MEMORIES AND MARVELS

UNESCO

Mind Mapping Multimedia No. 2

MEMORIES
AND
MARVELS

Using Mind Maps to Design
Web Sites & CD-ROMs about Heritage
and Culture in the Asia-Pacific
A Guide for Young People and Youth Organizations

UNESCO

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UNESCO Bangkok, Thailand**

Contents

Contents *(continued)*

INTRODUCTION

Young people throughout the world are moving quickly to become part of the new information age. Internet and multimedia technologies, which combine traditional tools such as text and pictures with sound, video animation and interaction, are providing new ways to inspire, entertain and enlighten. This guide will help you grasp the opportunities offered by the information revolution. It also encourages you to use these new communication tools to better understand and learn more about the heritage of the Asia-Pacific region. Then you will be able to appreciate, cherish, and help to protect your heritage.

An old manuscript in the Al-Biruni Collection

This handbook provides practical advice on building multimedia CD-ROMs and Web sites. But in order to create an enjoyable and informative multimedia experience, technical skills must be matched with careful project design. To help design your multimedia project, this handbook sets out the principles of **Mind Mapping**. Mind Mapping is already practiced by thousands of people and organizations world wide – ranging from school children to multinational business empires. This system allows you to digest large amounts of information almost effortlessly, and then formulate the best way to get this information across to your audience.

This handbook encourages you to use your new multimedia skills to explore the cultural, and natural heritage of Asia and the Pacific. The examples in this book are drawn from the region's heritage recognized by UNESCO as belonging to the

world and humankind. For additional practice, you may want to turn to the UNESCO World Heritage List of sites and Memory of the World Register.

By raising awareness about the heritage of the Asia-Pacific region, while providing practical knowledge about multimedia CD-ROM and Web site construction, young people will be able to play an even greater role in protecting these globally significant marvels and memories for future generations.

The Imperial Palace of the Ming and Qing Dynasties, Beijing

Sheldon Shaeffer
Director
Asia and Pacific Regional Bureau for Education
1 December 2002

This second book in the **Mind Mapping Multimedia** series brings together elements from the World Heritage Sites and the Memory of the World Register. It is the first collaboration between the **Office of the Adviser for Communication and Information in Asia and the Pacific** and the **Office of the Regional Adviser for Culture in Asia and the Pacific** of UNESCO Bangkok.

PART ONE

MIND MAPS AND PROJECT DESIGN
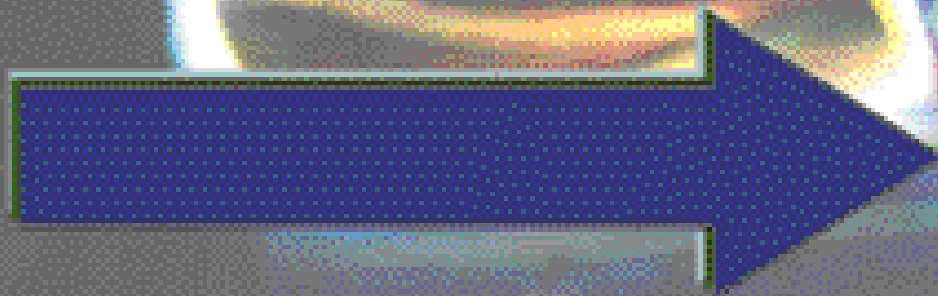
Multimedia and Mind Mapping

Multimedia is a word we hear often these days, as advances in computer and information technologies extend their influence into our everyday life. The booming popularity of multimedia communication is due to the fact that it stimulates more of our senses than traditional media, such as books, magazines and radio. For example, if you read the information in Part Four of this guide, you need only use one sense – sight. Radio is yet another traditional media, which requires only the sense of sound. Multimedia is much more entertaining, informative and effective because it uses more of our senses by combining the different elements of text, music, voice, pictures and animation into one seamless whole. In this handbook we will be discussing digital multimedia – or the integration of different media elements onto a CD-ROM or Web site.
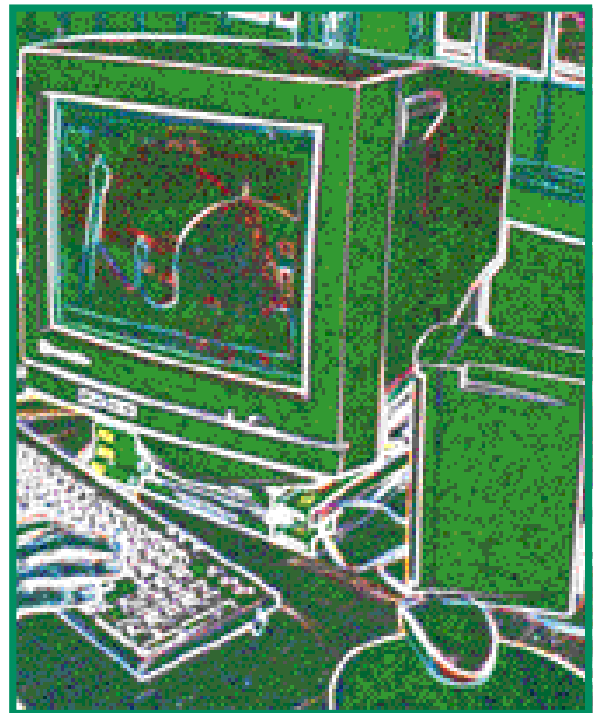
When embarking on a multimedia project for the first time it is very tempting to drive right into the creation of sophisticated sound, video and animation. But Web site and CD-ROM design is an often complex task, requiring a multitude of decisions about the content, elements and structure of your end product. Therefore it is vital that you first formulate a strategy or plan for creating your project. This is where **Mind Mapping** can play an enormous role in helping you to achieve your multimedia goals.

Mind Mapping was invented by a leading author and lecturer on learning and thinking techniques named Tony Buzan. His mind maps are revolutionizing the process of absorbing information, overcoming complex problems and designing detailed plans. Traditionally note-taking and planning was done in a linear or list-like manner. But Buzan's research shows that the brain digests information in a multi-dimensional way. Through mind mapping, you can throw away boring and time consuming notes in favour of a two dimensional structure which shows the 'shape' of a topic, related ideas and concepts, and the relative importance of all the information. This process engages much more of the brain than conventional note taking and design systems.

The mind map below is based on the information contained in the "Memories and Marvels" and "Memories and Marvels in Your Own Backyard" chapters of this guide, beginning on pages 85 and 108. Traditional notes discussing globally and locally significant cultural, natural and documentary heritage have been condensed into a small, easy to understand diagram, which shows how the information is related and its relative importance.
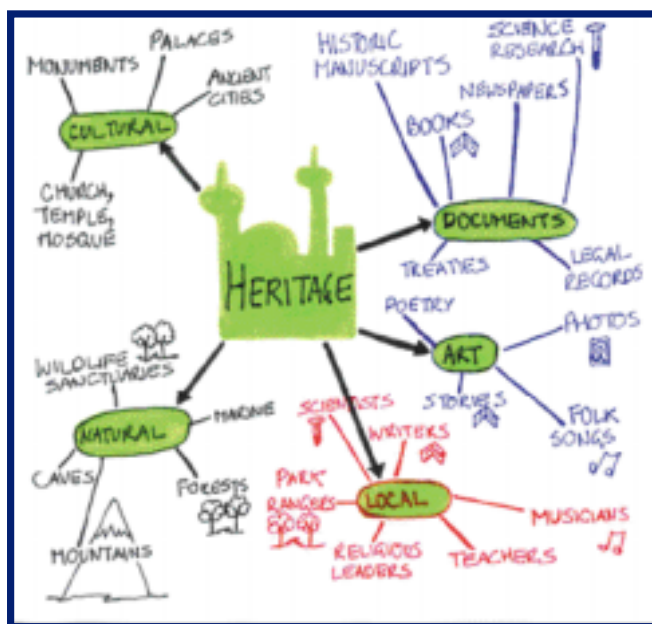
Mind Mapping works in a similar manner to the brain. Mind maps like the one above incorporate keywords, colour and images, which are much easier to remember than sentences and paragraphs. The structure of your own mind maps will reflect the way your brain organizes and sorts

information. Just a quick glance at a mind map will enable you to rapidly recall the vital points and information in any given subject. It will help you plan your multimedia project by allowing you to absorb and sort all the information on your topic. It will make connections between subjects obvious, help summarize information from different research sources, think through problems and present information. All these factors make mind maps ideal for designing and structuring multimedia CD-ROMs and Web sites.

Advantages of Mind Maps

◆ The main idea is at the centre and clearly defined.

◆ The relative importance of ideas is shown – more important concepts are near the centre.

◆ The connections between key ideas are obvious.

◆ Recall and review is faster and more efficient.

◆ Addition of new information is easy.

◆ The creative nature of the map makes it easier for the brain to think of new connections.

◆ Time is not wasted writing down unnecessary words and sentences.

The Elements of Mind Mapping

Instead of starting at the top of a page and writing down sentences and lists, mind maps begin with a subject or issue placed at the centre of a page. "Branches" then spring from the centre, representing the main aspects of the subject or issue in question. Ideas relating to each aspect then form their own branches. A completed mind map is likely to have branches radiating in all directions, like twigs and branches from a tree.

Laws of Mind Mapping

- Start with a coloured title or image in the centre of the page representing your topic.

- Draw lines representing branches of the five most important aspects of your topic.

- Label each branch with an image or a single word or phrase.

- Create sub-branches from each topic branch.

- Use colours and images to enhance memory and stimulate the brain.

- Use arrows to show relationships.

- Use codes, shapes or similar colours to show links between related ideas.

Creating a Basic Mind Map

Now it is time to make your own mind map, reflecting the planned content or subject of your multimedia project. In this example we will use the information contained in the three chapters on Memories and Marvels in Australia, China and Uzbekistan, beginning on page 88. After you read the information, create a mind map reflecting what you have learned, using the "Laws of Mind Mapping".

If you have a mental block simply draw several unlabelled branches – your brain automatically comes up with ideas to fill that space! Do not discard any of your ideas; write down everything you think of as it comes to your mind. Ideas which may at first seem silly or random, are often shown later to have real meaning.

If you are in a group, you should first create your mind map individually. When you compare maps you will discover that each one is unique.

Groups can pool the ideas in individual mind maps to create one super-map. Each member of the group should then draw a second individual map. Then combine your ideas again – you will be amazed at how much information you have analysed and sorted, how easy it will be to remember, and by the multitude of original and creative ideas you have generated.

Mind Mapping Project Design

When you embark on a multimedia project there are many factors to take into consideration. You must decide on the subject matter and how the information should be structured. You must also consider which multimedia elements – sound, video, animation, colour, images and text – you want to use and the resources required to do the job. This can seem like a complex and confusing task, but it can be easily achieved by employing Mind Mapping techniques.

After deciding on an appropriate subject or topic, the first step should be determining exactly who will use the finished CD-ROM or Web site. Is CD-ROM or the Internet the most appropriate means of communication? For example a multimedia photo album with pictures of a visit to a World Heritage Site combined with a sound track or spoken "letter" would be ideal for a pen pal studying overseas. However, if your creation is for an elderly aunt in a neighbouring province...does she even have a computer on which to play a CD-ROM, or does she have access to the Internet? You should also consider what type of computer your users are likely to have access to. Will they be using PCs or MAC computers; will their computer be powerful enough to smoothly run video clips on a CD-ROM? Are the Internet connections good enough to transmit large sound files quickly, or will the sound skip and jump? Where will your final product be used? Loud sound effects will not be good if a CD-ROM is being used in a library or classroom. What is the purpose or goal of your multimedia project? Do you want to entertain, inform or both? You should also consider your available resources and types of multimedia elements you would like to include in your project.

After establishing who your intended audience or users will be, it is time to determine the content of your project and how

this information should be structured or organized. To create a mind map reflecting how this information could be included in your project, begin with a central keyword or image. Now create your main branches, reflecting the most important information. If you are unsure what information you should include ask yourself:

◆ Basic questions – what/ when/how/why/who?

◆ If the CD-ROM or Web site were a book, what would the chapter headings be?

◆ What are the most important categories?

Then add smaller branches reflecting all the information you want to include and how it should be structured.

An added benefit of Mind Mapping the content of your project is that the map shape can be used to help structure your multimedia CD-ROM or Web site. This comes in particularly useful when determining the level of interactivity in your production.

Interactivity gives the users some degree of control over what they see and hear. A multimedia slide presentation is interactive if the users decide when to forward to the next screen. If the slide show is not interactive, the slides will automatically be displayed one after another, at a pre-determined pace. The users would not be able to control

when each slide is replaced by the next, neither would they be able to return to a previous slide. It is usually worth including at least some degree of interactivity in your multimedia project, because it is much more entertaining for the users and they are more likely to remember the information it contains.

Look at the Mind Map on the next page, based on the information in the "Uzbekistan: Rhymes and Remedies on the Silk Road" chapter of Part Four on page 102. Then look at the screen from a planned CD-ROM or Web site on this topic. The screen displays the central topic or subject and the first branches or most important related ideas. Users could click on the branch/icon that interested them most. For example, clicking on "Trade" would take the users to another section of the CD-ROM or a different Web page, where they could find text, pictures, sound, video or a combination of these multimedia elements focusing on trade along the Silk Road.
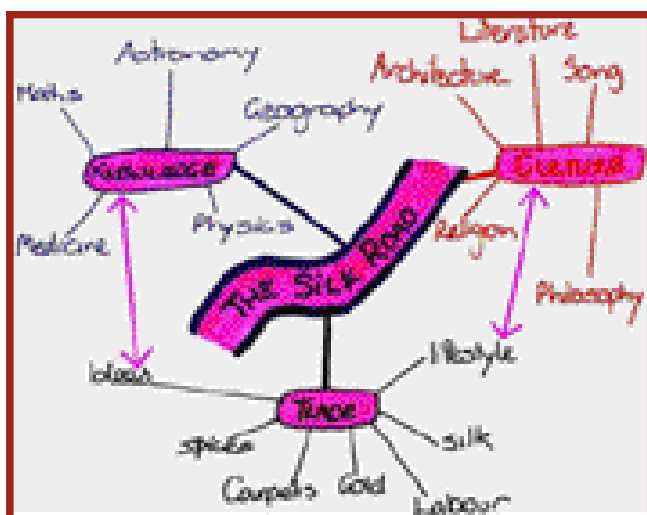
From the Mind Map you can see that trade along the Silk Road included the exchange of not only goods and cargo, but also knowledge and

culture. The Web page or CD-ROM section on trade should provide links so that the users can further investigate how this ancient route facilitated the exchange of ideas and life-styles throughout Asia, the Middle East and into Europe.

After creating a mind map showing the content and structure of your CD-ROM or Web site, you could create other maps covering the resources and multimedia elements of your project. When you combine these into a super-map it will be easy to formulate an overall plan, even for the most complex multimedia venture.

Content Sources and Copyright

Once you have decided upon your subject, you need to consider where you will get your information and content. There are many ways to obtain your content – you can create it yourself, buy it and even download it from the Internet.

Drawings, photographs, clip art and even sound effects and video clips can be easily downloaded from the Internet. These elements will be digitized already, thereby saving you a lot of time and effort. If your CD-ROM or Web site is for private or educational use, you may only need to credit the source. For example, the UNESCO Web site (h t t p : / / whc.unesco.org/ nwhc/pages/doc/ mainf3.htm) has a

UNESCO's Web site has photos of World Heritage Sites like Samarkand in Uzbekistan

collection of photos and audio and video clips. These can be downloaded and used free of charge, as long as the copyright guidelines contained on the site are followed. Information copied from another source must always be credited. If your CD-ROM is for commercial use, you will have to negotiate the right to use the material, possibly in return for a royalty or fee.

Creating a Storyboard

From the Mind Maps you have already created, you should have decided upon the content or information you want to include in your multimedia project. The Mind Maps should also have provided clues on how to structure your Web site or CD-ROM. The next step is preparing a storyboard, which will depict what users can see or do on every screen or Web page.

The storyboard is a blueprint that contains information about all the multimedia elements you plan to include on every screen or Web page. It will show the content or information, the action, pace and effects. It reveals where the narration or sound should go, and will indicate whether you have too much information, text or images on a single screen. It should also display all the navigation and interaction options.

If you are familiar with desktop publishing software and can scan images, you can create your storyboard directly on your computer. You can make a storyboard on paper by following the steps below.

Get a large sheet of paper (at least 55 cm x 38 cm) and a packet of small notepaper. Label each piece of notepaper with a brief description of each image, photo, sound or video clip you plan to use.

Divide the paper into squares, representing each "screen". Draw five or six lines at the bottom of each screen.

Pin the notepaper representing the sound clip, photo, text, animation or other elements onto the appropriate Web page or CD-ROM "screen".

In pencil, write down any narration, sound or special effects for each screen, as well as any interactive options available to the users. Write down the timings for any action.
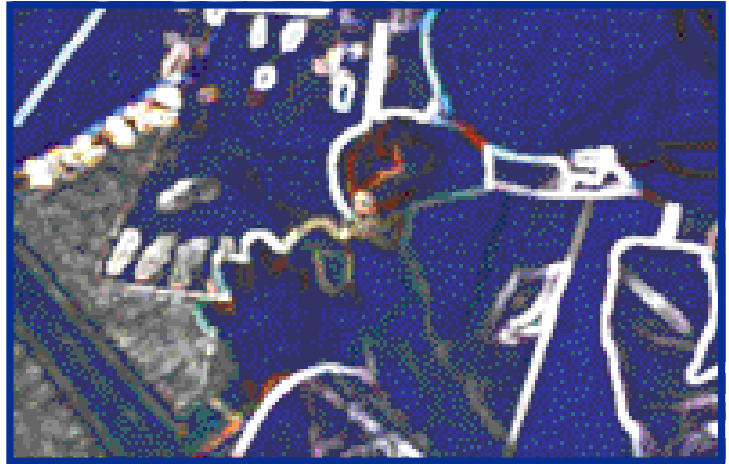
The paper elements can be moved around, added or subtracted. Erase and rewrite your notes on narration, sound, special effects and so on, until you are happy with the end result.

Look at the storyboard for a CD-ROM on the next two pages. Notice how the main screen reflects the structure of a mind map.
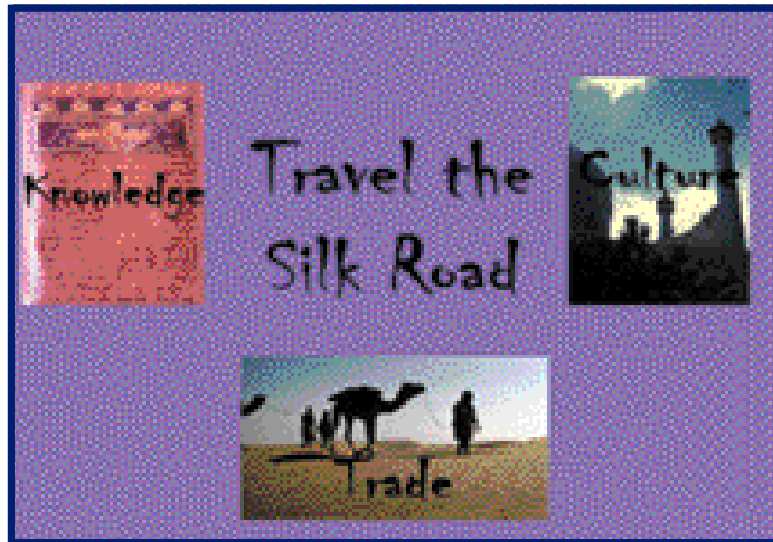
Screen: Purple screen with "Travel the Silk Road" at centre, surrounded by three images/ links to "Culture", "Trade" and "Knowledge"

Sound: Instrumental music of Central Asia rises then fades.

Action: Users can choose any topic/link.
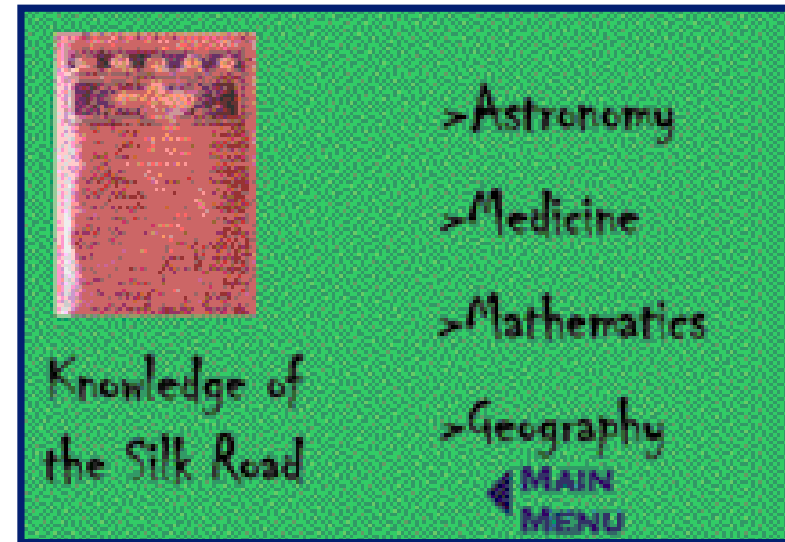
Screen: Green screen with "Knowledge" image on the left side, four links/options appear at right

Sound: Narrator discusses fields of knowledge.

Action: Choose sub-topic or return to main screen.
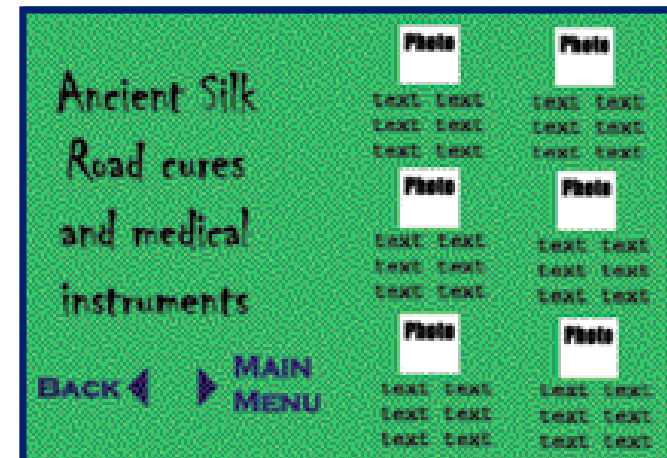
Screen: Moving to Medicine sub-topic, three moreo ptions/links pop up one after another

Sound: Narrator discusses how much of today's medical knowledge is based on work of 10th century Bukhara doctor/poet Ibn Sina.

Action: User can read about Ibn Sina's life, or look a photo exhibit of traditional cures and instruments, or listen to Ibn Sina's poetry.

Screen: When photo exhibit of traditional cures and instruments is selected, small photos with explanatory text appear.

Sound: None

Action: Users can click on photo to enlarge, can copy and paste text, or return to previous or main screen.

Setting the Style

After creating your storyboard, it is time to decide upon the style or presentation design of your multimedia project. The very first Web page or screen should not only let your users know what your project is about, but it should also set the tone and style.

Style is determined by your choice of:

◆ Colour – dramatic or muted, bright or dark, neon or pastel

◆ Images – photos or drawings, bold or soft, artistic or functional

◆ Font – bold, underlined, coloured or black and white

◆ Text – educational, conversational, formal or point form

◆ Sound – pop or instrumental music, narration, sound effects

◆ Pace – action, change

◆ Effects – animation, transitions i.e. fades, cuts

◆ Interaction – level of users control

You should try and keep the style consistent throughout your production. If you look through this guidebook you will notice that the illustrations are all similar in style and the font is the same. This helps draw the separate elements together into one cohesive whole.

When you created mind maps you saw how colour and images could be used to link similar concepts and ideas. Colour and
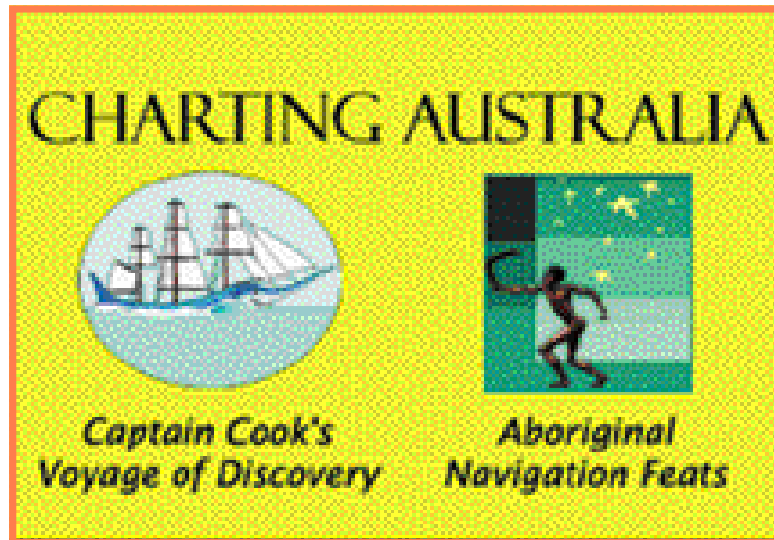
images can play a similar role in setting your style and help users navigate their way through your multimedia production.

All your text or printed information must be clear. Twelve-point type is the smallest size that can be easily read on screen. Some fonts should be even bigger. A screen that is filled only with print will be difficult to read and less interesting than those which include graphics or other elements.

The background of your screen can also play a big part in the overall look and success of your multimedia project. It anchors your other elements, so they are not floating around in a blank space. Most programs have a range of backgrounds to choose from. For example in Microsoft Word, go to "format", then "background" and choose "fill effects". You are

then presented with texture, colour, pattern and picture choices for your background. More backgrounds can be downloaded from free "clip art" sites on the Internet.

Your background should not obscure or compete with your multimedia elements. The two screens on the left show how different backgrounds can have a huge effect on your design. Both backgrounds are the same shade of purple, but it is much more difficult to read the text on the screen with the chequered background. Simple backgrounds often work best. The same is true of other aspects of design. Too many fancy fonts, elaborate borders and flashing signs will clash and detract from your overall style.

Buttons and controls also play a role in the style and effectiveness of your CD-ROM or Web site. These controls allow the users to interact and control what they are seeing and hearing. The purpose of each control should be obvious at first glance. Controls should be positioned consistently for ease of use. For example "menu" buttons which return the users to the main screen should be in a consistent location. Don't put too many controls on the screen, and make sure they are easy to distinguish from other elements and images.
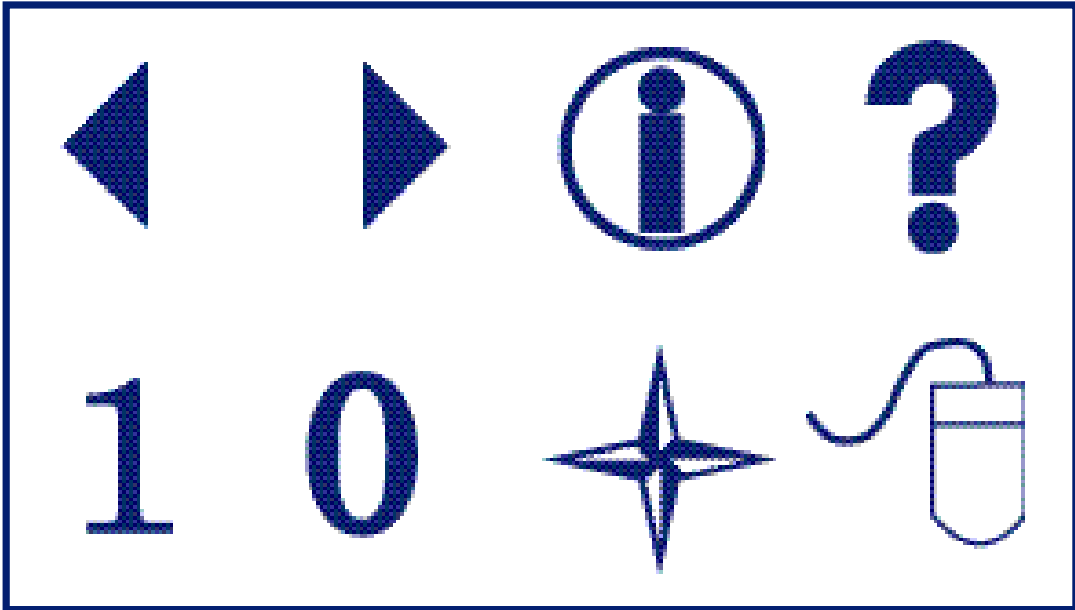
 It is easy to tell what the first line of buttons above mean, but the others are likely to lead to confusion. Simplicity is the key to creating a successful style.

Part Two
Creating Multimedia

What Do I Need to Create Multimedia?

Multimedia is the combined use of multiple elements, such as sound, video, text and graphics. Some or all of these elements can be included on both CD-ROMs and Web sites.

However you must be able to create or convert your various elements into a digital form, which can be understood and manipulated by your computer.

The resources you need to produce the multimedia elements for your CD-ROM or Web site will differ depending on the complexity of your project. But even for a basic multimedia project you will need certain hardware, production equipment and software. Part Three of this book will discuss the specific resources to produce the final product, depending on whether it is a CD-ROM or a Web site.

Hardware is simply another word for the equipment needed for your multimedia project, such as a computer, monitor, sound card and so on.

Multimedia projects require a reasonably powerful computer. Get as much memory (RAM) and hard drive space as you can afford. For a fee, computer shops can add extra RAM to your existing computer. You can also buy relatively inexpensive external, portable hard drives to store your multimedia data or information.

Multimedia Hardware and Production Equipment

- ◆ A computer with at least 128 megabytes of RAM

- ◆ 2-6 gigabytes of hard disk

- ◆ A multi-spin CD-ROM drive

- ◆ A sound card

- ◆ A microphone and speakers or headphones

- ◆ A camera

- ◆ A scanner for digitizing photos and pictures

If video clips are to be used you will also need:

- ◆ A video player and/or video camera

- ◆ A video capture card

Software refers to the programs or tools that you use on the computer to create or process multimedia elements. Again, the software you will need depends on the complexity of your project. Many of these programs may already be on your computer.

Graphics software is used for photos, pictures, images and diagrams. Bitmap editors such as Adobe PhotoShop, Macromedia Fireworks and Fractal Design Painter are used to create or alter bitmaps, photos or painted images. Illustration or drawing programs like Paintshop Pro, Macromedia Freehand

and Adobe Illustrator feature pen, brush and even spray painting tools, along with the ability to cut, paste, clone and touch-up art and drawing. 3-D editors, Specular Infini-D, Macromedia Extreme 3-D and Discreet Logic 3D Studio Max are used to make animation with three dimensional graphics.

Audio Editing software is used for digitizing, recording and editing sound and music. Commonly used programs include Cool Edit and Macromedia Sound Edit 16.

Video Software is used to digitize and edit video. A frequently used program is Adobe Premier, in conjunction with other video utilities such as Movieshop and Moviecleaner. Adobe After effects and Media 100 are used for creating video with special effects.

Other useful software includes word processing and office packages, spreadsheet and database programs.

Be aware that a lavish multimedia production featuring animation, video clips, music and narration will require quite a lot of hardware, software, time, and possibly money. However don't let that deter you. Start with something simple and relatively inexpensive, such as a basic digital "photo album" or "e-book" featuring a series of slides accompanied by narration. You could, for example, make a multimedia photo album that examines a World Heritage Site in your region. Your CD-ROM or Web site would contain a series of photographs of the Site, along with a soundtrack.

If you live near the Site you could record a brief interview with the people connected with the area, such as a World Heritage Site manager, a historian, or a local elder, and use clips from the interview in your project. Read the section on "Memories and Marvels in Your Own Backyard", starting on page 108, for more ideas.

You could interview many people, for example a monk, about local heritage, and include their words on your Web site or CD-ROM

In terms of resources, a simple multimedia photo album like the one described above would require:

◆ Photographs - if you are lucky enough to have access to a digital camera you can transfer the images straight into your computer.

◆ A scanner to transform regular photos into digital data the computer can read.

◆ A microphone to record your narration or story, along with a sound card and an audio editing program. (If you want to interview someone in their office or home you will need a portable tape or mini-disc recorder.)

◆ If you are creating a CD-ROM you will need a multimedia authoring program to combine your sound (narration) and graphic (photo) elements. There are many Web editing programs available.

You may not need to buy all of these pieces of hardware, software and equipment. For example, you may be able to borrow a camera from a family member or friend. Many Internet and computing shops have scanners, which you can use at a fee to scan your photographs or pictures onto a floppy disk. Schools or universities might also have a scanner, which you may be able to use at a cheaper rate. Some computers are sold complete with sound cards, microphones and speakers.

Many Internet cafes have scanners and other multimedia equipment.

Furthermore, you may not need to purchase very many multimedia software programs. Nowadays many computer packages are sold with graphics programs and audio editing software pre-loaded. In addition, some programs can be downloaded from the Internet free of charge (freeware) or are available for a trial period, after which you must pay for the program (shareware). To find programs like these, search for "freeware" or "shareware" on the Internet.

Digitizing the Elements

After organizing and structuring your content, creating your storyboard and setting your style it is time to prepare the elements to be used in your multimedia project. Images, photos, video clips and sound must be turned into a digital form that the computer can read and understand.

But first of all create a folder or directory to house your multimedia elements. Proper planning and organization will make your work much easier.

It is a good idea to digitize all your elements at the highest possible quality. This will take up more memory and space than lower quality files, but it will make it much easier to edit or retouch them. After you have put the finishing touches on your files, you can compress, or make them smaller, if needed.

Keep notes on the changes you make to every sound, video or audio file. That way when you get the perfect effect, you will be able to do the same with other files quickly and easily. Always keep an original copy of each file.

Digitizing Images

Some images can be created directly on your computer with illustration and painting software or downloaded from free clip art galleries on the Internet. These graphics are already in digital form. Photographs taken with a digital camera can also be loaded directly into your computer, ready to be edited or used immediately in your CD-ROM or Web site. Other images need to be scanned.

You can scan photos, postcards, cartoons and other objects.

You can scan anything that has at least one flat surface, papers, photographs, postcards, drawings and even fabric or leaves. You may also be able to scan one side of a box, a watch, jewellery and so on. Experiment with different objects to get the best results. If the item is larger than the flatbed of your scanner, consider taking a picture of it and then scanning the photo.

Scanners come as hand-held, flatbed or high-end drum devices. Flatbed scanners are by far the most widely used. There are many different models so always consult the instructions that come with your scanner.

Most scanners are reasonably simple to operate. Lift the lid and lay your image on the glass, flush to the side. You can do two or three photos at one time to save time. Close the cover. The controls and options depend on the scanner software and hardware. Most give you the ability to preview the image before you scan it. Check that the image is straight and crop any blank space or unwanted parts of the graphic. Cropping tools usually leave a dotted rectangle around the section of the image you want scanned. Also set the Dots Per Inch (dpi) or Pixels Per Inch (ppi). This will determine the resolution and quality of your picture. You should scan at 150 dpi or ppi at least.

After scanning give the image a file name and format. There are more than a dozen common graphic file formats. JPEG is a commonly used format, which does not require too much disk space. However some quality will be lost if you compress the file later. TIFF is a good format, as is Bitmap, but these take up much more space. Store the file in your "scanned images" folder. If using a scanner at a school or computer shop, remember to bring along several floppy disks to transfer your scanned image onto.

You can use graphic editing software packages to manipulate and touch-up your photographs. Fix overexposed or underexposed photos by using the Brightness/Contrast controls. Compare the two photos of a section of the Forbidden City in Beijing on the next page. In the lower picture, the contrast has been increased by five per cent and the brightness by ten per cent.

Most graphics software allows you to resize the image. Often you can sharpen fuzzy images. Cut and paste to create new images using parts of others. Some programs will allow you to turn coloured photos into black and white, or sepia coloured images - which give an antique look to your graphics. Save your edited images in the "Sized images" folder.

Digitizing Sound

There are three main ways in which sound can be used in your multimedia project:

Music – sets the mood, illustrates messages
Narration – direct and effective communication
Sound effects – highlight points, i.e. drum roll

To record a narrative sound track, plug your microphone into the microphone jack, located on the sound card at the rear of the computer. Some computers have built in microphones but you will need to check whether they provide the quality you need. Alternatively, record your narration on a cassette recorder, mini-disc recorder or other device. Once finished, connect the cassette player or mini-disc to the input jack on the computer. You can also transfer music and sound effects into the computer this way.

*A young woman editing audio on her computer*

Open your audio editing software. Adjust the settings to 16 bit, 22.05 kHz – that level seems to work well on home computers. CD quality sound is defined as 44 kHz, but these files are very large and will take up a lot of disk space and could make your computer run slower. But if you are only using a small amount of sound, the better quality may be worth it.

Many programs have similar controls to regular home stereo systems. There are play, stop, record, pause and fast forward or review buttons. Set your levels, press record and start speaking into the microphone or playing your pre-recorded music track. You may need to record a few 'takes' to get a natural and relaxed sounding narration track. After recording a track, you should have a .wav or .aiff file.

You may need to adjust the input volume. Sound that is recorded at a low level, such as that in the first picture above, can usually be boosted afterward, however background noise will also be louder. When sound is recorded too high, as in the second picture, it will distort or cut out. It is very difficult to fix over-recorded sound. In this case, it is probably best to re-record.
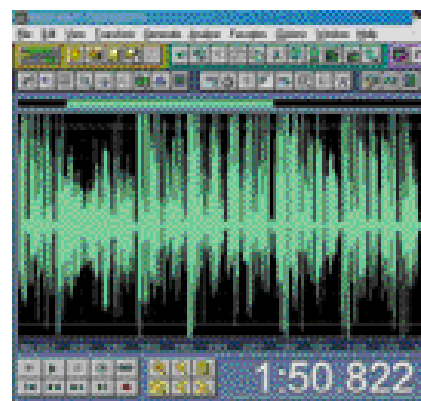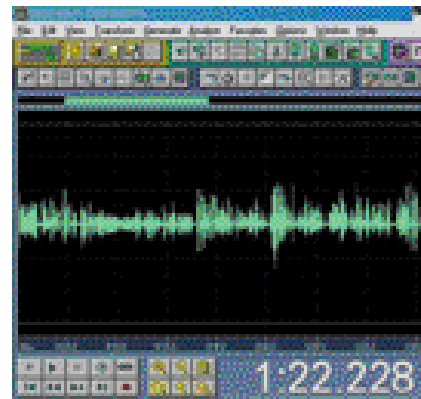
Many audio editors allow you to select sections of sound, cut them out and paste or copy in another section of the sound track. Sophisticated audio editors have all the functions of a professional recording studio. They will enable you to record multiple tracks and mix them into one, add special effects and change the tone and pitch of your sound. Give each file an easily recognizable name and store your finished narration, music and sound effects in your Audio Files folder.

Each piece of audio editing software is different, so consult the guide or instructions on how to record and edit your sound. Many software packages have tutorials that will take you through the whole process step by step.

Digitizing Video

Video clips, containing both sound and moving pictures, take up a lot of disk space on your computer. You will also need lots of free hard disk space, since compressed, captured video consumes about 2MB of storage space per minute. However, a short piece of video can be a worthwhile addition to your multimedia CD-ROM, as long as your users' computer is powerful enough to run the clip smoothly. Using video on Web sites can be more problematic, as the quality will also depend on the speed of the users' Internet connection and how fast it can transmit the large video files.

Video clips can feature:

◆ Talking heads – one or two people talking directly to the camera

◆ Live action – a running race, live musical performances

◆ Demonstrations of how to use a tool, or perform an action

◆ A short play - this can be complicated, involving, actors, a director, sound and lighting.

The quality of images that you can record and display depends on the specifics of both your video card and video capture card. The video card sends pictures to your monitor, while a video capture card accepts and digitizes pictures from a VCR or portable camcorder.

Most capture systems plug right into your computer's parallel port. You will then need to attach a few more cables.

Attach a cable from the source (camcorder or VCR) video-out jack to the video-in jack on your capture card. Connect an audio cable from the source audio-out jack to the line input

of the sound card on the back of your computer. A camcorder also needs a remote control mechanism. It may be an infrared connection, a small jack labelled LANC, or in Panasonic camcorders a five-pin connector.

To create digital video, first play or import the video from your source into your computer. Depending on your system, you may need to select play on the source before using your video editing software to start and stop capturing. Digital cameras, which deliver better quality pictures, allow you to fast forward, rewind, pause, play and stop through your computer screen or interface, rather than using the buttons on your VCR or camcorder. To save time and disk space, import only the best parts on the tape, then save them as individual files or clips.

After importing the clip, use the video editing software to trim any unwanted sections. You should then place each clip in an ordered sequence. The area where you order the clips is often referred to as a time line – it may look a bit like the storyboard we created for our multimedia project. Many editing programs allow you to drag and drop a thumbnail image of your clip into the main editing window.

The time line also has space for adding sound files. You could import music directly from your CD-ROM drive, or record the audio from your videotape onto your computer. Use a microphone plugged into the audio capturing feature of your video editor to create narration. You could also create audio files by following the steps in the "digitizing sound" section of this book. Import the file into your time line, then drag and drop it under the appropriate video clip.

Your software package should let you adjust the volume or fade the sound in and out for a smoother effect. You may want to use what is known as a transition, when images change on the screen. For example you can dissolve a screen, which makes the picture fade to black, signifying that a scene has ended. Like clips, transition effects are often represented by thumbnail images you drop on the time line. Use these effects sparingly as they take time and disk space. Many video editing programs allow you to add scrolling text and create subtitles. Place the finished video file in your video clips folder.

Part Three

Creating CD-ROMs and Web Sites
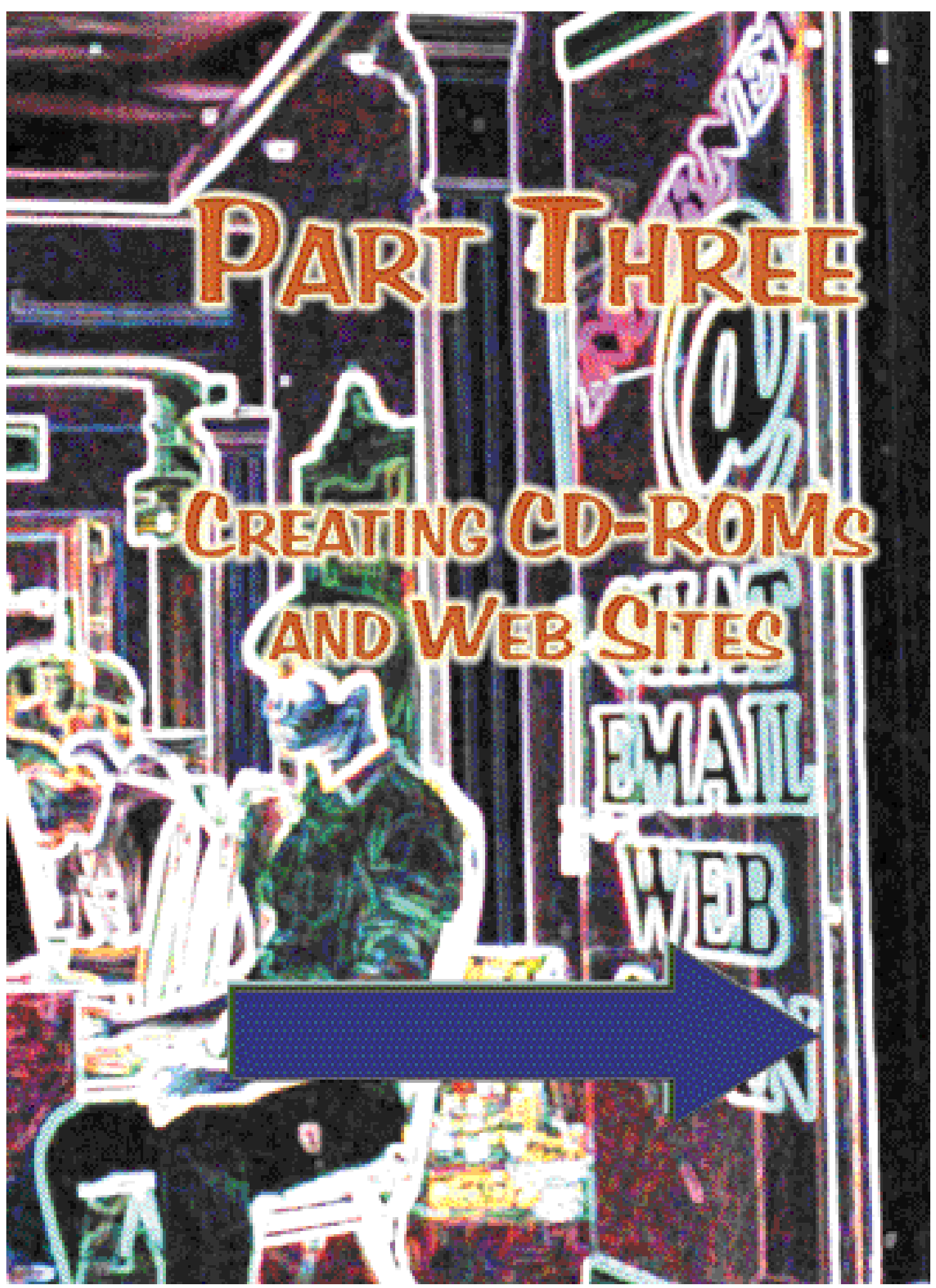
CD-ROM or Web Site?

There are pros and cons to both CD-ROMs and Web sites. You should consider several factors when deciding which medium to use.

Who is the intended audience of your multimedia project? If you want to reach the widest number of people, Web sites are a much better choice as they can be accessed by users across the world. If you want to reach a small, select group of people CD-ROMs may be the best option.

Do you want to use large graphics, sound and video files?

Nowadays many multimedia projects exist on the Internet. However, poor quality telephone lines and Internet infrastructure dramatically slows down the rate at which information can be transmitted from a Web site to the users' computer – resulting in long waiting times for elements to download, jerky video and poor quality sound. You can avoid this problem by writing or "burning" your multimedia project onto CD-ROM.

Will you need to update your content or add new information? For example if you visited a World Heritage Site you could produce a multimedia "photo album" on CD-ROM containing photos and text about your trip. This could be
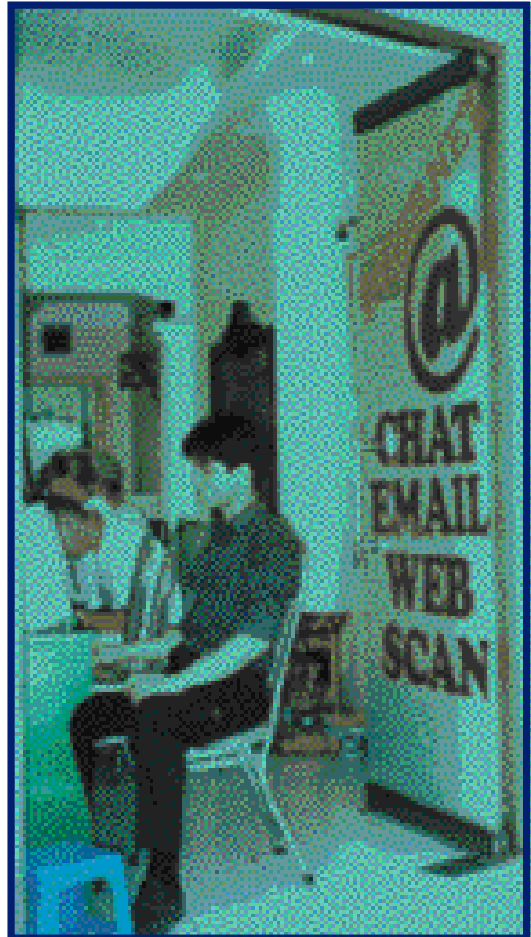
a great way to document your visit. But if you want to add new information at a later date Web sites are a much better option as they can be changed quickly and easily.

Do you want to get instant feedback? You can include features in your Web site which allow users to send you comments and reaction instantly via email or guest books.

Does your audience have access to the Internet? Some people have access to computers but not the Internet, in this case CD-ROMs are a better choice.

CD-ROM Authoring Tools

If you want to create a multimedia project with lots of large graphics, sound, and video it is best to make a CD-ROM rather than a Web site. CD-ROM quality will depend mostly on the users' computer, rather than Internet connections, which vary from location to location and can take literally hours to download large video and sound files.

Once you have decided upon the content and structure of your CD-ROM, created a storyboard and digitized your elements, it is time to put them all together with an authoring tool. Authoring software combines the different media elements, such as text, graphics, sound and audio into one seamless and interactive experience. Some authoring software has been developed for either MAC or PC computers, but will not run on both. If you don't know which type of computer your users have it is best to obtain a hybrid program that will run on either type of computer. Some examples are Macromedia Director, Authorware, Multimedia Fusion, iShell, Hyperstudio and Formula Graphics Multimedia System. You will need to read the specific instructions and documentation which come with your software. Many offer tutorials that will guide you through each step of the authoring process.
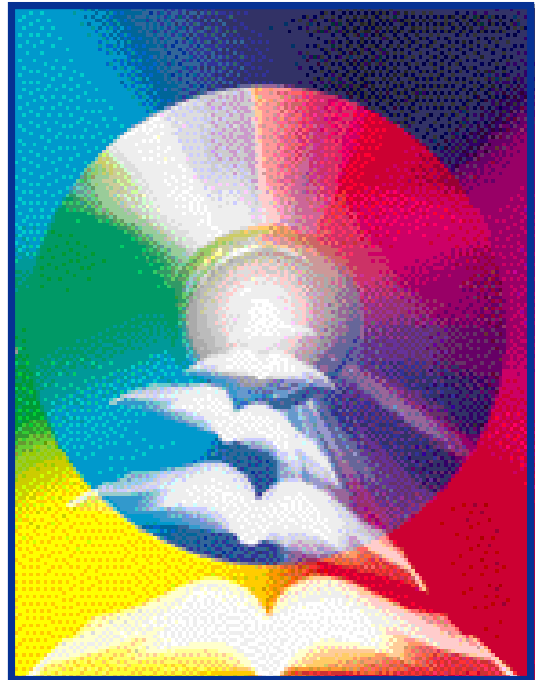
Most authoring tools allow you to create different multimedia elements directly within the program. However, better quality is often achieved using software programs specifically designed for each medium – be it sound, video or

graphics. Using your storyboard as a guide, use the authoring tool to create each screen. Import the content, graphics and elements for each screen from your project folder.

Some of the most popular authoring tools operate by using a Cast/Score/Script system. This is what is known as a sequential method and uses filmmaking concepts to construct multimedia. The cast represents each different element, the score controls the pace and sound track while the script controls the behaviour or action of the cast. Other authoring tools use a structural method, which uses a flowchart system to create multimedia, rather than individual scenes or frames.

Authoring tools usually have a good range of built-in transitions that you can use, such as fades and other effects such as checkerboards. Authoring software can also be used to give life to a screen through basic the screen or appear and disappear to emphasize a particular point or to reflect narration.

Some programs enable you to insert a search option, although this may also require some knowledge of computer codes and scripting. For example, you may want to allow users to search for World Heritage Sites or Memory of the World documents in their own country. Users could type in their country, and only sites and documentary heritage nearby would be shown, saving the users both time and effort scrolling through many pages of information.

The authoring tool will also help you create any interactive controls and buttons. Some programs have features that allow you to use hypertext or links, similar to those commonly used on the Internet. This means users can click on a highlighted word and be transported to another screen with more information on that topic.

Burning CD–ROMs

Writing or "burning" is the final stage in the creation of a multimedia CD-ROM. You can buy your own CD writer, or if your multimedia project is stored on a portable hard drive you may be able to take it to a school or computer shop which offers CD-burning facilities.

Your CD writer or burner will usually come with software, which will contain instructions on how to copy your multimedia production onto compact disc. Some allow you to drag and drop the file you want copied onto a certain area of your screen, others display a directory of the files in your computer – from which you choose those to be copied.

You can choose from two types of compact discs - recordable or rewritable. Once you burn your file onto a recordable CD, it cannot be altered. The rewritable discs allow you to make changes, but can only be read in CD-ROM drives with a multi-read feature. If you want to be sure that your CDs can be read everywhere, then use recordables. But until you have a feel for the process of creating CDs, expect to throw away one or two incorrectly made CDs.

There are many formats in which to write CDs. The most common is ISO 9660. If you want to use your CD-ROM on both Mac and PC computers you will need to select a Mac/ISO Hybrid format.

CD-burners require an uninterrupted stream of data from the source (CD-ROM or hard drive) to the recipient blank CD. If your PC cannot meet your burner's requirements, the flow of data may pause, resulting in errors. The disc you are recording onto will also be wasted. To correct this problem, reduce the recording speed–from 8x to 4x, for example, which

will slow down the recording process. Also make sure you close all other programs while recording your CD.

Many CD burning programs allow you to create interesting and colourful covers for your CD-ROM. You type in a title in a variety of fonts and sizes, use a picture or image from your hard drive as the background, and list the contents of your CD.

Once you have transferred your multimedia project into CD-ROM ask a few potential users, perhaps some of your friends, to test the product. Take note of their reactions and any criticisms. Check that the CD-ROM is easy to use and navigate, that all the elements perform as they should and make any necessary changes. Make sure you test the CD-ROM on more than one computer to pick up any glitches.

After finalizing your CD-ROM it is time to make copies for distribution. You can make individual copies on your own CD-burner or employ the services of a commercial CD duplication company for large numbers.

Web Sites

It is tempting to jump straight into creating your Web site, but it is a good idea to first get a basic understanding of how the Internet works and what you need to get online. Basically, the Internet is a worldwide network of interconnected computers. You can send messages to other people over the Internet by using email or chat rooms. You can visit other people's Web sites and they can visit yours.

In order to link up to this network, you need an Internet service provider, or ISP. From your computer, you dial a number which will connect you to one of your ISP's many modems, which will in turn link you to the Web. Your school or university may operate its own ISP, and provide free access to students. You can also open an account with a commercial ISP, which will charge a fee for providing access to the Internet. The fee will vary from company to company and will also depend on how many hours of Internet access you require. Shop around for the best deal to suit your needs. You might also want to visit an 'Internet cafe', which will have several computers and charge a fee according to the amount of time you spend on the Net. Talk to the people at the Internet cafe about whether or not you can build or upload (we will talk more about uploading later)
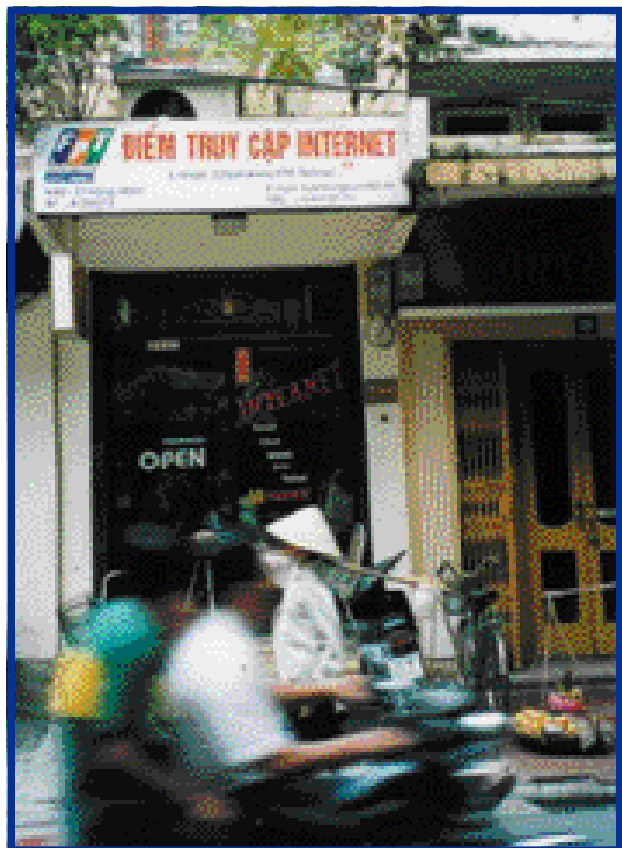
your Web site there. Most ISPs provide space on their computer, or server, for you to store your Web site. Web servers or "hosts" are in some ways similar to the "publisher" of a print document. If you plan to create a large site you may need to buy extra space.

In order to visit Web sites you need a Web browser such as Netscape Navigator, Microsoft Internet Explorer Mosaic, MacWeb, and Netcruiser. The browser is able to read a certain type of code called HTML or HyperText Markup Language, and translate it into a Web page containing words, pictures, colours, sound and movement. The next few chapters of this book will explain how you can transform the storyboard you created earlier into your own dynamic Web site.

Cracking the HTML Code

HTML, or HyperText Markup Language, is the universal language of the Net - and best of all it is easy to master. HTML code tells the browser what your Web page should look like. HTML explains what size and colour your text should be, where any pictures should go and so on.

There are some software programs which allow you to arrange pictures and text on the screen. Then the program will work out the HTML code for you.
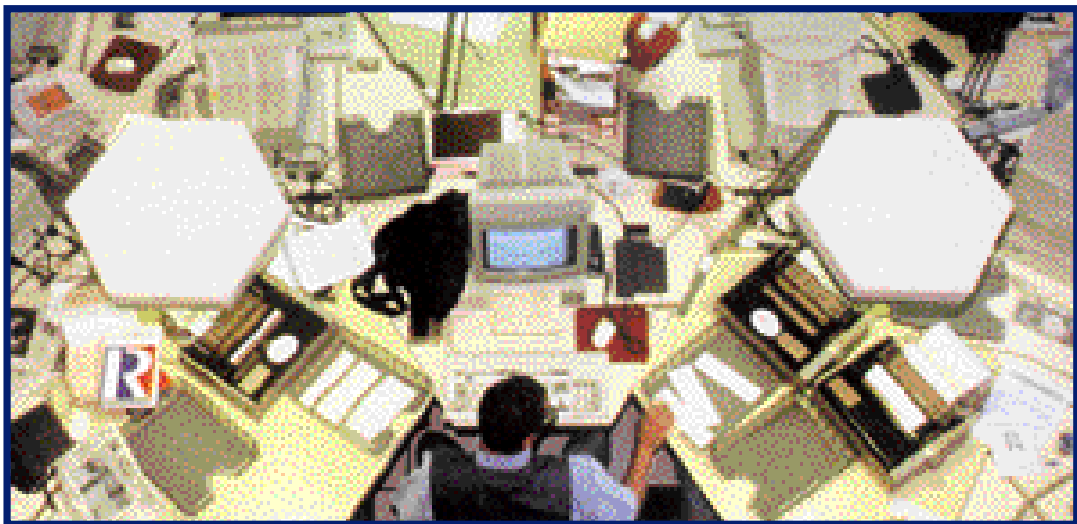
These programs are called WYSIWYG, or "**what you see is what you get**." Microsoft Word allows you to save a page of text and images as a Web page, automatically creating the HTML code for you. Netscape Composer also takes the work out of writing code. Adobe GoLive is a well respected WYSIWYG editor for Mac users, which can help you create complex whiz-bang Web pages.

There are several Web sites which allow you to create your Web page online at no cost. These hosts often provide WYSIWYG templates, special tools and libraries of free images and pictures you can add to your site. With the help of these

services you can have your own Web site up and running in less than an hour. Some of these Web sites include:

◆ Yahoo! Geocites – www.geocites.com

◆ Tripod – www.tripod.com

◆ Angelfire – www.angelfire.com

While the WYSIWG method is quick and easy, it can also be limiting, and therefore if you want to be creative it is always better to learn the code yourself. You don't need any special software to write your HTML code. You probably already have a basic text editor sitting in your computer, such as WordPad for Windows or SimpleText for Mac. If you want a few more features you may want to check out the software below:

◆ Windows Editplus is a simple program with some fancy features which make writing HTML even easier.

Dreamweaver

◆ Dreamweaver has some amazing functions and is widely considered to be the top of its class when it comes to Web design, but it comes with a big price tag too.

◆ Mac BBEdit Lite (freeware) is an easy to use program with several special features to make HTML writing a breeze.

Each page or screen of your Web site will need its own HTML file. This file will contain all the text for that page, along with HTML instructions that tell the

browser where the text should go and what it should look like. The HTML code will also instruct the browser where to find any photos, sound or other elements and where to place them on the page. HTML does all this by using tags. Tags are letters or words sandwiched between two triangular brackets. For example, the tag to make text appear in bold is . Other tags will make your text bigger or smaller, centre it on the page, make it red or blue or create a link to somewhere else. You simply choose the tag you need and place it directly in front of the text.

Let's say you want to create a Web page about Captain James Cook's voyage to Australia, and you want the text to be **bold**. You let the browser know to display the text in bold by typing the following:

Captain Cook and his crew undertook an epic journey – proving the existence of the continent of Australia.

However you must also let the browser know when to stop producing bold text. You do this by using closing tags. Closing tags are just like regular tags, but there is a slash inside the bracket and before the letter. So our HTML file will be written as follows:

Captain Cook and his crew undertook an epic journey – proving the existence of the continent of Australia.

This would appear as:

Captain Cook and his crew undertook an epic journey – proving the existence of the continent of Australia.

Keeping the simple rules about tags in mind, you are now ready to start creating your first Web page! If you are creating a Web page about James Cook's voyage, the first step is to create a new text document on WordPad or whichever text editor you are using. Name the document "index.html" and save it in your HTML folder.

The basic HTML page begins with the tag <html> and ends with </html>. The next step is to create the header. The header contains information that does not actually appear on the page, such as the title that appears in the bar across the top of your browser. The header information is enclosed in the <head> and </head> tags. Everything that appears on the screen is called the body, and is enclosed by the <body> and </body> tags. Your text file should look something like this:

```
<html>
<head>
<title>Voyage of Discovery</title>
</head>

<body>
<h1><b>Voyage of Discovery</h1></b>

<p>James Cook is a famous explorer, who journeyed far and wide across the seas
to Australia.
<p>While the Englishman is well known for his travels through dangerous seas, the
Aboriginal people of Australia were also skilled navigators who traversed the
searing deserts and baking plains of the land down under.

</body>
</html>
```

Save your index.html file as a text file, or as a rich text file if you are writing in a language other than English.

To get a preview of what your Web page will look like launch your browser, then open your document using the "open" option under the file menu. In this case it would look something like this:

Voyage of Discovery

James Cook is a famous explorer, who journeyed far and wide across the seas to Australia.

While the Englishman is well known for his travels through dangerous seas, the Aboriginal people of Australia were also skilled navigators who traversed the searing deserts and baking plains of the land down under.

The headline "Journey of Discovery" was created by using the tag <h1>. Smaller headlines can be made by using <h2>, <h3> and so on down to <h6>. The beginning of a new paragraph is marked by <p>. This is one of the few tags which does not need a closing tag as well.

Once you have completed your "index.html" document save it as a plain text or rich text file in your HTML folder. Successive pages of code for your Web site should be named page2.html, page3.html and so on.

HTML Tricks and Techniques

So now you have learnt the basics of HTML code. If you like a feature on a Web site but don't know the code you can discover how it was done by checking out the HTML. Click on "View" and then "Source" or "Page Source" and all will be revealed! Here are a few more effects to add to your repertoire.

Aligning: To align paragraphs to the left, right or centre use the tags <p align=left>, <p align=right> or <p align=center>.

Font: Change the font using the and tags, with "x" being the font name. Try out some cool fonts like Chiller and Raavi. However, there will be problems. To minimise this problem select several fonts in order of preference. For example you could select <font face="Chiller, Garamond, Verdana, sans-serif">. Garamond and Verdana are among the dozen or so true type fronts found on almost every computer. All fonts are either serif or sans-serif, so choose one of these as your last option, ensuring the text on your page will at least be displayed, even if it is not in the style you prefer.

Italics: Sandwich words you want *italicized* between the <i> and </i> tags.

Font size: Unless you specify a font size your text will automatically be the default size "3". To make text larger or smaller use another number such as . Alternatively use a plus or minus sign, for example or . The closing tag returns to the default size.

Line breaks: Usually Web designers use the <p> tag to divide up text. However if you want to start a new line of text

without adding an empty line between the last line use the line break tag <br>. The <br> tag is particularly useful if you want to include poems in your Web site.

Background images: You can use an image file to create the background of your Web page by using the <body background="x">, with "x" being the name of the graphic file. For example to use the picture of the Forbidden City on page 91 as your background write <body background= "forbiddencity.jpg">.

If it is a big file the graphic may only appear once, otherwise it will be repeated over and over until it fills the browser window (this process is known as tiling).

Use graphics to add life to Web page backgrounds.

Blink: You can make words or phrases blink or flash on and off using the <blink> tag. However, this feature can be very annoying so use this tag sparingly. In addition, this feature only works with the Netscape browser, not Internet Explorer.

Colour: The Internet originated in the United States, so you must use the American spelling of "color", not "colour" as used in England, Australia and New Zealand. Select the colour of your text using <body text="x"> with "x" being the colour you desire, such as blue, green or red. You can vary the colour of your text using the tag. For example if you want your text to be mostly blue, with the last word of each sentence red you would write:

<body text=blue>Captain James Cook was a famous explorer.
He sailed across the earth, braving dangerous seas.

This would appear as:

Captain James Cook was a famous explorer. He sailed across the earth, braving dangerous seas.

The closing tag returns the text to the previous colour. However, this system of choosing colours is limited to the more common colours. To be precise you need to use "hexadecimal code", which is based on the varying amounts of red, blue and green (RGB) used to create each colour on a computer screen. Have a look at the colour code chart on the extremely informative Webmonkey site at http:// hotwired.lycos.com/Webmonkey/kids or do an Internet search for "hexadecimal codes".

Background colour: You can change the colour of the background of your Web page by using the <body bgcolor="x"> tag.

Links

Links are one of the most important ingredients in creating a successful Web site. When you click on a link, also known as hyperlinks, you are transported to another site on the Web. To build a link you need to know the Web address or URL of the page you are linking to. For example UNESCO's URL is http//www.unesco.org.

The tag to create a link is , with x being the URL. The closing tag is . Now decide which word or phrase on your page will act as the link. In this case we will use the phrase "Find Out More With UNESCO!". In your HTML document, enclose the phrase between the link tags, like so:

 Find Out More With UNESCO!.

Links are usually a different colour to the rest of your text and are often underlined, such as below.

Find Out More With UNESCO!

Links are crucial if you plan to build a Web site with more than one page. Each Web page should contain links which allow visitors to jump backwards and forwards between pages. Store your HTML documents in the same folder and insert links to them with the tag ....

Using Tables to Format Web Pages

Tables are great HTML devices which help you organise the content of your Web page. Tables are either square or rectangular, as in the diagram below.

Cell 1	Cell 2
Cell 3	Cell 4

Cell 1	Cell 2
Cell 3	Cell 4

A table is divided into three elements – the table itself <table>, the table row <tr> and the table cell <td>. <td> stands for table data, and it is always enclosed in the <tr> tags, which are in turn surrounded by the <table> tags. The table below was created using the following code:

```
<table border><tr>
<td>Memories and Marvels</td>
<td>Unlock the Forbidden City</td></tr>
<tr><td>Journey the Silk Road</td>
<td>Voyage of Discovery</td></tr>
</table>
```

Memories and Marvels	Unlock the Forbidden City
Journey the Silk Road	Voyage of Discovery

As you can see, cells 1 and 2 are housed in the first table row. The second table row encloses cells 3 and 4. Table rows always run horizontally. The contents of each cell are sandwiched between the <td> and </td> tags. In order to see the table, we used the <table border> tag. If you don't want to see the table border use <table border=0>.

There are two methods you can use to determine the size of your table. If you want your table to occupy 50 per cent of the screen you should insert the figure inside the table tag like <table width="50%">. Alternatively you could tell the browser how many pixels wide the table should be <table width="500">. Five hundred pixels is about 12.5 centimetres wide.

In order to vary the way you set out or format your Web page content you can use the colspan and rowspan commands. You can make a single cell in one row stretch across two columns in another row by adding "colspan=2" to the <td> tag.

```
<table border>
<tr><td colspan=2>
The Imperial Palace of the Ming
and Qing Dynasties </td></tr>
<tr><td> Photos of the Forbidden City </td>
<td> Diaries of life during the Qing Dynasty
</td></tr>
</table>
```

The Imperial Palace of the Ming and Qing Dynasties	
Photos of the Forbidden City	Diaries of life during the Qing Dynasty

The rowspan command works in a similar way.

```
<table border><tr>
<td rowspan=2>
The Imperial Palace of the Ming
and Qing Dynasties</td>
<td> Photos of the Forbidden
City </td>
</tr><tr>
<td> Diaries of life during
the Qing Dynasty </td></tr>
</table>
```

The Imperial Palace of the Ming and Qing Dynasties	Photos of the Forbidden City
	Diaries of life during the Qing Dynasty

You can format the content of the cells by using the align command inside the <td> tag.

<td align=right> aligns everything to the right.
<td align=left> aligns everything to the left.
<td align=center> aligns everything in the middle.

You can also place the content at the top, bottom, or middle of the cells by using the align=top, align=bottom and align=middle tags. You can colour the background of your table by using the bgcolor command. So if you want your table to have a green background write <table bgcolor="green">.

Images, Graphics and Animation

Images, graphics and animation can add another dimension to your Web page, but they must be used wisely. It can take quite a while to load or transmit lots of large images. If it takes too long, visitors to your site may become impatient and move on somewhere else.

To create and edit graphics and animation for your Web site follow the advice in the multimedia CD-ROM section starting on page 34. Web site graphics should be saved as either JPEG or GIF files. JPEG files are usually best for photographs. GIF files handle solid colours and sharp lines better and are usually used for word art, cartoons and animation.

To speed the loading process, try to limit the size of your Web pages to 30 kilobits, and images to 10 kilobits or less. If you must use a large image, make sure it is not on your main page or home page. If you have too much content on one Web page divide it into two or even three separate pages. You could also place a small image with a link visitors can click on to view the full size graphic. Keep your resolution to 72 pixels per inch. In addition, always specify the exact size of your images in pixels with the height and width tags. For example:

```
<img src="cook.gif" width="192" height="128">
```

The browser has to work out the size of the graphics before it loads any text. Providing this information means visitors will not be left staring at a blank screen, but will at least have some text to keep their attention!

Once you have selected and edited the graphic for your Web page you must tell the browser where to find it. Do this by using the tag <img src="x"> with "x" representing the name of the graphic file. Store the image in the same folder or directory as your HTML files. Otherwise "x" must also include the location of the image file on your ISP server.

Position images on the screen using the tags below:

<img align=left src="x"> to align images to the left;
<img align=right src="x"> to align images to the right;
<img align=middle src="x"> to centre the image.

When writing your HTML document, insert the image tag directly before the text you want alongside the graphic.

Sound and Video

Sound can be a useful and fun addition to your Web site. If you have followed the instructions in the digitizing sound section on page 37, you have already done most of the work!

Audio files (usually .wav files) are fine for inclusion on a CD-ROM, but the large amount of data in the file means they don't work well on Web sites. Downloading a .wav file would take far too long via most Internet connections. But by compressing or encoding an audio file you are able to decrease its size dramatically.

The most popular format for Web audio files is MP3. Your audio editing software may allow you to save your audio in this format. Otherwise you will need to download or purchase an encoder. Two popular encoders are Razorblade and Audio Active's Production Studio Lite. To encode using Razorblade, simply press "Choose Files," browse through your computer and select your file. Press "Options" to select your bit rate – low bit rates create smaller files which download fast, higher bit rates produce better quality sound. To limit size make sure your final sound clip is mono not stereo. Usually Web files of eights bits, 22.05 kHz are adequate for music, while speech can be cut to eight kHz. Choose a folder where Razorblade will store your new MP3 file and then simply press "encode".
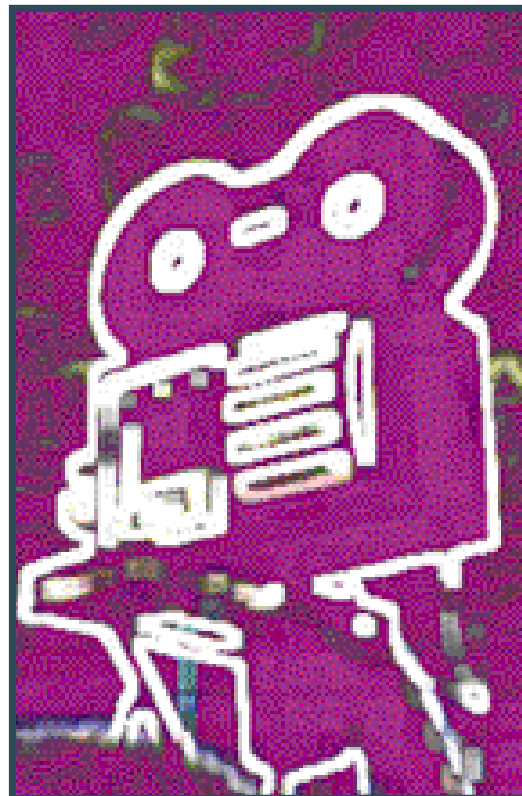
Once you have encoded your audio file upload it to your Web server or host. The final step for incorporating your MP3 file into your Web site is to make a link to your audio file. For example if you have created an MP3 file called "song1.mp3", you would write the following line of HTML code:

```
<a href="song1.mp3"> Click here to listen to traditional music</a>
```

The link Click here to listen to traditional music will appear on your Web page. In case your visitors lack software to play MP3 files, you should also create a link to a site where they can download a suitable program. The following URLs will link visitors to sites where they can download Windows Media Player, RealPlayer or the Sonique Player:

◆ www.microsoft.com/windows/mediaplayer/download/default.asp

◆ www.real.com/player/

◆ www.sonique.com

◆ www.apple.com/quicktime/

While audio files are an increasingly common feature on the Internet, video remains somewhat problematic. Video files can be massive in size and you should think carefully about including this medium on your site. Jerky video which stops and starts may do less to communicate your ideas than simple text and images.

If you want to use video on your Web site keep special effects to a minimum. Use bright, solid colours. Dark or patterned colours will not be good for low bandwidth visitors. Once you have created your video file by following the steps outlined in the digitizing video section on page 43 you need to encode the file into a manageable size and a format supported by a range of Internet video servers.

Compressing digital video generally involves reducing the frame size (i.e. 640x480 pixels to 240x180 pixels) and cutting the frame rate from the standard 30 frames/second to about 10-15 frames/second.

Two handy encoders which can be downloaded from the Net are:

◆   Windows RealProducer G2 (www.real.com)

◆   Mac Quicktime (http://quicktime.apple.com)

Upload your encoded video file to your server and insert a link to the file.

Uploading and Updating

Once you have written HTML files for each page of your Web site you need to transmit, or upload, the files to your ISP's computer or server. Anyone surfing the Web will then be able to connect to the server and immediately view your site.

However, always test your site first! Check all links and examine how your page looks in various window sizes and various screen resolutions. Test it on another computer if possible, such as a friend's or at an Internet Cafe.

Your ISP or Web host will have its own system to upload files and should provide simple instructions on how to get your site up and running. It should also give you a password so other people cannot alter your site. The host site will ask you for the location or directory on your hard drive where your files are stored.

It will also ask for the names of each file to be uploaded. Ensure that all the files are saved on the server using the same names as on your own computer. You can upload using your browser or with an FTP or File Transfer Protocol program to send your files. Two FTP programs you can download from the Internet are:

◆ Mac FETCH, which is free for schools or not-for-profit groups; and

◆ Windows CuteFTP, which is free for a 30 day trial.

FTP programs vary, but the basic process of uploading files will require you to enter an address or URL provided by your ISP or Web host. You connect to this address via your modem, select the files you want to upload and simply push a button or two. The time it takes to upload your program will vary according to the size of your files and the speed of your Internet connection. As soon as your files are uploaded anyone can visit your site!

If you discover any mistakes on your site simply make the corrections in your original HTML document and upload it again. If your site still doesn't look right visit Web Site Garage (www.Websitegarage.com) which will check your HTML code, spelling and links.

The beauty of the Web is that you can constantly change, update and reinvent your site to keep people coming back for more! Adjust or add code to your original HTML file and upload it once more. This will instantly update your Web site.

Attracting Visitors to Your Site

There are over one billion pages on the Internet so once your Web site is online you need to help potential visitors find it. Luckily this can be done by registering your URL with some of the many Internet search engines. Registration with most search engines is free but some do charge a fee. You should register your site with at least the major search engines at the addresses listed below:

♦   www.google.com/addurl.html

♦   http://searchservices.lycos.com/searchservices/

♦   http://addurl.altavista.com/addurl/new

♦   http://hotbot.lycos.com/addurl.asp/

♦   www.looksmart.com/help/subsite.html

♦   www.yahoo.com/docs/info/include.html

♦   http//dmoz.org/

You can register your URL with 18 different search engines at once by visiting "Build Your Own Web Site" <www.build-Website.com/tools/submission.html>.

After you register with a search engine a "robot" or "crawler" will visit your site. This crawler will absorb information for its database using the words or phrases that

it finds on your site. The title and first paragraph on your page are very important in this process so make sure the first paragraph on each of your pages accurately reflects the content.

Many search engines also use meta tags, which you can insert into your HTML document. This information is hidden from normal visitors to your site. However the meta tags will automatically provide the crawler with ready-made key words and a summary of your Web page. Mind maps can provide good clues as to which words to use as meta tags.

The meta tags are enclosed within the header tags. If you have created a Web site about UNESCO's Memory of the World Programme and World Heritage Sites your meta tags might be similar to those below.

```
<head>
<title>Memories and Marvels</title>
<META name="description" content="Learn about Asia's cultural and natural heritage.">
<Meta name="keywords" content="UNESCO, World Heritage, Memory of the World, history, architecture, culture, Asia, Pacific, natural wonders, tradition, customs, ancient civilizations">
</head>
```

So if a Web surfer enters any of the meta keywords you have selected, the search engine will produce the following listing:

Memories and Marvels
Learn about Asia's cultural and natural heritage.

You might also want to find other Web sites on similar topics to your own. Email the people who maintain these pages and ask them if they would be interested in adding a link to your page on theirs.

Tracking Visitors and Feedback

By now you have learnt how to publish a Web site with text, images and other elements. But to make your site a success you should find out how many visitors you have had, and what they thought of your creation.

Counters are extremely useful features which track the number of visitors to your site. Some also tell you which countries your visitors are in, which are your most popular pages and which search engines were used to find your site. There are many sites on the Web which supply free counters of all shapes and sizes, including:

- www.jcount.com

- www.zcounter.com

- www.gostats.com

- www.digits.com

When you visit these sites you will be asked to fill out a form, and then a customized counter and HTML code will be automatically created for you. You simply copy and paste the code into your Web page document.

Chat rooms are another popular Web feature. They can be difficult to create on your own but the people at BeSeen <www.beseen.com/freechat.html> have solved that problem. Fill out a form and you will be immediately sent an email with detailed instructions on how to set up a chat room on your site.

Email is another easy way to receive feedback about your site. The tag for an email link is with "x" being your email address. The closing tag is . As with

regular links, you must also choose a word or phrase on your Web page for visitors to click on. But instead of being transferred to a new Web page, an email window will open on the screen. If your email address is Lee@inet.com you would insert the following into your Web page document:

 Send me an email!

The link Send me an email! will appear on your page.

Computing Glossary

BANDWIDTH - This term refers to how many bits of information can be sent through an Internet connection per second.

BIT – A bit, or binary digit, is the smallest unit of data in a computer.

BROWSER - Programs that enable you to view documents on the Internet. They translate HTML files into text, images, sounds, and other features.

BURNING – Burning is the process of transferring and storing data onto a compact disc.

BYTE – Computers are generally designed to store data and carry out instructions in bit multiples called bytes. In most computer systems, there are eight bits in a byte.

CACHE – A cache temporarily stores Web pages you have visited in your computer.

CD–ROM – A Read-Only-Memory compact disc is designed to store up to 640 megabytes of computer data in the form of text, graphics, sound and other medium.

CD–ROM DRIVE – CD-ROM drives can read CD-ROMs as well as audio compact discs for music, while CD players cannot read CD-ROM discs.

CD–R DRIVE – CD-R stands for Compact Disc Recordable. CD-R drives allow you to write or burn information onto compact discs.

CD-RW DRIVE – CD-RW stands for Compact Disc Re-Writable. Unlike CD-Rs which can record information only

once, CD-RW drives allow you to record, delete, and re-record information onto rewritable compact discs.

COOKIE – Cookies are small files created by a Web site which collect information about visitors, such as which pages they looked at within that site or login information.

CYBERSPACE – This term usually refers to the whole range of information resources available through computer networks.

DOMAIN NAME – The unique name that identifies an Internet site, i.e. http://www.unesco.org

DOTS PER INCH – Dots per inch (dpi) is a measure of the sharpness or density of illuminated points on a display screen. Some people prefer to use the term pixels per inch (ppi), reserving dpi for use with the print medium.

DOWNLOAD – To copy something from a primary source, for example saving something found on the Web to a file on your hard drive

EMAIL – Messages, usually text, sent from one person to others via computer

EXPORT – To send information or data in a format that can be used by another program or device

FLOPPY DISK – Up to 1.44 megabytes of information or data can be stored on 3.5-inch portable floppy disks.

FTP (File Transfer Protocol) – A common method of moving files between two Internet sites

HARDWARE – Hardware comes in many forms and is any physical piece of your computer that you can actually see.

HARD DRIVE – Your hard drive is located inside your computer. It is responsible for stockpiling information that you input and storing programs that are installed.

HOME PAGE – This commonly refers to the main Web page of a Web site.

HOST – Any computer on a network that stores services available to other computers on the network, such as email and Web files

HTML (HyperText Markup Language) – The language or code used to write documents for use on the World Wide Web

HYPERTEXT – Text containing links to other documents. When a user clicks on a link another document is displayed.

IMPORT – To receive information or data from one program to another or send information from a device to your computer

INSTALL – Installing is a means of adding something to your computer. Installation is the process of transferring a program to your computer.

INTERNET – Often referred to as the World Wide Web, the Internet connects millions of computers together, allowing you to chat with other users, download software, read news, entertainment and more.

ISP – You must have some sort of Internet Service Provider in order to access the Internet. ISPs allow you to dial into one location, which then provides you with a link to the Internet.

kHz – kHz is an abbreviation for the kilohertz, a unit used to measure or specify signal bandwidth. The bandwidth of a digital signal, in kilohertz, is related to the data speed in bits per second.

MODEM – A modem is hooked up through your phone line and is capable of dialling and connecting to another computer, the Internet or making phone calls.

MOTHERBOARD – Without the motherboard, your machine would not function. It is the main circuit board of your computer.

OPERATING SYSTEM SOFTWARE – Operating System Software is the overall program that your machine uses to function, catalogue information and connect you to programs, fonts and system resources.

PERIPHERALS – Devices you connect to your computer.

PLUG IN – A small piece of software that adds extra features to a larger piece of software.

PORT – A port is a specific place which physically connects your computer to some other device, usually with a socket and plug of some kind.

PARALLEL PORT – Usually a computer has one parallel port, which connects you to devices such as videocassette recorders (VCRs) and supports multiple-bit-at-a-time transmission of data.

PIXELS PER INCH – See **Dots Per Inch**.

PROCESSOR – Your processor is what gives your computer its speed. There are many different types of processor chips, but all work to give power to your applications.

RAM – RAM stands for random access memory. RAM is responsible for storing information while your computer is on.

RESOLUTION – Resolution is the number of pixels or individual points of colour contained on a display monitor. The sharpness of an image depends on the resolution and the size

of the monitor. The same pixel resolution will be sharper on a smaller monitor and gradually lose sharpness on larger monitors because the same number of pixels are being spread out over a larger number of inches.

SEARCH ENGINE – A system for searching information available on the Web

SERIAL PORT – The serial port is a space in the back of your computer which supports sequential, one bit-at-a-time transmission to peripheral devices such as scanners.

SERVER – A computer or software that provides a service to software running on other computers.

SOFTWARE – Software is a portable medium that you can install on your machine. Software is transported by floppy disk, compact disc and is downloadable from the Internet. Once installed, the program will run independently of the disk or CD.

SOUND CARD – Sound cards are added to your hard drive and allow you to hear sounds associated with programs, and plug is microphones and speakers.

URL (Uniform Resource Locator) – An Internet or Web address

VIDEO CARD – Video cards allow you to play video clips.

VIDEO CAPTURE CARD – Video capture cards accept and digitizes pictures from a VCR or portable camcorder.

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There are many useful computing glossaries on the Internet containing thousands of terms, including:

PC Webopedia
www.Webopedia.com

Berkley University's Internet Glossary
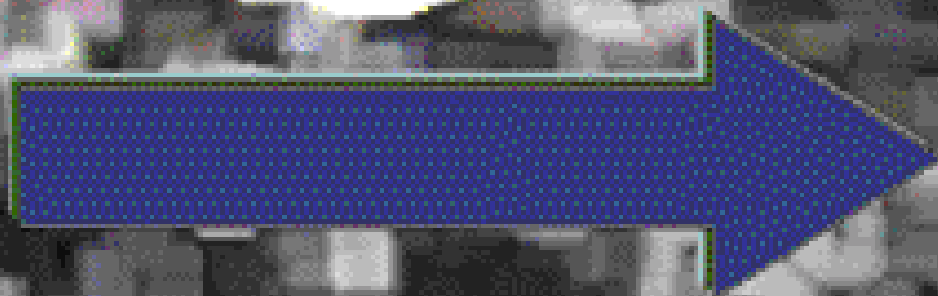www.lib.berkeley.edu/TeachingLib/Guides/Internet/Glossary.html

Octave's CD-Recordable Glossary
www.octave.com/1392448/en/library/glossary.html

Roxio's CD-Recordable Glossary
www.roxio.com/en/common/gloss1.html

Enterprise Corp's Multimedia Glossary
www.eciusa.com/cdr/techdic.htm
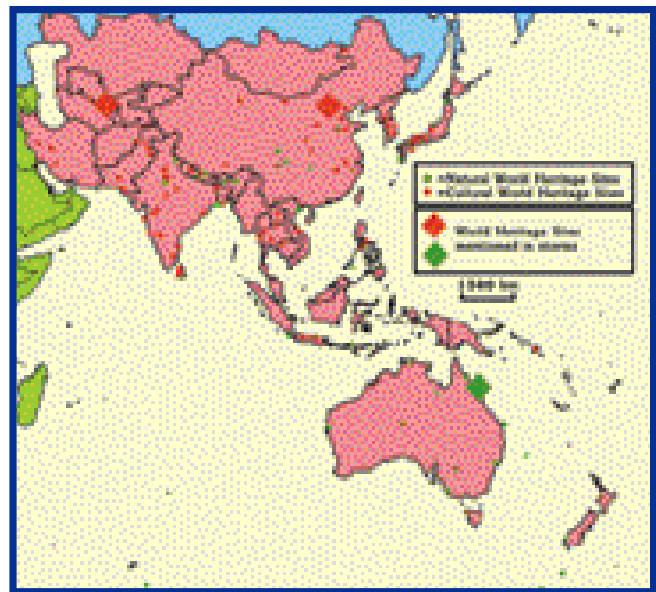
Part Four

Memories and Marvels

Memories and Marvels

Throughout Asia and the Pacific, and indeed across the globe, there are natural and cultural sites of importance to all humankind. In Asia and the Pacific there are sites from Turkey to New Zealand. The Taj Mahal in India, Angkor in Cambodia, the Forbidden City in China, the Central Eastern Rainforest Reserves in Australia, Bukhara in Uzbekistan as well as the Rice Terraces of the Philippine Cordilleras are but a few examples of the globe's outstanding marvels.

The United Nations Educational, Scientific and Cultural Organization, UNESCO, is helping to protect these sites for you and future generations to experience and enjoy. UNESCO does this by granting World Heritage status to sites deemed to have outstanding universal value. Governments can nominate sites in their country for World Heritage status. So far more than 700 sites have been recognized by UNESCO as World Heritage Sites, more than 140 in Asia and the Pacific. This can often boost the number of people who visit the area to admire the marvels and learn about the memories – but it also requires governments to protect and preserve these treasures.

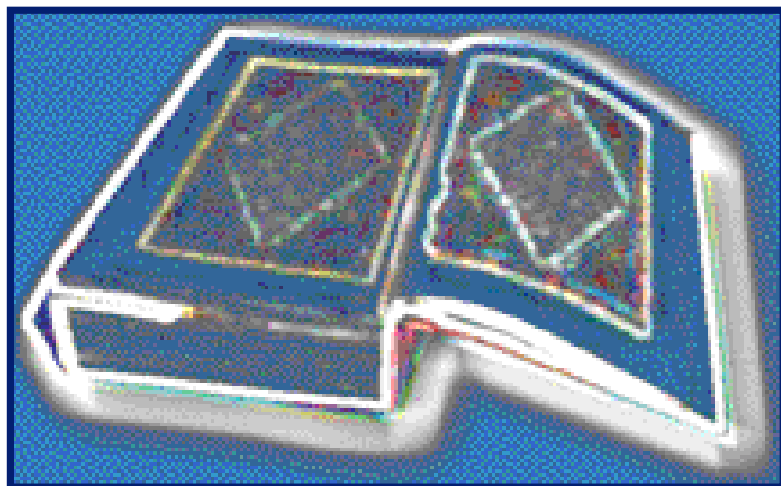*World Heritage Sites in Asia and the Pacific*

Without historical background, many of these Sites are merely old buildings, ruins and landscapes. UNESCO's Memory of the World Programme works in a similar way to the World

Heritage Convention. But instead of focusing on buildings and sites, it works to preserve globally significant documentary heritage such as rare and unique books, journals, audio recordings and photographs. These documents may reflect a period of momentous change in world affairs or make an outstanding contribution to our understanding of the world at a particularly important time in history.

Preserving natural and cultural heritage and documentary memories is not the obligation of only communities, governments and international bodies. Everyone can help to protect them. If care is not taken they could easily disappear, just like the now-lost Seven Wonders of the Ancient World.

Luckily, knowledge is a powerful tool. By creating Web sites or CD-ROMs about these global treasures you can learn about your heritage and the heritage of the world and help spread the message about the importance of these memories and marvels while making contact with other people who are interested in this vital issue.

Ruins and old buildings do tell some stories. But in the following stories you will see how documentary heritage helps to bring cultural and natural World Heritage Sites to life. The Memory of the World documents provide us with a glimpse into what went on in and around these places in the past, and why they are important for us even to this day.

Information from World Heritage Sites and Memory of the World documents is used in the following three tales to decode the past creating the atmosphere and describing the lifestyle of people living in those areas when the marvels flourished.

The fictional characters in these stories may be products of the imagination. But they were made to meet and interact with real life figures who helped to shape our world today.

In the first story the fictitious maidservant in the Imperial Palace – a World Heritage Site – met Tang Rouwang, a real life western astronomer who lived in China 400 years ago. Tang Rouwang was one of those who introduced Western ideas and science to China.

The second story set in Australia is based on real events recorded in Captain James Cook's Journal – a Memory of the World document. While the Journal is a record of Captain Cook's experience and views the tale is retold through the eyes of two fictional characters.

In the last story, the character who tells the story is a fictional friend of the reputed physician and poet Ibn Sina who lived in Bukhara around a thousand years ago. Bukhara, a World Heritage Site, was once an important stop at the crossroads of the Silk Route.

These stories will give you some great ideas on how Memory of the World documents can unlock the secrets and history of World Heritage Sites. Additional information on the Sites and the Memory of the World documents used to create these stories appear in boxes alongside the stories in the following pages.

China: The Calendar Crisis in the Forbidden City

There was no denying it. The fire that destroyed the Five Phoenix Tower was an omen. Despite our frantic efforts, the roaring blaze snaked through the halls like an angry chimera. Tongues of flame transformed the wooden beams erected two centuries ago to ashes. Scorching heat peeled imperial yellow paint from the tiles. Vital parts of the Forbidden City, home to China's emperors, empresses and concubines since 1420 were reduced to ash. Embers glowed ruby red through the pall of smoke that obscured the skies over Beijing.
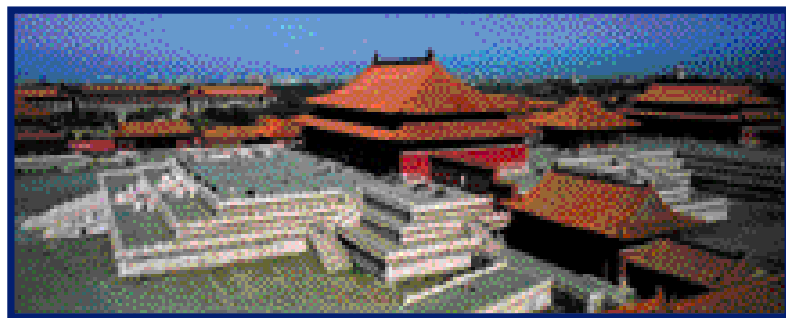
Looking back now it was obviously a warning. But even those who suspected it then stayed silent, fearing the wrath of Emperor Kang Xi or the imperial astronomers. But the celestial signs cannot be ignored. Others soon followed. A powerful earthquake

The Forbidden City

leveled parts of the city, taking with it many lives. Then a comet trailed brightly through the heavens, clearly visible to the naked eye. The royal astronomers had failed to predict its appearance.

Their lack of foresight shocked the Imperial Family and the people, relying as we do on their knowledge of the skies to determine the precise date for planting and harvesting crops, the most auspicious time for sealing marriages or holding ceremonies. In fact the solar calendar governs almost every aspect of our lives. By that I mean the lives of the Imperial Family, and subsequently my duties and those of the hundreds

The Forbidden City in Beijing, a UNESCO World Heritage Site which was built over 14 years in the early 15th century, is the world's largest palace complex. It was the seat of supreme power in China for over 500 years being home to 24 emperors of the Ming and Qing Dynasties. Its nearly 10,000 rooms now mostly open to visitors house rare treasures and great works of art.

The numerous gates, altars, bridges, parks and buildings in the Forbidden City have meaningful names such as the Gate of Supreme Harmony, the Palace of Eternal Spring and the Hall of Heavenly Peace.

of other palace maids. The activities of the imperial officials also revolve around the study of the sun, stars and moon as the basis of the all-important almanac. In turn the calendar affects the lives of the millions of subjects of the Qing Dynasty throughout China.

For some time I stood mesmerized by the flames in front of me, until my friend Ling poked me in the ribs. "I-Fen snap out of it," she said. "We better get back to work, you know Xiao Mei is bound to be in a state." We raced off towards the Palace of Eternal Spring, where the scores of concubines whiled away their days, waiting to see if they would be the lucky one chosen to spend the evening with the Emperor. It was hard work cleaning up after the vain Xiao Mei, but I still counted myself lucky. Commoners were not allowed inside the Forbidden City, but I was raised within the palace walls to serve the Imperial Court.

Our absence had gone unnoticed amid the uproar that consumed the inhabitants of the Palace of Eternal Spring. The
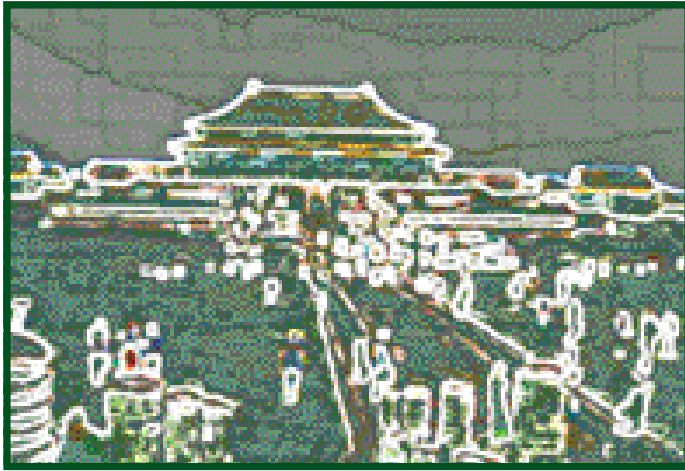
Empress had left moments before, summoning her most trusted royal officials to meet her in the Hall of Supreme Harmony – the biggest and most impressive of the rooms of the Imperial City. Normally the hall was used for ceremonies to mark great occasions: the Winter Solstice, the Chinese Lunar New Year, the Emperor's Birthday or the announcement of new laws and policies.

Xiao Mei was gossiping animatedly with a friend. Apparently the Empress had requested an audience with the Emperor this evening, to plead with him to spare the life of a famous German priest, known as Tang Rouwang. By doing this she hoped to put an end to this spate of terrible luck, which had dogged the imperial family ever since the priest was condemned to death.

Xiao Mei noticed me out of the corner of her eye. "What are you doing wasting time and listening in on my conversation? Get to work girl and clean up this room!" she ordered. The concubine hurried out of the room in search of more tidbits of gossip. I tried to suppress

The *Confidential Records of the Qing's Grand Secretariat,* a Memory of the World document, tells of the many significant events in the Chinese history during the first five centuries of the Forbidden City's existence. One such event concerned the western and Chinese concepts of astronomy.

Tang Rouwang, a German, was a priest who became Director of the Imperial Board of Astronomy. He worked in the palace for 20 years and was the only highly successful foreign priest in China. He lived for 40 years in China.

the hope that rose within me, as I hurriedly tidied the silk cushions and arranged a set of milky mother of pearl mirror and combs on the oversized teak chest.

Tang Rouwang came to work in the Palace many years before I was born. His real name was Johann Adam Schall Von Bell, but he so impressed the previous Emperor with his astronomical prowess, especially his accurate foretelling of a solar eclipse, that he was given a Chinese name and joined the Bureau of Astronomy. Eventually his powers to predict the movements of the sun and moon, his mathematical skills, not to mention his fearsome knowledge of canon making, led to his appointment as Chief Astronomer.

But it was not Tang Rouwang's astronomical knowledge that endeared him to me. One day several years ago I had slipped while cleaning the stairway in the Hall of Preserved Harmony. Tumbling down the steps, my foot coming to rest upon the enormous marble carving of nine dragons. Punishment for touching this most holy of statues was death. Tang Rouwang witnessed my fall, but instead of calling the guards he gently helped me to my feet and went quickly on his way, leaving me amazed, shaking, and indebted, in his wake.
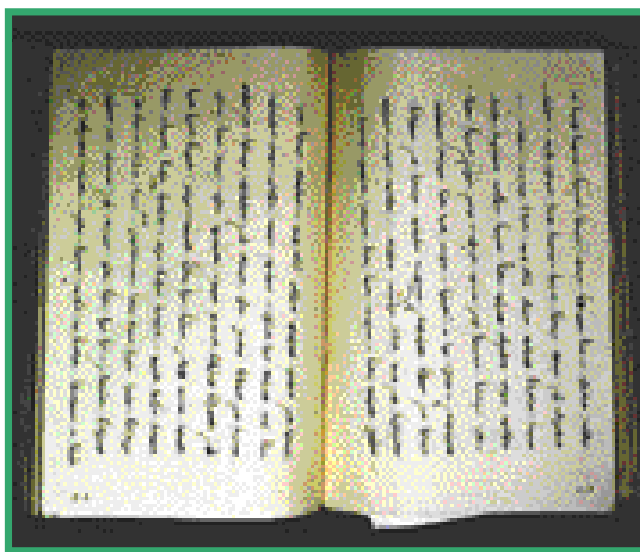
Despite his privileged position in the court, if you looked closely into his lined face you could see that Tang Rouwang was a troubled man. While the priest was friends with many of the astronomers, he also had some powerful and jealous enemies. Tang Rouwang was in his seventies now, old and frail, but he still was viewed as a threat. The seething resentment only increased after he refined the solar calendar to take into account leap years and other factors. Just months ago, a rival

astronomer Yang Guangxian took legal action against the priest. The court ordered Tang Rouwang to be beheaded. But now the signs from the heavens were clear to all. The fire, the earthquake, the comet – all were messages that the ruling had angered the gods.
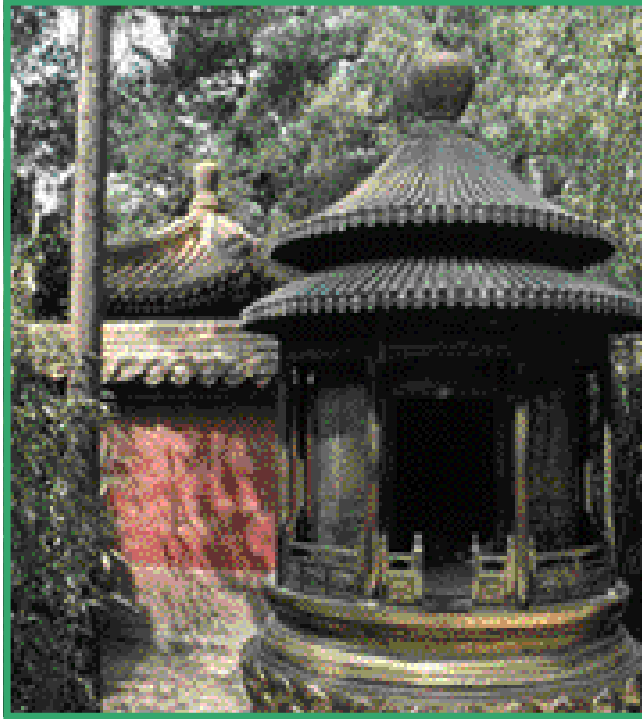
Despite the good intentions of the Empress, I knew her petition for mercy stood little chance against the power of Tang Rouwang's enemies. Would the Emperor heed the celestial signs that had wrought such destruction, or would he be swayed by envious officials and the regents who ruled in his name?

Tang Rouwang's Calculation of the Lunar Calendar

I was not normally a rebellious girl, although Xiao Mei often scolded me for daydreaming instead of attending to my duties. But with the day of the priest's execution looming, I resolved to let him know that there was a slight glimmer of hope. I made my way swiftly back to the still burning remains of the Five Phoenix Tower, which stood at the southern entrance to the Forbidden City. A large crowd had gathered outside the gate. Old women were weeping, palace officials were rushing to and fro, guards were ferrying water back and forth, confused townsfolk wanted to know why there had been so many tragedies of late. I took advantage of the smoke, noise and mayhem, and slipped outside.

It was not far to Beijing prison. It was rumoured that Tang Rouwang was locked in a northern cell, from where he could see the beautiful Palace and reflect on just how far he had fallen. Sure enough the elderly priest was gazing through the bars at

Inside the Forbidden City

the clouds of thick black smoke above the Forbidden City. "Tang Rouwang," I whispered. The startled prisoner peered through the small barred window – no doubt he had long forgotten about me, a simple palace maid. "The Empress is to plead for your life – she knows the fire is a sign that the heavens are angered by your punishment." Tang Rouwang made no response, but his watery blue eyes stared even more intently at the sky above the palace. I turned away, somewhat dejected, when he called in a low voice. "Young girl, wait...take this message to the Empress. Bless you my child." I grabbed the scrap of paper and ran off.

Arriving back at the Forbidden City, I was relieved to see the chaos had not abated. The distressed crowd had swelled, the guards were exhausted and covered in ash. I spotted two harried officials making their way with difficulty through the unhappy throng. I stayed close to their side and walked right in, glad for once that nobody ever paid attention to mere palace maids.

I raced to the Palace of Eternal Spring. Xiao Mei, ever mindful of her willowy figure, hadn't touched a box of delicacies brought from orchards in the Emperor's northern summer palace. I placed the priest's note inside the box. I couldn't make head or tails of the ragged scrap of paper, covered in strange figures, long equations, and diagrams of the moon,

which looked like it was being eaten by a dragon! I smoothed my hair, took a deep breath and headed off to the quarters of the Empress. One of the most senior maids was standing at the door. I meekly handed her the box, explaining it was a gift from my mistress to hers, to be delivered immediately. With that I went back to my duties. I had done all I could. It was now in the hands of the gods.

Later that night I lay in my small cot, restless, the events of the day racing through my mind over and over again. Suddenly my friend Ling appeared at the door. "I-Fen! Come Quick. It's another omen!" I scrambled out of bed and raced to the courtyard. I could hardly believe my eyes. High in the night sky, the moon was being swallowed by darkness! Concubines, court officials, maids and guards stood silent, gazing in stunned astonishment at the lunar eclipse. My heart leapt as I remembered Tang Rouwang's note and it's drawing of the moon being eaten by a dragon. If the Empress received the note, she must know that the priest had once again foretold the movements of the heavens! Within hours the news spread like wildlife. Emperor Kang Xi had decided to spare Tang Rouwang's life.

It was long after midnight and despite my exhaustion, I couldn't sleep. Wandering aimlessly through the empty halls, I came to a halt before an ornate calendar. According to the charts, today was to be an auspicious day, bringing luck to those who had taken risks to help others. I smiled, and hoped Tang Rouwang was smiling too.

Australia: Tales of Two Travelers

On Lizard Island, a young warrior was squaring off for a long, tough and bitter battle. His opponent was smaller and older, but wily and cunning. Recognizing that this would test his wits and powers of endurance, he decided to try bribery.

"Aww come on Mum. I'll bring you back some of that black bee honey that you like," Nuri entreated.

The Great Barrier Reef

"No way! I've had enough of you gallivanting around. Last time you took off up north for a whole month. You can stay and do some work for a change," said his mother, busy repairing a fishing net. In all fairness young Nuri did have a habit of going walkabout. He had paid close attention when the Lizard Clan elders spoke of how to navigate long distances using the stars and moon, how to find fresh water and bush food like white ants, or how to catch crabs in the teeming reefs. Nuri had put this knowledge to good use on several occasions, and in turn incurred the wrath of his worried mother.

But Nuri had an ally. His uncle would soon visit his wife's relatives in the Turtle Clan, to trade stingray spears and nautilus shells for strong kangaroo sinew and red ochre. He would need help to carry the goods. Always interested in a chance to travel, Nuri was also keen to investigate rumours of the arrival of a huge vessel in Turtle territory. Not only was it much bigger than any bark canoe ever seen, there were about 100 white ghosts onboard! Of course all the clans know

there are ghosts and spirits all around, in the rocks, in the sea, in the trees, but these were strange ghosts, never heard of before. After days of Nuri badgering his mother, she decided to concede defeat, warning "You better be back soon Nuri, or you'll spend the next year scraping barnacles off every crab trap on the island!"

A few days later, Nuri was astonished by his first glimpse of a white ghost, and its laughable attempts to catch a kangaroo, as it blundered clumsily through the bush. But he would have been even more amazed to know the white ghost was in fact a living human being – a young man about his age.

Able Seaman William Parker had been assigned the unenviable task of catching a kangaroo for Captain Cook to study. William knew that the Captain kept a detailed journal recording the amazing animals, peoples and lands they encountered on their long voyage. The kangaroo was certainly among the strangest so far! However William would much rather have been helping

World Heritage Sites include a number of natural sites which are outstanding formations and habitats of endangered animals and plants.

The Great Barrier Reef is the largest of all World Heritage Sites, extending 2000 kilometres along Australia's northeast coast and covering 35 million hectares.

The Great Barrier Reef is home to over 1,500 species of fish, and an amazing variety of corals, crustaceans, sea urchins and marine plant life. Endangered dugongs and turtles graze in its sea grass beds. It is also a breeding ground for humpback whales.
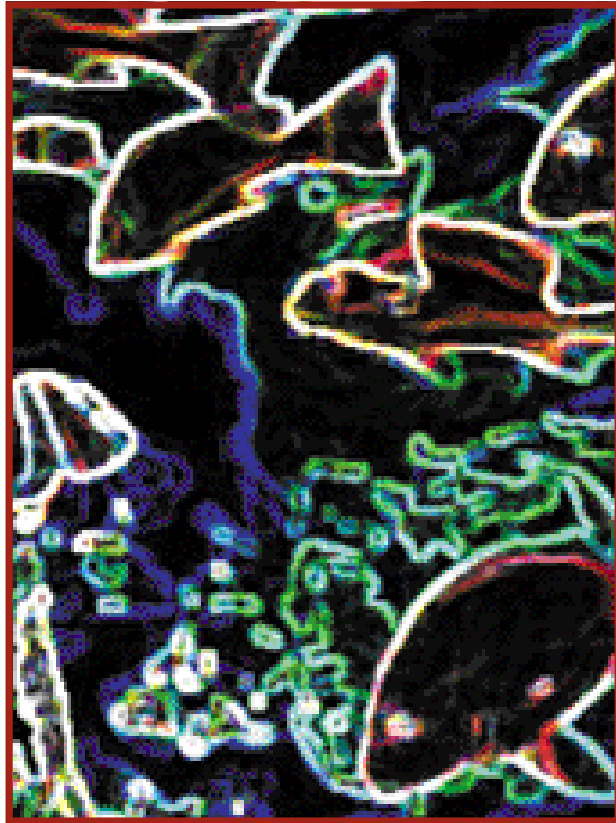
Between 1768 and 1771 Captain James Cook and the crew aboard the HMB Endeavour undertook a voyage, the first from Europe to circumnavigate New Zealand and chart the east coast of Australia. The HMB Endeavour spent almost a year from October 1769 to August 1770 exploring the waters and coasts of the two countries. James Cook kept daily records of the voyage.

The Endeavour Journal of James Cook, a Memory of the World document, is one of the first written records of the peoples and flora and fauna of the South Seas.

to repair the HMB Endeavour, which was still leaking after crashing onto the maze of reefs just off the coast almost a month ago. After several unfruitful hours, William trudged back to the beach camp, his mind turning as it frequently did to dinner. William loved journeying the seas, but he was mighty tired of the shipboard fare. Since landing, they had managed to harvest only a few poor roots and unappetizing beans from the surrounding bush. The Captain, sitting under a tree with his trusty journal, obviously felt the same way. He mentioned to the first mate that he'd already taken notes on the barren state of the land, which he was sure could not yield much to support a man. William wondered if the Captain was also dreaming of roast beef and jam pudding, as he resigned himself to yet another meager and none-too-tasty supper.

Not too far away Nuri was looking forward to a feast with the Turtle Clan. Yams, kangaroo, wallaby and scrub turkey wrapped in leaves were
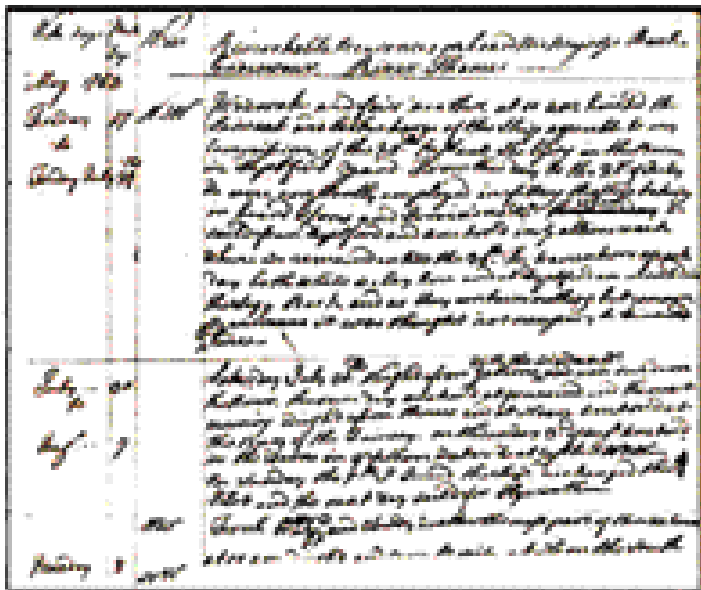
baking underneath heated stones in the fire pit. Suspended over the flames were fish, sea snake, crabs and octopus that Nuri and his uncle had brought from the plentiful reefs around Lizard Island. There were also wattle seed cakes with nuts and black bee honey to look forward to. Nuri wondered if he could eat it all and still be able to dance in this evening's corroboree. The corroboree was aimed at bringing luck to the party of warriors who would attempt contact the white ghosts tomorrow. Of course they would be polite and hospitable to the visitors, as custom demands, but the Clan was keen to find out when the visitors would be leaving their shores and their rich territorial waters.

It was early morning when the group of warriors slipped silently out of the bush and approached the beach camp. William and his crewmates stared nervously at the dark men, their lithe bodies adorned with stripes of red ochre and white clay. Under instructions from the Captain, they kept their muskets stowed and handed over a welcoming gift of fish freshly caught that morning. Although he couldn't understand their words, William could tell the group was pleased by the fish. Despite the warriors' fearsome appearance, their voices were soft and melodious and they appeared to be peaceful.

Intrigued by this first encounter, William tried to learn as much as he could about the natives during their visits to the

The Endeavour Journal of James Cook

camp. He felt he was even becoming friends with an inquisitive young warrior, about his age, whose body paint differed somewhat from the others. William found that the youth could repeat basic words spoken to him, but the young sailor could not make heads or tails of the aboriginal tongue. "Sorry old boy, I just don't get it. What do you mean by "nuri, nuri," said a baffled William, "What a great opportunity to bring civilization and comfort to this kindly fellow's barbaric life," he thought.

"I don't understand," said Nuri to his uncle as they sat around the fire that night gazing at the milky stars. "The white ghosts would be much better off if they didn't wear those strange skins during the heat of the day. They're always sweating and their faces turn bright red! They don't know how to catch stingray and that friendly white ghost turned green when I offered him some tasty sea snake to eat." His uncle agreed the white ghosts certainly behaved strangely, and while they seemed harmless, surely it was time for the visitors to return to their own land.

The next day a group of warriors paddled their bark canoe out to the Endeavour. Nuri wanted to join them, but he was ordered to keep watch over the spears that had been left on the beach as a sign of courtesy. Nuri waded in the calm shallows protected by the inner reef, looking for crabs, sea urchins and clams, as schools of tiny fish darted through the

clear blue waters. He was soon surprised to see the warriors paddling furiously towards the shore. Even from a distance it was clear they were angry and upset. Yuugu, the strongest of the warriors, jumped out of the canoe, ran to the white ghosts' camp and set fire to the tents. One of the white ghosts picked up a strange iron stick. It made a loud bang and sparks flew into the air. Yuugu stumbled, blood streaming from his leg. The warriors hastily dragged him into the bush and Nuri ran with the men back to consult with the Turtle Clan elders.

Yuugu sat nursing his injured leg as the clan elders soon gathered to hear the tale of what the warriors had found onboard the Endeavour – scores of sea turtles stacked on the deck. The white ghosts had broken one of the Turtle Clan's most sacred taboos, taking their totem animal from its rightful home in the blue waters surrounding the reef. The warriors had demanded the crew hand over the turtles, but to no avail. After a brief discussion the most senior of the clan elders decided to make one more attempt to convince the white ghosts to hand over the turtles.

William rushed to put out the flames licking at the edge of the mess tent. His ears rang and acrid smoke filled his nostrils as the sailor next to him let fly with a volley from his musket. "What could have gotten into the natives?" he wondered. "We offered them bread, but no, they had to have those darned turtles!" William and the other sailors had just finished mopping up the mess when the warriors returned, heavily armed. William looked on anxiously as

An aboriginal dancer

the group came to a halt some 100 metres away, an old man, carrying only a long stick, approached the camp. Captain Cook, keen to resolve the conflict, used hand signs to convince the man that the crew came in peace. The old man, his forehead and cheeks lined with three straight scars, seemed to understand and a truce appeared to have been reached. The warriors remained silently at the edge of the camp for a few more hours, before melting back into the bush.

For the next three weeks William waited, and waited for the warriors to return. He had hoped to swap a cap with the friendly young warrior, perhaps in return for one of his shell bracelets. William thought with a tinge of regret, that it would have made a nice memento. He noticed that Captain Cook was also perturbed by the reaction of the aboriginal men, and was often seen staring intently into the bush where the warriors had vanished, before turning diligently to record the events of each day in his journal. But William didn't have as much time to ponder the sudden turn of events, as the last repairs were being made to the ship. The young seaman was pleased when the Endeavour finally set sail again, threading her way carefully through the labyrinth of reefs. For William nothing could be finer than to travel the seas on this epic journey.

Soon after the unpleasant incident with the white ghosts, Nuri returned to his own clan on Lizard Island. For hours on end, his younger brothers and sisters would gather in awe as he regaled them with tales of the strange visitors, their dangerous and noisy iron sticks, their red faces and tasteless food.

Life on the island continued as before. Nuri's mother still wove sea-grass baskets for him to collect clams. As the family ate their evening meal, Nuri's mother gazed at the first faint stars appearing on the distant horizon, she saw the signs of change to come. The white ghosts were gone now, but one day they would return.

Uzbekistan: Rhymes and Remedies on the Silk Road

Ahh Bukhara! Through these many years, fleeing for my life or feasting among untold riches, in far-flung oases and distant windswept deserts, I have never been able to forget you. How I dreamt of this day, and now it is here. I am back once again in my childhood home, in Bukhara – Jewel of the Silk Road.

"Hey, old man! Are you drunk? Get out of the way." I was abruptly jolted from my reveries by a busy caravan of spice traders. Yes, I had to admit it - this was more like the Bukhara I knew.

Bukhara, like its sister city Samarkand, has always been full of life – the good, the bad and the ugly so to speak. The grumpy leader of the spice caravan definitely fell under the ugly category. He glared at me balefully as the caravan laden with fragrant cloves, cinnamon and saffron rumbled past. He, like so many merchants before him, traversed the Silk Road, buying silk in China, spices in

The Ark Citadel, Bukhara

India, trading them for carpets in Bukhara, before journeying on to buy silver in Persia and Turkey. The train of camels stirred up clouds of dust as they entered the gates of the fortified Ark Citadel. Built in the 1st century, these gates had protected the citadel for one thousand years. It was enough to make me, at this age, feel like a spring chicken! The passage

The World Heritage cities of Samarkand & Bukhara in Uzbekistan were vital links in the ancient Silk Road trade route stretching from China to Persia (now Iran) and Turkey. Traders' caravans loaded with colourful silks, jewelry, fragrant spices and other goods passed Bukhara to reach major trading countries all the way to Rome, Italy.

Bukhara is at least 2500 years old and is still vibrant today. This most complete example of a medieval city in Central Asia contains many historic monuments, including a masterpiece of 10th century architecture, the tomb of Ismail Samani's.

of the years had been weighing on my mind of late – ever since my good friend, the famous physician and poet, Ibn Sina had passed away.
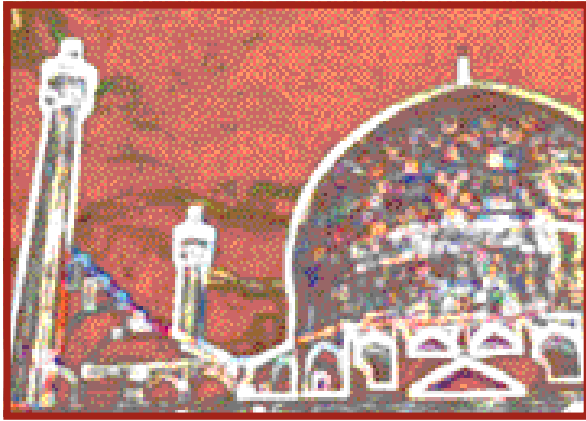
Ibn Sina grew up in a small village just outside Bukhara. We met when he was just five. His father had brought him to Bukhara to study the Holy Koran. Ibn Sina was a few years younger than I, but his skills in reading, writing and arithmetic already surpassed mine. By the age of ten he knew by heart the entire Koran – a feat that takes most mere mortals a lifetime, or longer! At 13 he began studying medicine, and by 16 he was well known as a physician. Despite his great intellect, Ibn Sina was not adverse to a bit of fun. In my case, much to my father's despair, I preferred the "school of life" to formal studies, and it was through our mutual fondness for good food, wine and merry-making that Ibn Sina and I became firm friends. While Ibn Sina was a genius, of that there's no doubt, he was curiously lacking in the ability to keep his affairs in order, often forgetting which day of the week it was, to whom he had loaned or owed money, or where

he last put his coat. Over the years I took over these duties and joined Ibn Sina on his adventures, which took us half way across the globe, to exalted positions of power in royal courts, and even on the odd occasion, to spells in damp and cold jails! It was a tough life, but it was never, ever, boring. But now Ibn Sina is dead, and I want to spend my last days with my family, my sister, her husband and their son, my dear nephew Jadid.

I had written ahead of my return, and arriving at my sister's home I had high hopes that I would be greeted with a feast, some music and laughter with old friends. Instead a melancholy air hung over the house. It was shuttered, quiet and dark. My sister opened the door, her face lined with worry, eyes red and raw. In a shaky voice she explained that my beloved nephew was gravely ill and that scores of Bukhara's best doctors had failed to find a cure. Jadid, usually a mischievous and energetic lad, lay by the

This tale was created using information in Uzbekistan's Memory of the World Collection of the Al-Biruni Institute of Oriental Studies. This Collection holds works by the great scholars, poets, scientists and thinkers of Central Asia, and the Near and Middle East such as one of the only three copies of the *Book of Sindbad* and a number of works by Ibn Sina.

Ibn Sina, a poet and physician, started studying medicine when he was 17 years old. He noted the relationship between emotions and physical conditions and that music had physical and psychological effect on patients.

window exhausted, his skin burning like fire, unable to eat. The prognosis was not good – he would be lucky to survive the week.

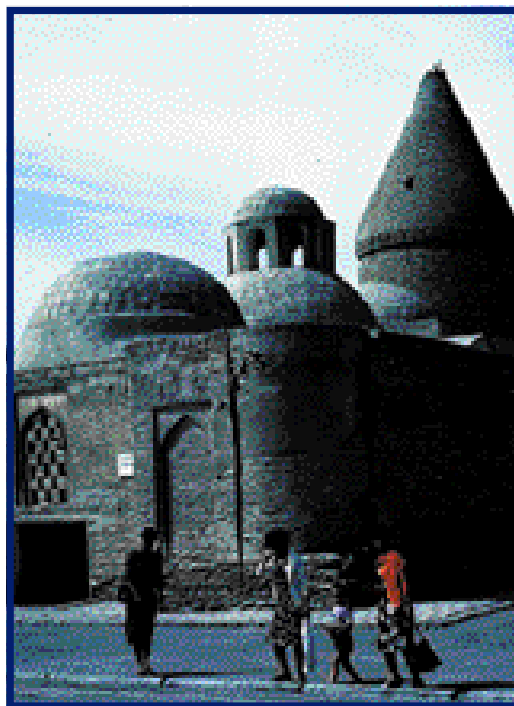My sister pleaded with me, surely after all these years accompanying the world's most renowned physician I must be able to save her son. Now more than ever I missed the counsel of my good friend Ibn Sina – but I was not without hope. I had brought with me scores of trunks filled to the brim with Ibn Sina's scholarly works. It was his dying wish that they be housed for posterity in Bukhara's famed library. I began searching feverishly for clues to help save Jadid.

I began first with the records of one of Ibn Sina's most famous medical triumphs. It was here in Bukhara, I was just 21, Ibn Sina was only 17, when he was summoned to the palace late at night in a last ditch attempt to save Sultan Nuh ibn Mansur. One by one Bukhara's most prestigious doctors had given up hope of curing the sultan, but young Ibn Sina proved them wrong! In return for restoring his health, the ruler offered to grant Ibn Sina any wish he desired. Ibn Sina asked not for wealth or power – but only to be given free reign in the Sultan's richly stocked library. Ibn Sina's taste for the good life was outweighed only by his thirst for knowledge! Unfortunately the Sultan's symptoms differed greatly from Jadid's and were of no use in my quest.

I pored through Ibn Sina's famous medical encyclopedia, the Qanun Fi Al-Tibb. Tuberculosis, phthisis, anklostomiasis, jaundice, colic, cancer, remedies, anesthetics, powders, leeches, tablets, plasters and ointments. The book's one million words danced before my weary eyes. I laboured on, working through

the night and the next day, barely stopping to eat or drink, much less sleep, but found nothing that helped Jadid.

Eventually my sister persuaded me to go for a walk to clear my spinning head. Depressed, I made my way to the colourful and chaotic *souk* to search the market for herbs and powders that might sooth my nephew's fevers. Merchants and dealers haggled loudly in the shadow of the Tomb of Sultan Ismail Samani. The mausoleum's intricate red brickwork glowed in the afternoon light. People from all walks of life, beggars and princes, would come to the tomb, pray, and leave request for help on the grave. It was said these prayers were always answered the very next day. I too said my prayers, despairing, as Jadid's short life ebbed slowly away.
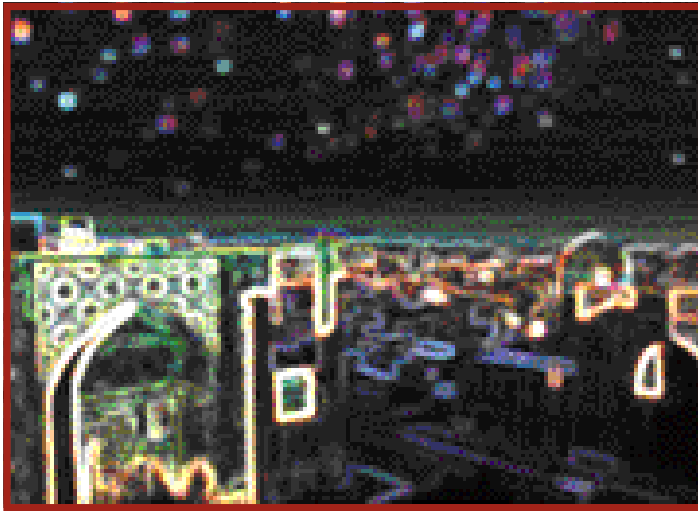

Chasma Ayub Mausoleum, Bukhara

Returning to the house I sat watching over the boy, casting my mind back to some of Ibn Sina's more unorthodox cures. The famed physician was a great believer in the connection between emotions and physical health. He once cured the prince of Jurjan of a malady that had baffled local doctors. Ibn Sina diagnosed lovesickness! Once reunited with a young noblewoman from a neighbouring province, the prince was cured!

But that would not help poor Jadid. Again, I searched through Ibn Sina's books, all to no avail. My nephew, his breath strained and shallow, lay shivering yet hot to the touch. I tried to hide my sorrow and decided at least I could provide him with some soothing distraction. I opened up a book of verse by Ibn

Sina, for the man known as the prince of physicians was also a great philosopher, mathematician and poet.

I had just begun to read when a scrap of paper fell from the pages. I bent down and picked up the ragged note, scrawled hastily in Ibn Sina's spidery script. To my astonishment it was a description of an illness, fitting that of young Jadid's. It suggested a parasite, too small to be seen by the human eye, borne in water, could cause symptoms similar to Jadid's. Yes, my sister confirmed she had scolded the boy just weeks ago for swimming in a none too clean pond. Could this be what I was looking for? Hastily I ran to the *souk* and returned with the tonic prescribed by Ibn Sina. Now we could only wait. And pray.

After a long and anxious night, the tired and thin boy smiled wanly at his mother and asked in a faint voice for water. It was the first time he had spoken in days. It would be some time before he was back on his feet, but the worst appeared to have passed.

Relieved, I left Jadid's side and wandered back once more to the magnificent tomb of Ismail Samani. I wondered if it was the Sultan or Ibn Sina who had heard my desperate prayer. Perhaps their souls are together now in eternal paradise. Knowing Ibn Sina as well as I do, I expect they are feasting, laughing, and loudly debating science and philosophy, as they watch over from above.

Memories and Marvels in Your Own Backyard

From the previous chapters, you have learnt about some of the many amazing UNESCO World Heritage Sites and Memory of the World documents. The fact that the cultures, customs and lives of great persons of the past were somehow documented and are still accessible today makes it possible to tell interesting and informative fictional stories. By so doing, the past has been brought back to life, and the stories help readers to visualize and appreciate a segment of the past. Photographs of World Heritage Sites without proper context – no matter how colourful – will seem lifeless. The three examples set in World Heritage Sites in the Asia-Pacific region highlight the links between the sites and the documentary heritage showing how the two sources can provide valuable and unexpected information about places and people.

If you look closely you will also find interesting and unique heritage in the area in which you live. In fact there are likely to be Memories and Marvels in your own backyard which could easily be included on a multimedia CD-ROM or Web site.

Think about the cultural, historical, architectural and natural sites in your area. These could be nature reserves, parks, gardens, temples, mosques or churches, historical buildings, monuments and buildings with unique architecture. Visit the

local museums for inspiration and initial information. Browse the Internet for additional materials. You could take photographs, create paintings or sketches of these sites and scan them for use in your multimedia project. Postcards could also be used. If you have access to a video camera you could include short video clips in your project.

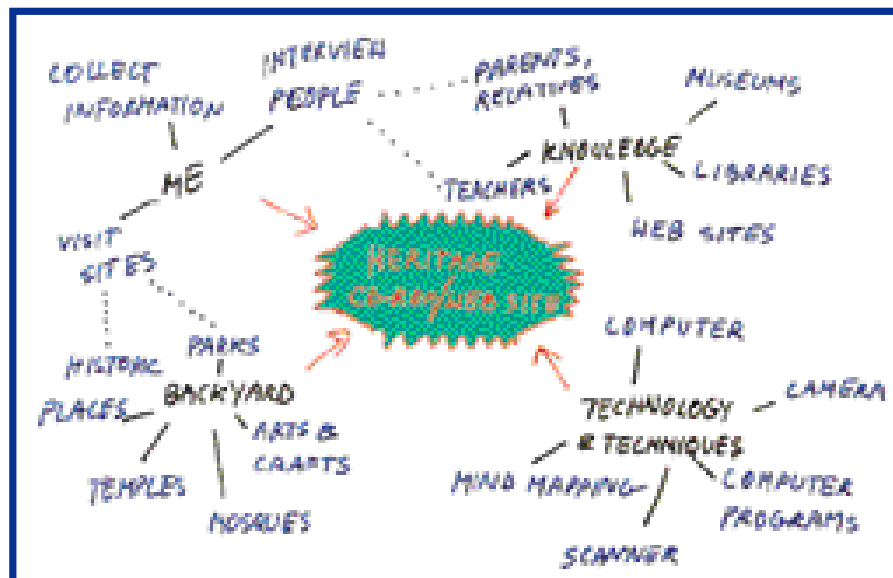*This restorer of old manuscripts could be great to interview*

You will also need to explain the significance of these sites, or "uncode" them, for the end users of your project. To create text for your project use information in newspapers or books at libraries. Also consider talking to local people about these sites. Park rangers, environmentalists, botanists and wildlife lovers could explain the importance of natural sites. Journalists, architects, historians, religious leaders and history or art teachers may be able to provide you with insight into significant historical and cultural sites, their architecture and symbolism, for instance. You could even interview them using a tape or mini-disc recorder and include audio clips in your multimedia project. Perhaps your parents and grandparents as well as other older relatives have interesting tales to tell about a local monument. They may be able to describe the sight, the sound, and elements appealing to the other senses. Heritage can be much more than just sites or documents.

Artists can also be a great resource. Photographers or painters might let you use their work on your Web site (make sure it is properly credited). Musicians, singers or choirs may have traditional songs that you could record and use to add

atmosphere to your CD-ROM or Web site. Poets, writers and storytellers can also be good sources of information. If you find a poem or story about a local site you could use it as text, or recite a passage and record it as an audio file. You could even create a poem or story yourself.

If you are having problems thinking of significant heritage in your area draw a quick mind map. Before too long you will discover a wealth of Memories and Marvels in your own backyard! You can have great fun creating Web sites or CD-ROMs about cultural, natural and documentary heritage, be it a local treasure or one officially recognized by UNESCO. Remember that heritage in your own area, whether historic or present-day, has great stories to tell. You should use the communication tools described in the previous chapters to better understand and learn more about the heritage of the Asia-Pacific region so that you will be able to cherish, promote and help to protect them.

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Memories and Marvels

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