installed.

Avoid screen fonts in printouts

Fonts such as Geneva and Monaco were designed to be easy to read on the screen – and at that job they are superb. But when used on printouts they can look rather less impressive – and sometimes downright dreadful. The rule of thumb is that fonts named after cities – Chicago,

Removing double spaces

No matter how carefully you type, there are bound to be some occasions when you hit the space bar twice between words by mistake. Or perhaps you've got a disk produced by someone who puts double spaces between sentences. The best way to make sure that these don't slip through is to use your word processor's **Find and Replace** feature: in the **Find** box, hit the space-bar twice; in the **Replace** box, just hit space once. Then choose **Replace**. One time that this might not do the trick is if you inadvertently held down the **[Shift]** key when typing one of the two spaces. As the Mac considers **[Shift]-space** to be a different character, you should also use search and replace to get rid of 'shift-space space' and 'space shift-space'.

Geneva, Monaco, New York et al – are screen fonts, and

should only be used on the screen. Similarly Courier, the typewriter-style font, should be avoided unless you really want people to think you've used a typewriter!

Keep an eye on tab-stops

Especially when you're using desktop publishing programs, you may find that the default tab markers indent your text far too much. Don't be afraid to reduce them; experiment until you get an appearance that you're happy with.

The tab stop at the beginning of this paragraph is set at 5mm.

Ligatures

These are combination characters which look more attractive than two individual letters next to each other. Compare the non-ligature character combinations 'fi' and 'fl' with the ligature versions – 'fi' 'fl'. Some fonts also have ligatures available for 'ffi' and 'ffl'. Not many programs automatically insert ligatures for you, and they may not be recognised by your spelling checker – which will mean that words like 'fine' are marked as being incorrectly spelled – but you may feel that the improvement in appearance justifies the extra hassle. Or, you could wait until you've checked the spelling and then use

Search and Replace to find occurrences of the letter combinations and replace them with their ligatured versions.

Tab it!

Always use tabs, not spaces, to align text, numbers and so on. Spaces just aren't accurate enough – even if

things look perfectly aligned on the screen, they probably won't print out exactly right.

There are several different types of tab: right-justified, for example, is great for putting your address on the top right hand of letters, while many programs have a 'decimal align' tab which, when applied to a column of numbers, will make sure that the decimal points are exactly underneath each other.

Many programs also allow you to specify a 'fill character' for tabs. This is the character which is printed between the current position and the next tab stop. when you hit the tab key. This really comes into its own when you're creating forms for people to fill in. Set a tab at the right hand edge of the page, define the fill character as 'underline' and hit [tab]. Voila – a line for people to enter their details on. **mf**

Type me wrong – type me right

IT'S YOUR LUCKY DAY!!!

How often have you said to yourself, "I really wish I was rich". Well, today could be your lucky day.

You, yes you, have the chance to win up to **£30,000** - today!!!
Just think what you could buy...

- A car
- A boat
- An Applemac

All you have to do is fill in the coupon on the attached sheet for your chance to win this great prize.

And remember -- if you dont fill in the coupon you cant win the prize!!!

The wrong way. This poster uses too many bitmapped fonts (which probably means the screen font wasn't loaded). The sentences are squashed over to the left and difficult to read

It's your lucky day!!!

How often have you said to yourself, 'I really wish I was rich'. Well, **today** could be your lucky day.

You have the chance to win up to **£50,000** today!!
Just think what you could buy...

- A car
- A boat
- An Apple Mac

All you have to do is fill in the coupon on the attached sheet for your chance to win this great prize.

And remember – if you don't fill in the coupon you can't win the prize!!

The right way. This poster uses just one smooth font, (Helvetica), but with various styles added for emphasis. The good use of space makes it pleasing to the eye and easy to understand

Keep it simple!

When designing a document, remember the rule: keep it simple! Professional designers can take liberties and produce complex designs that are still elegant and easy to read; non-professionals, on the other hand, can easily get into such a mess that your potential reader will throw away your leaflet, newsletter or whatever in disgust.

If you're going to do much in the way of design, get hold of a basic book on the subject – and follow the rules religiously!

Bridging the Big

Apple made a smart move in bundling its *PC Exchange* software with each new Performa, enabling PC formatted disks to be read by machines fitted with the 1.44Mb floppy drives.

Of course, only data files like word processor documents, spreadsheets and images can be transferred in this way. And for most people this is fine. You may have a client's text written in *WordPerfect* on the PC, you may have a friend's PC scan you want to modify in

Photoshop, you may have that document you've written on the PC at work to finish on your Mac at home.

But what if you're dealing with files some 10Mb in size and you're having to make the transfers regularly? And how do you make sure the data from one application on one machine will preserve all its formatting information when it's transferred onto another?

The most practical solution would be to use emulation software on your Mac to run actual PC applications – in short

just have an entire PC running on your Mac as software. Insignia Solutions' range of emulators are the best known examples here – from the entry-level 286 PC emulator (the £130 *SoftPC Classic*) to *SoftPC Universal* which emulates PC AT's in CGA and EGA graphics modes, *SoftPC Professional* which handles VGA graphics and finally *SoftPC for Windows* which really requires a Quadra to be usable. While emulations are sophisticated enough to be able to handle PC extended and expanded memory, PC

Keeping up appearances

The way Mac and PC files appear on their respective desktops is quite different. Mac files can be automatically represented by icons showing the application that created them which can be positioned anywhere on the desktop. They can employ filenames of up to 32 upper and lower case characters including spaces. On the PC, files are identified by a three letter extension and can only be represented by icons if they're aliases, DOS

and Windows' File Manager directories only support filenames of up to eight characters, upper and lower case are deemed to be identical, and no spaces are allowed.

So any file transfer and translation software has to account for these differences. *PC Exchange*, for instance, allows you to configure the three character suffixes to correspond to host Mac applications. So if you have a PC disk containing a file called words.txt you can set it up so that any .txt file will load automatically whenever it's double-clicked.

Swapping floppies

The most common means of transferring files between Macs and PCs is to use the built-in *PC Exchange* software bundled with all new Macs which directly reads PC disks. However, if you've an older Mac and don't have *PC Exchange*, software

such as *DOS Mounter* will do the job just as effectively.

If you have a Mac with the older single density floppy drives you'll only be able to read single density 720K PC disks and you'll need to run *Apple File Exchange* in order for it to recognise them. The other option is to buy a high density drive

Driving across bridges

If you wish to move large files between Mac and PC the best solution, without resorting to networking, is to use a shared hard disk like a SyQuest removable drive. In this case, you'll need a SCSI host adaptor at the PC end which, depending on the data transfer rate of the card, fits into a free 8-bit or 16-bit expansion bay, SCSI, or Small Computer Systems Interface. It

should also be a high speed device typically offering transfer rates of 1Mbit a second with 8-bit cards and 3Mbit/sec with 16-bit versions. The two most popular SCSI cards are Adaptec's 8-bit 1522 and 16-bit 1542 – available for around £200 – and Trantor's 8-bit T100 and 16-bit T128 – at about £100. Each comes with installation software enabling you to format 44Mb and 88Mb removable hard disks as MS-DOS devices. If the PC

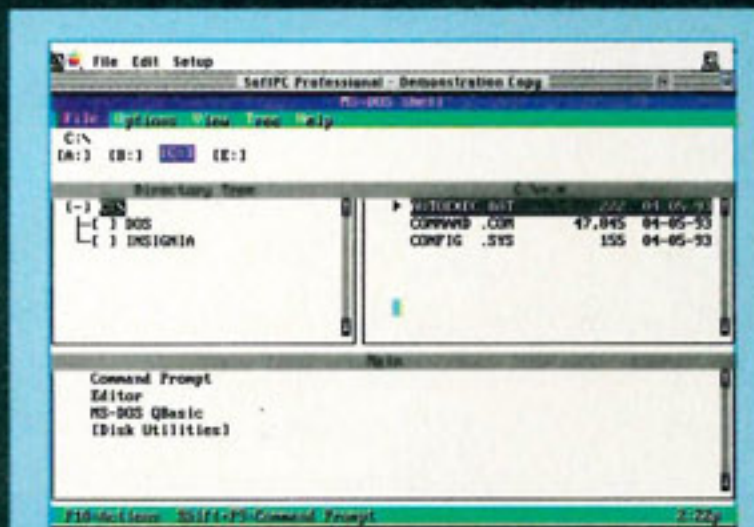
Wired up

The remaining means of getting PC files to and from the Mac relies on cabling. Hooking a serial cable between the Mac's printer or modem port and one of the PC's serial connectors is simple and straightforward task and products like *MacLink PC*

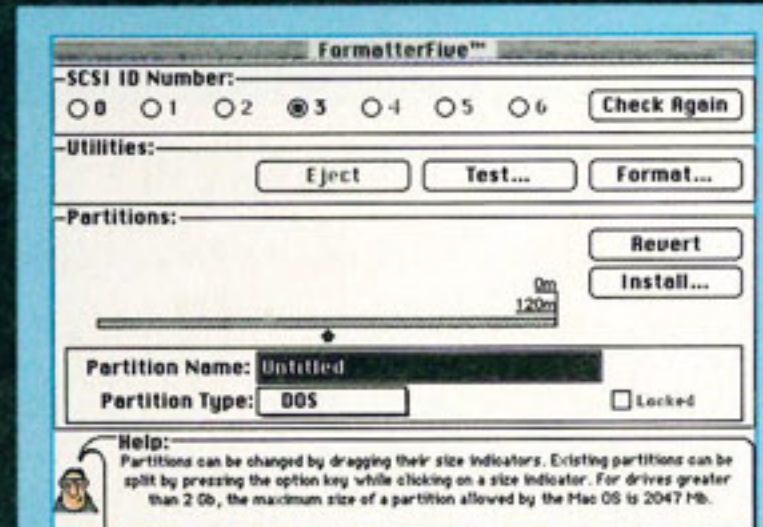
and *LapLink Mac III* do an admirable job of supplying all the leads, software and manuals to make the solution

even easier. Respectable transfer rates are possible and again, the supplied software will attempt to translate formatted data files at both ends.

A cheaper means of arriving at the same solution if you happen to have access to two modems is to link the two machines in the same way and use shareware comms software like *ZTerm* to make the transfers. In both cases, files can be compressed for faster copying though you'll have to use a compressor such as *LhArc* which is available for both Mac and



If you want to transfer DOS applications to your Mac, try Insignia's *SoftPC* range



Formatter Five provides the means to read and write to PC formatted removable drives

Blue sea

Huw Passmore shows you how Macs and PCs can talk to each other in a number of different ways

printers, modems, and even CD-ROMS, you do need a 68030-based Mac machine with plenty of memory to make those emulations work in any viable way. Many people would argue there's no real point in any case – you may as well invest the money in buying a cheap PC – if that's what you really want. But it depends on your needs. Argosy's *RunPC* takes emulation one step further by providing a window on your Mac screen of a PC hooked up to it by a serial cable. By using this ingenious applica-

tion you can even control all aspects of the PC's operations remotely.

One neat aspect of emulations is that they all run in discreet windows, meaning you can use screen capture software to cut and paste graphics between PC and Mac applications.

In forthcoming issues I'll be focusing on the ways to make seamless connections between all Macintosh models and all types of PC. For the moment though, here's an overview of the different bridges across the great Mac/PC divide.

What's also needed is the means to preserve formatting information across the two platforms. While generic file types like plain text ASCII will transfer both ways with no problem, all formatting data like tabs, paragraphs and fonts information will be lost. Ideally, it's best to run applications on both machines which will auto-conform and that usually means buying Mac and PC versions of a program produced by the same publisher. However, although PC to Mac translation is supported the Mac to PC return trip isn't always as easy.

and take heart that this additional expense will at least make you future-proof if nothing else since many applications only come on 1.44Mb disks these days.

But what if the PC data you want to read is on a 5.25-inch floppy? Here you'll need a drive that can read such a disk like

you're using doesn't have expansion slots, say it's a notebook or laptop, you'll need a Parallel port to SCSI adaptor. These can be picked up for less than £200 – Misco's SCSI Plus adaptor is a good deal at £180.

At the Mac end you'll need proprietary software to read these PC disks directly. Insignia Solution's *Access PC* and Software Architects' *Formatter Five* both provide means to

PC. While *Stuffit* and *Compact Pro* file compressors dominate the Mac, .ZIP compression is the most popular means of reducing file sizes on the PC. Hunt around PD libraries and Mac bulletin boards though and you might find *Unsit.Zip* – a version of *Stuffit* which runs on the PC.

Finally, the most elegant but not necessarily the most expensive solution to crossing the big blue sea is full-blown networking. Now, while all Macs have built-in AppleTalk

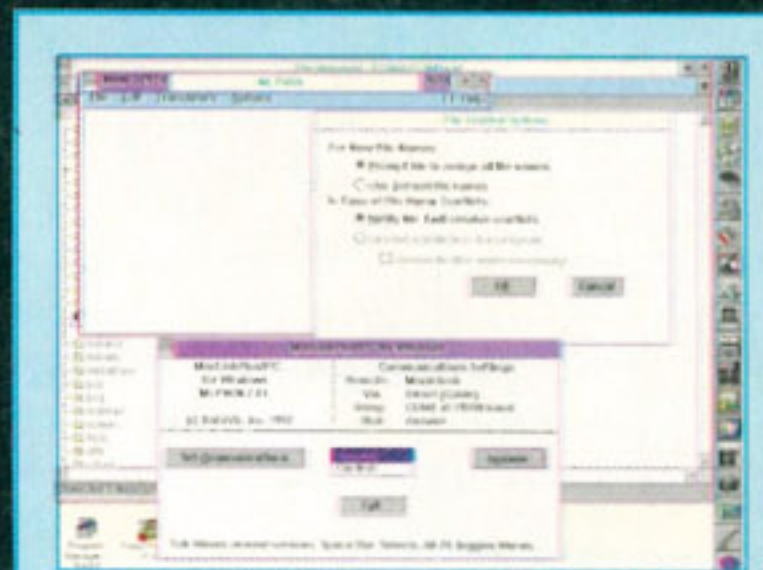
You're forced to save PC word processing documents as .TXT files, spreadsheets as .WKS files and database records as .DBF files for maximum portability. With graphics the choice is better. Although no PC graphics programs will produce PICT files, most allow to you save pictures as .TIF or EPS format which will load quite happily into most Mac graphics programs.

The solution, if you're having problems with regular incompatible transfers is to buy translation packages like Argosy's *Software Bridge* or Mastersoft's *Word for Word*.

Dayna's *DaynaFile II*. Since this is around £500, though, you might be better off buying a 3.5-inch drive to use at the PC end since these can be picked up for as little as £80. At the PC end, the shareware package *Macsee* will recognise high density Mac disks and enable file copying.

read/write to the drives as transparently as any other Mac SCSI device. By formatting all your removables as PC disks, true large file interchangeability between Mac and PC is afforded, the only limitation being that both computers can't be hooked to the SyQuest simultaneously.

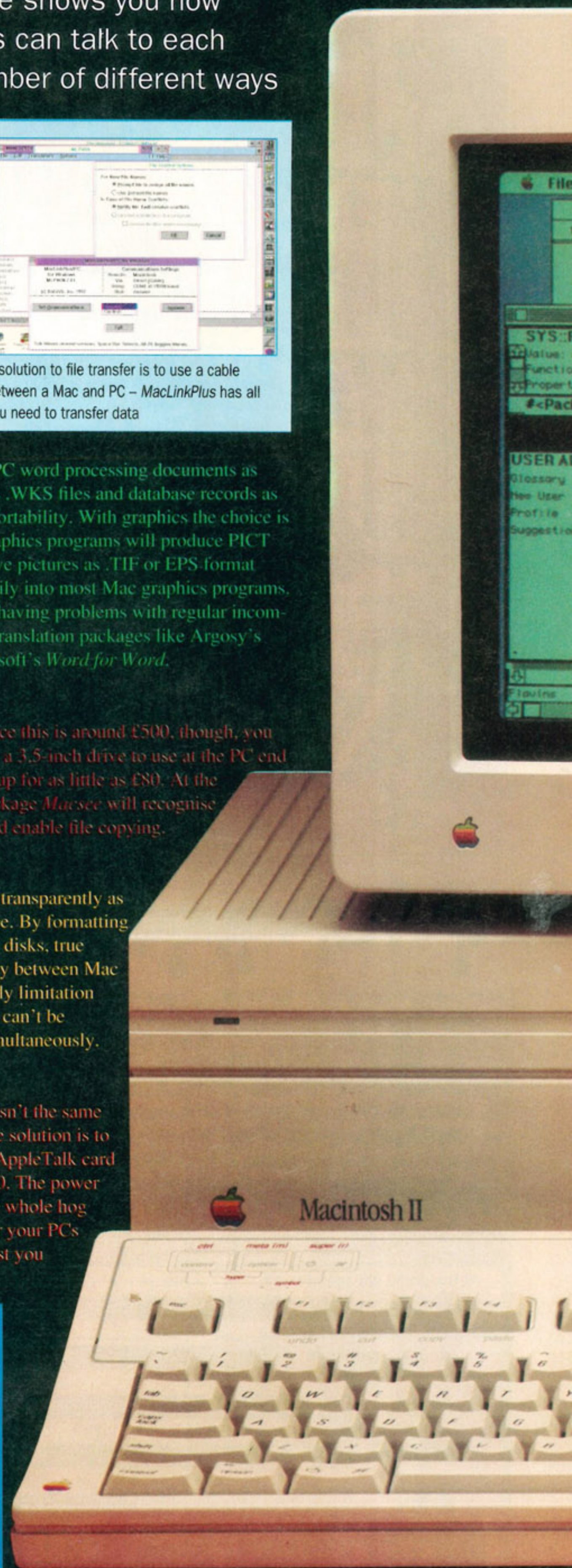
networking facilities this isn't the same with PCs. The inexpensive solution is to buy Gomark's PhoneNet AppleTalk card for the PC for around £230. The power user's solution is to go the whole hog and buy Ethernet cards for your PCs and Macs, but this will cost you around £200 per card.



A solution to file transfer is to use a cable between a Mac and PC – *MacLinkPlus* has all you need to transfer data

Where to get it

<i>SoftPC</i> range	Insignia Solutions 0494 459426	<i>DaynaFile II</i>	Computers Unlimited 081 200 8282
<i>AccessPC</i>	Principal 0706 831831	1522/1542 cards	Adaptec 0101 408 945 8600
<i>RunPC</i>	Key Exchange 081 744 1551	<i>Formatter Five</i>	Software Architects 0101 206 487 0122
<i>Software Bridge</i>	Key Exchange 081 744 1551	<i>MacLinkPlus PC</i>	Principal 0706 831831
<i>Word for Word</i>	Mindscape 0444 246333	<i>LapLink III</i>	Frontline 0256 463344
		Phonetnet PC	Gomark 071 731 7930



Kellie Simmons (pictured below) finds that *Kid Pix* is great for teaching children to draw

Kid Pix is a paint program, based on the type of package used by adults but aimed squarely at children.

It was created by Craig Hickman for his three-year-old son after he found that the kid loved to create art with a fully-featured paint program.

The package from Brøderbund is a larger version of the original. It's very simple to use, and includes some amazing graphics and sound effects to boot. Just some of the features included in *Kid Pix* are:

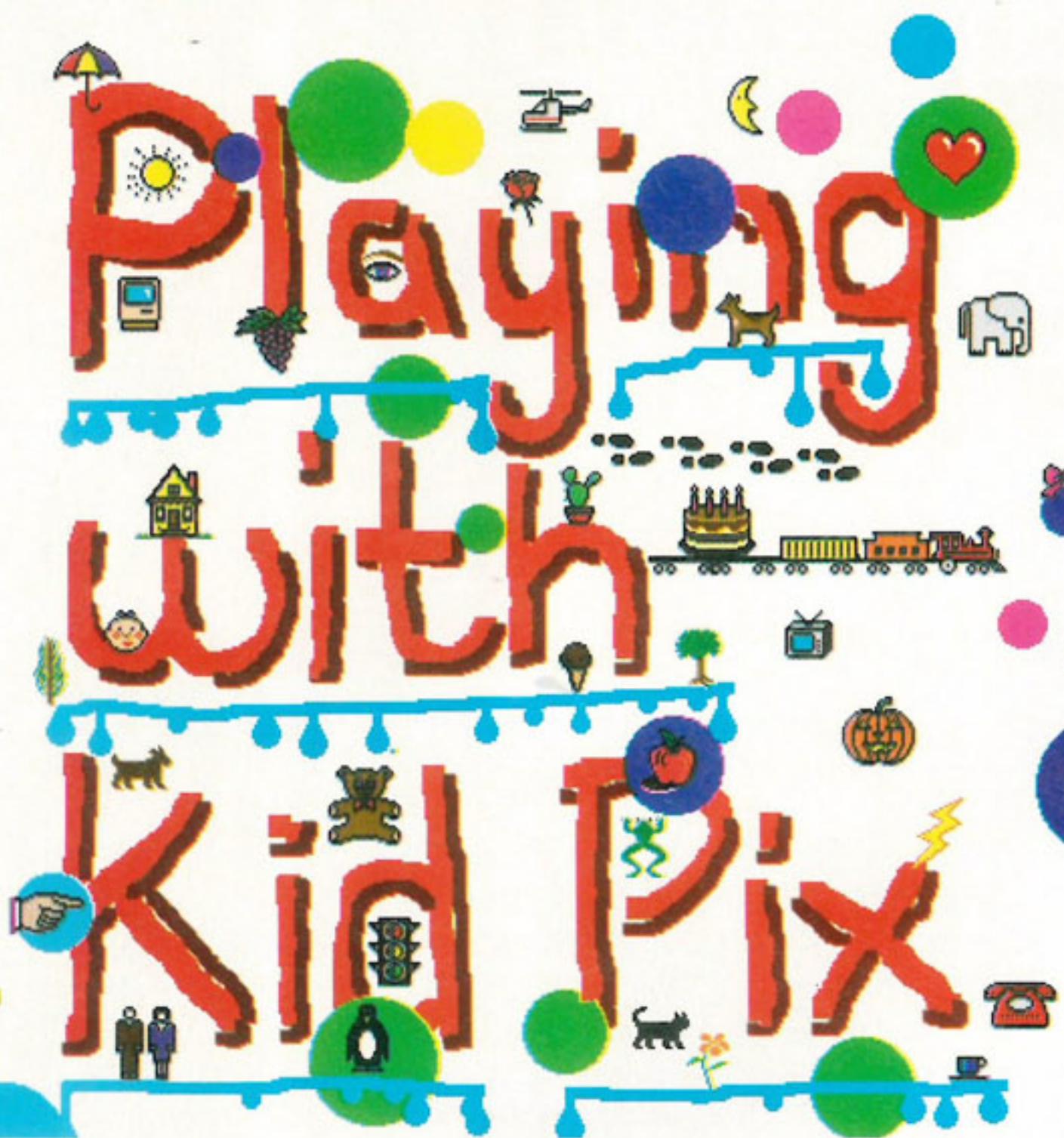
- A Small Kids mode found under the Goodies menu. Clicking on this switches off the main menu bar and prevents kids from accidentally clicking into other applications and making a mess of your desktop.
- A big white area to draw in. Uncomplicated and hassle free.
- Amazing sound effects like splatting, blobbing paint, stretching, pencil drawing and eraser rubbing sounds.
- Smart moving graphics to put a smile on even the most stubborn and stropy kid in town.

■ Text that basically speaks for itself. Just click on a name or number and you'll hear a cute – but rather twangy American – kid say them as they are selected.

■ Last and most importantly: no mess! Let your child roam around in *Kid Pix*, splatting paint all over the page. No fuss, nothing to clean up later. Just save their masterpiece and quit out of the program. Not a handprint or splat of paint to be seen – unlike the real stuff which can take a bit of shifting from your wall-to-wall fitted carpets.

Kid Pix will keep the average adult, kid, pensioner or art editor (we have proof) entertained for hours, and when a work of art is finished it can even be printed out – although it'll cost a fair few bob to invest in a printer that will print it out in colour. It still looks good in black and white though.

Perhaps the one of the other great – but hidden – features of *Kid Pix* is that it introduces small kids to the world of computers in a fun, creative and even educational way. The best thing is that they won't even realise it!



The Eraser is not just for rubbing out as such – you can also draw pictures with it. This, believe it or not, is my teddy bear

Put to the test

After testing it vigorously in the editorial office, **MacFormat** has given *Kid Pix* the thumbs up. It's fun, easy to use, the graphics are great and the different sound effects are brilliant – the art editor had hours of fun creating masterpieces on her Quadra 700.

Brøderbund claims that kids as young as three can use *Kid Pix*, so our official testing was carried out by James and Amy, aged three and four respectively.

At the grand old age of three, James is at the beginning of the

suggested *Kid Pix* age group. He was at first very excited at the prospect of actually playing with a computer and found the various sound effects a pleasure, but as many parents know the attention span of a three year old is not very big.

After about 20 minutes he got bored and wanted to use a normal pencil and paper to draw with. The reason for this was because he had to be guided through the use of the mouse – which was far too big for his hand and difficult to control. Although

the menu bars were quite illustrative, he still found it difficult to scroll up to them and pick a suggested option.

The other problem was the size of the palette on the left hand side of the page. Basically, the colours and icons were too small for him to do anything with.

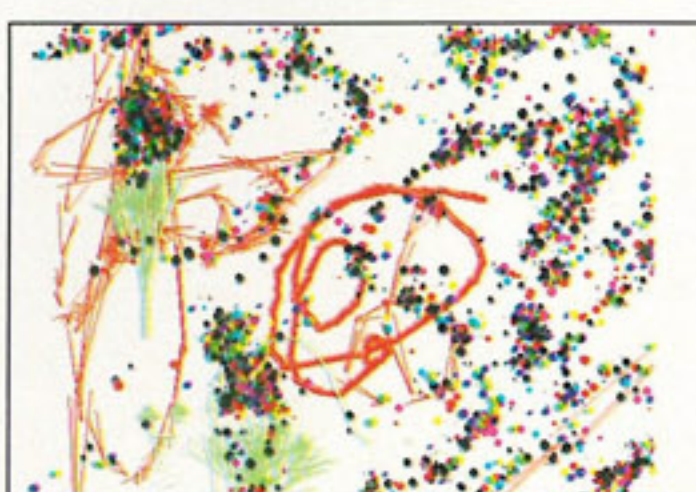
The positive aspects for James were the various sound effects and the *Kid Pix Companion* slide show. An adult picked some options from the palette and helped him fill in the blank screen, as well as making up a



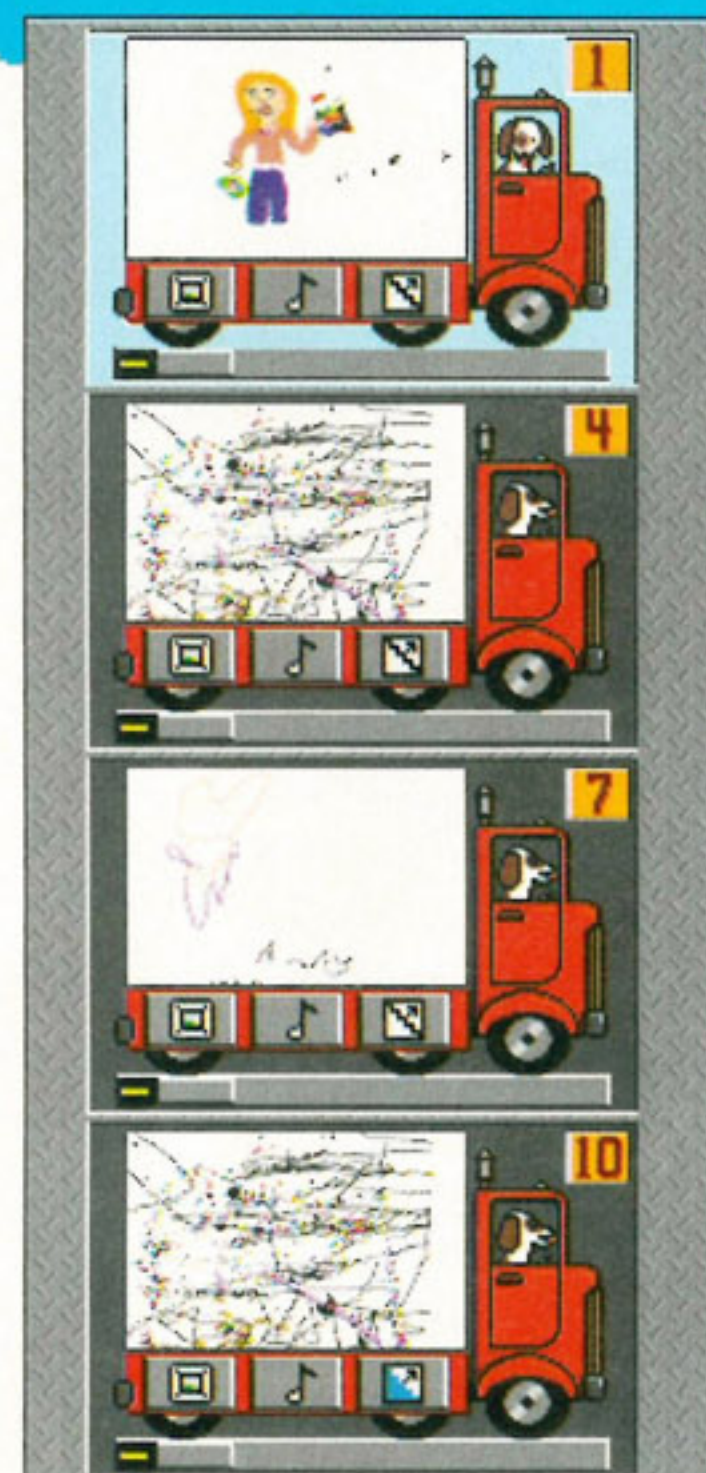
A real masterpiece. Amy's house was created using lines, paint tin and the wacky pencil



This is Amy's very first attempt at drawing with *Kid Pix*. Err... next!



The result of drawing to sound effects. The wacky brush appears to be a firm favourite

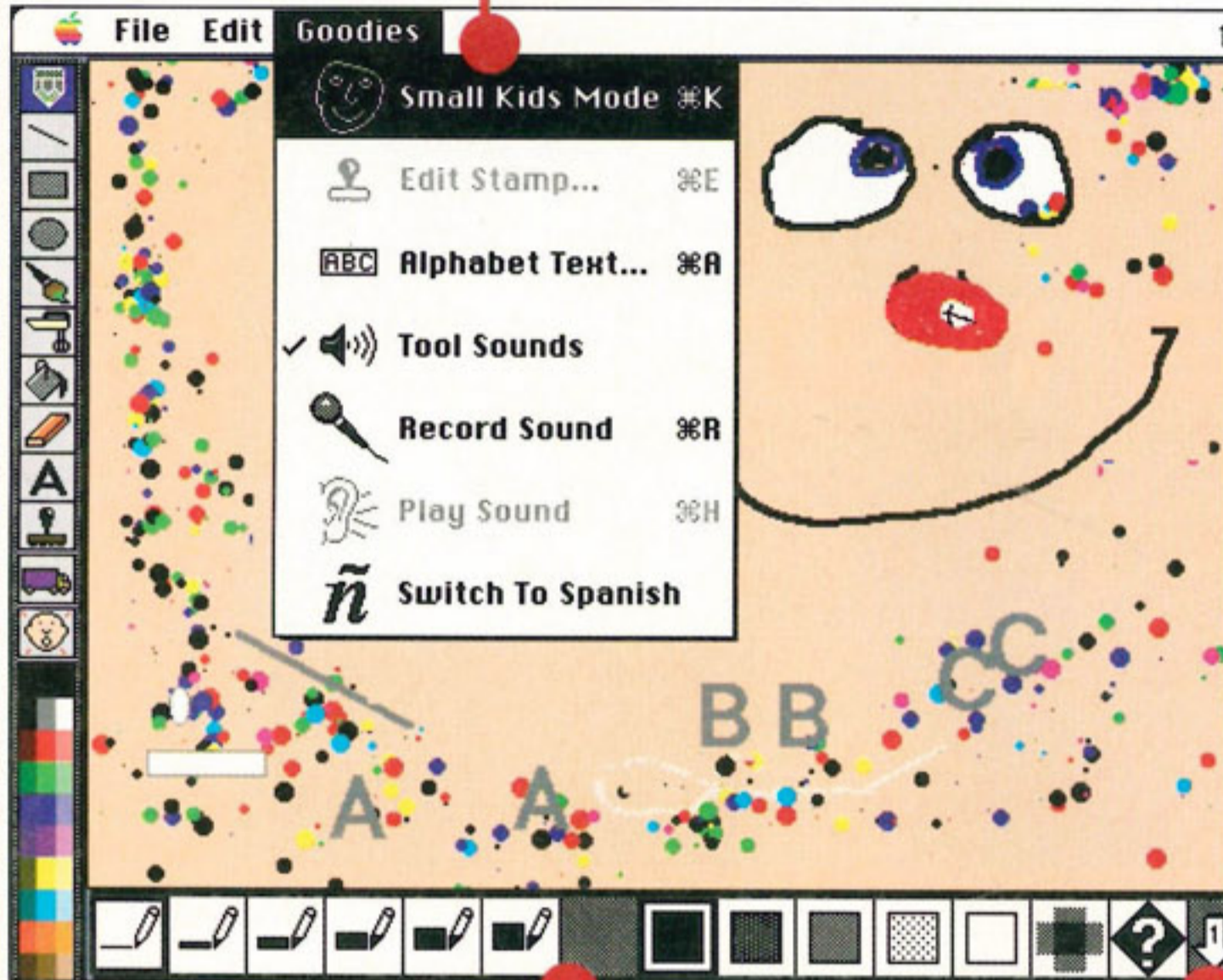


The slide show, courtesy of *Kid Pix Companion*, also proved to be popular

Kid Pix – the options

Below and to the right are just some of the options available from the standard *Kid Pix* package. *Kid Pix Companion* adds even more!

Menu Bar Small Kids Mode: hides the main menu bar to stop kids from accidentally selecting items other than *Kid Pix*. Just click on 'Small Kids Mode' in the 'Goodies' menu and you'll find the main menu bar will be replaced with a 'Short *Kid Pix* Menu'. You can't save or quit out of the program in this mode. You'll have to scroll to the **Show Menu Bar**, open **Goodies** and click on **Small Kid Pix Mode** again.



Tool options: gives you a number of options to choose from, to coincide with the functions on your left hand tool palette. Here the wacky pencil options are displayed – things like how thick or thin the nib is

Arrow Icon: click on this to display extra options

Tool palette

- **Wacky Pencil:** main writing tool (allows you to draw or write)
- **Line/Rectangle/Oval:** allows you to draw lines, squares and circles at whatever size want
- **Wacky Brush:** click on this and make a real mess by splattering paint all over your page
- **Electric Whisk:** gives you options for breaking up the image
- **Paint Can:** select an area you want coloured, and fill it
- **Eraser:** rubs out any unwanted bits – or draws in negative
- **Text:** produces a palette of letters at the bottom of the page
- **Stamper:** select an image from the palette and press...
- **Moving Van:** allows you to move sections around in blocks
- **Face:** actually called the 'undo guy' in the manual, with a scream of 'Oh no!' the face makes parts of your picture disappear. Click on your picture again to bring it back
- **Colour palette:** a selection of colours for you to choose from. To select, simply click on the colour of your choice. The colour you choose will show up in the bigger box at the top of the colour palette



Calling all teachers and students

Do you use Macs at your school? What Mac software do you use between playtimes? Are there any specific packages you would like the **MacFormat** education team to tackle?

If so, write to us with details at 'It's kids' play', **MacFormat**, 30 Monmouth Street, Bath BA1 2BW.

slide show with his work. This is what actually held his attention.

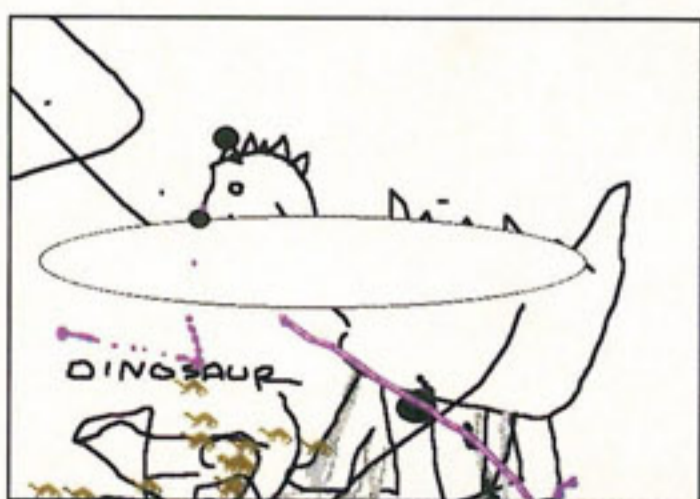
At the age of four, Amy is already at school. Her reaction to *Kid Pix* showed that one year between children so young can make a lot of difference. Amy also found the same problems as James, but she found it easier to concentrate to the point that she was totally engrossed and would have happily played all day.

Favourite *Kid Pix* goodies for Amy included the sound of the man's face on the palette which, after clicking on

a picture, makes it disappear and screams 'Oh no!'. She also liked the Paint Brush, splatting paint all over the picture, and she was amused with splishing paint sound effect.

The slide show was also a plus point. After sampling sounds and moving graphics, she was pleased to see her pictures changing shape one after the other.

In fact, Amy described the package in one word: 'Fun!' – which is about the shortest and best way to describe *Kid Pix*.



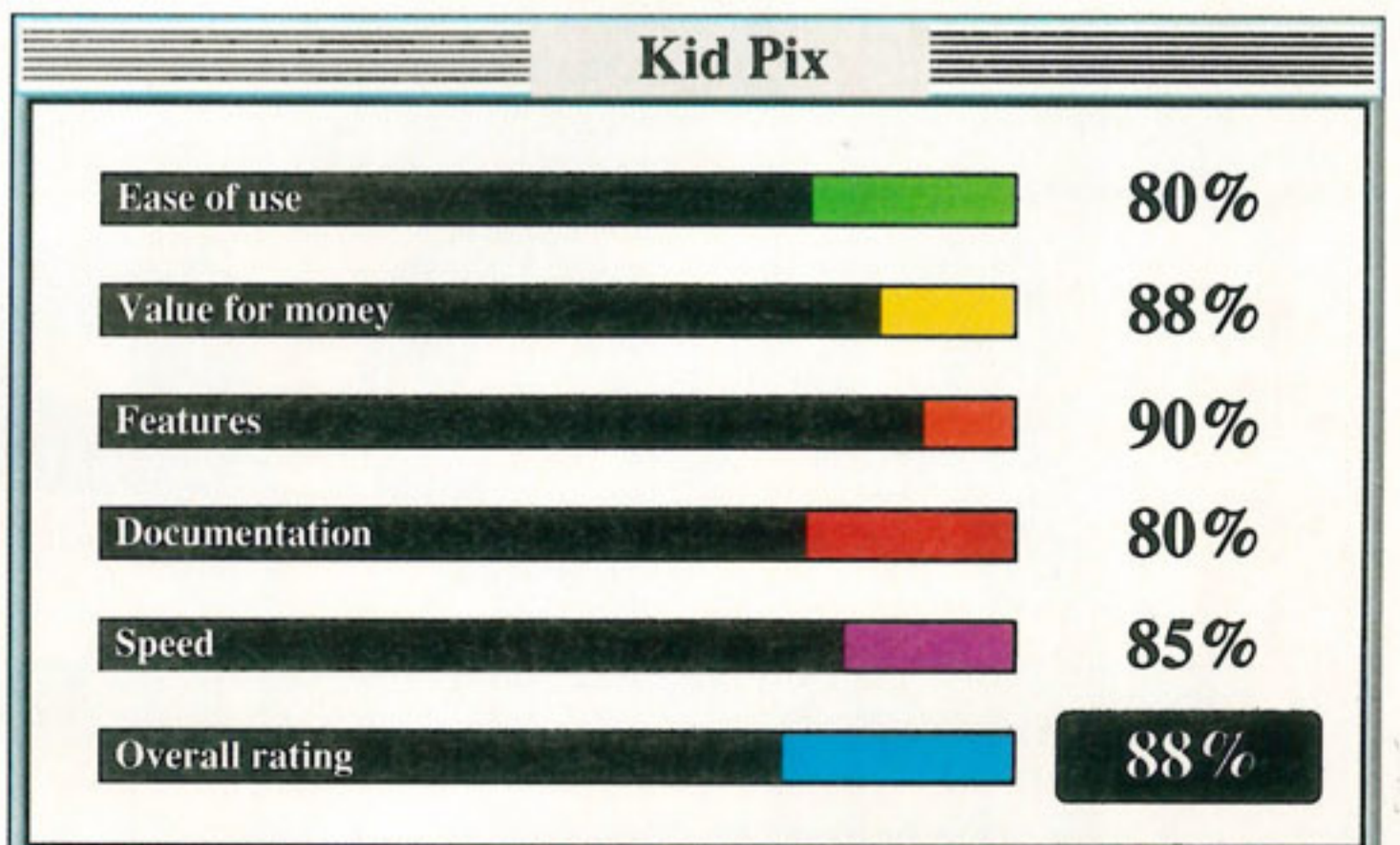
James found it difficult to use *Kid Pix* unsupervised. This is the result with help from an adult



Sound effects from the rubber stamp figures put a smile on James' face

Where to get it ▼

***Kid Pix* costs £34.99 and is available from Softline on 081 642 2255. *Kid Pix Companion*, which adds several extra features, costs £29.99 and is also available from Softline.**



IBM or VFM.

What's in a name?

Are brand quality and value for money mutually exclusive? We put Dell, IBM and Compaq to the test and compare their offers of quality and brand value with the smaller companies 'value for money' approach. Interesting results.

Also in the May issue, we turn the spotlight on Borland's Paradox for Windows. Is this the definitive heavyweight database for Windows?

Find out the answers to these questions, and a lot more besides, in PC Plus – available from W H Smith, Menzies and all leading newsagents. *On sale now!*

PC PLUS

Britain's most popular PC specific magazine

mac ANSWERS

Got a problem with your Mac? We're here to solve it

W

hatever your Mac problem, we're confident that **MacFormat** can solve it. Whether it's a beginner's question about the Mac or some esoteric query over a specific piece of software, our team of experts will try to come up with a solution to your problem.

All you have to do is fill in the form on page 92 – or photocopy it if you don't want to cut up your precious copy of **MacFormat** – and then post or fax it to us.

Please note that we are unable to answer questions over the phone – so there's no point ringing us up with technical enquiries. We are also unable to enter into personal correspondence – even if you enclose an SAE. We can only deal with questions through the pages of **MacFormat**.

Please do try to fill in as much of the form as you can. After all, the more details we know about the setup of your Mac and the way you are using it, the more likely we are to be able to find a solution to your query or problem. There's no point asking something like "Why won't my document print from ZingWord 9.2?" if you don't tell us what kind of printer you're using!

If your question relates to software, make sure that you tell us what version of the program you are using. You can find this out by clicking once on the program's icon, selecting **Get Info** from the **File** menu and reading the information that appears. Version numbers tend to be things like '1.2' or '9.6b3'.

Do-it-yourself problem solving









One of the main causes of a program not working properly is something called an INIT clash – your program isn't happy with one of the system-level extensions (called INITs) that are running.

Fortunately, it's easy to check if this is the case. First of all, restart your Mac without any System Extensions (INITs). If you're running System 7.0 or above, that means restarting the Mac and holding down the **[shift]** key – a message saying that 'Extensions are off' will appear. For any System version below 7.0, move all the Control Panels and INITs out of your System folder and restart the Mac.

If your program now works, it must have been unhappy with one or more of the INITs. The only way to work out which one it was is to move them all out of the System folder, then put them back one at a time – restarting your Mac after each one – and test the program again after each one has been replaced.

Label Q&As

Subjects

	Beginners
	General/System
	Hardware
	Buying Advice
	Technical
	Applications
	Graphics
	DTP
	Comms

To help you spot answers to questions that you might be interested in, we've colour-coded them according to the table above. Remember, these are just general categories; but they should help you to find your way around the section

Q I have lost my manual for MacroMind Director 3.0. Where can I get another one?

O Fletcher
Shrivenhall, Swindon

A **MacroMind Director** is produced by MacroMedia, so you could try contacting the company's UK distributor, Computers Unlimited on 081 200 8282, or the UK MacroMedia office on 0344 761111. If you're a registered user, you should have no problem getting a replacement manual (for a small fee); if not, you'll probably have to prove that you own a legitimate copy of the program by photocopying your master disks or something similar. It's a good idea to register any software that you receive – you then get informed of any upgrades by the manufacturer. And it comes in handy in situations like this, too!

Q Lemmings did not run in colour on my LC, as suggested on page 16 of **MacFormat**. I tried it on an LC II and it was fine.

A Steven
Polton, Lasswade

A Although you don't say which monitor you use, I suspect that it's 13 or 14-inch. As standard, the LC can only drive these monitors in 16 colours – and *Lemmings* requires 256 (the LC drives a 12-inch Apple Colour Monitor in 256 colours). Fortunately, there is something that you can do about it; unfortunately, it will cost you money.

You need to add some extra video RAM (VRAM) so that your Mac can display the full 256 colours on your monitor. You should check out the adverts in this issue of **MacFormat**, find a dealer who sells memory upgrades (most do) and ask

them for a Mac LC 512K VRAM upgrade. Then you need to have it fitted – or, if you're confident, you can fit it yourself.

The extra memory comes on a SIMM (single in-line memory module) circuit board just like normal RAM, although it's a slightly different size. The LC has a 256K VRAM SIMM fitted as standard, so you simply need to take this out and insert your new 512K VRAM SIMM in its place. When you restart your Mac, don't be alarmed if the screen has reverted to black-and-white – just go to the **Monitors Control Panel** and you'll see that the choices have now increased to include 256 colours.

Incidentally, if you are running a 12-inch colour monitor and you upgrade the VRAM, you can display 'thousands' of colours, rather than just 256.

There are a couple of things to note if you do decide to perform this



By upgrading the VRAM on an LC, you can display 256 colours on a 14-inch monitor – and that means you can play the colour version of *Lemmings*!

upgrade. The first is that a regular 512K SIMM will not do – it must be a VRAM SIMM. Secondly, beware that you will invalidate your warranty if you perform the upgrade yourself – although it's a perfectly simple operation, and many

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memory dealers even include an instruction booklet with their SIMMs that takes you through the procedure step by step.

Incidentally, the reason that the game worked fine on the LC II is that it is shipped with the larger VRAM already installed.

Q *When I buy an LC II, do I get a colour monitor with it or not? I can't make out from the adverts whether this is the case or not. Would it make more sense for me to buy a Colour Classic anyway?*

J Mitchell
Oundle, Peterborough

A It all depends on the deal that's being offered. The LC II – and LC III – don't come with a monitor as standard, but most dealers offer a bundle price which includes either an Apple 14-inch monitor or, in some cases, a third-party monitor of a similar size. If in doubt, phone up the dealer to check.

As for buying a Colour Classic: well, there are advantages and disadvantages. The primary advantage is compactness – it's all one unit, so it's easy to transport. On the other hand, it only comes with a 10-inch screen – so if you want the extra desktop real-estate, you'd be better with one of the LC family. Remember, though, that the Colour Classic is currently only available to purchasers who qualify for the Apple Education scheme.

Q *I would like to use an old modem that was originally used on a PC – it has a 25-pin modem cable. Can I use it with ClarisWorks, or am I being totally unrealistic?*

Phillip Ives-Owen
Sheffield

A It should be perfectly possible to use the modem with your Mac; all that you need to do is buy a modem-to-Mac cable, which should be available from just about any dealer. Then you have to determine whether it's Hayes compatible or not. If your manual is full of details about 'AT commands' then it is, and if so you should be able to use ClarisWorks with no problem. If it

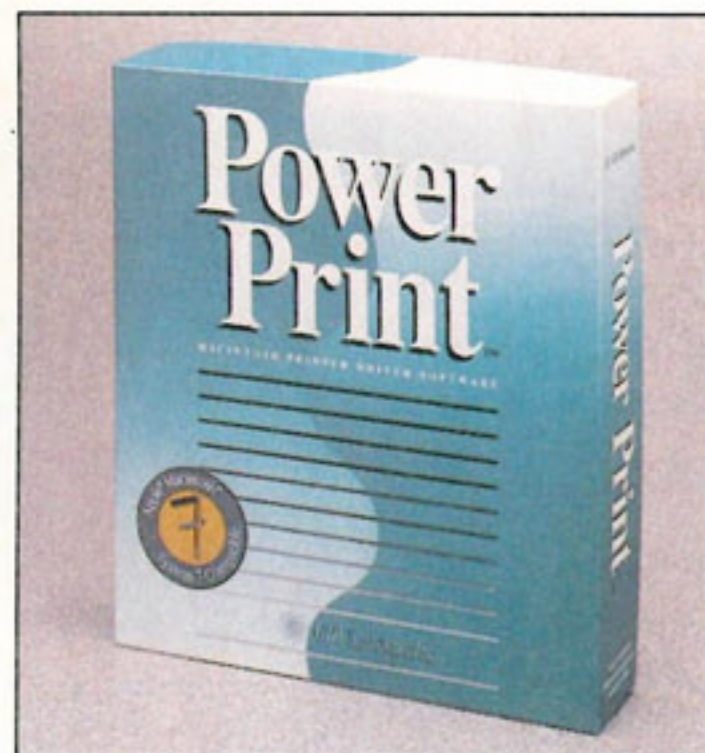
doesn't mention AT commands, it's likely to be a manual device, in which case you will need to choose the serial tool from the Connectigon dialogue box, dial the phone number using a phone plugged into the back of the modem and, when the machine on the other end answers, hit the 'on line' button.

Q *At work we have a network of Acorn computers connected to a Canon LaserDirect LBP-4 printer, and a PC network connected via Ethernet to a Brother HL-8PS printer. What can I do to use either of these printers from my Mac?*

S Falconer
Co Fermanagh, N Ireland

A Macs can be connected to some kinds of PC Ethernet network and use the printers on that network; get in touch with your network supplier to see if this is the case. If so, they will be able to sell you some software, and you'll need an Ethernet card for your Mac. I don't know of any method of connecting your Mac to an Acorn network.

However, if you're content with disconnecting the printer from the



PowerPrint, price £159, lets you take advantage of a variety of non-Mac printers

network to use it, then you could take a look at PowerPrint, from GDT Softworks. This takes the form of a cable and software to let you use a variety of non-Mac printers, including both of the ones you mention. It's available from Academy Software (081 656 9560), and costs £159.

Q *Do I damage my LaserWriter in any way if I turn it on and off more than five times a day? I do this to conserve electricity, but does it use a large amount anyway? Also, how much electricity does my Mac use?*

Anni Hartridge
Brighton

A You shouldn't really turn your LaserWriter on and off that frequently; it doesn't actually save you much on your bill at all, since the printer uses far more when warming up and printing than it does when it's idle.

Neither your Mac or your printer uses that much electricity in the first place; the two put together probably use around as much as – or slightly less than – your television and video.

Q *In your answer to Stephen Daniels (AppleTalk, MacFormat issue 1) you say that the fact that the 68030 processor is now the entry-level CPU will mean that more fast-action arcade-style games will appear. Does this mean that they won't run on my LC? Have I purchased the Mac equivalent of a dodo?*

John Freeman
Lancaster

A Don't worry, John: the chances of many – if any – programs being written that will only run on the 68030 chip are very slight indeed. The only real processor restriction that some programs impose is that you need a maths co-processor (sometimes referred to as an FPU). Very few programs demand this, though, and you could always add an FPU to your LC if you wanted. (Or, indeed, use a piece of shareware called SoftwareFPU, which fools your Mac into thinking that it

has the real thing installed.) The basic advantage of the 68030 is that it is rather faster than the '020 in your LC, so some games may play a little more slowly on your machine than they would on a higher-end model. But games programmers are conscious of the fact that a hell of a lot of Macs out there have 68000 and '020 processors – you can rest assured that you won't be ignored.

If you really do feel that your LC is too slow, you could always consider adding an accelerator – turn to our feature on page 23 for some general buying advice.

Q *I run several Extensions and DAs which cause the System to take up about 1.8 to 1.9Mb of RAM. After some hours of use, I find that System RAM has sometimes grown to over 2Mb, leaving me with less than 2Mb for programs. How and why does the System take up more RAM? If I restart my Mac, the System returns to its original size (for a while).*




Dr Dilogen de Alwis
Hove, East Sussex

A What you're experiencing is something called 'memory fragmentation'. Basically, every time you launch a program, it reserves memory space for itself from whatever's available. When you quit the program, it is supposed to free up that space so that other programs can use it. However, some applications are slightly less well behaved than others, and don't mark memory as free properly – so the System thinks that it still isn't available, although really it is. The only way around this, I'm afraid, is to restart – although you could try quitting all open DAs and programs, then re-loading them starting with the one that requires the most memory, since this sometimes helps.

Q *I have three questions:*
1. How can I get pictures from my Amiga to a Mac?
2. What is the best programming package on the Mac?
3. Where can I get a bulletin board package? I want to set up a club with our own BBS.

Marcos Scriven
Diss, Suffolk

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A

1. Getting images from an Amiga to a Mac is fairly easy, as long as you've got a SuperDrive – that is, a floppy drive capable of reading high density disks. You should save your Amiga graphics as IFF (Interchange File Format), and then use an Amiga utility such as the shareware *MessyDOS* or commercial *CrossDOS* to write the files to a PC-format disk. Then use *Apple File Exchange*, which is supplied on your Mac System disks, to read the PC disk and put the files on to your hard drive. Finally, you'll need a program to convert from IFF format to something that most Mac applications can handle, such as TIFF or PICT. For this you can use the shareware program *Imagery*, which was reviewed in **MacFormat** issue 1, or – if you're rich – *Adobe Photoshop*, both of which will read IFF files and then save them out in a Mac-compatible format.

If you don't have a SuperDrive, you could try connecting your Mac to your Amiga with a serial lead, and using comms software to transfer the files across; but for that you will have to have a special lead, called a 'null modem cable' made up. Remember to specify that it should have a connector for the Amiga at one end and the Mac at the other. Any comms software, such as the shareware *ZTerm* on the Mac and *Term* on the Amiga, should do the trick.

2. First off, it should be said that programming the Mac is not a job for the faint-hearted! It can be far trickier than on most other computers, because you've got things like menus and mouse clicks to think about. On the other hand, even the

simplest Mac applications do tend to look professional – for exactly the same reason.

A very good way to start is by exploring *HyperCard* – a limited version of which is currently bundled with every Mac that's sold. The full developer's kit is distributed by Softline, and costs £170. If you write an application which you want to distribute, the *HyperCard License Kit*, which is a one-off payment allowing you to distribute *HyperCard* players with each copy, will cost you £298 – again from Softline. Many impressive applications have been written in *HyperCard*, so don't underestimate its power.

3. There are a few public domain BBS (bulletin board system) packages about, but they tend to be fairly old and not incredibly reliable. (Now we'll get hundreds of people writing in saying that they've used one for years with no problems...) If you're looking at commercial systems, one you should definitely check out is *TeleFinder 3.0*, a graphically-oriented BBS which has won great acclaim. The system costs £434, which includes the right to distribute the end-user software. (If a user doesn't have the software they can still access the board – it just doesn't look as good.) UK distribution of the software is being handled by A M Micro distribution, on 0392 426473

Q *I have a PCW, a PC and a Mac. Why are there no '1/2' and '1/4' symbols on the Mac keyboard?*

**Bob Graham
Sunderland**

A

This may seem a little inconvenient at first, but in fact the Mac is far more flexible in such matters. On the PCW and PC you are restricted to just the quarter, half and three-quarters symbols.

On the Mac you can create any fraction you want in your word processor, using the superscript and subscript typesets for the numerator and denominator, putting a '/' between them and then reducing the typesize of the whole thing.

Q *Your sister magazine Mega often contains screenshots of various games on the Sega Megadrive, and I have read that they use Macs to do this. Could you tell me how this is achieved? At present I only know how to take screenshots directly off the Mac.*

**Clive Bilby
Basildon, Essex**

A

Mega uses a really quite sophisticated setup to take its grabs; you can achieve similar results for less money, but I'm afraid that it would still cost a fair bit.

First, you need a video grabbing card; these are devices which grab composite video signals such as are produced by many video recorders, and display them on the Mac screen. Then you need some way of converting the RF output from your Sega Megadrive (or, indeed, any other video game) into composite video. You can either do this by videotaping your gameplay on a video recorder which has composite video outputs, or by buying a conversion box – you should be able to find one at a decent electronics store. You'll then be able to grab game screens, although the quality

won't be particularly good.

Unfortunately, your particular case is not even this easy, since you say in your original letter that you have a Classic II – and there are no digitising boards available for that model of Mac. Digitisers are only available for Macs with expansion slots, such as the LC and Mac II families. Sorry...

Q *I am having trouble producing two-colour separations in QuarkXPress 3.11. My aim is to produce graphs from data in an Excel spreadsheet and drop them into pages of a document produced in XPress. I use Graphmaster to size and produce the graphs to fit in a box on the page, but the problem comes when printing. I cannot specify which line on the graph is to be 50% blue and which is to be 20% black. Often no pages get printed, even if I specify 'colour separations'. I thought XPress could handle something as simple as this.*

**Craig Jallac
Letchworth, Herts**













A

The problem is that *QuarkXPress* version 3.11 can only colour separate certain types of graphics – namely CMYK TIFFs and DCS (Desktop Colour Separation) files. *XPress 3.11* can't separate normal RGB TIFFs or PICTs – and I suspect that it's a PICT which you are placing on the screen.

There are a couple of ways around the problem. First, if you own a copy of *Adobe Photoshop* you could import the graph as a PICT and save it out as a CMYK TIFF or (preferably) a DCS file, which you then import into *XPress*. The other way is to draw a coloured box over each of the bars of the graph from within *XPress*. Select the Text Box tool, draw a text box exactly over the line on the graph that you want to colour, hit [command] [M] to modify the box and specify that it should have a background colour of 20% black or whatever. Note that you shouldn't specify the colour as the default *XPress* 'red', 'green' or 'blue' – these won't separate. A percentage of cyan, magenta, yellow or black will be fine, or you can specify your own colour from the **Edit colours** dialogue box as long as you define it

Welcome to HyperCard Home










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 HyperCard Tour	 HyperCard Help	 Practice	 VideoShop™
 Appointments	 Addresses	 Phone Dialer	 Graph Maker
 Puzzle	 Train Set	 Scanned Images	 Art Bits

◀ Welcome to... Stack Kit Card 3 Card 4 Card 5 ▶

HyperCard is a good introduction to programming on the Mac – you can create some very sophisticated applications, and the programming language is easy to learn

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to be a process separated colour made up from CMYK. This isn't a particularly elegant work-around, but at least it will do the job. XPress 3.2, which is due sometime in the first half of 1993, should be able to separate PICTs – so that will solve your problem altogether.

Q *Is it possible to give folders passwords so that other people do not have access to them?*

Matthew Rickard
Truro, Cornwall

A _____

There are loads of security programs around that will do the job for you, including *AME*, *Citadel*, *DiskLock* and *FolderBolt*.

Check out this issue's *Shareware Zone* for a couple of PD and shareware alternatives.

Q *I'm looking for a cheap way of making my Mac a bit faster. Would adding a maths co-processor to my LC help with graphics and/or games? Some accelerators seem to cost as much as a new Mac – but do they really work?*

John Walker
Wantage, Oxfordshire

A _____

A maths co-processor would help to speed up some graphics work, but not by a vast amount. It's unlikely to have a noticeable effect on games. Take a look at our feature starting on page 23 for the full low-down on accelerators.

Q *What is 32-bit addressing? Is it the same as, or connected with, 32-bit QuickDraw?*

Mrs J Yates
Linton, Cambridge

A _____

32-bit addressing is a method of letting your Mac access large amounts of memory.

If you have loads of RAM installed, you'll have to turn 32-bit addressing on so that your Mac can take advantage of it. 32-bit QuickDraw, on the other hand, is part of the System which allows your Mac to display more than eight colours; it is available as an

Extension for old Macs, but has been built in to the ROMs of new Macs for a few years (even mono-only machines like the Classic).

Q *I would really like to own a Mac, but I have the eternal problem of not enough cash. Is there any Apple deal for students?*

Carl McCarthy
Summertown, North Oxford

A _____

Apple does have an Education Discount scheme which is open to students, teachers and lecturers. This gives a fairly hefty discount on the normal list price, and is available from most Apple Centres. You have to have a form signed by your school or college to certify that you qualify for the discount – contact your local dealer for full details.

Q *Using a word processing document in ClarisWorks, I was creating a questionnaire with text and boxes which were formed using the spreadsheet tool. I moved all the items to the correct positions and on the screen it looked perfect. However, when I printed it some of the words were not in line underneath each other as they appeared on the screen. I thought that Macs always printed exactly what you saw on the screen – but this didn't happen for me. Why?*

CD Trayler-Smith
Newport, Gwent

A _____

There are a couple of possible reasons why this may happen. First, it depends whether you're using PostScript or TrueType fonts. If

you're using PostScript without ATM (Adobe Type Manager), the representation on the screen isn't absolutely perfect. Second, you may be trying to line up the words using spaces to place them in the correct positions. This is never perfect – you should use tabs to line things up, since this is always accurate.

Q *Is it possible to buy a Mac emulator for a 386 PC? I have a Mac at home but I have to use a PC at work; Apple File Exchange works to convert my files between the two, but it's hardly an elegant solution.*

Paul Ramsbottom
Hove, E Sussex

A _____

There's a Mac emulator available for the Commodore Amiga but not, as far as I know, for the PC – at least, not one available in this country. There were rumours of a board that's available in the States, but it never seems to have found its way across to the UK. Have you thought about trying to persuade your bosses to let you use a Mac at work, running something like *SoftPC* to emulate a PC, rather than the other way round...?

Q *I used to have an Amstrad PCW 9512, and I now have a number of 3.5-inch disks with LocoScript files on them. Is there a painless way of getting them read by the Mac?*

Andrew Roduer
Auchterarder, Perthshire

A _____

You don't say whether the disks are PC or PCW format, although from your letter I suspect the former. If that's the case, you can use *Apple File Exchange* – which comes on one of your System disks – to read them, but even then I can't track down a package that will convert *LocoScript*-format files. It's possible that you may be able to extract some of the text using a utility such as *CanOpener* (from A M Micro Distribution, 0392 426473, price £110). If the disks are in PCW format, you're in an even worse position – the Mac can't read disks of that type, so you'd have to go to a translation bureau to have them converted to PC or Mac disks.

Q *I've been trying to get to grips with programming the Mac in C, but I can't afford the six or seven volumes of *Inside Macintosh*, the Apple programmers' reference guide books. Will you be covering programming in *MacFormat*?*

J W Renshaw
Warrington

A _____

We may well cover Macintosh programming in future issues of *MacFormat*, if space allows – and if enough readers are interested. However, I'm afraid that you really do need to buy *Inside Macintosh* to do any serious work; the information it contains is invaluable, and there's so much you need to know that we could never include it all in the magazine.

Q *I own a Mac Plus, and I don't really like the mouse that comes with it. Are there any alternatives available? Alternatively, can you print the pin-out diagram so that I can adapt a different mouse.*

A Ellan
Newton-Le-Willows,
Merseyside

A _____



A quick call around a few suppliers reveals that the Mouse Systems Little Mouse is available for the Mac Plus, from either MacLine (081 642 2222) or the Mac Accessory Centre (091 295 0353). Recommended retail price is a rather hefty £100, although you may pay slightly less than that.

Optical mice (mouses?) have no moving parts; instead, a beam of light shines from the bottom of the mouse on to a special mouse pad which has a fine grid of lines printed on it. The reflection tells the mouse which way it's moving. Because there are no moving parts, the mouse tends to be smoother to use. But don't lose the mouse mat!

Unfortunately, it isn't possible to just customise a PC mouse with a different connector – Apple's mouse uses a different method of working to PC devices.

If you order, remember to specify that you want the version that works with the Mac Plus – otherwise you'll be sent the standard ADB version.

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Q My problems mostly concern memory, its usage, management and possible expansion.

1. Disk cache size and 32-bit addressing. Can you please explain these two features of the Mac? What do they do, what settings should be chosen, should 32-bit addressing be on or off? I've had mine set at the default settings, but often get 'out of memory' messages when using CAD packages.

2. 'Zapping the PRAM'. I've heard this term used but have no idea what it does or even how to do it. There is no mention of it in the handbook that came with my Mac.

3. Rebuilding the desktop. The handbook also says that the desktop should be rebuilt every month or every other month. Why? What does it do?

4. Expansion slots, performance boards, SIMMs, maths co-processors, FPUs. If I install an accelerator in the single LC expansion slot, can I still increase the RAM with, say, a 4Mb SIMM? The CPU accelerator I'm thinking of using is called the Extender, by Performance Direct Ltd and claims that virtual memory can be used. Does this mean that the 68020 processor in the LC is replaced?

5. StyleWriter ink cartridges. Is there any way of refilling the ink cartridge to save having to buy a new bubblejet nozzle when only the ink has run out, or does the nozzle only last as long as the ink?

Andrew Buckley
Eastleigh, Hampshire

A Well, you've certainly posed a lot of questions! Here are the answers...

1. 32-bit addressing has been explained in a previous answer this issue. You should only turn it on if you need it – that is, if you have large amounts of RAM in your machine – since some applications are incompatible with 32-bit addressing. The disk cache is an area of memory which the Mac uses to speed up disk read and write

times. It stores data that it has read from the hard disk in this area – so if it reads a portion of the disk and then immediately needs to read it again for some reason, the information is already there in RAM, which is much faster to access. There's no point having a cache of more than a few hundred kilobytes – you won't really notice any greater increase in speed. However, it's a good idea to set the cache to the default setting of 128K or greater – Apple has decided that 128K is the optimal trade-off between high speeds and memory usage.

Remember that when you increase the disk cache size, you're reducing the amount of free memory in your Mac – so if you're having trouble with applications requiring more RAM, try reducing the cache value to its minimum.

Your CAD program 'out of memory' errors sound to be just that, I'm afraid. You could try disabling all unnecessary Extensions and Control Panels, and setting the disk cache to its minimum 32K value to squeeze a little more spare RAM out of the machine, but in the end you'll probably have to take the plunge and buy extra memory.

2. The PRAM – short for Parameter RAM – is an area of battery-backed memory where the Mac stores information about various Control Panel settings such as time, date, mouse speed and so on. It also stores some information about things like what monitors are connected. Sometimes this gets corrupted and strange things seem to be happening. It doesn't occur very often, but if you're having trouble with, say,

your monitor behaving strangely, or the Mac occasionally not recognising your internal hard drive, you should try 'zapping' the PRAM. If you're running System 6 or earlier, you do this by holding down the [command], [shift] and [option] keys together while you select the Control Panel from the Apple menu. For System 7 machines, you should hold down the [command], [option], [P] and [R] keys while you restart your Mac – hold the keys until the desktop appears.

3. There is an invisible file called the Desktop file on your startup disk, which keeps track of the icons that applications and their documents use. When you install

new applications – especially updates of ones you already have which use different icons – the Mac can fail to update the Desktop file correctly, which means that some files will appear with the wrong icons – most commonly the 'blank document' icon, which looks like a white sheet of paper with one corner turned over. Rebuilding the Desktop by holding down the [⌘] and [option] keys as you restart, and hitting the OK button when the 'do you really want to do this?' dialogue box appears makes the Mac search



Are you sure you want to rebuild the desktop file on the disk "SyQuest 1"?
Comments in info windows will be lost.

Cancel

OK

Rebuilding the desktop can often cure strange problems such as applications unexpectedly quitting, Bus Errors and the like – although why it does is another matter...

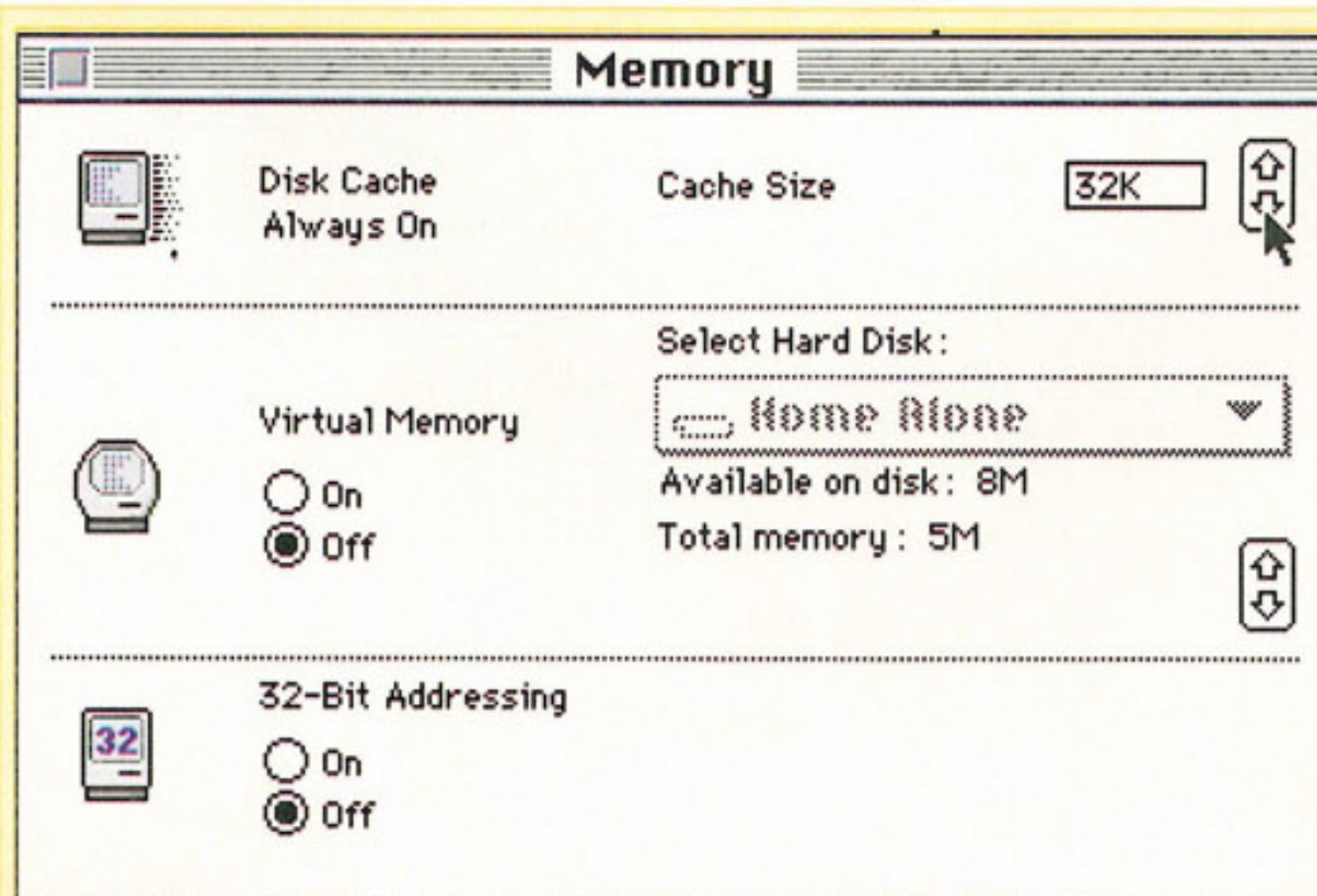
for all applications, and check what icons they should assign to their documents. The Desktop file also controls a few other things, so it's a good idea to make sure that it's up to date by rebuilding it from time to time even if all your icons look OK.

4. The PDS (Processor Direct Slot), which is what your LC's expansion slot is called, is totally separate from the SIMM slots which you use to install extra RAM – so you can install an expansion card and still upgrade your memory. To run virtual memory you need a Paged Memory Management Unit (PMMU) – something that the 68020 processor built in to the LC doesn't have, but that is built in to the 68030. The Extender has a 68030 processor running at 16MHz, like the LC II, so you'll be able to run virtual memory and you'll get a speed increase of about 5% (according to Performance Direct).

For more details on accelerators, check out our hardware feature, beginning on page 23 of this issue.

5. There is at least one company that allows you to refill StyleWriter ink cartridges, but we haven't been able to track down any contact details. If you're that company, perhaps you could write in and let us know...

The nozzle on an inkjet cartridge should be good for at least one refill before you throw the whole thing away – although you might notice a slight drop in quality.



The **Memory Control Panel**. If you're short of RAM, reduce the disk cache to its smallest value. Otherwise, keep it at its default 128K setting – or increase it if you've got plenty of spare memory, to increase your Mac's performance

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Q I have the Sonata music font installed on my Mac – it's a PostScript font. Although I can access it with PageMaker 4.0 and put staves on the page, all the notes position themselves on the bottom staff line. The cursor arrows will not move them up or down, and I wonder whether a special program is needed to use this font.

Raymond Walker
Wilmslow, Cheshire

A

You must be pressing the same key each time you want some more of the staff to appear, if you get the same note on the bottom line of the staff every time. Sonata, like any

other font, has characters mapped to each key press – try hitting other keys and you should see different notes appearing. To see which characters are attached to which

keys, pull down the  menu and select the *Key Caps* desk accessory. This provides you with a picture of the keyboard, on which are drawn the characters obtained when you press each key.

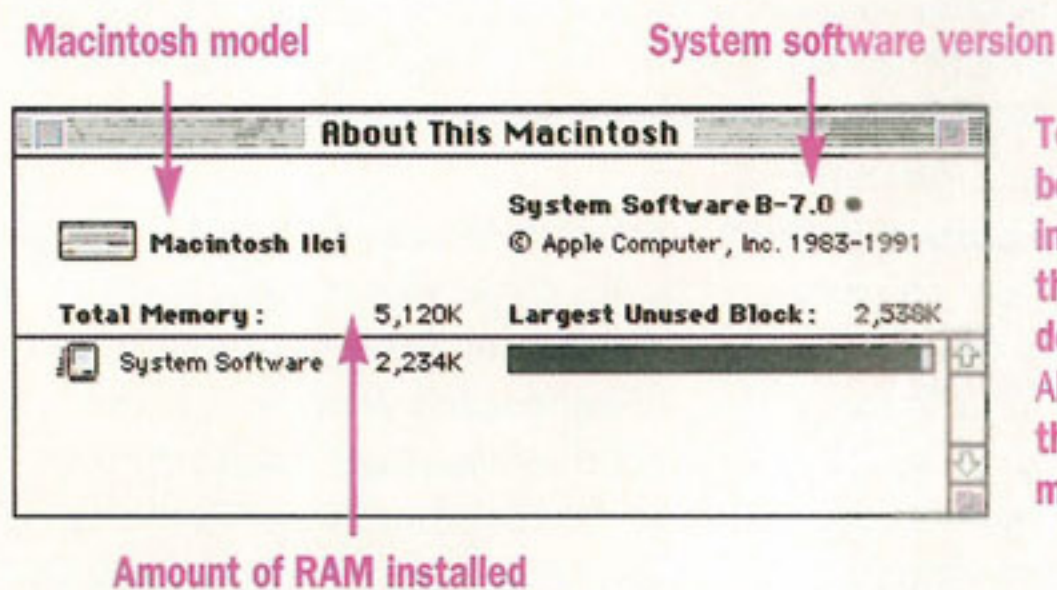
From the **Key Caps** menu, select the *Sonata* font and you should see the picture redraw to show which characters are mapped to each key. Holding down modifier keys such as **[shift]**, **[option]** and **[command]** will change the display to show the characters obtained when a key is pressed in conjunction with that particular modifier.

If you actually press keys when in the *Key Caps* desk accessory, the characters appear in the small window above the picture of the keyboard – so you can experiment

there, and even select, copy and paste the characters into your *PageMaker* document.

For an even better method of displaying what characters are available in the font, there are a number of freeware and shareware utilities such as *TypeBook* which display all the characters, along with the keypresses required to access them. You can get PD and shareware utilities either from on-line bulletin boards or from commercial PD houses – check out the adverts in this issue for addresses.

Finally, programs like Microsoft *Word 5.1* have an **Insert Symbol** command which shows all the characters and allows you to select one and then paste in into the word processing document. **mf**



To find this dialogue box, make sure you are in the Finder, point to the  menu and scroll down to the first item: About This Macintosh, then release the mouse button

Ask your questions here!

If you have a question to ask, just fill in the form below and send it off to us. Answers to some of the questions, such as whether you are using virtual memory or 32-bit addressing, can be found from the About This Macintosh or About The Finder dialogue box shown on the left.

Please note that we can only answer queries in the pages of the magazine – no matter what bribes you send, we can't enter into personal correspondence! (Although feel free to send bribes anyway...)

mac ANSWERS

If you send in a question for the **MacFormat** experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: **Mac Answers, MacFormat, 30 Monmouth Street, Bath BA1 2BW, or fax it to us on 0225 446019.**

Name

Address

Your Mac (For example, Performa 200, IIfx, PowerBook 145):

Approximate age of machine:

System version (see About this Macintosh screenshot above):

Amount of RAM (the Total Memory figure from the About This Macintosh dialogue box):

Are you using virtual memory?

(This is accessed from the **Memory** control panel under System 7) YES/NO

Do you have 32-bit addressing turned on?

(This is accessed from the **Memory** control panel under System 7) YES/NO

If your Mac has an external monitor, list the make and model; if you are using a video card, give details:

Details of any SCSI devices connected (eg CD-ROM drive, hard drive, scanner):

Details of any other relevant hardware which could help us to answer your question:

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There are thousands of PD and shareware programs available for the Mac – hundreds more are released each month. Ian Wrigley sorts the good eggs from the bad to bring you the very best – and worst – around

To rate or not to rate

We thought long and hard about whether to include ratings with the PD and shareware programs that we review on these pages – and decided not to. There are a number of reasons; the primary one is that there is so much PD and shareware out there, that we can afford to pick and choose what we review and only look at the better – or more esoteric – offerings. We may also check out the odd absolute turkey – but you can be sure that you'll be able to tell from the review what we thought of it!

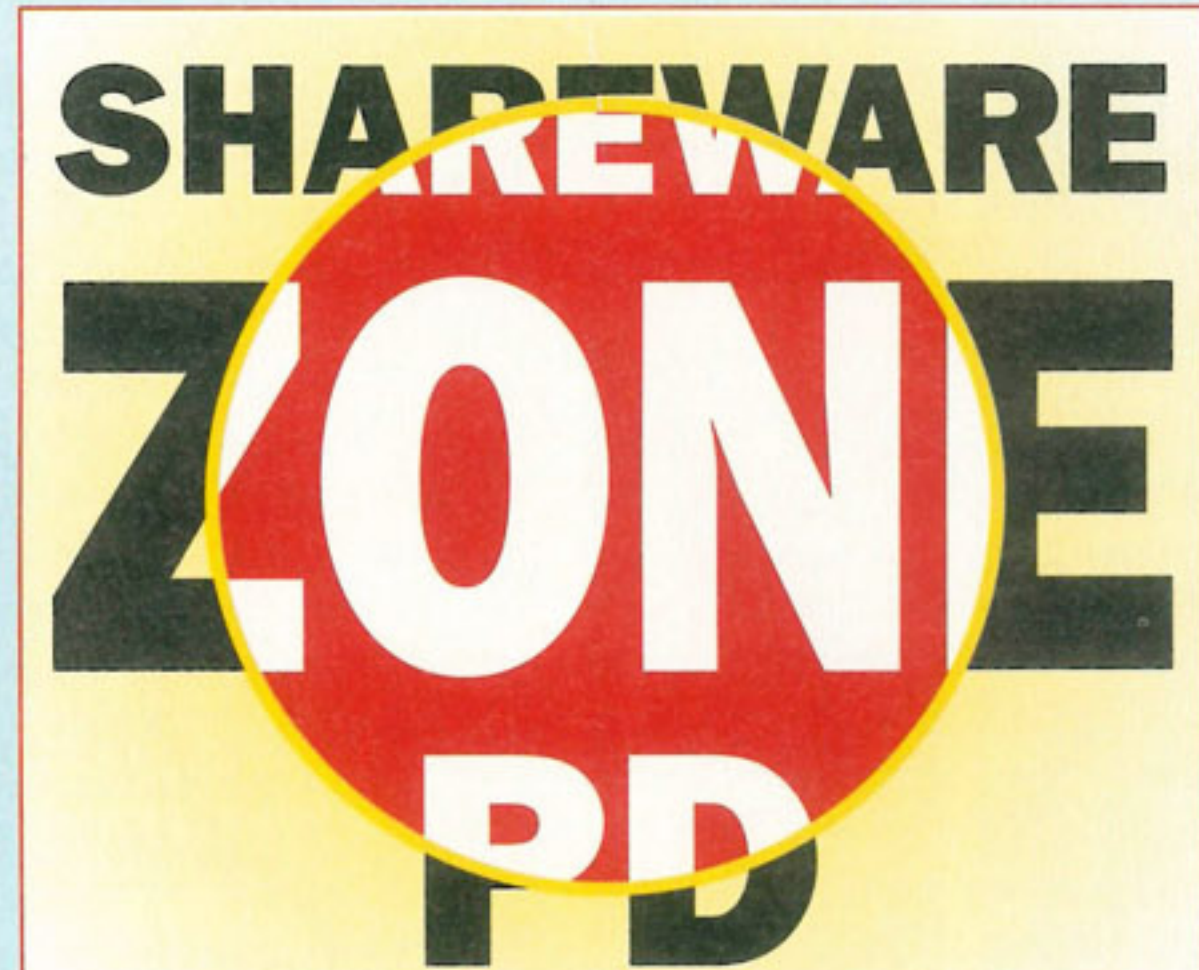


Pretzel 2.0 £10

In the last issue we looked at the *Pretzel DA*, a small utility which allows you to log on to viewdata systems such as Prestel. Just after we went to press, author Paul Russell released a new version of the program, 2.0, which adds many major improvements. For a start, it's no longer a DA – *Pretzel* is now a full application. But the major benefit for most users is that customising buttons is no longer a hacker-only task requiring *ResEdit*

or something equally scary. Instead, there's a new user-friendly dialogue box into which you can enter your settings. These are kept in a small file in the **System** folder, so you don't have to be concerned that you might be giving away your password when you give someone a copy of the program.

As before, Paul requests that you send a donation of £10 or so to Oxfam or your favourite charity if you use the program – and it's certainly well worth the money. The old, DA version was a perfectly good piece of software, but version 2.0 is streets ahead, and is an essential acquisition for anyone who accesses viewdata systems.



Button	Title	String	Baud	
1	Dial	ATD8541^M	<input type="radio"/> 300	
2	Log on	4444444444	<input type="radio"/> 600	
3	Password	4444	<input checked="" type="radio"/> 1200	
4	Feedback	*77#919994421#	<input type="radio"/> 2400	
5	Log off	*90#	<input type="radio"/> 4800	
6	6	6	<input type="radio"/> 9600	
7	7	7	<input type="radio"/> 19200	
8	8	8	Text creator	
9	9	9	<input type="text" value="txt"/>	
10	10	10	Graphics	
Modem initialisation			<input type="text" value="ATZ^M"/>	
			<input type="button" value="Cancel"/>	
			<input type="button" value="OK"/>	

Pretzel 2.0 is a major improvement over its predecessor in terms of the user interface. Everything is now customisable from within the program

PD and shareware – what exactly are they?

PD is short for 'public domain'; it's software that may be freely shared around among users – there is no fee to pay. It can be obtained from PD houses (companies which specialise in collecting together and distributing this sort of software), user groups and bulletin boards.

Actually, most free software isn't PD – it's what's known as 'freeware'. This is because putting a piece of software into the public domain deprives the author of any rights to, or control over, that software. So someone else can modify it, claim ownership of it and even sell it as a commercial package. Clearly, most programmers are not at all happy at that sort of thing, so the concept of 'freeware' was created. This is software which you can use for no charge, but which the author still retains rights over. For example, many freeware authors specify that their programs must not be altered, and may only be distributed if they are accompanied by the documentation files. For simplicity, though, most people still refer (slightly inaccurately) to this type of software as 'PD'.

Shareware is a different thing altogether: it's a form of 'try before you buy' approach to software

selling. The idea is that you can obtain the programs from the same sources as PD and freeware, but that if you like the software, you send the author a contribution – normally somewhere between \$5 and \$40 (most shareware authors live in the States). This fee, called the 'registration fee', is for you to become a registered user of the program. Sometimes you get added benefits from the author – such as a printed manual, or a version of the program with extra features – but whether you receive such goodies or not, you should register any shareware which you regularly use.

The shareware idea benefits both users and authors. Users get to try out a program before they buy it (and if you've ever bought a commercial program that turned out to be a real dog, you'll know how valuable that can be), while the author saves money on things like marketing and distribution. Unfortunately, many people treat shareware as if it were PD – they use the programs all the time, but never send payment to the author. Now, while it's true that sending money overseas isn't as convenient as just writing a sterling cheque out, it's still your duty to do so.

Only by sending your registration fee will you encourage the author to continue developing both the program you're registering and any others that they might have in the pipeline. Much shareware is just as good as commercial software, and costs far less; if you don't pay for it, you could be contributing to the author's decision that writing shareware just isn't viable, and that their next project will be fully commercial.

Variants on shareware go under names such as 'charityware': the author requests that if you use a program, you send a donation to a specified charity. Some programs are called 'postcardware' by their authors – send them a postcard – and there are even a couple of programs knocking around described as 'beerware': "Send me a bottle of beer from your part of the world if you use this program." Now that's my kind of programmer!

You will be able to see at a glance what the status is of all the software that we review on these pages – PD, freeware or shareware – and, if the latter, what the fee is. Remember, even if you've paid a PD company for a disk with a shareware program on it, you still have to send payment directly to that author.



FREWARE

!Dos

If you're sick of friends with PCs (and anoraks) telling you that "real computers have to have a CLI" (that's Command Line Interface to you), you'll be happy to know that you can now have one of your very own. *!Dos*, a freeware application by John Wätte, provides just that – a CLI with commands for things like changing directories, copying, moving and deleting files. The commands will work in the background, and the '*' DOS wildcard is supported. (A wildcard can take the place of any character or characters, so 'Smi*' is the same as 'Smith', 'Smithers', 'Smithereen' and so on. The only character that it doesn't match is the full stop.)

!Dos requires System 7 to run – it crashes under System 6.

According to the author, this is done on purpose, because the program was written as part of the continuing debate on CLI versus GUI (Graphical User Interface) systems, and most CLI-based shells don't check properly whether they are running on the correct hardware. It's a strange idea, and one that isn't exactly in line with Apple's programmer guidelines, but as long as you're warned you shouldn't fall foul of the problem.

In fact (and I hate to say it), this program could actually come in useful. There are times when, for example, you want to delete all the files in a folder that end in the characters '.bak' – because they've been created by a program which saves backup files every so often. Now, you could use the Mac's super graphical user interface to select them all and drag them to the Wastebasket – but it's far quicker to launch *!Dos* and issue a 'delete *.bak' command. Likewise, maybe you want to copy all the files that

```

console
help
*** !Dos version Aug 8 1992

!Dos may only be redistributed WITH the !Dos README file.
Bug reports may be ignored or read when send to h@nada.kth.se
!Dos is a small shell utility for the Mac written by Jon Wätte
It is a command-line shell that allows you to view, copy and delete
files. It is crude and spews out diagnostics, just like a real
command line interface. Enjoy !
Function names: quit, cd, copy, move, delete, list, cond, cp, mv, ls,
rm, files, directory, pwd, dir, about, ?, help
File arguments are given as colon-separated paths.
Backslashes are used to quote spaces and chars.
Double quotes may be used to enclose literal string parts.
Directory names should end in a colon (:).
Relative paths use several colons; ":" means this directory,
and "::" means the one above it.
File names may contain a star as a wildcard, matching at minimum
ONE character (i.e. *BC matches ABC but not BC)
As a special case, two-star file names of *R* are matched as well
There is no way to avoid matching a star.
There is no way to move the console window.
Most operations multi-task splendidly in the background.
prompt

```

!Dos brings a Command Line Interface to your Mac. Now you, too, can spend the rest of your life typing in complex and meaningless commands. Run away! Run away!

end in the word 'pict' to a separate folder. Simple – issue the command from *!Dos* and it will all happen automatically for you.

The program is fairly limited in the range of commands that it supports – it can't launch files, for example – but it's certainly interesting as an experiment, and

will no doubt find fans among those who were brought up on PCs and still miss having to laboriously type every command. And if you've never used a PC before, at least now you can find out what sort of horrible drudgery PC enthusiasts have to get used to in order to perform the simplest of tasks.



SHAREWARE

StuffIt Lite \$25

Last issue we looked at *Compact Pro*, a popular file compression program by Bill Goodman. This issue it's the turn of *StuffIt Lite* – another compression program, with a pedigree that dates back to 1987, when its author, Raymond Lau, was still in high school. Thanks to the program's success, Lau is now a rich man – and *StuffIt* is available in two versions: Lite, a shareware offering, and *StuffIt Deluxe*, a fully-fledged commercial application.

When Raymond Lau first started writing his program, the file compression utility that everyone used was *PackIt*; however, the first version of *StuffIt* changed all that – it was faster, produced smaller archives and was generally a far more sophisticated (and stable) program. Since then, other programs – most notably *Compact Pro* – have appeared, but *StuffIt* has remained the program of choice for many people. Basically, any file you come across that ends in the letters '.sit' has been compressed using some variant of *StuffIt* – and the shareware *Lite* version should be able to read the file. (Files ending in '.sea' are self-extracting archives, created normally with either *StuffIt* or

Compact Pro, and files ending in '.cpt' have been compressed with *Compact Pro*.)

Using the program is easy: you simply create a new archive, select the files that you want to add and hit the **Stuff** button. Compression is fast, and the window gives a full display of how much space has been saved, the original and new file sizes and so on. To decompress an archive, you simply double-click on it, select the files in the archive that you want to extract and hit **Unstuff** from the floating tool palette below the main window.

As well as basic file compression, *StuffIt Lite* has plenty of other features on offer. For a start, it can read a number of other compressed file formats – *AppleLink* packages, *Compact Pro* archives, *PackIt* files and *DiskDoubler* files (if you have the *DiskDoubler* Extension in your **System** folder). The program will also decode *BinHex 4* files (which are normally found on Unix computers) and create *MacBinary* files (useful if you're transferring files to and from PCs).

There is also support for *Apple Events* so when Apple finally releases a scripting package you'll be able to write scripts to automatically decompress archives or whatever. (If you own UserLand's *Frontier* package, you will be able

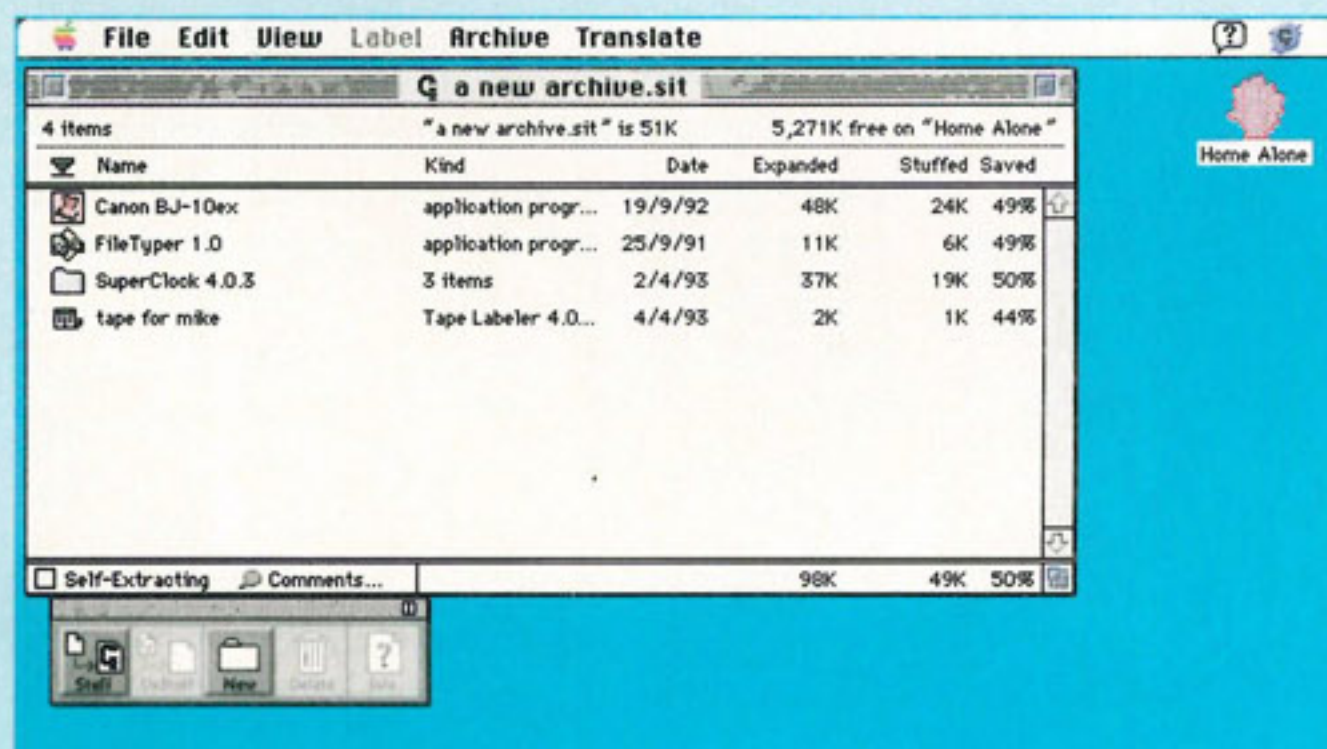
to do this right now.)

Registered users of the program gain a few extra facilities, such as the ability to open up to eight archives at once, and to encrypt archives so that only users with the password can access them. The registered version also has more support for *Apple Events*.

Before *StuffIt Lite* appeared, many people were switching from the previous shareware version of the program to *Compact Pro*, which seemed to offer more features, such as the ability to make self-decompressing archives, and created smaller archives faster. But Aladdin Systems has leapfrogged *Compact Pro* with this new version of *StuffIt* – self-decompressing archives are available, archive sizes are smaller and the program is much faster than its predecessors.

Another advantage is that *StuffIt Lite* will open archives created with *Compact Pro*; *Compact Pro*, on the other hand, can only cope with archives created by version 1.5.1 of *StuffIt*, which ceased to be current more than a year ago.

For years, *StuffIt* was the de facto standard compression program. And after a brief hiatus, it's back with a vengeance. This program is a vital addition to anyone's software library, and can be highly recommended.



StuffIt Lite is the best shareware file compression program available. Get a copy now!

Maelstrom cheats!

Maelstrom, reviewed in **MacFormat** issue 1, is one of the best shoot-em-ups available for the Mac – it's certainly a contender for the best shareware game ever written.

It's a version of *Asteroids* with full colour, sampled sounds, loads of features and so on – but it can be fiendishly tricky to play. Well, for those who've been wishing for a way to beat the system, we present the official cheat guide – as written by Andrew Welch, the program's author.

There's only one problem – you need *MacsBug*, Apple's debugger program. You should be able to find it on bulletin boards such as CompuServe and AppleLink, but you won't be able to get it from PD houses – Apple specifically forbids its distribution by all but Apple authorised sources. If you really can't find it, you might try dropping in to your local AppleCentre and pleading...

The following text is taken directly from Andrew's cheat sheet:

"Once you've installed *MacsBug*, load up *Maelstrom 1.03* and hit **[P]** to start playing the game. When you want to use a cheat, hit the interrupt switch on your Macintosh to drop it into *MacsBug*; take care to hit the right switch: one reboots the machine, the other will drop you into *MacsBug*. On machines like the IIsi (which doesn't have an interrupt switch), hold down the **[command]** key and hit the **[power on]** key to drop you into *MacsBug*.

Now for the cheats:

Type: SW (A5)-\$338 1 **[return]** for ACME XQJ-37

Retro Thrusters

Type: SW (A5)-\$336 1 **[return]** for Machine Guns

Type: SW (A5)-\$334 1 **[return]** for Luck

Type: SW (A5)-\$332 1 **[return]** for Long Shots



Maelstrom is one of the best games available for the Mac – and now we've got the cheats that'll help you get to the top of the high-score table!

Type: SW (A5)-\$330 1 **[return]** for Triple Shots

Type: SW (A5)-\$384 #X **[return]**, where X is the number of lives you want

Type: SW (A5)-\$32C #300 **[return]** for maximum shields

After you've finished cheating, type **[G]** **[return]** to continue playing.



Image 1.47

Image was written by Wayne Rasband, who works for the United States National Institute of Health. Although the lack of documentation makes it a little tricky to work out what some of the features of the program do, it appears to be part image manipulation program à la *Photoshop*, part image analysis tool. It supports image capture from an unspecified digitising board, and has a large number of analysis tools built in to deal with this data, such as producing a plot of the colour density in the image, mathematically adding and subtracting values from the image and so on.

All of this is probably pretty exciting for people who want such

things, but for the rest of us the program's real beauty is that it is free, and a pretty reasonable substitute for an expensive, commercial image manipulation package.

It supports things like changing the colour look-up table (effectively altering the colours that are displayed, and creating some pretty wild effects), smoothing, tracing outlines, adjusting the number of colours, converting to and from greyscale... in fact, just about anything you might want to do to freak about with an image.

Image will export files as TIFF, PICT, *MacPaint* or PICS, and will import similar file formats – which means that you should have no problems getting your masterpiece in to the program. The lack of documentation is a problem, but I found that half an hour of playing about worked wonders – except for the really esoteric features, which remain a mystery but which I



Image: a program that will let you do just about anything you want to your graphics

suspect I wouldn't use even if I understood them.

If you want an image manipulation program but can't justify the

cost, you should check out *Image*. Versions of the program are available for Macs with or without an FPU (Floating Point Unit).



Tape Labeler

Tape Labeler, by Jonathan Simon, is a simple program designed to do a simple job – produce labels for cassette tapes. (Not that you're recording your CDs – the only use that you'd have for this program would be to document your own experiments in home recording...)

Data entry is simple – tabbing takes you to the different areas of the label, and the font, size and style can either be changed globally or just for individual sections. You can set things like the tape's make and length, date recorded (does anyone actually want to know this?) and noise reduction used, and – since the Mac uses a standard printer driver across all applications – the result should be exactly the right size to be cut out and placed in a cassette box.

There is support for colour (although, of course, you'll need a

colour printer for there to be much point), you can paste in graphics and even print a pattern across one corner of the label in case you're anal retentive enough to store your tapes by category (one pattern for train sound effects, another for bird calls, perhaps?). The final result looks professional, and is far easier all round than trying to set up a similar template in *ClarisWorks*, *QuarkXPress* or whatever.

This isn't a program that will set the world on fire, but it's very good at what it does.



Simple, easy to use and effective – that's *Tape Labeler*. But remember, kids: Home Taping Is Killing Music

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Every issue will feature a cover disk filled with playable games
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Issue three of MacFormat will be scarce!

MacFormat is a specialised magazine, tailored to cater for the
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- Get your local newsagent to reserve or, even better, deliver a
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- Fill in the form below and allow us post you a copy, regular
as clockwork.

All these methods will work, so you can be sure of getting hold of a
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To Do! is a simple 'to do' list organiser (surprise, surprise) that comes in the form of a Desk Accessory (DA). It's written by Andrew Welch, who asks a \$15 shareware fee, and may well save you many times that amount if you were thinking of buying a commercial product that does a similar job.

The easiest way to use the program is to put it – or an alias – into your menu. (Of course, users of System 6 and below have no option – it's a DA, so it must be installed into the System.) Then it's

accessible whatever you're doing – as a DA, the amount of memory required is tiny, so you shouldn't have problems opening it while you're running an application.

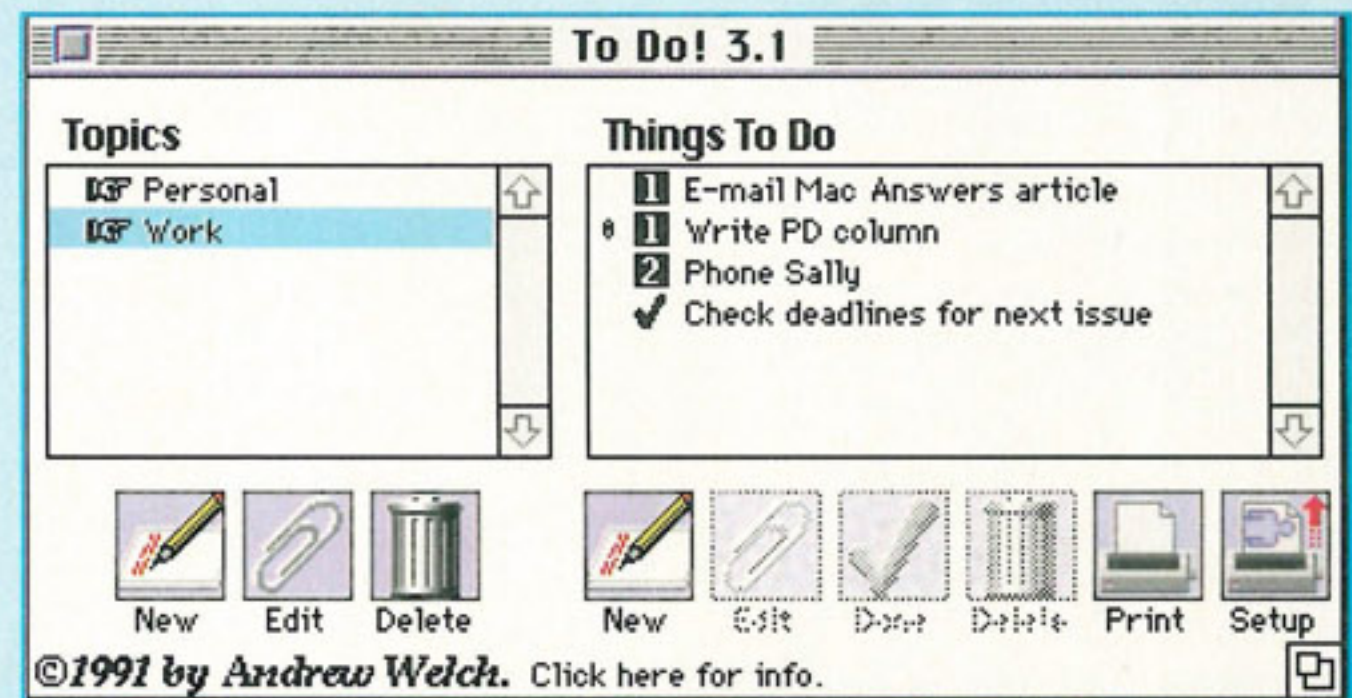
Using the program is equally easy. You can split your 'to do' lists into various categories – for example, work, personal or whatever – and have a separate list for each. Actual items in the list can have notes attached, and each is assigned a priority between 1 and 3 – the list is then automatically sorted into priority order. Once you've completed an item, you can either mark it with a tick or delete it altogether.

Printing a list in *To Do!* is simply a matter of clicking a couple of icons – the whole thing can be output, including all notes and the

priority of each item.

There are commercial programs available which organise your To Do lists for you – they generally cost £30 or more. Or you could get hold of *To Do!* and pay a mere \$15

shareware fee – which, in my book, is rather better value. (Even better value, of course, is to keep your To Do list on a piece of paper and not use a computer at all. But that's another matter...)



To Do! is a shareware program which is better than some similar commercial applications

The screenshot shows the *BiPlane* 2.0 spreadsheet interface. It has a menu bar with 'File', 'Edit', 'Format', 'Font', 'Style', and 'Options'. The spreadsheet shows a financial summary for the first quarter of the year. The data is as follows:

	January	February	March	April
Sales	£1,350.00	£1,020.00	£1,500.00	£2,300.00
Consultancy	£1,020.00	£0.00	£1,550.00	£2,200.00
Other income	£0.00	£120.00	£2,030.00	£1,020.00
Total income	£2,370.00	£1,140.00	£5,080.00	£5,520.00
Wages	£1,000.00	£1,500.00	£1,500.00	£1,550.00
Overheads	£250.00	£247.00	£280.00	£280.00
Other overheads	£120.00	£0.00	£0.00	£120.00
Total outgoings	£1,370.00	£1,747.00	£1,780.00	£1,950.00
Net profit	£1,000.00	(£607.00)	£3,300.00	£3,570.00
Running profit/loss	£1,000.00	£393.00	£3,693.00	£7,263.00

BiPlane is a fully-featured shareware spreadsheet, which supports colour, numerous built-in functions and even chart creation



BiPlane is a more expensive shareware package than most – but for your money you get what is, essentially, a fully-fledged spreadsheet. The version currently available from PD houses is 2.0, although you'll get an updated version when you register. Indeed, registration also entitles you to a DA implementation, on-line help, a 200 page manual and technical support.

Unlike earlier versions of the program, 2.0 is very fully-featured. It has numerous built-in numerical functions, different formatting for

numbers, currency, date and time and so on, and variable width columns that can be altered just by dragging the cursor on screen – something which I really didn't expect to see in anything other than a full commercial application. The creation of charts is also supported, although I had some trouble persuading *BiPlane* to do exactly what I wanted in that area.

If you don't really know whether you need a spreadsheet or not, it's worth checking out *BiPlane*. And if your budget won't stretch to the likes of *Excel* or *Resolve*, the registered version will probably be perfectly adequate – most people use very few of a program like *Excel's* features, and *BiPlane* certainly seems to have just about everything that I want.



SoundMaster is an absolutely vital acquisition for any Mac gadget freak. With it, you can make your Mac play sounds when it performs just about any action – starting up, inserting or ejecting a disk, beeping – even the user pressing a key. For this you pay a measly \$15 to author Bruce Tomlin.

There are thousands of sound samples knocking around in the

public domain if you don't have the kit to sample your own. They are mainly taken from TV shows and movies – and predominantly the kind of TV shows and movies that you'd expect computer fans to watch, so just about every second of every Monty Python film has been sampled. The Simpsons have been done to death and 2001: A Space Oddity (sic) and The Terminator are both well represented. However, others do crop up – there's a good selection of samples from the kids' TV show Trapdoor, for example.

To use *SoundMaster*, you simply select the action that you want to have a sound assigned to, and the

sound that you want played. The sample rate can be set to one of four rates – the higher the rate at which the sound has been sampled, the better the quality.

Apart from a couple of limitations, such as emptying the Wastebasket not playing a sound under System 7, *SoundMaster* is a fabulous piece of programming.

Have your Mac say "Bart!" instead of the normal beep. "Okey dokey" when you restart. "Bleagh" when you eject a disk. "You are scheduled for termination" when you shut down.

You get the idea: the office will never be the same again...



SoundMaster allows you to assign sounds to just about anything that your Mac does. Great for winding up the other people in the office



Desktop Textures

SHAREWARE

Any donation

Anyone who's used the Performa version of System 7, 7.1P, will know that, rather than being able to edit your Desktop pattern, you instead have a range of about sixteen textures to choose from. Well, Desktop Textures by Geoff Adams and Stephen Krauth now gives the rest of us the same sort of functionality.

Using the program is simple. double-click on the file, select **Open** from the **File** menu to choose a file of textures, and the first one is displayed in a window. You can click on the texture to see what it looks like on your main screen and, when you've found one that you're

happy with, clicking the **Install** button puts the texture permanently into your **System** – well, permanently until you want to choose a different texture. You can revert to the normal **Control Panel** by installing the 'Control Panel Compatible' pattern.

The textures supplied with the program are great – some are a little eye-boggling, but most are pleasant and definitely make a change from the normal boring Desktop patterns.

The program's authors say that the program is released as 'shareware with a twist' – you can pay any amount that you want, or nothing at all; there's no obligation.



Desktop Textures: Roll up! Roll up! Get your freaky Desktops here

I think that a lot of people will be paying a fee, though – it's nice to see a program that's so simple and elegant to use. This is a program

that's highly recommended if you're bored with the standard, staid Mac desktop patterns and pine for something a little more exciting.

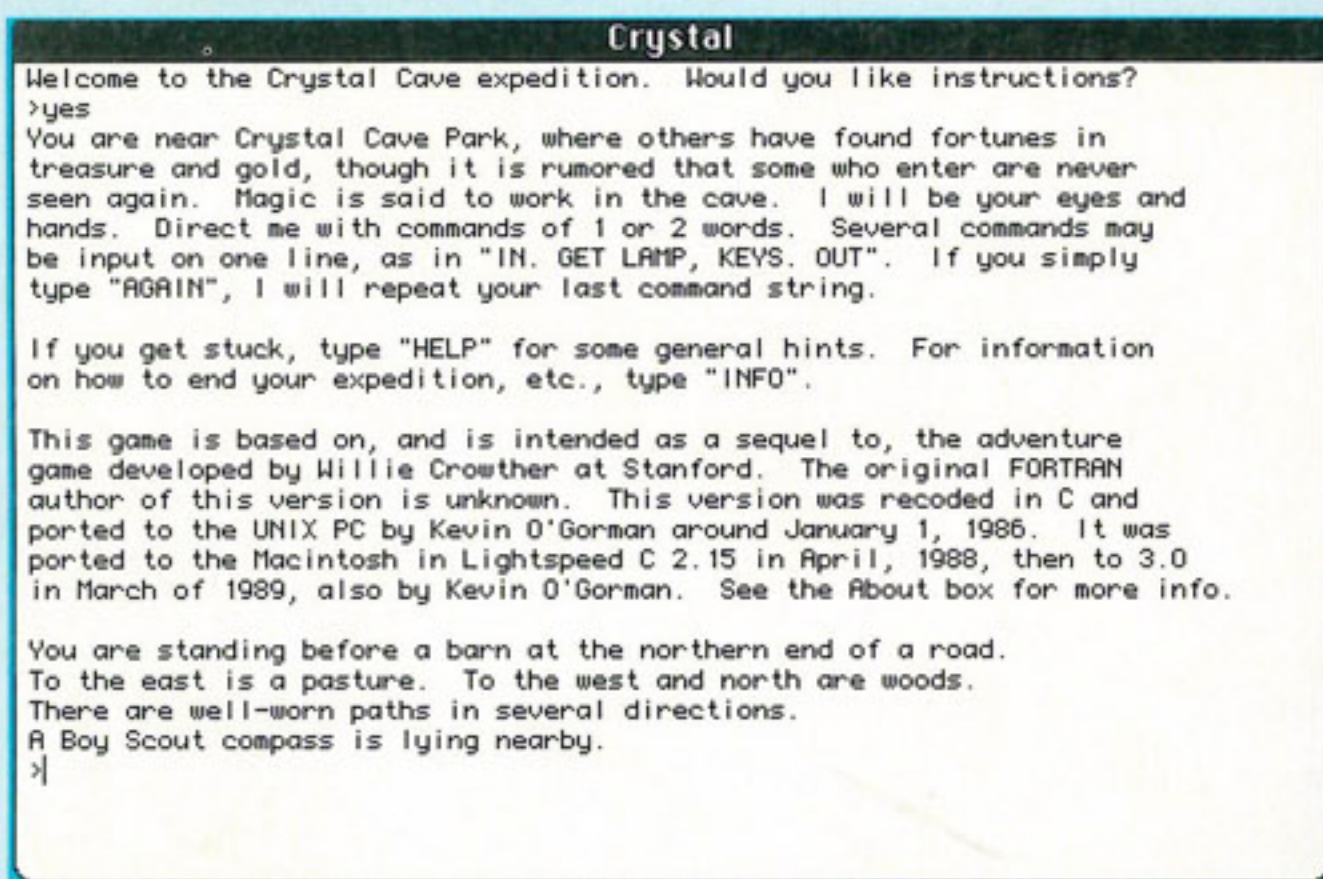


FREWARE

Crystal Cave

Crystal Cave, by Kevin O'Gorman, is a text-only adventure game based on the original computer adventure, which was written in Fortran by a programmer called Willie Crowther, way back when computers were as big as rooms.

For the uninitiated, an adventure game is a test of your reasoning powers; you take the part of an explorer, out to gather up as much treasure as you can. You move around by issuing commands like 'go north', 'climb tree', 'rub lamp', 'hit dwarf' or whatever; there are plenty of objects other than treasure lying around to help you (and



Crystal Cave is one for all your closet D & D fans. It's an adaptation of the original computer adventure game, and should keep you occupied for hours

sometimes hinder you), and often dragons, orcs and other creatures appear to thwart your progress. It's

all a bit like computerised Dungeons and Dragons, except that it's not compulsory to wear an anorak and

know the Intercity timetable off by heart in order to play.

Crystal Cave has expanded on the original adventure slightly, although you will still recognise chunks of the game if you're familiar with Crowther's masterpiece. Basically, Kevin has added some more locations and a few more puzzles to spice things up.

The copyright on *Crystal Cave* reads September 1989, but it still works fine under System 7 – my only complaint is that the text window isn't particularly large, and it can't be expanded. Still, since almost none of the room descriptions and so on are more than one screen long, this shouldn't be too much of a problem.

Crystal Cave is a great version of a classic game, and one that's certainly worth getting hold of.

Where to get it ▼

You can obtain PD and shareware from a number of different sources. First, there are the commercial PD houses (check the adverts in this magazine for addresses). These are companies which collect software, package it on to disks and then sell it on to you for a

moderate charge.

Next come bulletin boards. To access one of these you'll need a modem, of course, but once you're connected you will find that there's a wealth of software available. If you use the CIX bulletin board (modem phone 081 390 1244, any speed

from 1200baud upwards, log on as 'new'), check out the 'files' and 'files2' topics in the 'mac' conference – and, of course, our own 'macformat' area. If you use CompuServe (voice phone 0800 289378 for an information pack) there is a multitude of different Mac areas; check

manual and the monthly magazine for details.

Finally, many Mac user groups have a range of PD and shareware available; and, of course, you can swap it with your friends – it's not software piracy, all of these programs are freely distributable.

MUSIC KIT TO BE WON

Kick it!

What you get:

Those wonderful, talented and incredibly generous chappies at Roland UK have come up with an absolute peach of a prize for you lucky MacFormat readers.

They're donating a SC-7 sound module, a PC-150 MIDI keyboard and a pair of CS-30 stereo speakers. But what does it all do, you ask? Well, connect this little lot up to your Mac and you'll have an all-singing, all-dancing music set-up that'll keep you tapping your toes into the early hours.

And even if you've no musical bent whatsoever you can put your feet up and just gaze lovingly at the £800-worth of state of the art kit you've got for precisely nowt – well 24p to be exact.

So how do you get hold of the kind of prize Mozart would have killed for?

You just do this...

Answer the following three questions and send your answers on a postcard to:
MacFormat Roland Compo
30 Monmouth Street
Bath BA1 2BW

So are you ready? – right!

1. Which band sang 'We are the Robots'?
 - a. Cliff Richard and the Shadows
 - b. Kraftwerk
 - c. The Shamen
2. Who's the lead singer with U2?
 - a. Beano
 - b. Bono
 - c. George Formby
3. Who's the richest (and most ridiculous)?
 - a. Prince
 - b. Madonna
 - c. Michael Jackson

Rules:

No more than one entry per household purleeeeeease!, all entries to be received by July 6 and the Editor's decision is final



That's the PC-150 above and the little beauty on the left here is the CS-30 self-powered stereo speaker unit which sounds oh so sweet and will work with any audio source as well as your Mac...



And above we have the third component of the Roland system – the SC-7 sound module which contains the MIDI interface which hooks up to your Mac. You just plug the keyboard in, load up some software and ta da da...you're jamming, illing and kicking 'til ya dropping!



Chooser

MacFormat hardware

Welcome to part one of our hardware round-up – this issue we've covered computers, greyscale and colour printers, CD-ROM drives, input devices, CPU and graphics accelerators, floppy and removable drives and colour monitors. All prices quoted include VAT and are the manufacturers' recommended retail prices. But watch out because

prices might rise with it being the new financial year and all that. So shop around for the keenest prices! And if you're intending buying by mail order remember these five golden rules:

- Pay cash on delivery or
- Pay by personal credit card
- Collect your gear in person

- Buy from an established supplier
 - Be wary of unusually low prices
- Next issue we'll complete the listing with guides to memory expansion, scanners, hard drives, modems, fax modems, video boards, display boards – and just about every other bit of hardware we can think of.

Name & price	Maker	Distributor	Phone	Comments	
MAC COMPUTERS					
Apple Macintosh Classic £616 2/40; £699 4/40	Apple	Apple	Freefone Apple	68000 processor, 7.83MHz, maximum 4Mb RAM, SuperDrive, 9in display, standard Apple ports	
Apple Macintosh Classic II £875 4/40; £1,028 4/80	Apple	Apple	Freefone Apple	68030-based Classic, 16MHz. 2Mb RAM on motherboard with option for an extra 2Mb via SIMMs sockets. Optional maths co-processor	
Apple Macintosh IIfx £1,968 5/80; £2,438 5/230	Apple	Apple	Freefone Apple	Modular Mac; 68030 processor, 25MHz. Built-in video capability	
Apple Macintosh IIsi £1,850 5/40; £2,050 5/80	Apple	Apple	Freefone Apple	68030 processor running at 20MHz. Optional 68882 co-processor. 17Mb RAM. SuperDrive, built-in video allowing 16 grey scales or 256 colours	
Apple Macintosh IIvx £1,639 4/80; 5/80cd £1,874	Apple	Apple	Freefone Apple	16MHz 68030 processor; internal CD-ROM drive an option	
Apple Macintosh IIxc £2,438 4/230; £2,731 5/230cd	Apple	Apple	Freefone Apple	32MHz 68030-based Mac with RAM cache	
Apple Macintosh LC II £851 4/40; £969 4/80	Apple	Apple	Freefone Apple	16MHz 68030 processor, 4Mb of RAM, expandable to 6Mb, 8Mb or 12Mb. 512K of video RAM – price includes a 12in colour monitor	
Apple Macintosh LC III £1,462 4/40; £1,639 4/80; £1,850 4/160	Apple	Apple	Freefone Apple	68030 processor with maths co-pro option, 25MHz, 4Mb-36Mb RAM, Apple SuperDrive 40/80/160Mb storage on hard disk	
Apple Macintosh PowerBook 145 £1,639 4/40	Apple	Apple	Freefone Apple	25MHz 68030-based portable with LCD screen and rollerball mouse. No internal floppy – port for external drive	
Apple Macintosh PowerBook 160 £2,167 4/80; £2,461 4/120	Apple	Apple	Freefone Apple	25MHz Notebook Mac, 68030 processor running at 25MHz. Grey scale screen and support for external video	
Apple Macintosh PowerBook 180 £3,401 4/120	Apple	Apple	Freefone Apple	33MHz 68030 processor, grey scale screen, support for external video	
Apple Macintosh PowerBook 165c £3,225 4/80; £2,579 4/120	Apple	Apple	Freefone Apple	Colour PowerBook; 68030 processor with maths co-pro; 33MHz, 4Mb-14Mb RAM, Apple SuperDrive 80/120Mb storage on hard disk	
Apple Powerbook Duo 210 £1,991	Apple	Apple	Freefone Apple	25MHz notebook, 68030 processor – colour support, floppy drive and extra hard drive can be added by docking it into a Duo Dock casing	
Apple Powerbook Duo 230 £2,261 4/80	Apple	Apple	Freefone Apple	Same as the Duo 210 but the 68030 processor runs at 33MHz	
Apple Macintosh Quadra 700 £2,908 4/80; £3,378 4/230; £3,848 4/400	Apple	Apple	Freefone Apple	25MHz, 68040 processor – resembles the Mac IIfx. 4Mb RAM with slots for memory boosting	
Apple Macintosh Quadra 800 £4,929 8/230; £5,587 8/500; £5,869 8/500cd	Apple	Apple	Freefone Apple	68040 processor, 33MHz, 8Mb to 136Mb RAM, Apple SuperDrive storage 230/500Mb on hard disk	
Apple Macintosh Quadra 950 £4,929 4/sd; £5,869 4/230; £6,339 4/400	Apple	Apple	Freefone Apple	33MHz, 68040 processor	
Apple Macintosh Centris 610 £2,050 4/80; £2,555 4/230; £3,378 8/230cd	Apple	Apple	Freefone Apple	68040 processor, 20MHz, 4Mb RAM	
Apple Macintosh Centris 650 £3,049 4/80; £3,519 4/230; £4,341 8/230cd; £4,694 8/500	Apple	Apple	Freefone Apple	68040 processor, 25MHz 4Mb-8Mb RAM expandable to 132Mb, 80/230/500Mb storage on hard disk	
GREYSCALE PRINTERS					
Apple ImageWriter II	£346	Apple	Apple	Freefone Apple	Seven colours, 144dpi, serial/AppleTalk interface
Apple LaserWriter NTR	£1,733	Apple	Apple	Freefone Apple	4ppm PostScript laser, 300dpi
Apple Personal LaserWriter LS	£699	Apple	Apple	Freefone Apple	TrueType/QuickDraw laser writer only with 11 TrueType fonts
Apple Personal LaserWriter 2NT	£1,733	Apple	Apple	Freefone Apple	PostScript eight page per minute printer
Apple StyleWriter	£270	Apple	Apple	Freefone Apple	Bubblejet printer with TrueType fonts, manual/sheet fed, serial interface
Apple StyleWriter 2	£317	Apple	Apple	Freefone Apple	Same as above but works at twice the speed
Brother HL-4VE	approx £2,000	Brother	Midwich Thame	0379 649200	4ppm laser with Canon LX engine; 512K RAM
Brother HL-4PS	£1,996	Brother	Midwich Thame	0379 649200	4ppm PostScript printer, 300dpi. Parallel, serial and AppleTalk interfaces
Dataproducts LZR 660	£2,109	Dataproducts	Dataproducts	0734 884777	6ppm PostScript laser, AppleTalk, RS232C/RS422/Centronics Interface
Dataproducts LZR 960	£2,344	Dataproducts	Dataproducts	0734 884777	9ppm, 300dpi PostScript laser, 2Mb RAM expandable to 10Mb



Name	price	Maker	Distributor	Phone	Comments
Dataproducts LZR 1560	£3,284	Dataproducts	Dataproducts	0734 884777	400dpi, 15ppm PostScript laser, 4M RAM expandable to 16Mb
Epson EPL-4100	£1,110	Epson	Epson	0442 61144	6ppm laserwriter
Epson EPL-7500	£2,348	Epson	Epson	0442 61144	6ppm, 35 fonts, AppleTalk and RS232 interfaces
Epson GQ5000	£1,702	Epson	Epson	0442 61144	6ppm, 300dpi, 13 fonts
Fujitsu RX7100PS	£2,226	Fujitsu	Fujitsu	081 573 4444	5ppm, 300dpi, 35 fonts in ROM
GCC WriteImpact	\$599	GCC	GCC	081 569 4030	24-pin letter quality dot-matrix, 180dpi x 360dpi
HP Deskjet	£527	HP	Hewlett Packard	0344 369222	300dpi inkjet printer
HP DeskWriter	£527	HP	Hewlett Packard	0344 369222	300dpi inkjet printer, maximum speed of 2ppm
HP LaserJet IV	£2,055	HP	Hewlett Packard	0344 369222	600dpi PostScript laser
Mannesman Tally MT 911PS	£2,872	MT	Mannesman Tally	0734 771688	10ppm PostScript laser, 2Mb
Mannesman Tally MT908	£1,702	MT	Mannesman Tally	0734 771688	8ppm, 300dpi
Minolta SP 3500	£2,583	Minolta	Minolta	0908 211211	10ppm TrueImage laser; 35 TrueType fonts
NEC SilentWriter S62P	£2,109	NEC	NEC	081 993 8111	6ppm PostScript laser
NEC SilentWriter2 290	£2,348	NEC	NEC	081 993 8111	8ppm 300dpi laser, with HP LaserJet Plus emulation
NewGen Turbo PS/300P	£1,410	NewGen	Pre-Press Solutions	0844 28689	4ppm, 300dpi
NewGen Turbo PS/400P	£2,115	NewGen	Pre-Press Solutions	0844 28689	4ppm, 300/400dpi
NewGen 660B	£3,037	NewGen	Aptec	071 627 1000	6x6 A4 laser; IET, parallel/serial/AppleTalk interfaces and Ethernet option
NewGen 880P	£1,938	NewGen	Aptec	071 627 1000	8x8 A4 laser; IET, parallel/serial/AppleTalk interfaces and Ethernet option
Oki OL830	£1,761	Oki Data	Oki Data	0753 819819	Needs AppleTalk interface (£199); 300dpi A4 PostScript laser
Oki OL850	£2,231	Oki Data	Oki Data	0753 819819	8ppm, 300dpi; parallel/serial/AppleTalk interfaces, 35 fonts
Pacific ProTracer	£1,291	Pacific Data	Pacific Data	0442 231414	360dpi PostScript inkjet printer
Panasonic KX P-4455	£3,284	Panasonic	Panasonic	0344 853915	11ppm PostScript laser printer, 300dpi
Star LaserPrinter 42 StarScript	£1,643	Star	Star Micronics	0494 471111	4ppm PostScript laser; 35 fonts, 2Mb RAM
Star LP 8 III StarScript	£2,348	Star	Star Micronics	0494 471111	8ppm PostScript laser, Canon engine
Star LS 5TT	£1,249	Star	Star Micronics	0494 471111	5ppm, 600dpi, AppleTalk interface, 14 text fonts, 35 TrueImage fonts
TI MicroLaser PS35	£1,750	Texas	Texas Instruments	0234 224277	Sharp engine, 300dpi PostScript laser with 512K RAM. Parallel interface, HP LaserJet emulation
TI MicroLaser PS35A	£2,344	Texas	Texas Instruments	0234 224277	6ppm, 300dpi, AppleTalk, serial and parallel interface
TI MicroLaser Turbo	£2,760	Texas	Texas Instruments	0234 224277	9ppm PostScript laser
TI MicroLaser XL PS17	£2,109	Texas	Texas Instruments	0234 224277	6ppm laser printer; LocalTalk interface, 2.5Mb RAM and 17 fonts
TI MicroLaser XL PS35	£2,726	Texas	Texas Instruments	0234 224277	16ppm 300dpi; AppleTalk, 35 fonts, 2.5Mb RAM

COLOUR PRINTERS

Bézier BP3670	£3,055	Bézier	DirekTek	081 845 5969	Thermal inkjet printer; 6ppm, at up to 17in wide. SCSI interface
Calcomp PlotMaster	£2,761	Calcomp	Calcomp	0734 344012	Thermal printer with seven colour output facility
HP DeskWriter C	£633	HP	Hewlett Packard	0344 369222	Black or 3-colour printer
HP PaintJet XL	£2,291	HP	Hewlett Packard	0344 369222	Takes A3/A4 paper; high speed colour inkjet
HP PaintJet XL300	£3,401	HP	Hewlett Packard	0344 369222	Takes 2-colour inkjet, 400dpi, A3 Postscript level 2
HP PaintJet	£963	HP	Hewlett Packard	0344 369222	180dpi colour inkjet; comes with serial interface and driver
Integrex Colourcel	£3,519	Integrex	Integrex	0283 551551	Roll-fed colour inkjet
Seiko ColorMaker	£587	Seiko	Ambitron	0635 36555	Non-PostScript thermal wax transfer colour printer
Sharp JX-735	£1,521	Sharp	Sharp	061 205 2333	180dpi colour inkjet
Shinko CHC-445	£2,344	Shinko	Colorgraph	0734 819435	A4 PostScript colour printer
Tektronix ColourQuick 4697	£2,536	Tektronix	Tektronix	0628 486000	216dpi colour inkjet; A3/A4 paper, sheet or roll fed

FLOPPY DRIVES

Apple PC 5.25	£382	Apple	Apple	Freefone Apple	5.25in drive for Mac to PC file transfer
DaynaFile II	£587	Dayna	Computers Unltd	081 200 8282	External floppy which allows the Mac to read from and write to 3.5in and 5.45in MS-DOS files
Fifth Generation JukeBox Five	£186	5th Gen	Riva	0420 22666	Floppy disk feeder
PLI Infinity 10	£1,526	PLI	Gomark	071 731 7930	Back up system for hard disk; will read 5.25in MS-DOS disks
Verbatim 10 Plus	£499	Verbatim	Verbatim	0784 473736	Internal or external high density floppy drive; 10Mb capacity
Verbatim 20 Plus	£816	Verbatim	Verbatim	0784 473736	Internal or external high density floppy drive; 20Mb capacity

REMOVABLE DRIVES

APD Strategy 2040SR	£628	MacEurope	MacEurope	0603 741222	42Mb cartridge hard drive
Bering Totem 920R	£1,615	Bering	Datagate	0635 248180	20Mb hard drive with Bernoulli cartridge
Bering Totem 1220R	£2,482	Bering	Datagate	0635 248180	40Mb drive with 40ms access time
Bering Totem II	£1,404	Bering	Datagate	0635 248180	20Mb Bernoulli drive; cartridges available at £60 each
Dolphin Flipper 44	£1,398	Dolphin	DynaFive	0733 236515	44Mb cartridge drive
DynaFive Galaxy 44M	£640	DynaFive		0733 236515	44Mb cartridge drive
ETC Dataport	Single £293 twin £528 tower £851	ETC	MacAcc Centre	091 295 0353	Unit for storing and exchanging internal drives
Formac ProDrive 40	£2,015	Formac	MacEurope	0603 741222	As above; 42.5M cartridge
Frog Systems R45	£410	Frog Systems	Rodime	0592 630620	44Mb cartridge drive
FWB Hammerdisk 44	£934	FWB	NuSys	0379 650777	44Mb cartridge drive, 20ms seek time
GCC UltraDrive 50	£1,173	GCC Technologies	GCC Technologies	0473 212313	50Mb cartridge drive



Name	price	Maker	Distributor	Phone	Comments
Iomega MacInsider MultiDisk 150	£1,115	Iomega	Iomega	081 750 5511	Removable drive
MacTransportable 90 Pro	£988	Iomega	Iomega	081 750 5511	Single cartridge 90M transportable drive
MacTransportable MultiDisk 150	£1,032	Iomega	Iomega	081 750 5511	
Quantum PassPort XL42	£334	Quantum	Thane Systems	0844 261 226	42Mb removable hard drive unit; external chassis £651
Quantum PassPort XL85	£505	Quantum	Thane Systems	0844 261 226	85Mb removable hard drive unit; external chassis £651
Quantum PassPort XL127	£705	Quantum	Thane Systems	0844 261 226	127Mb removable hard drive unit; external chassis £651
Quantum PassPort XL170	£882	Quantum	Thane Systems	0844 261 226	170Mb removable hard drive unit; external chassis £651
Quantum RPort 240	£1,152	Quantum	Thane Systems	0844 261 226	42Mb removable hard drive; external chassis £651
Rodime Condor 130e	£1,596	Rodime	Rodime	0592 630620	130Mb removable hard drive
Rodime R45 Plus	£586	Rodime	Rodime	0592 630620	44Mb removable cartridge drive with disk utility software
Rodime R90 Plus	£774	Rodime	Rodime	0592 630620	90Mb removable cartridge hard drive
SyQuest MR90	£837	SyQuest	Cal-Abco	081 842 0071	84Mb removable cartridge drive

CD ROM DRIVES

AppleCD150	£351	Apple	Apple	Freefone Apple	380msec access time
AppleCD300	£320	Apple	Apple	Freefone Apple	Double speed CD ROM
Cumana CMA432	£351	Cumana	Cumana	0483 503121	350msec access time
Hammer HCD1	£949	FWB	NuSys	0379 650777	Double speed; includes CD-ROM ToolKit Utility software
Hitachi CDR 1750S	£616	Hitachi	Hitachi Sales	081 849 2092	320msec access; 64K built-in cache
Hitachi CDR-MAC 2	£728	Hitachi	Hitachi Sales	081 849 2092	320msec access time
NEC Intersect CDR-37	£468	NEC	NEC	081 993 8111	Needs Mac Interface kit (£95); portable CDROM player
NEC Intersect CDR-74	£703	NEC	NEC	081 993 8111	CD-ROM drive with extra cache memory; can play audio CDs
NEC Intersect CDR-84	£687	NEC	NEC	081 993 8111	300msec access time
Phillips CM50 CD-ROM	£468	Phillips	Phillips	081 773 4491	Doubles as audio CD player as well
Pioneer DRM-610	£992	Pioneer	Optech	0252 714340	0.8 sec max, average 0.6 secs
Pioneer DRM-604X	£1429	Pioneer	Optech	0252 714340	300msec average access time, data transfer rate 600 Bytes per second (high speed mode)

INPUT DEVICES

Advanced Gravis MouseStick	£106	Advanced Gravis	MacAcc Centre	091 295 0477	Joystick with separate controller box
Advanced Gravis SuperMouse	\$129	Advanced Gravis	Advanced Gravis	0101 604 434 7274	Multi-button mouse
Animas MacPro	£63	Animas	PTT Europe	081 997 0923	Three button mouse
Animas OptiOne	£81	Animas	PTT Europe	081 997 0923	Optical mouse; 300dpi
Animas OptiPro	£85	Animas	PTT Europe	081 997 0923	Same as above; three buttons
Appoint MousePen Pro	£97	Appoint	KSI	0590 642751	Combination of a two-buttoned mouse and a pen
Appoint Thumbelina	£97	Appoint	KSI	0590 642751	Tiny ADB trackball
CalComp DrawingBoard II	£734	Calcomp	Calcomp	0734 344012	2D digitising board; sizes from 12inx12in to 44inx60in
CalComp DrawingPad II	£440	Calcomp	Calcomp	0734 344012	Digitiser, graphics pad and mouse rolled into one
Cordless Mouse	£116	Softsel	Softsel	081 568 8866	Works by infra-red
Curtis MVP Mouse/Footswitch	£164	Curtis C'puter Products		0923 854701	Footswitch/trackball combination, two buttons
Ke:nx	\$780	DJDE	DJDE	0101 708 526 2682	Keyboard and mouse emulator for the disabled
Kensington KeyPad	£112	Kensington	Mac Acc Centre	091 295 0477	For the PowerBook; numeric keypad with cursor keys
Kensington Turbo Mouse ADB	£153	Kensington	Mac Acc Centre	091 295 0353	For the SE and Mac II; two buttons, 200cpi precision rating
Logitech Kidz Mouse	£43	Logitech	Logitech	0344 891313	The body of the mouse is pear-shaped
Logitech MouseMan	£69	Logitech	Logitech	0344 891313	Three (programmable) buttons
Logitech TrackMan	£92	Logitech	Logitech	0344 891313	Three (programmable) buttoned trackball
MicroSpeed MacTrac II	£105	MicroSpeed	S'ware Club	081 205 4548	Three buttoned, eight button combination mouse
Mouse Systems Little Mouse ADB	£82	Mouse Systems	Mac Acc Centre	091 295 0477	300cpi resolution, small lightweight mouse
Mouse Systems Little Mouse Plus	£85	Mouse Systems	Mac Acc Centre	091 295 0477	Same as above, for the Mac Plus
Mouse Systems Little Mouse A3	£116	Mouse Systems	Mac Acc Centre	091 295 0477	Mouse with three programmable buttons
Numonics ZedPen Plus	£1,169	Numonics	Numonics	0254 676921	A3 digitising tablet with airbrushing facilities
Océ 6421	£499	Océ Graphics	Océ Graphics	0454 617777	12in digitising tablet with RS232 interface
Océ G6421	£499	Océ Graphics	Océ Graphics	0454 617777	Same as above; 500lpi resolution
Spark Cordless Mouse	\$195	Spark	Spark	0101 708 998 6640	Single button infra-red cordless mouse
SummaDraw Cordless Graphics tablet	£586	Summagraphics	Summagraphics	071 244 7733	Cordless 305mmx305mm graphics tablet
SummaDraw Bit Pad Plus	£440	Summagraphics	Summagraphics	071 244 7733	2D graphics tablet
SummaSketch II Plus From £535	From £628	Summagraphics	Summagraphics	071 244 7733	297mmx297mm graphics tablet
SummaSketch II Pro	£1,028	Summagraphics	Summagraphics	071 244 7733	18inx12in graphics tablet
SummaSketch II	£581	Summagraphics	Summagraphics	071 244 7733	11.7in x11.7in graphics tablet
Switchboard	£217	Softsel	...	081 568 8866	Multi-featured keyboard with a trackball module
The Bat	\$295	Infogrip	Infogrip	0101 504 766 8082	Chordal keyboard
Wacom Graphics Tablet	£816	Wacom	Computers Unltd	081 200 8282	Cordless 9inx6in digitising/graphics tablet
Wacom ADB Grapics Tablet	£469	Wacom	Computers Unltd	081 200 8282	6inx8in graphics tablet with UP-201 cordless and batteryless pressure-sensitive pen
Wacom SD-510C	£703	Wacom	Computers Unltd	081 200 8282	Digitising tablet

ACCELERATOR CARDS

ELC25	£1,014	Forester Systems	Forester Systems	081 993 1516	No FPU, no PMMU and will not access over 8Mb of RAM
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Name	price	Maker	Distributor	Phone	Comments
FWB SCSI Jackhammer	£1,173	FWB	Nusys	0379 650777	SCSI-2 accelerator card(NuBus)£799 if bought with a Hammer drive
GCC HyperCharger 20	£934	GCC Technologies	GCC Technologies	0473 212313	16MHz 68020 accelerator card for the SE
Gemini Ultra	>>>	Total Systems	AM Micro	0392 426473	20MHz £1,115; 33MHz £1,350; 50MHz £1,585 030 accelerators for the Mac Plus. Optional '882 FPU, video expansion and up to 16Mb RAM
Gemini Ultra	>>>	Total Systems	AM Micro	0392 426473	20MHz £938; 33MHz £1,169; 50MHz £1,404 030 accelerators for the Mac SE. Optional '882 FPU, video expansion and up to 16Mb RAM
Gemini Ultra	>>>	Total Systems	AM Micro	0392 426473	16MHz £816; 20MHz £1,051; 33MHz £1,286; 50MHz £1,521 030 accelerators for the Mac Classic. Optional '882 FPU, video expansion and up to 16Mb RAM
IMP25	£1,639	Impulse Technology	Forester Systems	081 993 1516	From the Performance 040 range; price inclusive of Animals Software
IMP33	£2,226	Impulse Technology	Forester Systems	081 993 1516	From the Performance 040 range; price inclusive of Animals Software
LC25	£1,573	Forester Systems	Forester Systems	081 993 1516	Comes with maths co-processor and PMMU
LC25i	£1,125	Forester Systems	Forester Systems	081 993 1516	No FPU
030 RailGun	\$1,541 (33MHz) \$1,141 (25MHz)				
	\$791 (16MHz)	MacProducts	MacProducts	010 512 472 8881	68030-based accelerator card for the Mac Plus and SE
Magellan EC 25MHz	£1,526	Total Systems	AM Micro	0392 426473	040 accelerator for the Mac IIsi/SE 30/IICI. Fits PDS and uses main RAM
Magellan 25MHz	£1,996	Total Systems	AM Micro	0392 426473	040 accelerator for Mac IIsi/SE 30/IICI Built-in FPU. Fits PDS and uses main RAM
Mercury 030	£546	Mercury	AM Micro	0392 426473	16MHz 68030 accelerator card for the Mac 128, 512, 512KE, Plus and SE
ProNitron GA	£3,284	Formac	Formac	0727 821393	
Radius Accelerator 25	£2,348	Radius	Computers Unltd	081 200 8282	25MHz 68020 accelerator card for the SE, with 32K cache
PrecisionColor 24X	£1,878	Radius	Computers Unltd	081 200 8282	24-bit accelerated NuBus display card for the Mac II family with resolutions up to 640 by 1152 pixels
Radius Rocket 25i	£1,526	Radius	Computers Unltd	081 200 8282	Modified version of the Radius Rocket 8040-based accelerator board Contains LC68040 chip but has no maths co-processor
Radius Rocket 33	£2,583	Radius	Computers Unltd	081 200 8282	33MHz board for Mac IIs
RasterOps 24XLi	£458	RasterOps	Frontline Dist	0256 463344	24-bit accelerated video board for Mac II
StarTech C2FP	\$79 to \$200	StarTech	StarTech	010 619 457 0781	Maths co-processor board for the Classic
Storm 001	£922	Storm	Forester Systems	081 993 1516	Compression and decompression files included
SuperMac SpeedCard	£464	SuperMac	Principal Dist	0706 831831	16MHz 68000 accelerator card for the SE
SuperMac Thunder/8	£1,521	SuperMac	SuperMac	081 543 2288	Accelerated 8-bit display adaptor with DRAM expansion option
TM2FX33	£2,911	Fusion TokaMac	Forester Systems	081 993 1516	33MHz, 125K cache memory
TMCi25i	£1,126	Fusion TokaMac	Forester Systems	081 993 1516	25MHz, with no FPU
TMCi25	£1,574	Fusion TokaMac	Forester Systems	081 993 1516	25MHz with maths co-processor
TMSX25i	£1,125	Fusion TokaMac	Forester Systems	081 993 1516	Accelerator for the IIsi or the SE 25MHz, no maths co-processor
TMSX25	£1,574	Fusion TokaMac	Forester Systems	081 993 1516	Designed for the IIsi or the SE 25MHz; comes with maths co-processor
TMCi33	£1,907	Fusion TokaMac	Forester Systems	081 993 1516	Complete with maths co-processor
TMCi33c	£2,242	Fusion TokaMac	Forester Systems	081 993 1516	With extra 128K cache memory and maths co-processor
Voyager	33MHz £1,291 50MHz £1,467	Total Systems	A M Micro	0392 426473	030 accelerators for the Mac II and IIX

GRAPHICS ACCELERATORS

E-Machines Futura MX	£1,145	E-Machines	Heyden & Son	081 203 5171	Accelerated card for two-page displays up to 1024x808
E-Machines Futura SX	£699	E-Machines	Heyden & Son	081 203 5171	Accelerated 24-bit graphics card
E-Machines Futura SX/8	£581	E-Machines	Heyden & Son	081 203 5171	Accelerated 8-bit card

COLOUR MONITORS

Apple 14-in Hi-Res RGB Display	£464	Apple	Apple	Freefone Apple	14-in RGB colour monitor, 640x480 res, 72dpi
Apple 16-in Colour Monitor	£1,169	Apple	Apple	Freefone Apple	16in colour Trinitron display; 832x624 res, 70dpi. ADB ports and micro phone/headphone sockets. Compatible with all current Apple video cards
Eizo 9060M	£609	Eizo	Eizo	0483 757118	Multi-scanning 14in colour monitor 800x600 res, 0.28mm dpi
Hitachi 14 MVX	£481	Hitachi	Hitachi	081 849 2092	14in multi-scanning colour monitor 1024x768 res
Hitachi 15 MVX	£716	Hitachi	Hitachi	081 849 2092	Flat screen colour monitor, compatible with Mac II range
Hitachi 17 MVX	£1,163	Hitachi	Hitachi	081 849 2092	17 in colour monitor
NEC 3FG	£722	NEC	NEC	081 993 8111	MultiSync 15in flat screen colour monitor, Mac and PC compatible 1024x768 res VGA
NEC 4FG	£932	NEC	NEC	081 993 8111	MultiSync 15in flat screen colour monitor, Mac and PC compatible VGA to 1024x768 resolution
RasterOps 8LC System	£581	RasterOps	Frontline Dist	0256 463344	19in colour monitor and card for the LC. 1024x768 res, 72dpi
RasterOps 8XLi System	£992	RasterOps	Frontline Dist	0256 463344	19in Sony-based monitor and card. 1024x768 res, 72dpi
Samsung SyncMaster CSD 5577	£437	Samsung	Samsung	081 391 0168	15in colour monitor, 1024x768 resolution
Sony CPD-1404	£703	Sony	Sony	0784 461688	14in colour multi-scan monitor
SuperMac 17in Multimode Colour	£1,702	SuperMac	Principal	0706 831831	17in colour monitor with 832 x 264/ 640x480 abd 1024x768 resolutions
SuperMac 17in SuperMatch Colour	£1,173	SuperMac	Principal	0706 831831	17in colour monitor with 832 x 264/ 640x480 abd 1024x768 resolutions
Taxan Multivision 795	£705	Taxan	Taxan	0344 484646	14in colour monitor with 1024x768 resolution
Taxan Multivision 875plus	£1,173	Taxan	Taxan	0344 484646	17in colour monitor

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2. Entries to be received by July 6
3. The editor's decision is final

NEXT ISSUE

THE FUTURE

MacFormat brings you the definitive low-down on where the Mac's heading – what kind of machine you can expect to see on your desktop in the next three years and what software it'll be running. We'll be talking to the people designing the next generation of Macs and spilling the secrets on exciting developments like the PowerPC and Newton ranges. One thing about the future's for sure though – you're already a big part of it. Catch MacFormat 3 and we'll show you exactly what you've got to look forward to. So remember...

Tomorrow comes on July 6

PLUS:

New games, neat shareware and our expert columns on:

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AND YOUR NEXT EXCLUSIVE COVER-DISK INTO THE BARGAIN!

Well that's a wrap for this issue – except for this bit which is precisely for people like yourself who just lounge reading tiny type at the bottom of pages. Funny things, magazines eh? Here we all are expecting satellite and cable TV, CD-ROMs, Laserdiscs, hand-held Sony Bookmans and Watchmans, Newtons and Organisers to replace the printed page when all along the thing you now hold in your hand is the most portable and affordable media device you can buy. It's also got the fastest access and retrieval rate of any storage medium invented. So this is the future, for the foreseeable future at any rate. For the moment there's no viable alternative. Just imagine what the code size would be of these 108 pages – let's say the average page with maybe 1,000 words and 2/3 grabs works out at a conservative 700k. 108 pages at that rate would take up 75 Mbytes. Throw in some hefty scans and you're looking at tripling that figure. You'd need a portable CD to store it all and a fold-away hi-res A4 colour screen that hasn't been invented yet to view it on. And you wouldn't be able to read type this size without doing your eyes in. But what do you think? – write to the Tiny Zone and tell me. Then we could see how big this bit could get while still remaining small...

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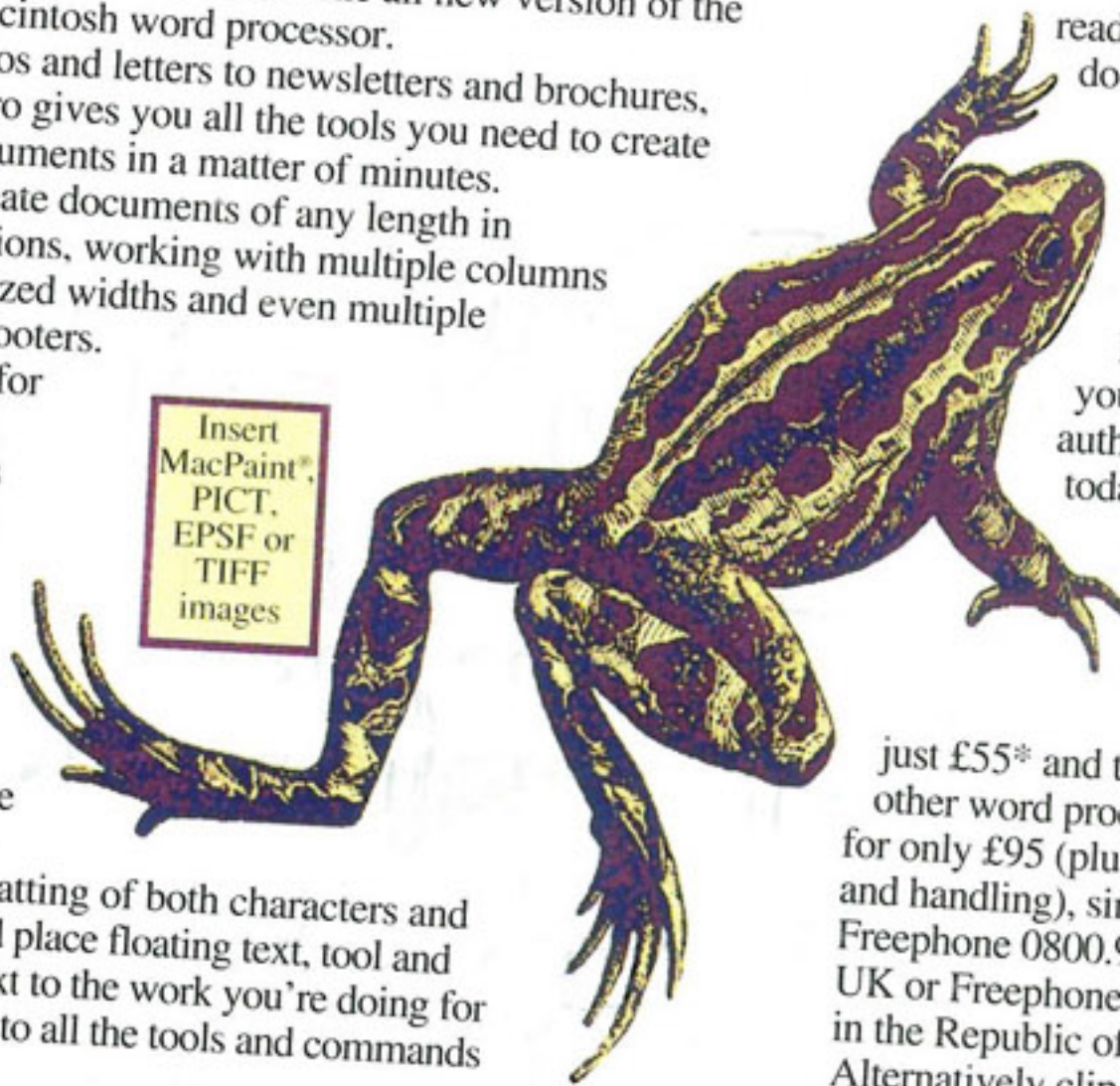
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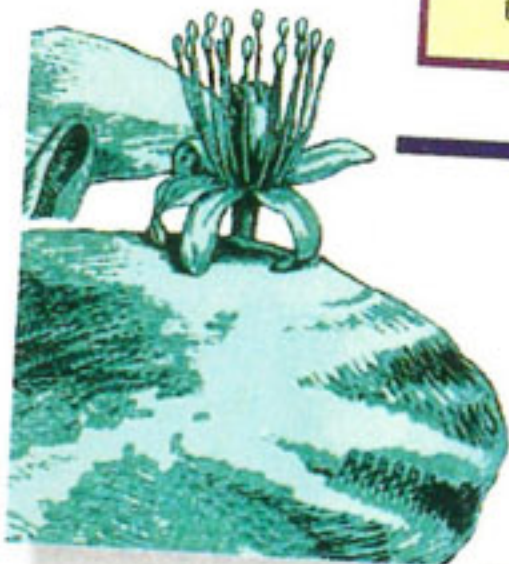
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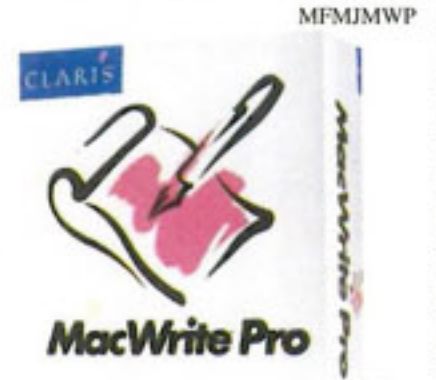
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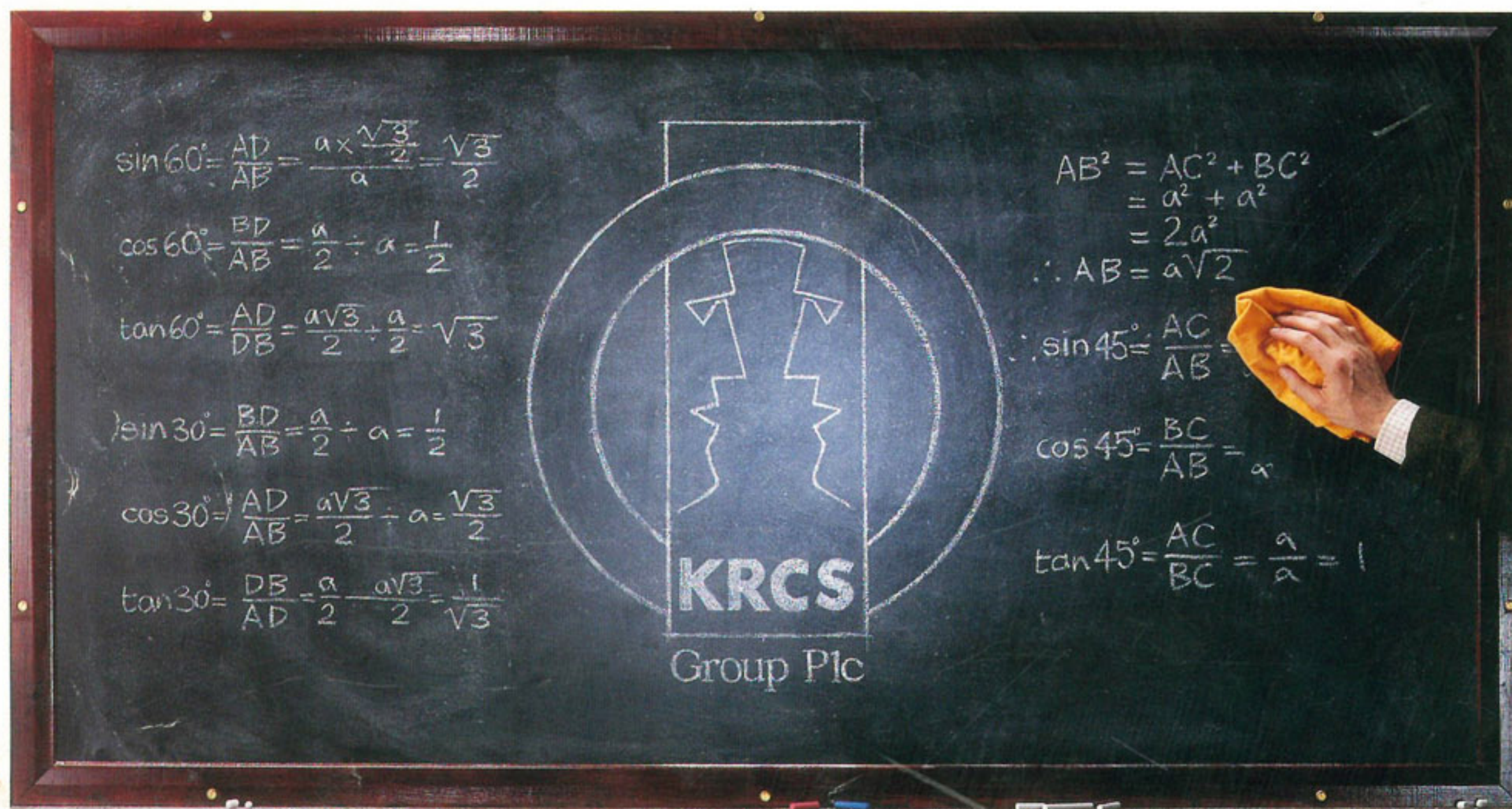
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