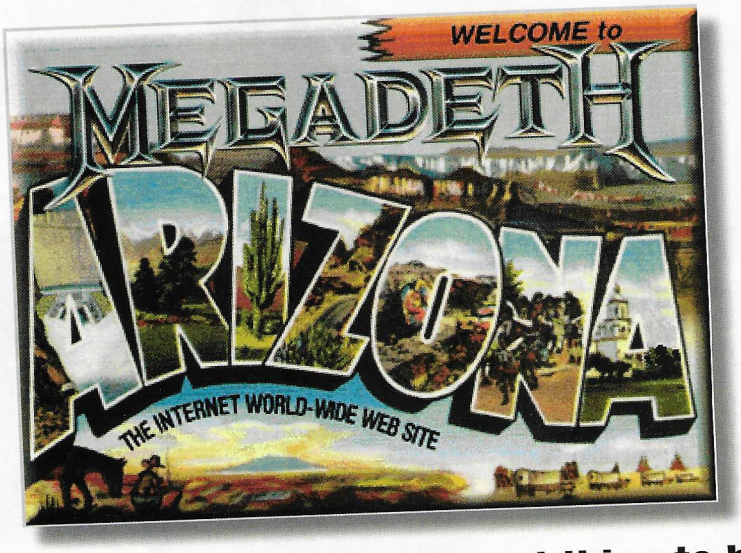
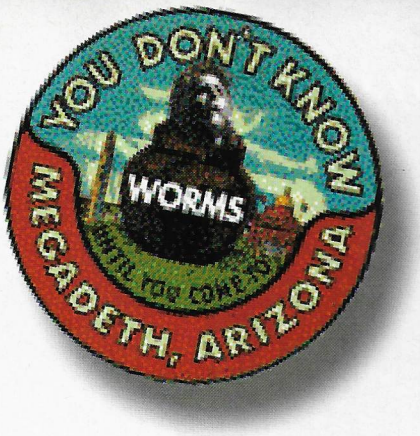
WHICH WEB BROWSER?

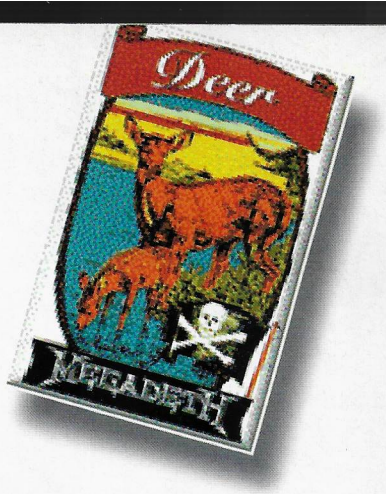
If you want a window on the world – and the Net – the World Wide Web can take you there in glorious technicolour and stereo sound, but only if you have the right tools. **On-Line World** brings you the best – and worst – of the Web browsers.



We tested all of the Web browsers on the Megadeth page (reached from http://bazaar.com/) which has 47 images, probably the most graphically complex site we've come across...

The World Wide Web: it's the biggest thing to hit the Internet since ftp. To some folk it's the Net's killer app, to others it's a bandwidth guzzling monstrosity. The Web is a global hypertext system, a network of interlinked and cross-referenced multimedia documents: full of pictures, sound and movies.





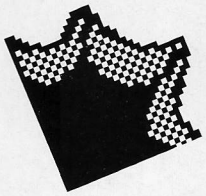
To explore the Web you need a browser, a program designed to navigate the tangles of the Web. The Web was born at the European Centre For Particle Physics (CERN), when its hundreds of scientists realised that they needed a way to share the many thousands of scientific papers they produce each year.

Tim Berners-Lee came up with a method for sharing hypertext over CERN's internal internetworks. That was 1989. In 1990 the World Wide Web was released to the Internet at large. Four years have passed, and the Web has now become the Internet's main method of distributing information.

Three tools make the Web. The first is the **HyperText Markup Language (HTML)**. This is the language that describes the format of a Web page: its headers, its images, each paragraph and list, and every link between pages. The second tool is the **HyperText Transfer Protocol** (HTTP). HTTP manages a machine's Web pages, taking requests for documents and files, before sending them across the Internet. The third tool is a **Web browser.**

A Web browser is what you'll use to explore the Web, a program that sits on your machine and decodes and displays HTML documents, whilst communicating with HTTP servers all over the world.

At first Web browsers were simple things, designed to work on the slow and primitive terminals that hook up to academic mainframes. Then, as the Web slowly spread out from CERN to entangle the world, in 1992 the National Centre for Supercomputing Applications (NCSA) at the University of Illinois Urbana-Champaign gave birth to Mosaic, a graphical browser – able to display images inside Web pages. The result? An explosion as the wonders of the Web were revealed by a windows-like interface: the world is now a mouse click away.



Mosaic started a trickle of new browsers that soon became a flood. There are Web browsers for all kinds of machines, from Unix boxes to Amigas, all pouring out of the Net. Hobbyists, universities and companies were all producing programs, all jumping on the Web bandwagon.

The most common home Internet platforms are PCs and Macs – there are more Web browsers for them than you've got hard disc space and it seems like there's a new one every day. The On-Line World team grabbed the best browsers from select ftp sites around the world, and set them to work.

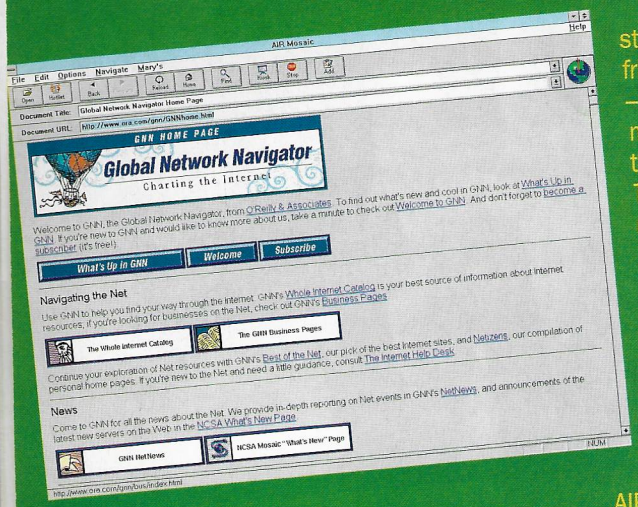
What do I need to hook into the Web?

Connecting a Mac to the Web is as easy as plugging in a microwave, if you have a TCP/IP connection. Just configure MacTCP, download your chosen browser, and you're off. Windows users need to pick a WINSOCK.DLL – Trumpet Winsock is perhaps the most reliable but there are several choices. Most of us will need to use SLIP or PPP to connect our machines to the Internet, and unfortunately the Web was really designed for the fortunate few with their T1 1.5 Mbit per second connections. A V32 bis 14,400 bps modem is the very minimum for the websurfer (you can use 9600 bps modems – but that's really only worth considering if you have a lot of patience and some shares in BT – you'll save the cost of a new modem in a few months).

You need a PC to keep pace with your modem – PC users will find the speed increase of a 16550 UART for their serial port well worth the investment as well. Although there is a DOS version of Lynx that supports in-line images, Windows Web browsers give you better graphics and more features but Windows means using a 386 – and preferably a 486. A maths co-processor won't make a great deal of difference so a 386SX or 486SX will be adequate but a slow chip (25MHZ or below) will have trouble running more than one application at once and you may find things pretty slow – a 386DX-33 is probably the usable minimum. You really need 4Mb of RAM as well – if you're using 32-bit Mosaic that means Win32S which is a memory hog and 8Mb is a better bet. Unless you want to download pages to save phone bills, you won't need a great deal of hard disk space, – we'd suggest 20Mb free to give lots of room for caching pages and temporary files. You'll also want a video card and driver that gives you 256 colours.

Mac users probably want a reasonably fast system – a 68030, or 68040, or a PowerMac. Most Mac browsers are happy to work in black and white, so a PowerBook or an SE30 will work as well as an LC or Performa 475. You'll also need a selection of programs to handle file types that browsers can't handle: QuickTime or MPEG movies, sound files, and compressed and encoded software.

AIR Mosaic 03.07.04.02



AIR Mosaic is only for Windows and it's available on its own, or with a handful of other Net tools – a dialler and configuration utility, JPEG viewer, uuencoder, mail, news, gopher and telnet plus a version of Kroll's Whole Internet Guide rewritten to cover the AIR software – as Internet in a Box from O'Reilly, giving you everything you need to get started. There's a good, friendly installation routine – which is good as there's more setting up to do than with just a browser. The program insists on making changes to your WIN.INI and AUTOEXEC.BAT and it's hardwired to accept your phone number in US format only. If you already have a Winsock up and working you can carry on using that – AIR Mosaic works happily with Trumpet Winsock 1.0a for example.

AIR Mosaic has many nice features – it supports forms-based authentication and the "kiosk" mode lets you view documents without toolbars and buttons on screen. It comes with plenty of good hotlists (a series of Web bookmarks pointing to your favourite pages) which you can add to the menu bar and it can import Mosaic hotlists as well. You can print pages, load local HTML files and view Web pages as raw HTML – useful if you want to work out how they get that layout of pictures on your favourite home page. Configuration options are gathered together handily in one dialogue box.

Although it's significantly faster than Mosaic, AIR Mosaic doesn't compete with Netscape but it does give you both the full size of images it's downloading and the percentage downloaded – it would be clearer if it gave figures for the whole document as well as individual pictures.

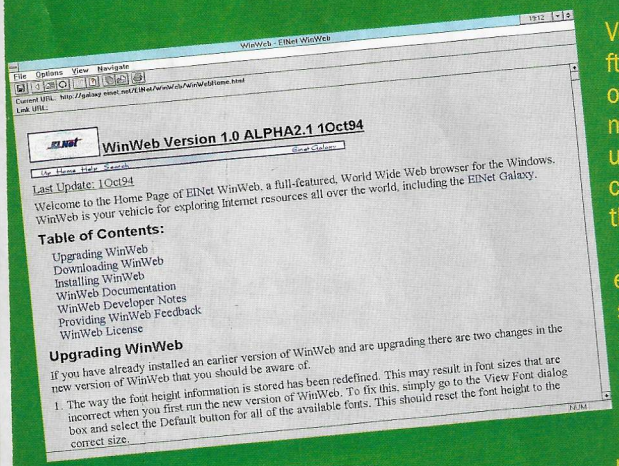
AIR Mosaic has a good clear interface making it easy to use the range of features. Unlike some browsers it displays pictures with clear and accurate colours and it shows as much of the document as has downloaded at the time instead of making you wait till it's finished.

In short, AIR Mosaic is our next best choice after Netscape.

ON-LINE WORLD RATING

Platform:	Windows only
Price:	$149 for Internet in a box, $30 AIR Mosaic
Supplier:	International Thompson 0171 497 1422
FTP:	free demo (fully functional, only accesses 6 URLs) ftp://ftp.spry.com/AirMosaicDemo/AMOSDEMO.EXE
Summary:	Good features, pretty fast, complete system a little pricey.
Verdict:	4.5

WinWeb 1.0 alpha 2.1.1 S



WinWeb has the advantages of being simple and easy to set up – and the corresponding disadvantage of being fairly basic. Although it's the Windows version of MacWeb, it isn't its equivalent in interface or features. It can be difficult to tell what WinWeb can and can't do as there are no help files included with it – in fact, it connects happily to gophers (and to WAIS and Veronica via gopher) and to ftp sites, although the lack of any progress indicators makes downloading an uncertain occupation. You can't read Usenet from here though.

WinWeb does do everything you need of a simple and straightforward browser. The configuration options are basic and split between two menus – the latest version lets you set proxy servers from the menu rather than by editing WINWEB.INI but associating file type with browsers still means hacking entries in the INI file. To save a page to file you have to switch the option on and reload the page. The hotlist is a floating window which is neither as unobtrusive as a menu not as useful as Tapestry's Organizer – but at least it floats, unlike the hotlist in Enhanced Mosaic.

However, as well as being very simple to get working, WinWeb also requires fewer Windows resources than other browsers and will run happily in 4Mb of RAM (although it takes advantage of a much memory as you can give it with a flexible cache). It's also faster than any of the Windows browsers except Netscape, although while downloading a page it only tells you how many images there are and which it is fetching, not how large they are.

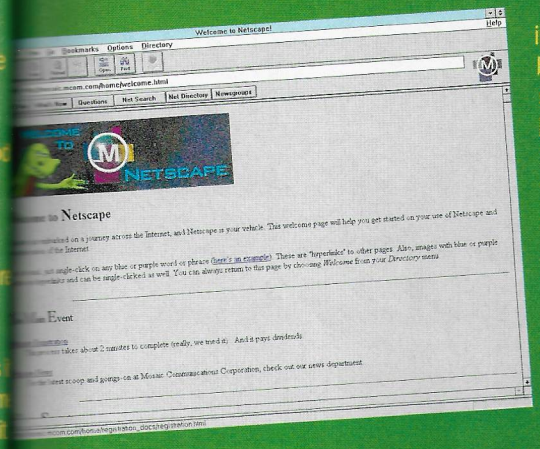
Pages are only displayed when the whole page has arrived, but images are particularly clear and colourful. WinWeb comes with WinECJ and the near ubiquitous LView for viewing GIFs. Another advantage is the EINet Galaxy home page which indexes many interesting URLs – although you can get to it with any browser, WinWeb lets you search it without loading a page and returns a list of likely sites.

Despite its limitations WinWeb is a lean and simple browser that's worth having around.

ON-LINE WORLD RATING

Platform:	Windows
Price:	free for non-commercial use
FTP:	ftp.einet.net/einet/pc/winweb/winweb
Summary:	Simple and basic but a fast and very convenient web browser.
Verdict:	4

Netscape 0.9 beta (Mac and Windows)



The new kid on the block, Netscape appeared last month in a blaze of publicity, from Netscape Communications, a commercial Web software company – run by Jim Clark (founder of Silicon Graphics) and Marc Andreessen (one of the original Mosaic authors). The much-rumored Mozilla, Netscape is a multi-platform browser, with Windows, Unix and Mac incarnations, intended to be a one stop Internet shop. Not just a Web browser, Netscape is also a Usenet newsreader and a mailer – you'll need to use another program to read any mail you get, though.

Netscape takes full advantage of the TCP/IP protocols multi-streamed nature, opening several parallel connections to a Web server. This lets it retrieve a page's inline images in parallel, as well as letting you follow a link that catches your eye before the current page finishes loading – very useful on the NCSA's What's New Page (which is as big as a small book!).

The Netscape window is easy to use -, a few buttons give you access to the main program functions, and a directory menu lets you access a wide range of Web tools – including a wide range of indexes and search tools.

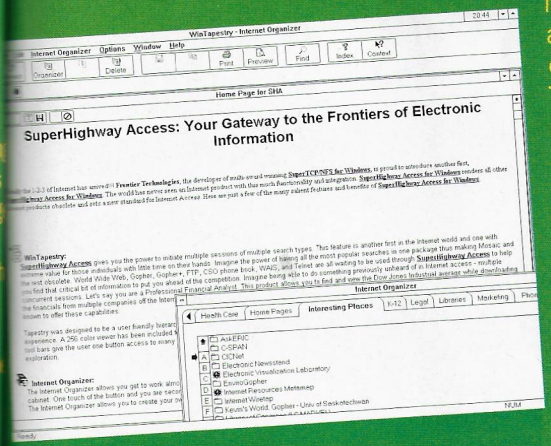
Unfortunately, for the dial-up user, Netscape's on-line help is truly on-line – somewhere in California. Netscape has quickly become one of the preferred browsers, much to the delight of Netscape Communications who intend to use its success to sell a large number of their webservers, but the standards committees who define HTML aren't too happy, as Netscape interprets a number of new HTML tags (among them the <blink> tag), which have yet to be approved, but that shouldn't affect you.

Pre-release β Beta Tested

ON-LINE WORLD RATING

Platforms:	Mac, Windows, Unix
FTP:	ftp://src.doc.ic.ac.uk/pub/packages /Netscape (Mac: mac/ X: unix/ PC: windows/)
Price:	free for non-commercial use
Summary:	Fast, optimised for V32 bis modems, handles parallel TCP connections, extended HTML support, shows file size, progress bar, good colours
Verdict:	Mac 5, Windows 4.5 Unix 4

SuperHighway Access Tapestry 1.67



Tapestry is the demo of a commercial package – SuperHighway Access – that gives you TCP/IP, mail, news, ftp and telnet as well as the Tapestry Web browser, which includes integrated WAIS and gopher. As well as the usual row of buttons, you'll find the nifty Internet Organizer, with tabbed folders, each with an alphabetic index for organising useful URLs. This is an excellent way of keeping track of the interesting places you find on the Net and because Tapestry supports rather more than just Web pages, the organiser can store references to telnet sessions, WAIS sources, files and anything else you can get to through gopher, as well as Web pages. It comes packed with enough useful entries to make it worth downloading the demo just for these and you can import Mosaic hotlists.

Tapestry loads the entries in your startup folder when you connect and you can have up to 30 browser sessions going at once. You set all the Web options from one handy button on the toolbar and there's a useful option to use the colour scheme you've already set up for Windows rather than picking the colours all over again. Because some HTTP servers interpret the co-ordinates of ISMAP images – clickable image maps – differently, Tapestry gives you the choice of switching HTML Standard ISMAP compatibility on and off and you can configure the settings in each Web window individually.

The main drawback to Tapestry – apart from the fact that you have to pay for it – is the speed.It proved to be slightly slower than Mosaic. Although Tapestry tells you how much of the page it has downloaded so far, there's no indication of the size of the page. Tapestry doesn't seem to support local files, so you can't use it off line. With its Organizer, Tapestry has far and away the best interface of the Windows browsers – it's a shame it doesn't match that in speed.

ON-LINE WORLD RATING

Platform:	Windows only
Price:	£150
Supplier:	E92+ 0181 399 3111
FTP:	demo version ftp.frontiertech.com/bbs/demo/ shademo.exe (expires Nov. 30, 1994)
Summary:	Excellent organizer, pricey, not very fast.
Verdict:	3.5

Mosaic 2.00 (Mac and Windows)

The first of the graphical browsers, Mosaic has become the standard to which all other browsers are compared. The program has become so commonplace in the year or so that it's been available, that some Net newcomers have been caught referring to the Web itself as Mosaic.

Mosaic is a very powerful tool, capable of presenting the Web's many pages as a virtual book, with inline images. As well as offering users an HTTP client, Mosaic also handles FTP and Gopher URLs internally. Current versions of Mosaic allow interactive access to WWW services by implementing the HTML FORMS function – a front end to what can be very powerful programs (most useful when accessing some of the Web's search engines). Just type in your responses in the boxes, click a few buttons, and you've operated a machine half a world away.

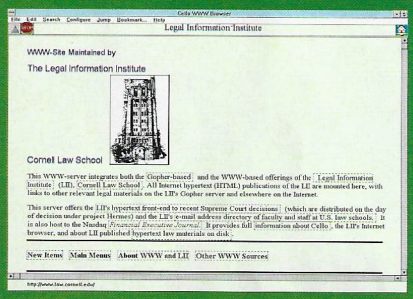
There's very little difference between the various versions of Mosaic – the programming team have tried to keep all the versions compatible. Windows users may find more buttons on their screen that a Mac user, but the pull-down menus contain the same functions. Mosaic offers good hotlist support – you can import and export hotlists, letting you share them with friends, or build them into your own pages.

Web developers shouldn't be without a copy.

ON-LINE WORLD RATING

Platform:	Mac, Windows, Unix
Price:	free for non-commercial use
FTP:	ftp://src.doc.ic.ac.uk/pub/packages/Mosaic/ (Mac: mac-mosaic/ PC: pc-mosaic/)
Summary:	Slow, but well featured.
Verdict:	Mac 4 Windows 4

Cello 1.01a



Like WinWeb, Cello is extremely easy to set up. It works with Chame-leon and Trumpet Winsock, but it has problems with PCTCP Winsock, despite what its developers call "extensive work".

Cello is undemanding on system resources – at a push it will run on a 386SX-16 with 2Mb of memory, although 4Mb of RAM is much better. It will work without a Winsock stack, so it's quite happy loading local documents although you can't browse for them.

As well as Web pages, Cello can cope with ftp, Usenet and gopher. You can send mail messages – or a copy of the page you're viewing and you can launch your own telnet and WAIS clients.

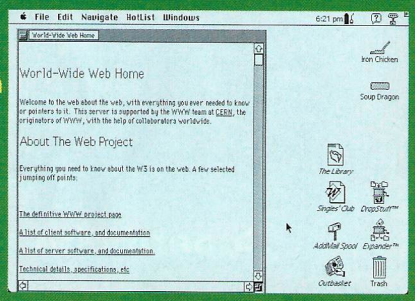
You can view the source HTML of a page, or view it as plain text and if you're not sure how large a page is, you can use peek mode to grab the first few K of a page to check it out. Cello caches downloaded pages and you can alter the point at which it deletes cached pages to make room for more documents.

Although Cello looks rather clunkier than other browsers, with its large default text and oversize cursor, it's actually a surprisingly full-featured package that runs well on less powerful systems and it deserves a better reputation than it has,

ON-LINE WORLD RATING

Platform:	Windows
Price:	no charge for non-commercial use
FTP:	ftp.law.cornell.edu/pub/LII/Cello/cello.zip
Summary:	Behind the interface is a fully featured package that doesn't hog resources.
Verdict:	3.5

MacWWW 1.03



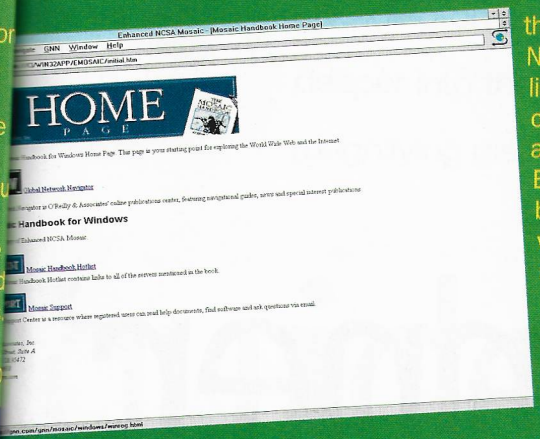
MacWWW, or Samba as it is sometimes known, is small, but very primitive. Written by the original Web development team at CERN, Samba is a text browser, with the simplest of Macintosh interfaces. You can see its basic nature in action – whilst it retrieves documents, slowly: a console window displays all the HTTP negotiations (once a connection has been made), as well as Samba's own internal diagnostics. Unlike most of the more modern browsers Samba can't handle in-line images, and doesn't download the images for use with external viewers – in fact, if you don't read the diagnostic messages, you will never know that there was meant to be a picture on the page you're reading. Its slow speed makes it rather unusable over a 14400 bits per second modem – unless its not your phone bill! It is also not much use if you're developing Web pages on your Mac, as it's unable to handle local HTML files. [Even so, it's probably useful for webweavers to keep around, as it'll let you see how effective your pages are for those using Unix or DOS text browsers, if you use it to access the HTTP server that carries your pages.]

Samba isn't for general use.but if large image transfers bother you – then it may well be the browser for you.

ON-LINE WORLD RATING

Platform:	Mac(similar versions for Unix)
Price:	free for non-commercial use
From:	ftp://ftp.switch.ch:/mirror/umich-mac/util/comm/macwww1.03.cpt.hqx
Summary:	Slow, unable to handle in-line graphics, difficult to use locally.
Verdict:	1

Enhanced Mosaic



Spyglass doesn't sell its improved version of NSCA Mosaic directly and we don't know of any demo versions – we tested a copy from O'Reilly, bundled with The Mosaic Handbook which doubles as manual and tour guide. Like AIR Mosaic, it guides you to the Global Network Navigator, O'Reilly's on-line catalogue, but otherwise the packages are rather different. Enhanced Mosaic is based on the 32-bit version of NSCA Mosaic and comes with a copy of Win32S (so as with Mosaic you'll need to update version 9.01 of the Microsoft mouse drive, if you're using it) but it doesn't look much like Mosaic either, with only backwards and forwards buttons. The package seems designed for simplicity – although you can also use it for basic gophering, ftp and newsgroups – and the configuration options are minimal (although you can set a proxy server).

Although you can switch off in-line images and underlining, to set the colours used and text styles (which are set by style sheets) you have to edit the INI file. This is limiting but the default styles are excellent and changing from MixedLarge to SanSerifSmall is certainly much less work than editing ten style settings individually.

One particularly handy feature on the hotlist scans the current page and extracts the links on it.

You can import and export hotlists as HTML documents and as you can't have sub-menus or add hotlists to the menu bar, you'll probably want to add your own URLs to the sampler page of interesting sites and search tools provided.

You can view the source code of interesting pages – including the sampler – but you can't edit the code from here. This is a slow browser, however.

ON-LINE WORLD RATING

Platform:	Windows
Price:	£24 (with Mosic Handbook by O'Reilly)
Supplier:	International Thompson Publishing 0171 497 1422
Summary:	Friendly, straightforward - but limited.
Verdict:	3

Despite the mass of Web browsers already on the market, there's plenty more to come but many of those may be commercial packages tied to particular services – important browsers already available won't be superceded next week. Mosaic is no longer *the* graphical browser – especially in its 32-bit Windows version, it's too much of a resource hog.

Windows and Mac users wanting a leaner browser – in terms of features and resources – should take a look at MacWeb and WinWeb. For both Mac and Windows however, Netscape is the fastest package going and has most of the features you're going to need – the Windows version is slightly behind the Mac but not by much and any modem user will notice the difference. We tested the browsers on the Megadeth page (reached from http://bazaar.com/) which has 47 images – although the times varied betwen connections, the slowest browser took seven minutes to fetch the page and Netscape only two minutes 30 seconds. Of the commercial packages, AIRMosaic has the most features – but we're impressed by Tapestry's Organizer. If only we could have all the good points in one browser!

More Web browsers!

As we were finishing this review, yet more Web browsers were coming onto the market – we'll be taking a look at them soon. IBM's WebExplorer (for OS/2 Warp 3) is still in beta, although Warp is now shipping (ftp://ftp01.ny.us.ibm.net) – an icon in Warp automatically downloads WebExplorer for you. InternetWorks Lite from BookLink (ftp://ftp.booklink.com/lite http://www.booklink.com/) is a complete (and free) Internet software package for Windows including a Winsock, Network News, Gopher, FTP and WAIS. There'll also be a commercial version, InternetWorks, with extra features (although AOL has just bought BookLink, which may affect the future of the package).

On the commercial front, Quarterdeck, Novell WordPerfect and of course Microsoft – who has just launched the Microsft Network – are all developing Web browsers. Apple is working on a browser for next year's release of MacOS. It's going to be a busy1995.

What's in store for the Web?

It's been a long 1994 for the Web, with changes and controversy. And changes are gonna keep coming...

The biggest change has been a move away from personal and academic use to commercial operations – just take a look at the NCSA's *What's New* Page to see how many companies are using the Web for sales and advertising.

The next generation of Web browsers (currently under development) will contain tools for transferring encrypted information down the skeins of the Web. With encryption you'll be able to send either credit card information or digital e-cash securely over the Internet.

The commercial Web is coming – a recent survey predicted that Web-based commerce could soon account for 10% of the US's gross domestic product.

Browsers like the Netscape Communications' (previously known as Mosaic Communications) will become more common over the next couple of years, on-stop Internet tools, containing everything the netizen needs: ftp, email, netnews, gopher, WAIS, as well as a fully featured Web browser. No longer will you have to build up collections of programs, it'll all be in one package, all at a touch of key or a click of the mouse: in colour and high resolution text.

Netscape is also a pointer to another, darker, future. It supports more functions than the official release of HTML – extensions that are not sanctioned by the international standards groups which define the HTML language. This will cause problems to the Web at large, especially to browsers which don't ignore unknown commands.

If open standards aren't kept, you'll need to use company X's browser to access their HTTP servers, the same for those from companies A, B and C. Bang goes compatibility, and all your hard disc space.The thing to guard against is the one program, one solution, as "That's directly contrary to all the ideas behind the Web."

As home access expands, the Net's backbone links will need to be upgraded to cope with the Web's bandwidth traffic – imagine 10 million 1024 x 768 256 colour GIFs blasting across the Atlantic, along with all the gigabytes of on-demand movies – if it can't keep up, the Internet will break.