INTERPRETATION

Multimedia

August 1996

INTERPRETATION

The next issue of Interpretation will look at
carrying capacity and is due out in December

MULTIMEDIA

*Cover Photo: Screen-grab from English Heritage/Intel Stonehenge Interactive
Background: Images from the 'Information Age' at The Smithsonian, Washington.*

EDITORIAL

In the good old days multi-media was something you did in the art room with oils, water colours, bits of string and sticky-backed plastic. Today the likes of Peter Greenaway are extolling its virtues on "Kaleidoscope" as the new art form to replace film, perish the thought. Most of us when pressed would probably come up with a definition of multi-media that encompassed a combination of media including text, still or moving images, such as computer graphics, slides, film, video or print illustrations and high quality sound including voice narration, music and sound effects. Within this definition would fall such mainstream media as books and television. However to many, multi-media interactives means quite simply computers. At the simplest level of inter-activity a visitor touches something then something happens. What they touch can vary wildly as can the method of inter-activity.

Traditional low technology multi-media can combine a mixture of mechanical and optical devices as do the Victorian phenomena of phantasmagoria and pepper's ghost. The latter was used to great effect in the diorama at the relentlessly high tech Sellafield Visitor Centre. Nowadays, most people think of multi-media as a computer-driven design solution, generating graphics on interactive screens and supporting them with text. However, are there more effective and appropriate ways of communicating with our audiences? Low technology interactives can generate tremendous enthusiasm and switch-on enquiring minds as Rob Powys-Smith found at the All Hands Gallery. To this end the well crafted narrative and quiz format are as important as the use of appropriate technology to capture and retain people's interest.

The choice of computer driven high technology does not guarantee an effective interactive display. Above all the ideas must be good (see the City Exploratory Proposal for Norwich) and high standards must be adhered to in the quality of production and programming (see Sally MacDonald's article on the Life Times Gallery at Croydon and Dave Patten's sound advice from the Science Museum). It is a complete waste of resources to create a poor quality interactive display just for the sake of having one. Yet all our guidance on lottery funding, millennium bids and European projects emphasises again and again the inclusion of multi-media interactives. Our visitors are becoming increasingly sophisticated in their tastes. People expect the quality of graphics, animation and sound tracks that they see each day in the broadcast media. Throughout this issue you will read of the importance of the balance between computer-generated images and "the real thing". At Croydon, The Science Museum, Dover Castle and hopefully soon in Norwich you will see examples of multi-media being used to enhance access to collections rather than overwhelm them.

Computer interactives have been described as the museum equivalent of sound-bite politics, part of the "lets have a plasma-ball and call it a science centre" syndrome. Above all effective multi-media technologies are the servant rather than the master of a good story line and access to high quality data. Effective technology becomes invisible rather than a barrier to communicating a message. In the future ubiquitous or invisible technology will not betray itself by a keyboard or a mouse, but will be used as instinctively as a pencil.

Marion Blockley

MULTIMEDIA
FOR THE TERRIFIED LUDDITE

All multimedia computer based systems are composed of the 'hardware' (or the 'delivery system') - the physical machines such as the computer monitor and keyboards with which we are increasingly familiar and 'software' a modern jargon word which means the controlling computer programme and your information 'store'.

The typical multimedia package will include:

▶ A computer to process the movement of your information from storage to an output which the visitor calls up through an access point e.g., a keyboard or touchscreen.

▶ A storage medium, usually composed of a variety of hard and 'floppy' discs which contain, in digitised form, all the information, be it text, audio or visuals, which makes up your message.

▶ An access point or points through which your visitors can tell the computer to 'call up' the messages they wish to see.

▶ Output points through which the various messages are seen, heard or read by the visitor.

All the above are often built into an attractive 'housing' or cabinet that is easy to use by the visitor and allows the system to be maintained properly.

How Multimedia Exhibits Store Your Message

New computer technologies can store much more information in a smaller space than any other method. Not only that but they can rapidly search through

their 'filing systems' if they are well designed, and quickly display the results.

This filing system depends on converting your message, perhaps made up of sound, visual and text elements into digitised form. This is then stored on computer discs which do not wear, stretch or break like the familiar magnetic tape. Such is the quality of this storage medium that the quality of the information stored on the disc should remain the same for all your visitors. In computer parlance your information is stored in a Read Only memory (ROM) which cannot be accidentally changed or erased.

Because each element, including each frame of a video for instance, is uniquely identified on the disc the controlling computer programme can rapidly find it - this is what's known as random access memory (RAM) - and the system can display material virtually instantaneously.

The Computer Programme

The multimedia package then needs to allow the visitor to quickly get at and find their way easily through this treasure trove of information stored within its database. It is the job of the computer software engineer to both design the database store and a programme that can 'navigate' quickly through it when a choice is made by your visitor.

Much of the ease with which we use computers depends on how structured the information they have to get at is.

This will mean that your information is arranged in sections and layers - going from one subject or section to another and from less to more detail, within each section, with the computer displaying menus and choices at each stage. This allows the user to go backwards or forwards or sideways quickly, depending on the level of detail they want and if they get bored with a particular section, to find another by returning to a main menu. These menus and choices are all the visitor ever sees of the complex controlling software programme as it searches the disc store. These choices can be displayed appealingly either as words or symbols (icons) on a monitor screen which can be activated by pressing a key or touching the screen in a specific place.

Visitors and Multimedia

At this point it is worth considering who it is all for, after all the technology is only a means to an end, communicating messages and stories to a wide variety of visitors. Many of these visitors will know little about your site, others may be specialists or want to know more. These different levels of interest an desire can be catered for by different levels of detail in your information database. This 'layering' and how visitors can use it has implications for the design of the 'software' or computer programme and its storage of information, mentioned above.

Whilst many children and younger adults feel instinctively comfortable

using computer technology, many others do not. Such systems should be written assuming little "computer literacy" with an easy to use 'help section' allowing quick and easy access through, in and out of the information. Few adults want to be embarrassed by not knowing how to use the machine. Jargon words should be avoided or explained in a glossary section. The programme should easily re-set itself when a visitor decides to stop using it, and this may also help with children who will instinctively press every button in sight! Later in this issue Suzanne Spicer writes about her observations of good practice in America.

You may want to know who is using your multimedia package, to give a better idea of your visitors, perhaps where they come from, their levels of interest or other visitor profile information. If so these questions need to be considered when designing the software programme, which could then ask visitors to input various details about themselves. The Exploratory at Norwich provides a good example of the use of new technology to aid visitor management and marketing.

You should also consider how often you may want to update or change the information within the database as this has implications for the initial design.

Also, if you intend to sell copies of the database, an increasingly attractive option as domestic interactive CD players become more widespread, this has implications for software and database design. Brian Bath gives sound guidance on the development and marketing of CD-ROMs internationally from his experiences at English Heritage.

Accessing Your Messages

There are several ways in which visitors can select from the choices that you have set up in the information database. The most familiar is the computer keyboard, often with dedicated marked keys clearly signalling which keys allow which choices. Unmarked keyboards can be intimidating to those unfamiliar with computers.

Touchscreens are becoming more popular and familiar giving the visitor obvious visual clues - please do touch! Other options include a 'mouse' which can be manipulated by the visitor to control a visual cue on the screen which in turn operates various options in the information database; trackerballs and joysticks are also available.

Output Devices

The TV-like "monitor" screen displays the interpretation to the visitor and the quality of its resolution directly affects the user's appreciation of your messages, especially the images of slides or videos.

It's also worth considering whether any other outputs could be built in. It is possible to attach larger 'slave' monitors which display the interpretation to a wider audience than just the one visitor selecting the choices, making the multimedia package a group experience. These have been used to good effect at the Lifetimes Gallery in Croydon, and at Sellafield Visitor Centre.

It is also possible to consider letting visitors output certain interesting sections of your interpretation onto a paper copy (jargon term 'hard copy') although you will need to clarify copyright issues over the original material in your database first. See Suzanne Spicer's output from the information age exhibition at the Smithsonian Institution.

The quality of the audio outputs depend not only on the quality of speakers but their positioning within the building and how they relate to other exhibits. Sound spillage beyond the exhibition can be irritating and off putting to other visitors, especially if some sound segments are repetitious, like a computer game.

Housing the Multimedia Exhibit

How the multimedia package actually looks to a visitor involves considering more than just the screen and other outputs but also how the various 'boxes' look in your building. An attractive housing must encourage visitors to use the exhibit, possibly including some signing or an interesting title. It must also be comfortable to use, depending on whether you decide to let visitors sit down or use the exhibit standing up. The housing should also allow for easy maintenance and can be tamper-proof, as well as being easy to clear (see Suzanne Spicer's "Lessons from America"). The housing must also minimise sound spillage from any audio outputs beyond its immediate area. Equally the technology should not overwhelm its setting as emphasised in the Thousand Threads Project.

Working with a Multi-Media Designer

Good multimedia packages take time to put together. Probably the most time-consuming phase will be to select which themes and messages you want to communicate to your visitors. Then you will be faced with the task of writing any descriptive text or scripts and selecting complementary visual images, at Croydon this process took twelve years.

GUIDANCE
ON BRIEFING A DESIGNER

Firstly, what you intend to do should dictate the type of technology you use, not the reverse.

❱ How does it fit in to your overall interpretation?

❱ Is it a stand alone educational tool?

❱ Who is the target audience? What is their level of knowledge? Are they repeat visitors?

❱ Is it merely for entertainment?

❱ Will it consist of a single workstation or multiple outlets?

Should it be mechanical or audio visual? (Would your audience have just as much fun and gain more from pulling the signals in an old-fashioned signal box?).

❱ Does it need to be able to show graphics?

❱ Should it show black and white still images?

❱ Is the use of colour essential?

❱ Should it show moving images?

❱ Does it need a sound commentary?

❱ Is it important to be able to add new information at low cost at a later date?

Measures of Quality/Effectiveness

❱ Speed of Response - how long does it take the programme to start after the visitor pushes the button?

❱ User Friendliness - are the instructions for use and the menu design clear and easy to understand?

❱ Sound - Adujstment is critical - an empty room will echo, when it is full the sound will be absorbed by the crowd. Directional speakers will help to limit the spread of sound to other areas. Without sound the programme will seem much longer.

❱ Length of Programme - the average visitor concentration span is quite short, 90 seconds is a long time. The ideal is 60-70 seconds.

❱ Touch Screens - easy to use, but once the programme is activated can it be stopped? Is your programming good enough?

❱ Allow adequate time to provide your software producer with the script and illustrations (read Sally MacDonald's warning!).

❱ Accessibility - with CD-I display only a small number will be able to use the screens. (1) Spread your workstations to give everyone a chance to use them and (2) suspend large-screen 'slave' monitors above the workstations to allow groups to view the programme even if someone else has activated it.

Interactive Access
Should Provide:

❱ Visible store of images of objects, sites and landscapes

❱ Access to knowledge held by the staff

· ❱Access to information embodied in objects, sites and landscapes

The visitor should be able to:

❱ Get access to information through entry points that they choose themselves

❱ Move around it freely, by routes they determine, and to a level that they want

❱ Move on easily from the multi-media interaction to the collection, site or landscape

Should not:

❱ Have over visible technology at the interface

❱ Underdeveloped hyper media offering an over-friendly welcome, lots of buttons and menus behind which there is precious little information

❱ Information should not be so badly structured that it is hard to find your way round it

Where to go for Help

Collin, Simon. 1995 Multi-media Made Simple. Butterworth-Heinemann Ltd.

Francis, Richard et. al. 1992 Very Spaghetti: The Potential of Interactive Multi-media in Art Galleries. Sadly out of print but it can be borrowed from the Visual Arts Department, Arts Council of Great Britain, 14 Great Peter Street, London SW1P 3NQ Tel: 0171 333 0100

Hoffos, Signe. 1992 Multi-media and the Interactive Display in Museums, Exhibitions and Libraries. British Library: Library and Information Research Report '87. ISBN: 0-7123-3268-5. Excellent introduction and bibliography. Again sadly now out of print, but can be ordered direct from the British Library or at the CEI/SIBH Library in Manchester. Contact Phil Dagnall by telephone on 0161 247 1067.

IDIOTS' GUIDE TO COMPUTING AND MULTIMEDIA

Application

Refers to software programmes which make the computer do all those wonderful things you want them to do such as word-processing, accounts etc. Applications are also simply particular uses of computer software to implement specific desired tasks. This is usually achieved by writing application programmes or more often, by customising general purpose off-the-shelf software e.g., databases.

Authoring

A process or environment for developing or assembling a variety of interactive multimedia applications. Authoring languages can be used to produce public access systems, training materials, presentations etc.

Button-Activated Audio Tape

Tapes wear out quickly, the programme must be played in full each time, and any updating must be done using the master tape.

Button-Activated Video Tape

Same drawbacks as audio tape.

CD-ROM

This stands for Compact Disc Read-Only Memory and is a method for storing mass information directly descended from the audio compact disc. The massive capacity of CD-ROMSs could usher in developments which, at the moment, cannot even be guessed at. Particularly important in the storage of visual imagery.

CD-I (Compact Disc - Interactive)

Like a video disc, can be used to power touch-screens; can also be used with a tracker ball interface, which is an upside-down mouse, and works with an ordinary TV monitor. No additional PC is required so the hardware is less expensive than video disc. There is a single worldwide standard so any disc will play on any CD-I player. Production costs could be lowered significantly if museums pooled their resources and created a common programming template that could be adapted for multiple uses. The final disc could look very different and have a totally different content but have a common inner structure. Discs can be shared and can also be sold commercially. Photo-CD discs will play on CD-I players.

Database

A kind of filing programme for storing, sorting and retrieving information. A database is simply a large organised collection of information available in a variety of forms. Databases are designed to handle information with a regular structure. In manual systems, this kind of information might be stored in files, in an address book, or in a card index. The main advantage of a computerised database is that it allows you to analyse the current state of your data and produce very selective reports.

HyperCard

HyperCard is a multimedia authoring system incorporating elements of hypertext and hypermedia. HyperCard provides the average user with much of the power of object oriented programming via nearly plain English-style commands. HyperCard also provides an ideal media control architecture for driving other devices such as CD-ROM.

HyperMedia

Information presented in such a way that various bits of it are related to each other in a non-linear manner allowing for almost infinite cross-referencing. With the potential for graphic images and sounds Hypermedia is more relevant to multimedia than Hypertext.

HyperText

The very earliest version of HyperMedia which dealt specifically with text application. People freely mix the terms HyperMedia and HyperText.

Interactive Videodisc (IV)

A videodisc can store 54,000 single images or 35 minutes of moving film, or a combination of the two on each side. It can store 70 minutes of sound, either as sound-track to the film, or as wild sound. The sound tracks can alternatively be used to store 300 megabytes of digital data for example, catalogue cards, entire books or articles or microcomputer programmes. When linked to a microcomputer this becomes a searchable data bank, comprising of textual and a visual database. This can be used to generate touch-screen programmes, usually through the combination of a video disc player controlled by a programme on a PC which is activated by touching the monitor screen. The initial cost of programming is quite high and the only way of updating the disc is to produce a new one.

Interface

The link between a computer and its peripherals or user. How the PC interacts with other equipment such as modems, printers etc., or how the PC interacts with its human user.

Multi-Layer Graphics

Using the analogy of images on plastic transparencies, a background layer and a foreground character animation can be created separately. As the background is static it need not be animated. The foreground animation can be layered on to the static background. HyperMedia exploits the potential of multi-layered information which can be comprised of text, sound, graphics, animation, video, photographs etc.

MultiMedia

The convergence and inter-mingling of a variety of technologies such as computers, video, CD-ROM, sound graphics, animation etc. Many applications make use of hypertext or hypermedia software such as HyperCard which allows an amazing amount of freedom in developing applications and linking all the various elements mentioned.

RAM

Random Access Memory or simply random access. This represents the working space a computer uses when it is performing tasks. RAM is a short-term memory and is used to store and manipulate both commands and data.

ROM

Read Only Memory is part of the computer's internal memory store which has specific instructions indelibly etched onto it e.g., the operating system instructions are carried in ROM.

Scanner

A device for converting photographs or other artwork on paper into a machine-readable form. Scanners can now be used with OCR, or Optical Character Reading software which allows document text to be scanned into the computer and then manipulated and edited within a standard word-processor. Saves a lot of typing.

VDU (Video Display Unit)

This is the bit of a personal computer than looks like a television. In general, VDU refers to a device having a keyboard and screen for the display of data.

LESSONS FROM AMERICA

Suzanne Spicer

In the autumn of 1995 I travelled to America to look at the use of multimedia interactives in museums and visitor centres. I looked at three main areas: the hardware used; how the software was developed and the environment in which the interactive was located.

Hardware

Apple Macintosh or PC? - there was no differential between the use and effectiveness of Apple Macs or PCs. The Computer Museum, Boston used both in their exhibitions depending on the sponsors involved and used perspex boxes to house the computer enabling visitors to see the sponsor's logo e.g., Intel, Unisys. They have found both to be as reliable as each other and had no preference.

Touch Screens - touch screens were used extensively throughout all the museums and science centres visited during the Fellowship tour. Trackerball was used occasionally and proved less likely to have maintenance problems but required the visitor to be confident in using it.

Videodisks - the use of videodisks in galleries was unanimously recommended as their record of reliability was excellent and it produced high quality video footage.

Sound - when a number of multimedia interactives are used in a gallery then there can be a conflict of sound. For example on the IBM stand in the 'Innovations' gallery at Epcot, Disney World there were many computer stations playing different multimedia programmes all with a high degree of sound. It was difficult for a visitor to hear the particular programme they were using.

One solution to this was used in the 'Changing Earth Weather Station' exhibition in the Franklin Institute Science Museum. The sound for each multimedia interactive was channelled downwards from a dish located above the interactive so those using the programme could hear clearly but once you moved a few feet away then no sound could be heard.

Visitor Access to Hardware - it was generally felt that the visitor should have access to as much hardware as was necessary for each particular multimedia interactive. If a keyboard was not required then it was not part of the exhibit. For example the Apple Mac stand in the 'Innovations' gallery at Epcot, Disney World where the keyboards were locked away in a drawer underneath the unit upon which the screen, computer and mouse were positioned.

The Computer Museum, Boston have found that where the visitor has access to the whole computer, then there was little damage but once access to certain parts was restricted then there was more damage! Partial access was a temptation. Likewise, once part of the exhibit was damaged, however slightly, then it tempted other visitors to extend the damage.

Maintenance - all those responsible for the development of multimedia interactives in galleries stressed the importance of building money into sponsorship bids for maintenance, ongoing development and improvement.

It was also thought essential that maintenance issues were considered during the design stage so enabling easy access when the interactive goes down. A bank of spares must be built up limiting the amount of time an interactive would be out of action.

All museums and science centres had full time maintenance teams of at least two members of staff. At the Franklin Institute Science Museum during peak times (such as Thanksgiving Weekend with 8,000 visitors per day) the team would constantly walk the floor testing all the multimedia interactives and remove or repair any within one hour of going down.

Software

Practical design - some elements that contributed towards a successful multimedia interactive included screens that changed quickly so keeping the visitor interested; touch screen buttons that depressed or sounded a click so the visitor knew their choice had been acknowledged; the inclusion of a restart button and command buttons that whenever possible retained the same function, position and design. This meant that a visitor did not have to relearn the functions of the buttons at each new window so detracting from the message within the interactive.

When commercial software packages were used (for example in the 'Sea Sources' resource centre in the 'Ocean Planet' exhibition, National Museum of Natural History, Smithsonian Institution), a computer programming expert was employed to disable the Quit function and whenever necessary restrict visitor access to parts of the

package that were felt to be unsuitable. The 'Working in the 21st Century' multimedia interactive at the Boott Cotton Mills Museum in Lowell had command buttons accessed only by staff so allowing them to control the programme if required.

Delivery

When designing a multimedia interactive most gallery personnel recognised that some visitors either lacked confidence in using the interactives or suffered from "interactive fatigue" - too many interactives to choose from! Therefore, methods had to be used to attract them to a particular interactive and involve their interest. One was the setting within which the multimedia interactive was located and the second the actual welcome screen which draws the visitor in:-

a) Those multimedia interactives that were in a bright, colourful and themed setting worked well. For example in the Postal Museum, Smithsonian Institution there was a souvenir postcard interactive in the main entrance hall. It was chrome with neon lights and attracted the visitor's attention. In three-sided booths, the visitor could send a postcard to someone by using a touch screen to answer various prompt questions. At Epcot, Disney World in the 'Wonders of Life' exhibition where the theme was about the human body, there was a small area called the 'Sensory Funhouse' where various multimedia interactives dealt with human senses. It was a colourful, larger-than-life setting that pulled in visitors of all ages.

b) The first or welcome screen of a multimedia interactive is important as it attracts the visitor's attention. In the Computer Museum exhibition, where vocal interaction with computers is investigated, one multimedia interactive has a large pair of lips on its welcome screen which speaks saying "Hi - come and use me - I do not bite!"

An alternative method was the
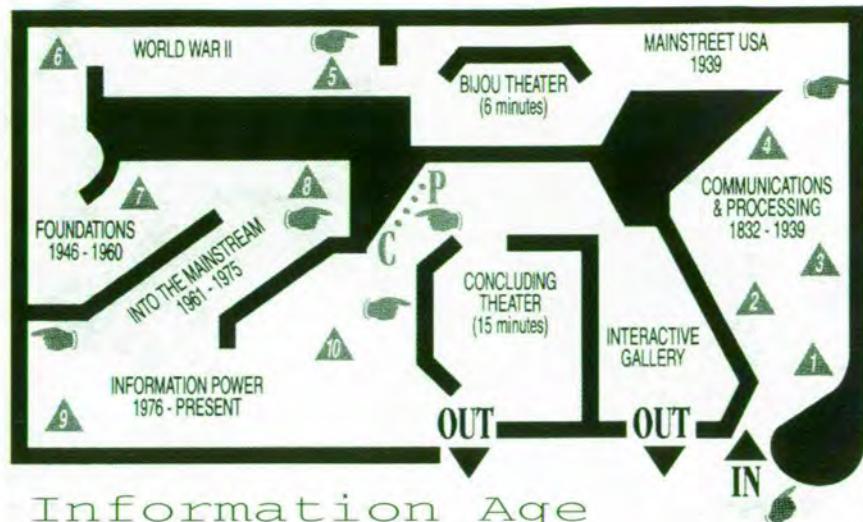
Information Age

ombination of multimedia interactive and items from a museum's collection, for example at the National Museum of Natural History, Smithsonian Institution real animal bones were displayed and the visitor had to obtain information about the bones from the multimedia interactive to answer their questions.

Content and Approach

An approach advocated by many fellow professionals was one of problem solving. It meant that a visitor was asked to think or make a decision as well as simple choices. By challenging the visitor it kept them involved in the interactive.

The more successful frameworks upon which the multimedia interactives were developed had a definite beginning and an achievable end so encouraging visitors to stay with the interactive and not move on. By defining the framework and the aims of the multimedia interactive, the visitor's attention stayed with the programme to the end. Computer games use this method - do we have something to learn from computer games?

Many multimedia interactives used cartoon animation to deliver their message and this was an excellent interactive called 'Rail, Road and Mail' which used cartoons and animated drawings to show how the mail was transported from Philadelphia to New Orleans in the nineteenth century.

Visitors had to get the mail bags to New Orleans in eleven days by choosing

appropriate means of transportation and deal with various disasters along the route!

Another popular idea was to use bar scanners located at different points throughout an exhibition. For example the 'Information Age' exhibition at the National Museum of American History, Smithsonian Institution where visitors collected a sheet with their bar code on at the entrance of the exhibition. They then passed their bar code over a scanner at each multimedia interactive, collecting a print out of the activities they had participated in at the end.

Length

The average length of time a typical visitor was expected to spend at a multimedia interactive in a gallery was from 2 to 5 minutes. This depended on the location in the gallery and what effect its position had on the visitor flow through the gallery. At the Henry Ford Museum in the newly opened 'Motown Sound: The Music and Story' exhibition, many of the interactives last 6 to 8 minutes which proved to be too long when the exhibition was busy and caused problems with visitor flow. A balance was needed between producing an interactive that involved the visitor to the end and maintaining visitor flow through the exhibition.

Evaluation

The Computer Museum, Boston and the IBM stand in the 'Innovations' gallery at Epcot, Disney World both had test areas for new multimedia interactives where

visitors experiment under the supervision of museum staff. The IBM area was called the 'Test and Try Area'.

All those involved in the development of multimedia interactives in galleries stated that it took a good month to iron out problems with a new gallery interactive which had previously been tested in the trial area. Be prepared for on-going evaluation.

The Computer Museum, Boston used floor volunteers who patrolled the galleries helping visitors, testing interactives to make sure they worked and to evaluate visitor response to the various exhibits. Communication skills were paramount - the knowledge about computers was taught to the volunteers!

Environment

Location - multimedia interactives in galleries were usually in alcove or booth areas, often with more than one unit per interactive allowing a number of visitors to use a programme at any one time.

More extensive multimedia interactives where a visitor was expected to spend more time (on average 10 to 15 minutes) were located in resource centres at the end of exhibitions. For example the 'Sea Sources' resource centre in the 'Ocean Planet' exhibition, National Museum of Natural History, Smithsonian Institution. Here four Apple Mac computers ran commercial CD ROM packages related to the theme of the exhibition. There were a mixture of visitors - families, school children, and adults.

Seating - most of the museums and science centres visited used low level seating comprising of either a bench or two stools. They found through visitor research that learning from multimedia interactives was consolidated when two visitors (teacher-student; parent-child; child-child) communicated with each other while playing with the interactive. This did not happen as successfully with only one visitor.

Height - often visitors sat down at many

of the multimedia interactives so height was not a problem. When exhibits or exhibitions were designed for children then most interactives were located at child height, for example SEGA in the 'Innovations' gallery at Epcot, Disney World created an interactive area for the under 5's. The IBM and Apple stands designed all their interactives at adult/teenager height with no seating. The visitor through-flow was great so seating would have held up the movement of visitors and placing the interactives above the height of a six year old prevented "toddler bashing"!

The Franklin Institute Science Museum over came the height problem by using touch screens mounted on large rotational arms that allowed the visitor to angle the screen at their own height. Therefore, it could be at both child and adult height or accessible to someone in a wheelchair.

In the 'Spaceship Earth' exhibition at Epcot, Disney World certain multimedia interactives were designed for disabled access when there were six or eight examples of one interactive one would be specifically designed for wheelchair access.

Conclusions

The Winston Churchill Travelling Fellowship showed me that multimedia has a strong role to play in museums and galleries giving visitors of all ages and abilities new learning opportunities and access to items in collections not seen before. The community that a museum would serve could now be extended beyond district, county or even national boundaries.

Main Conclusions

There are three main elements to a good multimedia interactive/package:

a) Content

b) Design

c) Delivery

Developing multimedia interactives/ packages is a long term commitment involving on-going development, maintenance, upgrading and evaluation.

Money and staff must be written into any sponsorship bids and these issues acknowledged in exhibition or product design.

As technology is still advancing, then it is strongly advised that any multimedia developments are taken slowly step by step with each stage being fully evaluated. Most museums in the United States were learning as they went along! When designing exhibitions, consider whether a computer multimedia aid is the most suitable interactive to promote the learning you wish to take place. Avoid the trap of using multimedia technology for the sake of it being new. Would a simpler interactive be more suitable or is it a function that demands the capabilities of multimedia?

In the gallery, multimedia interactives must not carry the main message of the exhibition as they can have limited access in terms of physical access and motivation/confidence of the visitor. They will consolidate or extend the message to those able and willing to use them.

The successful multimedia interactives were simple but fun with the programme having a beginning and an achievable end. Perhaps museums could learn how to capture a visitor's attention from those developing computer games?

There appears to be little research into what and how visitors learn when using multimedia in the museums. It is easier to evaluate how visitors use multimedia interactives or packages but not what learning takes place. This needs to be addressed as more multimedia aids appear in museum exhibitions and for sale in museum shops.

Suzanne Spicer is the Education Officer of the Ironbridge Gorge Museum Trust. She visited America to look at the use of multi-media in museum education through a Churchill Fellowship

What is Interactive Multimedia?
Interactive multimedia is the combination of text, graphics, audio and video displayed by a computer under the control of an individual or group of people.

Introduction
The Science Museum has a long history of developing interactive exhibits for use by the public. The original Children's gallery, built in the 1920's, was the first hands on museum exhibition in the world. The museum recognised in the early 1980's that computers would provide exhibition designers with another interpretive tool and started developing computer based multimedia exhibits. Multimedia applications in the museum range from simple pages of text and graphical information, through simulations and games to a wide area network based multimedia system for children called 'The Network'. We also produce lots of multimedia software for temporary exhibitions, for example the Science Box series. This is a series of temporary exhibitions on issues of contemporary science covering subjects as diverse as DNA finger printing, passive smoking and the problems of living in a modern

city. Most of the Science Box exhibitions have had at least two multimedia computer systems ranging from visitor questionnaires through to a program that allowed visitors to design and race a bike (Figure 1).

The Science Museum is very lucky in having the technical expertise to produce some multimedia in house. Where this is not possible the work is contracted out to software or multimedia specialists. We generally have a very good idea about what it is that we want and can therefore specify it in detail although sometimes we will work with a company to develop a specification.

The Network
One of our latest exhibits is called 'The Network', this is a network based multimedia exhibit for children. The network comprises of six terminals and a server in London and one terminal in the National Museum of Photography, Film and Television in Bradford. The Network allows children to work together to solve jigsaw puzzles based on objects held in the Museums collections. They do this by accessing a pictorial database of museum objects and video conferencing with other players on the system. Because the

Figure 1   D Patten, Science Museum

Design your own bike
and race it

Bicycles, like cars, take many different shapes...

Some are fast

others are better over rough terrain

The frame, wheels and handlebars and other parts are different for different types of bike

Touch the screen to continue

DIGITAL NETWORKS at the SCIENCE MUSEUM

Dave Patten

system is aimed at children as young as eight, textual instructions are kept to a minimum with instruction and help given audibly by an animated helper called 'Digit' the dog. The children using the system are actively encouraged to work together to solve the puzzles.

The system is very complex and uses a number of new technologies including video conferencing for Quicktime, Mercury Communications switchband (to link in the terminal at Bradford) and Apple's new Open transport networking software. The entire system was authored in Lingo (Macromedia's Directors scripting language). We use Hi-resolutions MacAdministrator software to protect the computers against unauthorised tampering and also to make sure that the correct version of the software and data are automatically uploaded onto each machine on the network.

All of this was very expensive and would not have been possible without generous sponsorship from Mercury Communications Limited.

What Does Multimedia Offer Museums?

Multimedia is being used increasingly by museums as another interpretive medium alongside traditional methods such as labels, graphics panels and videos.

Multimedia offers the ability to let the visitor have access to much more information than could be made available as simple text and graphic panels. Unlike videos or slide shows the visitor dictates the pace of delivery and often the order of
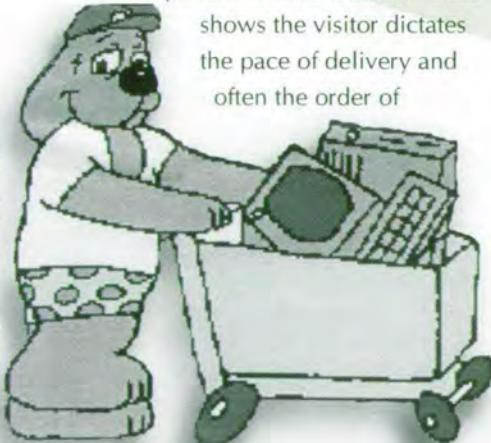
'Digit' the friendly helper

delivery. If a picture is worth 1000 words ten an animation or video clip is often worth several thousand. Animations allow us to show how something works, communicating this much more effectively than words or an image alone. Also animations allow us to remove unwanted detail so that the visitor can concentrate on what is important. One such animation in the Science Museum explains how the Babbage difference engine works. It does this by just showing the mechanism and not all of the supporting structure which stops you seeing what is happening in the real machine. Furthermore, intricate mechanisms can be shown at a large scale and at a slowed down speed to give a better appreciation of the way something works.

Possible Uses of Multimedia for Heritage Sites

There are a number of ways that heritage sites might think about employing multimedia systems. An electronic guide could help visitors to find there way around the site and its facilities. Electronic labels can provide a host of information on key objects in a collection geared to different visitor groups e.g., experts, general interest or children.

It is also worth considering developing a simple multimedia application that can be sent to schools to provide a pre-visit introduction to your site. This can help to make the actual visit far more productive and enjoyable as the students can be better prepared for their visit.

If a large proportion of your visitors are from overseas it is relatively simple to have the multimedia presentations in more than one language.

Producing Multimedia Exhibits

The single most important thing in a multimedia production is content. You will never produce a good guide or exhibit without good content. Content includes objects in your collections,

pictures, videos and documents but also your expertise in its interpretation. It is very important to bear in mind that your content is a very valuable resource. Companies are very keen to get their hands on good content, do not give your content up lightly. Be very careful about giving rights to reproduce parts of your collection in electronic format. Make sure that if you do go into partnership with anybody to produce a commercial product that you have a good licensing agreement with your partners, and that you are paid for the use of your content. Also remember to take into account the time needed to prepare content for multimedia publication which can be considerable.

When you decide to produce a multimedia exhibit the first thing you must do is to define the aims of your project and its target audience. Defining the aims of your project is very important because without a clear statement of its purpose it is impossible to produce a good piece of multimedia and impossible to evaluate its success.

Multimedia can be put together by enthusiastic amateurs for very little money although the hardware i.e., the computer, monitor and housing are likely to cost at least £2,000. The cost of professionally produced multimedia depends on the complexity of the project and the amount of information within it. You can expect to pay several thousand pounds for a relatively simple program through to 10's or even 100's of thousands of pounds for a comprehensive and/or complex system. If you decide to produce a multimedia program and you don't have access to the necessary skills within your organisation then you will need to look for multimedia companies to work with. There are a number of associations for multimedia companies who publish directories of companies involved in multimedia, for example The British Interactive Multimedia Association (BIMA). If you have access to the
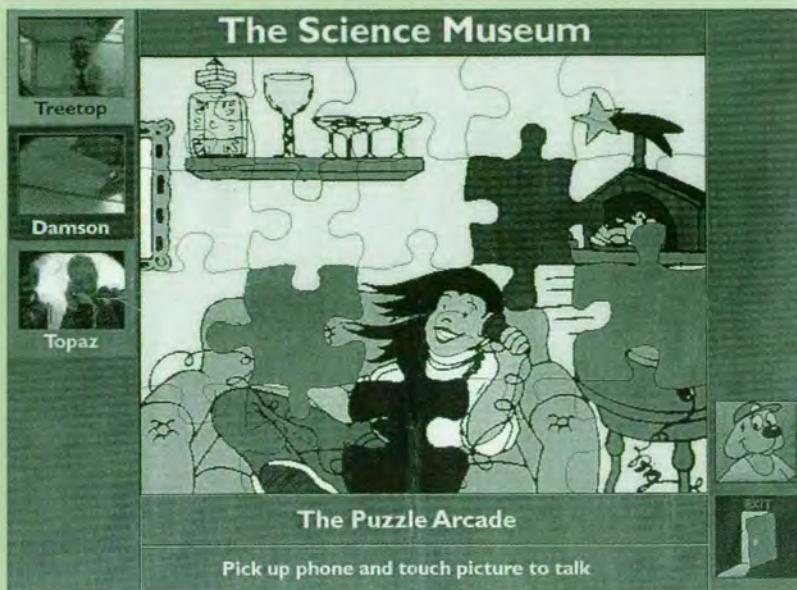
Internet you can find companies there. The best way to choose a company is to go either on a recommendation or if you see something that you like, talk to the site about how they got the program and who produced it.

Evaluation at every stage is very important. It is much easier and cheaper to change things at the early stages of a project rather than once the software is complete. At the Science Museum as soon as we have worked up paper storyboards we test them on the public. The results are analysed and any changes are fed back into the design. At this stage we are checking that the project can meet its aims, that the application is suitable for the target audience and that the structure and navigation is clear and uncomplicated. If you are working with external multimedia developers it is essential that this evaluation work is scheduled into the job. Make sure that the developer evaluates the project on a sample group of your visitors.

What to see and do?

If you are thinking about developing multimedia for your site talk to as many people as possible who have carried out or commissioned multimedia projects. Wherever possible use a company that has been recommended to you or that has a proven track record in this field. I would recommend you try and see

some of the following:

▶ The Micro Gallery multimedia system at the National Gallery in London, both the gallery system and the associated CD-ROM

▶ PAWS (Personal Automated Wagging System) - this is an innovative, captivating and above all a fun piece of multimedia designed for children

▶ The multimedia object labels at the London Transport Museum

▶ Anything at the Science Museum! The following books are also worth checking out:

▶'Multimedia Graphics' published by Thames and Hudson (ISBN 0-500-01716-6)

▶'*Interactivity by Design*, Creating and Communicating with New Media' published by Abode Press (ISBN 1-56830-221-5)

▶'*Understanding Hypermedia*' published by Phaidon (ISBN 0-7148-2800-9)

▶'Multimedia Making it Work' published by McGraw-Hill (ISBN 0-07-882035-9)

▶'*The Multimedia Yearbook*', this is published annually by interactive Media Publications

If you have access to the Internet you can find lots of useful information, many multimedia companies have web sites and there are numerous discussion groups on multimedia that are worth looking at.

What Does the Future Hold?

At the Science Museum we are working on several public access database systems. In particular we are looking at how the public can access large multimedia databases of objects. This is very important because less than 10% of some of our collections are on display at any one time. We are also focusing on the types of user interfaces necessary for different groups of visitors and the structuring of data to allow intuitive access and navigation.

Powerful computing hardware is getting cheaper. Better software tools are making the development task simpler. People are becoming increasingly used to the technology. Be aware that peoples expectations of what the technology is capable of are increasing all of the time. Your exhibits will be compared to television. People expect high quality graphics, smooth animation and professional quality sound tracks - just like they see every day on the evening news.

Multimedia will increasingly be seen as another interpretive medium. It just broadens the range of tools available to exhibition designers.

Screen based virtual reality will become more common with the acceptance of standards such as VRML2 and Apple computer's Quicktime VR. These technologies will allow visitors to explore virtual 3-dimensional spaces as well as examining three dimensional objects, rotating them and zooming in on them.

In conclusion I would just like to say "The content is all, don't be sucked into the technology for its own sake, by all means use the technology to enhance your visitors experience but don't let the technology dictate the experience".

Dave Patten is a software engineer in the Interactives Development Unit at the Science Museum in London

THE DIGITAL

Brian Bath

In looking at what has become termed "multi-media", it is essential to see it in terms of the interpretation of a whole subject or site, not just as a publishing opportunity using a new technology. In interpretive terms, multi-media should actually refer to the mix of media that is used in a museum, exhibition or visitor centre, and not just to computer based applications. This is important because there can be a tendency to see the "multi-media" application as sufficient in its own right, but in interpretive terms, it is not usually so. Even a computer screen in a museum requires an appropriate interpretive context.

In this sense multi-media can be regarded simply as mixed media, and the range of media used defined within a particular context. That context might be everything on a computer screen, in a theatre, within an exhibition gallery, or in a total environment, including buildings, landscape and people. The smaller contexts are always sub-sets within the large contexts.

An example of this can be seen at Battle Abbey in Sussex, the site of the Battle of Hastings in 1066. The interpretive strategy here uses many media depending on the requirements of the location, including one standard "multi-media" unit within an exhibition.

On arriving at the site each visitor is given an interactive audio wand. These guide visitors around the site, and provide information as and when the visitor wants it, by simply pressing a number on the keypad. Before they see the site itself, visitors see a short video, which introduces Norman and Saxon characters, and briefly describes the course of the battle, an overview if you like. Visitors can then, using the audio wands, follow the course of the battle on the battlefield, from the point of view of either the Norman knight, the Saxon thane, or from the point of view of Edith Swanneck, the common law wife of King Harold. They can choose which perspective on the battle they want to hear, or can listen to all of them. Around the battle field there are sculpted panels showing different stages of the battle, and on each are a series of numbers relating to the characters, as

well as other numbers and symbols relating to special interest topics such as tactics, arms and armour. On the battlefield, there is a mix of media including video, sculpted images, and the voices of several characters narrating the story of the battle. In the near future, these audio wands will be available with video capacity - truly mobile multi-media!

After the battlefield comes the abbey, built by William the Conqueror in penance for the slaughter of the battle. He directed that the church altar should occupy the spot where King Harold was slain. Again, visitors can use the audio wand around the site until they reach the Gatehouse, the only covered space on site in the care of English Heritage, the other buildings having been leased to a school. In the Gatehouse there is an exhibition which focuses on the life of the abbey, and the different roles taken on by the monks. There are many artefacts on display, and these are shown in relation to the different functions they performed and the characters they most closely relate to.

LANDSCAPE

The overall story of the exhibition is brought to life in the "multi-media" exhibit, which uses video footage to re-enact the roles of the Abbot, Almoner and so on, relating these to locations on site, and to the surviving artefacts, shown usually by photographs. Of course, the real artefacts can be seen in the exhibition itself. The benefit of the multi-media in the exhibition is that it provides, via the video footage, an interactive, moving, apparently living element in what would otherwise be a pleasant but otherwise static display. Giving the imagination this "kick-start" as it were, allows visitors to view the rest of the display in a different manner. This application is already 5 years old, and the technology is very dated by present day standards. It is on videodisk, and uses an Apple Macintosh II, with a touch screen device. Two monitors are used, one for touching and controlling, the other, larger screen, is there so that many others can view the programme. This seems to work well, as people wait for a turn and have something to see without crowding.

The Battle programme is in only two languages, but more could be added using CD-ROM or MPEG hard drive memory sources. Of course, multi-media has the great benefit of making optional languages easier to cope with, a technique used to great effect in the London Transport Museum.

A more traditional multi-media development was undertaken three years ago, in association with Anglia Multimedia. This was a CD-ROM entitled Exploring Castles, and although produced initially for schools, is now on sale in high street shops in Britain and America. For commercially published titles it is important that the subject will sell in the USA as that market is large enough to support high volumes sales and low core development costs. The major benefit to English Heritage, apart from royalties, is that the programme is now shown at a number of castle sites, providing a rich source of information for visitors at a minimal cost to the organisation.

On site, the programme is operated via a touch screen offering a series of

menus for which the visitor chooses the subject they want to explore. This software architecture is the most fundamental element of any interactive programme, and must be immediately clear to the user. In effect, it must address the same problems as gallery layout and provide easy to use physical and conceptual orientation. You should also be aware of where you are in a programme, and be able to find your way back. The castles title used tried and tested structures which have proven equally effective in schools, on English Heritage sites, and in the home.

In terms of the content and range of media used there are numerous video clips with a guide explaining the features seen, photographs, texts, computer graphics, computer animations and music. An example of how these are used together is seen in the section which allows the visitor to explore a castle in some detail, and is broadly based on Orford Castle in Norfolk. From a cut-away graphic you can choose which level of the castle to visit. At each level you can follow a
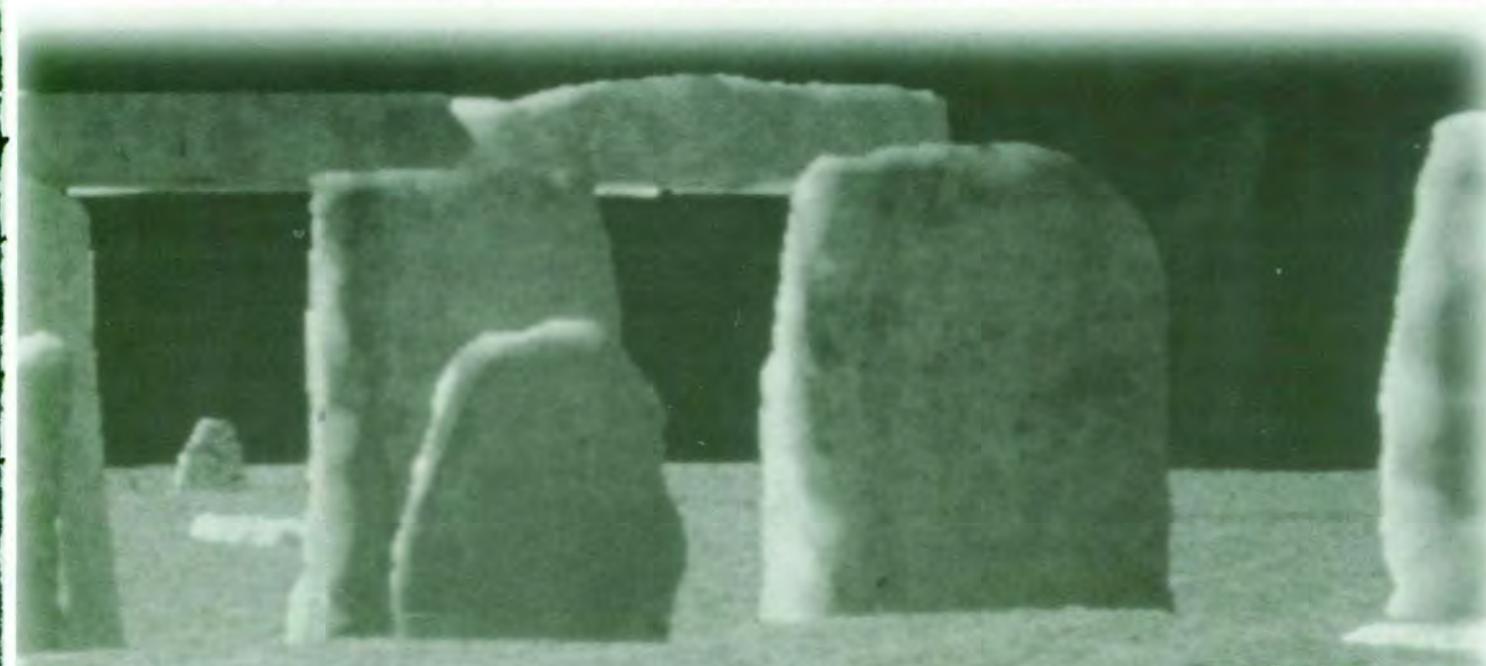
photographic tour of the rooms and features with a text based narrative. Linked to each view is a 2D computer reconstruction, showing how the castle would have looked and each of the features seen can be touched to bring up a description of their function. Cross-references are provided to other sections of the programme as well as hyper-text links to a glossary of terms. In addition to the above, there is a video walk through of the entire castle with narrative.

It would take too long to describe the rest of the content of the programme, but it does cover most aspects ˙of interest to a reasonable degree of detail (including a high level of detail when using the related databases).

The Castles CD is on show at Dover Castle as well as many other sites. A less traditional use of multi-media at use in Dover can been seen in the Secret Wartime Tunnels, where an Underground Hospital has been reconstructed using photographic evidence of the period. Genuine artefacts are used in situ, and visitors are guided through the tunnels. They start their tour with a video telling the story of a pilot who is shot down in the Channel, and his path through the hospital reception to the operating theatre. On the way, visitors meet many other characters in the tunnels, but all through computer controlled quadraphonic audio systems carrying voices and sound effects. Characters talk as though the visitors were not there mostly, so the effect of passing through ghosts is very strong. Linked to computer-controlled lighting and theatrical effects, including smells and a short video of a character in the distance, the whole creates a multi-media experience with a sense of depth and realism that visitors have said they enjoy very much. Equally, tests have also shown that they are learning about the operation of the tunnels and of their importance. I include this example, not

only because of its use of many media, but also as an example of interpretation using the entire 3D environment, including genuine artefacts, which are touchable. The artefacts would be so much dryer, so less interesting, if they had to be seen out of this context. It is also the case that such 3D environments are more friendly to all kinds of sensory impairments, as there is enough stimulation to give virtually everyone something of the experience.

In terms of this multi-functional multi-media approach, English Heritage has been working on the creation of a 3D virtual reality model of Stonehenge and the 450 ancient monuments in the surrounding landscape.

This model has many potential functions, each of which will be important in its own way. At the present time Stonehenge has very little interpretation. There is an audio wand system, giving a basic narrative tour, which offers two further options. You can choose to listen to a shepherd and his mother talking about the myths and legends that relate to the site, or you hear Professor Geoffrey Wainwright, Chief Archaeologist for English Heritage giving his views on the development and significance of the monument. This

is available in seven languages, but there is no covered space on site, other than the shop, for interpretation, and the existing facilities such as they are, are separated from the Stones themselves by a major road, so visitors approach via a tunnel.

One model of the Stonehenge landscape has been developed to work in real time and to appear photo-realistic. It will first be used to plan new visitor facilities and to help with the design of buildings. For example, it will be able to demonstrate the visual impact of changes in transport infrastructure. This first stage of the model incorporates the landscape as it is now, but it will later include reconstructions of earlier periods and a Geographic Information System for the entire World Heritage Site, giving access to powerful analytical tools, and to an up-to-date archaeological database. This will be relatable to a full moving model of the night sky. The relation of these two elements will allow one of the more important functions of the model to take place, that is as a research tool in its own right. For example, alignments of the stones and other monuments can be checked against the night sky, not only now, but

English Heritage / Intel

INTERPRETATION

with a night sky calibrated back in time to when the monument was constructed. The model will also be used to assess visitor management and visitor impacts on the landscape.

One of the great possibilities here is to use this virtual environment to bring together the artefacts which were taken from the barrows and monuments in the area in earlier centuries. These are on display in museums many miles from the site. It is relatively easy to create 3D digital images of the objects and to put them back in the places they were found, thus allowing them to be rediscovered again and again. However, while exciting in theory, the concept ignores the thorny problem of copyright. Some museums are not exactly rushing to put their objects into the digital landscape. They seem to be afraid that the real thing is not enough in itself, but that the images will take on a life even greater than that of the objects quietly gathering dust in their static displays. There are of course, financial and reproduction issues of genuine concern here, but surely the objective should be to create the fullest possible access to information providing it does not affect the conservation of an object, and surely it must be part of the function of every museum to wish to extend knowledge of its collections to the widest possible audience? Well, I would have thought so, but it does not appear to be a view shared by all in museum circles. Many are unnecessarily frightened of the wider use of images of objects, even though they can, for instance, dictate the resolution of those images, the ways in which they can be used, acknowledged and so on. The idea that it may be promotional, may encourage many new visitors to see the originals, seems not to count, but I digress.

A CD-ROM will be produced at some

time in the future, but a related project has already been completed in association with Intel and Superscape. The Virtual Stonehenge net site is now available free to anyone who has the appropriate equipment and access to the Internet.

Using ten virtual worlds, the storyline is a simple chronology, allowing the visitor to access the Stonehenge landscape in any of 10 eras, from 8500 BC to 2000 AD. Superscape were able to create an architecture which stacked landscapes one upon another. By moving a cursor along a timeline the user can see the landscape evolving. The fascinating aspect of this feature is that you can choose any point within the virtual world, an aerial view or a close-up of a particular feature, and the use of the timeline to see that view change over time. The evolution of the Stonehenge landscape, and especially the phases of the monument itself, have never been easy to understand, and have only recently been re-dated. Assuming this new phasing is visualised, it becomes a relatively simple matter to watch the monument grow before you. It seems that this kind of visualisation of a chronology is almost instantly comprehensible, where text and graphics require considerable conceptual leaps to create an understanding. However, the visualisation is still only the first step.

Within each world the user can access information about each of the features seen by clicking the cursor on that object. The left hand third of the screen then provides relevant text and graphics. (There are very few audio sequences as these use a lot of computer memory, which is still a problem with these netsites). The text and graphics provide a commentary during a virtual tour of Stonehenge and related monuments in the present era,

as well as providing information for potential visitors to the site. Using 'hot-links' to other English Heritage netsites, the user can access a detailed database of recent archaeological work related to the site, or visit the English Heritage Education Service netsite. There are many other features in the programme (including an eerie ability to visit the 10 worlds by moonlight!), but it is the ability to create links between relevant areas of graphics and information, as in the Castles CD-ROM, which is the main benefit in exploring the subject. The Internet offers huge possibilities for creating these links, but is still perhaps in the early days of providing effective orientation between them.

Finally, when the photo-realistic model has been developed and enhanced for several years, it will be available for use in new visitor facilities, to create displays, experiences and exhibits. Interestingly enough, these very exhibits could be developed and tested on the Internet version, include the results and findings of the astronomical research programmes, and include access to a comprehensive database to answer as many questions as it is possible to answer about the monument. For without doubt, within this ever growing digital landscape, the mystery of the real and the genuine will remain, drawing visitors from across the world to share a unique experience.

Brian Bath is the Chair of SIBH and former Head of Interpretation at English Heritage

SUSSEX HERITAGE COAST

INTERACTIVE PROJECT

Michael Danks

In the late Summer of 1995 I started to devise a project to help people enjoy the richness of our countryside. With a background in film and television, I wanted to produce a series of video guided tours around beautiful and enigmatic parts of my home county Sussex.

Inspiration had come from walks I enjoyed through the eyes and ears of friends and family, who see things that I just walk past or tread on. The challenge was to devise a new format for a multi-media programme that would allow the viewer to take a trip into the countryside, with an on screen guide to point out things of interest along the way:

The Seven Sisters Cliffs are at the eastern end of the rolling South Downs. Whatever your interest of expectations of the countryside the area around the cliffs can satisfy most visitors, naturalists, geographers, biologists, historians, archaeologists, and, of course, is loved and appreciated by the local community.

Working as a Film Editor I spend a lot of time

asking 'what does the audience want?'. Life would be easier for me if the viewer could ask questions as they watch. Interactive television, we are all assured will be a thing of the future, in the meantime Interactive Multimedia can go some way to fulfil my dream.

The first important step in programme making is to capture the interest of the viewer and to beg questions, then with the help of the right expertise we can start providing some answers and encourage more questions. The interaction will continue until the viewer is satisfied.

I started to develop the project by asking the question, 'what subjects could a visitor to the countryside be most interested in?'. I made a list of subjects and categorised them.

With a little imagination I ended up with a flow diagram illustrating the whole concept.

To complement the diagram I wrote a 12 page concept paper which explained the broader picture.
It was laid out to answer questions for anyone who might

be interested in the idea and contained a description of the area to be covered, a project visualisation, overall aims, a mission statement and a list of benefits to sponsors. it started with a summary:

"The project is focused around the area of The Sussex Heritage Coast between Seaford and Eastbourne, (part of the Sussex Downs Area of Outstanding Natural Beauty which covers over 1,000 km² from Eastbourne to Hampshire). It will give local experts and all members of the community an opportunity to pool their knowledge into one resource. The intention is to create an indexed gazetteer/directory containing facts about the rich variety of features, natural beauty and history which come to make up the character of the area. Installations will be at Countryside Visitor Centres, Tourist Information Centres, tourist attractions, local Museums, Libraries and Galleries".

Armed with this document I took the idea to multimedia designers. They all clearly understood the concept but were unwilling to help develop the project. I had no budget and they could see no commercial value in the idea. Desktop Display in Brighton were the exception. The company was very keen on the idea and wanted to help.

Desktop Display created 'My Brighton' an interactive multimedia exhibit made for Brighton Museum and Art Gallery with the help of over 100 volunteer members of the town's community.

This award winning multimedia exhibit presents the town's history through the eyes of the people who walk its streets, and gives a voice to their individual memories and shared part. It has proved to be a highly valued resource - encouraging visitors to the town and the local community alike to share an interest in aspects of Brighton's heritage.

Desktop Display's Internet home page includes a link to a cut down version of the 'My Brighton' project. The address is: http:\\www.display.co.uk
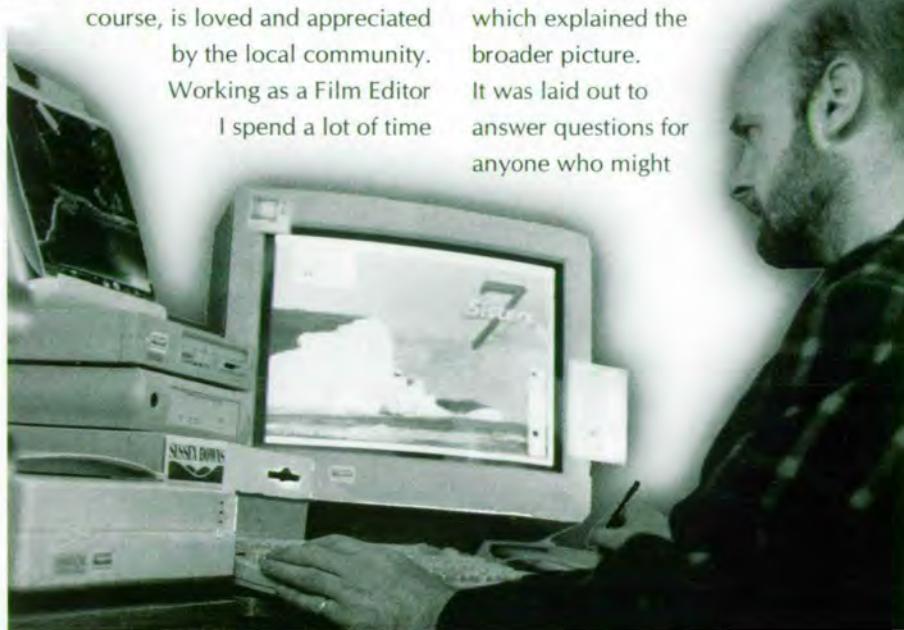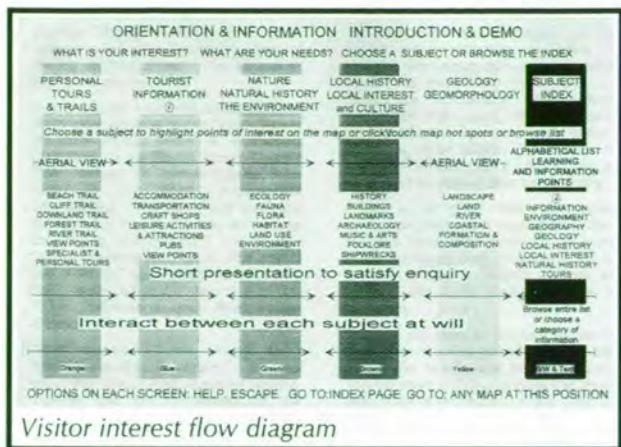
Visitor interest flow diagram

In late Autumn I made a presentation of the proposed project to the Seven Sisters Members Panel, which is a steering committee for the Seven Sisters Country Park, formed of representatives from most of the local management organisations. The panel was keen and supportive of the idea and paved the way for gaining support from the Sussex Downs Conservation Board. The project was seen to have great potential and fitted neatly within the structure of the AONB Information and Interpretation Strategy.

East Sussex County Council also became interested as it was pleased to see both local agencies and the local community working together.

We are currently producing a concept-proving interactive CD-ROM to demonstrate the idea to potential sponsors, with the understanding that seeing the idea as a working programme is worth more than pages of description.

The project will ultimately only be available to users at specific sites. This means that we will not be restricted by the limitations of producing a programme for mass distribution. (Home computers come in all shapes and sizes, programmes often suffer from being designed to run on the lowest specifications). Also if the project was accessible to people on their own computers 'off site', we would have problems respecting copyright of the material incorporated in the programme. To help make the production of the project truly interactive we have an Internet site

which allows people with access to the World Wide Web an opportunity to share and provide information from work, home or public access sites.

We hope that various agencies, when offered the chance to take part in the project will be able to send us all sorts of data electronically. There is a great deal of mystery surrounding interactive multimedia. There are new words and acronyms to learn. When explaining what multimedia can do for you, it may be helpful to draw an analogy with more traditional forms of publishing.

Today if you want to produce a flyer or some kind of notice you will probably use a computer to write and help with layout. You will have a choice of fonts and might even scan in an image. If you don't do this yourself you must know somebody who does. You will know what you want and how to get it. There is the first clue to producing a multimedia programme - knowing what you want! What would you like to interpret with your programme? How would you like people to interact with it?

The most simple piece of interactive interpretation could be to simply identify species at a site. The first "page" of such an 'I-Spy' programme could illustrate common fauna and flora to look out for at the site; birds, trees and flowers.

If the user wants to identify a bird, by making their selection 'bird', the screen will change to present them with a further choice, probably photographs of local or common birds. If the user identifies the bird of their interest by touching or clicking the screen again, they should be able to find out some relevant facts about that species.

As you can appreciate, this example is fairly limited. The important point is that you have control over what you want to show. You should be sure that you have the raw material (photographs,

recordings, text, etc.) to produce the finished work.

For such a simple 'I-Spy' programme like this you would need six colour photographs of common or local birds, between four and six trees, and up to ten species of flower, the choice is yours. With fifty words of information about each illustration, you have all the raw material you need to produce a fully interactive piece of multimedia.

Of course, it doesn't have to be fauna and flora, your public might want to identify rocks or buildings and landmarks.

To produce a programme with this kind of interactivity is possible now using off the shelf 'authorware', and only takes one capable person with the equivalent of desktop publishing skills.

If you would like to produce something more complicated that uses moving pictures and sound with sophisticated graphics, you would be best advised to find a multimedia producer, or wait a couple of years. Please bear in mind the software to produce the most sophisticated interactive multimedia should be accessible and usable by everyone in the not too distant future. Remember how typing turned into word processing and in turn into desktop publishing?

One of the exciting things for me about producing any multimedia programme is the way that the user can be lead into other aspects of any subsequent choice of subject. They will discover information they were not initially looking for. If you are providing interpretation, this means that you will be able to encourage the public to ask questions you set for them. As a consequence, the user will gain answers to questions which before they started they didn't even know they wanted to ask.

For more information, if you have access to the Internet, you can interact with The Sussex Heritage Coast Interactive Project at:
http:\\www.display.co.uk\heritage
Email: michael@display.co.uk
Telephone: 01273 202902
Facsimile: 01273 270392

THE WROXETER

Sally Biswell

ACCESS TO ARCHAEOLOGY

PROGRAMME

Interest in archaeology in Britain has never been greater, while archaeological research has, at the same time, become much more methodologically and technologically sophisticated. It is one of the great strengths of archaeology that it bridges the Two Cultures of the humanities and the sciences. This bridge does not, however, effectively extend to those approaching archaeology seriously for the first time, whether they be undergraduate students, part-time mature students furthering a long-held interest through participation on continuing studies courses, or the army of volunteers, enthusiasts and visitors to archaeological sites who support archaeology and provide much of the justification for its continued pursuit. To many of these the increased application of science and information technology in archaeology can appear as a barrier rather than a bride to an understanding and enjoyment of the past, and for volunteers seems to exclude them from full participation in archaeological research.

The Access to Archaeology programme, under a scheme funded by British Telecom, addresses these problems. It will create interactive multi-media teaching aids which provide a point of entry into the technologies and practices of contemporary archaeology. The softwares developed will form a core of multi-media teaching modules which will be accessed locally, via the Birmingham University High-Speed Campus Network, and remotely, using ISDN technology. These modules will be structured to allow their use by people with a variety of needs and skill levels. For multi-media aids in archaeology to be fully effective and realistic they need to be focused on a real site for which appropriate data, of a suitably high standard, are readily available. For this purpose the Access to Archaeology programme will focus on the

Roman city of Wroxeter in Shropshire.
The Opportunity: Wroxeter Roman City and its Hinterland Wroxeter (Viroconium Cornoviorum) was, at 78 hectares, the fourth largest town in Roman Britain.
The area of Wroxeter where the remains of buildings have been exposed and are on display to the visitor is very small. The remainder of the town is almost entirely invisible to the visitor, the buildings and streets still hidden below pasture fields. Only the remnants of the city ramparts give some tangible clue to its former size and importance. The existence of these buildings and streets is known through aerial photography, where differential growth of the overlying crop or grass has betrayed their presence, and most recently through the application of the most up-to-date remote sensing techniques applied in a series of surveys carried out under the aegis of the Wroxeter Hinterland Project, supported by the Leverhulme Trust.

Aims and Objectives

The principal aim of Access to Archaeology is to develop a flexible series of teaching modules and to provide access to these both remotely using ISDN technology and locally through the high speed Campus Network (HSCN). This will allow students to:

▶ Investigate most aspects of the archaeological data for Wroxeter and its hinterland within a simulated digital landscape.

▶ Design and implement archaeological landscape analyses on the digital landscape.

▶ Incorporate the results of aerial photographic survey and remote sensing into analyses.

▶ Visualise and interpret the results of diverse (simulated) strategies of archaeological investigation within both the rural and urban landscape.

Students will be provided with the opportunity to investigate and understand,

through simulation, the various strategies of exploration and research now available in field archaeology.

The General Public and School Students Integral to the Access to Archaeology programme would be provision of a simplified system at selected visitor points. Rowleys House Museum in Shrewsbury and the English Heritage site museum at Wroxeter (c. 7-8,000 school children visit the Wroxeter site every year as part of their school curriculum). Access at these points will allow:

▶ Simple search and display facilities for investigation of the Wroxeter archaeological data.

▶ Investigation of specific sites including provision of site plans and photographs.

▶ Access to interpretive information and further information on the full system teaching resources.

Users will benefit by gaining:

▶ An opportunity to visualise and explore the ancient townscape and landscape of Wroxeter as a whole, even (or especially) where nothing remains to be seen on the ground.

▶ An introduction to the methods of archaeological discovery and interpretation.

The close integration of such a traditionally Arts-based subject as archaeology with modern science-based research techniques through Information Technology will open novel pathways to the past, to science and to the potential of IT for those whose initial interest is in any one of these three areas.

Sally Biswell, Field Archaeology Unit, Department of Ancient History and Archaeology, University of Birmingham, Edgbaston, Birmingham B15 2TT
Telephone: 0121 414 7343
Facsimile: 0121 414 5516
E-Mail: s.c.biswell@bham.ac.ukWWW: http://www.bufau.bham.ac.uk/bt/
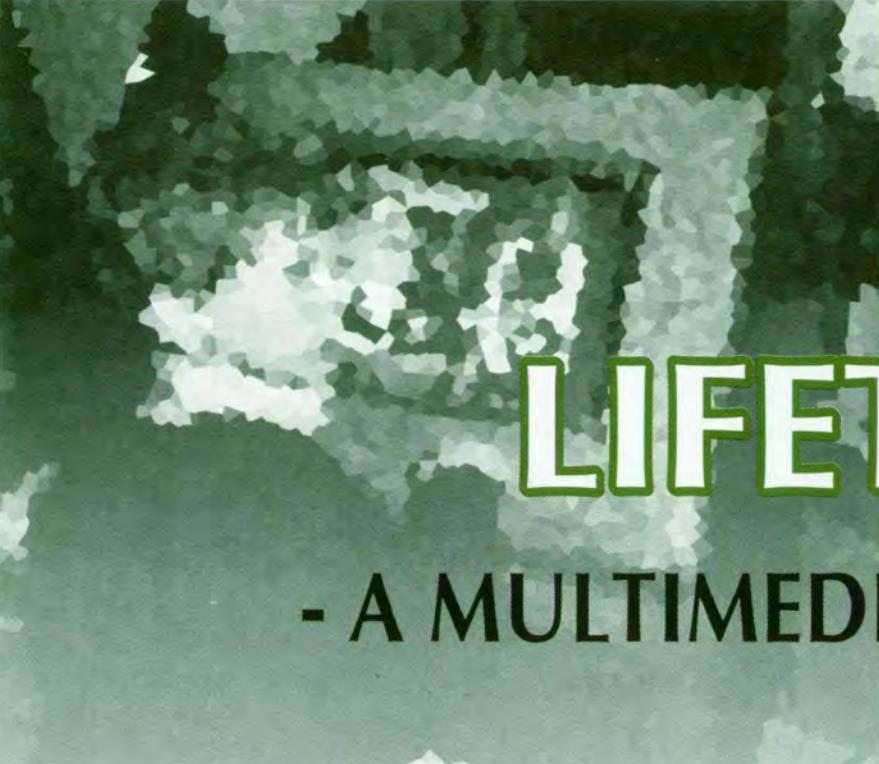
LIFETIMES

- A MULTIMEDIA HISTORY

Sally MacDonald

In March 1995 Croydon Museum Service opened Lifetimes, a unique interactive museum. This short article looks at some of the issues we encountered in planning and developing Lifetimes, and particularly at the process of putting together the multimedia element.

We began developing the museum service in 1989 and as we were starting with quite limited collections and a new site it seemed sensible to carry out market research to see what people thought of museums generally and to see what sort of a museum local people might want. We focused particularly on people who did not visit museums often, because we knew that museums tend to attract quite a narrow audience; much narrower than libraries do. Most museum goers are White, well-educated, and in social group ABC1. We wondered whether we could create a different kind of museum which could appeal to a broader audience. And we felt we were in a situation where many things were possible.

The research told us a lot about what people dislike about traditional museums - even regular visitors called them boring, smelly and depressing -

and it gave us plenty of ideas for how to develop our own. The people we interviewed wanted museums to:

▶ *be inspiring*
▶ *make connections between the past and the present*
▶ *be relevant to today*
▶ *make you think*
▶ *take you out of yourself*
▶ *be bright, busy, sociable, funny*

These became the aims of what we now call Lifetimes, which is a museum about Croydon people from 1830 to the present. We called it Lifetimes partly because local people told us we had to find a name which didn't involve the word "history", or the word "museum" or the word "Croydon"!

Many of the ideas for the content and presentation of Lifetimes came out of that early research. We gave our museum designers, Event Communications, a brief to create a museum which appealed to many groups who did not normally use museums, a museum which was relevant, popular, and participative. They came up with the idea of using multimedia - specifically compact disc interactive or CD-I - as the central feature of the displays. There were

many reasons for this, but for me the appeal of multimedia lay in three areas. We had quite a small space in which we wanted to say a lot, and it seemed to me that through multimedia we could offer our visitors a depth of experience it would be impossible to offer simply with objects and labels. We were to share a building with a busy central library, and we wanted to create a display that would encourage people to drop in regularly, perhaps when they came to take their books back, and see something different each time.

Multimedia also seemed to offer the visitor potentially a far richer experience - movement, noise, music, film, choices, challenges - than those available to the person just looking at an exhibit in a case.

And finally, given that we were, after all, going to be a museum about history, using multimedia might do something for our image; simply having computers in the galleries could counteract the mausoleum atmosphere that most people seemed to dislike so much.

Our ideas for Lifetimes evolved steadily over 4 or 5 years, in discussions with Event, our museum designers, and with New Media, the company who are

subcontracted specifically to design the interactive elements.

Lifetimes covers the period from 1830 to the present. It is presented as a series of chronological displays; the first is 1830 to 1880; the last is 1971 up to now. Then there is a section on the future (an idea that came out of the market research). Within each chronological display there are 50 objects or groups of objects, with which we try to cover 25 themes. These range from unsurprising ones like, say, transport or education, to more difficult and controversial subjects such as sex and love or crime.

Most of the exhibits are on open display, though some have to be behind glass, because they are fragile or stealable. Most are lent by local people, and when we locate objects we carry out oral history interviews and copy people's own photographs; to date we have over 700 taped interviews in our collection and we have had many thousands of photographs copied or made. The idea is that objects are recorded and presented in a meaningful context.

There is an introductory board for each part of the displays, just giving basic information about what happened in Croydon at each particular period, and there are caption books which give basic label-type information on the objects on display. But the main way in which visitors can engage with the exhibits is by using the interactive in front of each chronological display.

Visitors can use the interactive in three main ways. They can find information about the exhibits (a bit like an electronic label); they can select a mini-documentary, related to an exhibit, about a person or a piece of Croydon's past; or they can do a quiz. And they can move between different parts of the programme.

One of the objects in the first display is a baby's feeding bottle used in Croydon in the mid 19th century. Visitors can touch the screen and call up basic label type information about it. They can then either go on to look at another object or to call up a mini documentary relating to breast and bottle feeding in Croydon at that time. Bottles made at this date were very hard to clean, and clean water was hard to obtain. The documentary points out that while 1 in 7 of all Croydon babies died before they were a year old, for bottle fed babies, the figure was 1 in 3.

In the next display, which covers the period from 1880 to the end of the First World War, there is a sunshade belonging to a Croydon family. The documentary relating to this object features Dorothy, a member of the family, and is based on several oral history interviews she gave us. It is very short, but both funny and moving. She talks about how she and her sisters were not allowed to get suntanned (it wasn't ladylike) but also about how special holidays were for her because they were the only time she saw her father apart from a couple of hours on Sundays.

Obviously one of the many things the interactive can do is make connections; it can suggest ways of exploring a theme or it can point out comparisons and contrasts. One of our contributors, Mr Packham, worked at a large mental hospital near Croydon from 1918, when he was discharged from the army, into the 1930s. We contacted him because he was able to tell us about some objects from the hospital which had been offered to us; we didn't know what they were. He explained to us how they had been used - one was a shoe which could be locked so that a patient could not take it off - and told us about the treatment of patients at that time. When he first worked there, the hospital was staffed by attendants; he did not have to train as a nurse until 1930. One of our other contributors worked at the same mental hospital in the mid 1950s; by then you had to be a trained or trainee psychiatric nurse to work there. Her account is linked to a different object - an ECT machine - in a different display, but through the interactive it is possible to link her story with Mr Packham's and give visitors a sense of history, of continuity and change, instead of presenting a straightforward linear text.

The ability to link different stories in the interactive also means we can draw attention to opposing or differing points of view on a single issue. One of our documentaries features a civil defence volunteer who worked in Croydon in the 1950s while another is based around a woman who was a prominent member of Croydon CND; she is lending us the white duffel coat she wore on marches. Clearly we, the museum staff, have selected and edited the stories for Lifetimes, and in that respect it must mirror our own beliefs and prejudices, but I think the interactive is an ideal medium for demonstrating that there is no one true view of history, but many stories and many perspectives.

What are the ingredients of this interactive? The main ones are our interviews with local people, then we've carried out a lot of library research, both in general reference libraries and in our own local studies library, to put the interviews in some kind of context and to form the basis for voice-overs, which are read by actresses and actors.

The illustrations include pictures lent by our contributors; pictures from our own art collection; photographs and ephemera from our local studies library; photographs that we have commissioned ourselves, and finally photographs and archive film from picture and film libraries. We also use library music and sound effects to enrich our own oral history tapes. The documentary about Samuel Coleridge Taylor, the famous composer who lived in Croydon in the early part of this century, needs his music to bring it alive. And then there is quite a bit of text, mainly captions to the objects and pictures and quiz questions.

Altogether there are 300 stories in Lifetimes, all interlinked, and each

linked to an object on display. The stories range from 1 to 2 minutes in length - any longer and we run into problems of disk space. Lifetimes probably took 12 person years to create. We interviewed people, annotated tapes, checked scripts with contributors, re-recorded the agreed snippets, wrote the scripts and edited them. We had a freelance picture researcher locating pictures and specific audio from libraries and clearing copyright. And we spent inordinate amounts of time just processing and indexing tapes and in administration, making sure that nothing goes astray; when you are borrowing someone's only copy of a photograph of their dead child, you are dealing with something you truly cannot put a price on.

Then we sent all the scripts, pictures and audio (except for voiceovers and sound effects) to our interactive designers. They grabbed, or captured, the pictures at their offices, recorded the remaining audio and mixed audio and visuals in a local studio. Before the final mix was done, each script went through at least three edits. The first edit we did ourselves with colleagues and

contributors. The second and third we did jointly with New Media, checking every single picture. We also attended the voice-over recording to check that pronunciations were accurate and that nothing was missing. To sum up, the process was many times more complex than writing a label, or anything to be presented in two, or even three dimensions.

Selecting the Platform

We wanted a multimedia platform that could present the range of material we had - including archive film - in the most effective way and one that would provide the most direct access for the user. As late as March 1994 we were still considering CD-ROM and a trackerball interface, but we left a decision on the hardware as late as we possibly could in the process. Eventually we did opt for CD-I (the original suggestion) and touchscreen. This was partly because we wanted to use archive film full screen rather than in a quarter screen window.

There are 6 interactives, one in front of each chronological display, or era. Each interactive has its own disk.

Making and testing prototypes of the Lifetimes interactive was a vital part of developing the programme. There have been 3 so far. The first we only showed to staff.

The second prototype we tested with some of our contributors - people we'd interviewed for Lifetimes - and with teachers. They suggested many practical improvements. Perhaps the most important thing to come out of these discussions was the realisation that more people would want to use the interactive than would be able to at any one time. People were worried that there was so much to see and it would be so much fun to use that it would be hogged by small boys and other visitors wouldn't get a chance to use it properly. As a result, we decided to plan further interactives on a mezzanine gallery above the main displays. This involved adapting the main programme to run independently of the exhibits, but

it provides more space (and quieter space) for visitors who want to spend longer exploring Lifetimes in depth.

For the third prototype we hired market researchers who carried out detailed tests with around 120 individuals and groups in our local shopping centre. Researchers observed how people used the programme, where they got stuck and what motivations there were to explore it. This helped us enormously in developing the programme. One result was that the quiz, which we had devised as a kind of adjunct to the rest of the programme, was shown to be a really powerful motivating force in its own right. The questions got people talking and arguing in a way that the more passive parts of the programme - the audio visual parts - could not. And it was especially good to see it working between generations; the kids knew how to work the computer, but the grandparents knew the answers to the questions.

Lifetimes finally opened to the public on 28th February 1995 and has met with a tremendous response from visitors. In its first year of opening it had over 75,000 visitors. Visitor surveys and comment forms indicate how much people enjoy the experience of using the interactive displays. In a survey 97% found them easy to use, and the majority of people we asked felt they made the displays more interesting.

Two comments sum it up:

"I have been here for two and a half hours and feel as though I have seen just a fraction of the available information"

"Fantastic! at last a reason for living in Croydon and being part of something great!"

Sally MacDonald is Principal Museum Officer for Croydon Borough Council. The Lifetimes Gallery was the overall winner of the 1995 Interpret Britain Award.

Jane Prophet
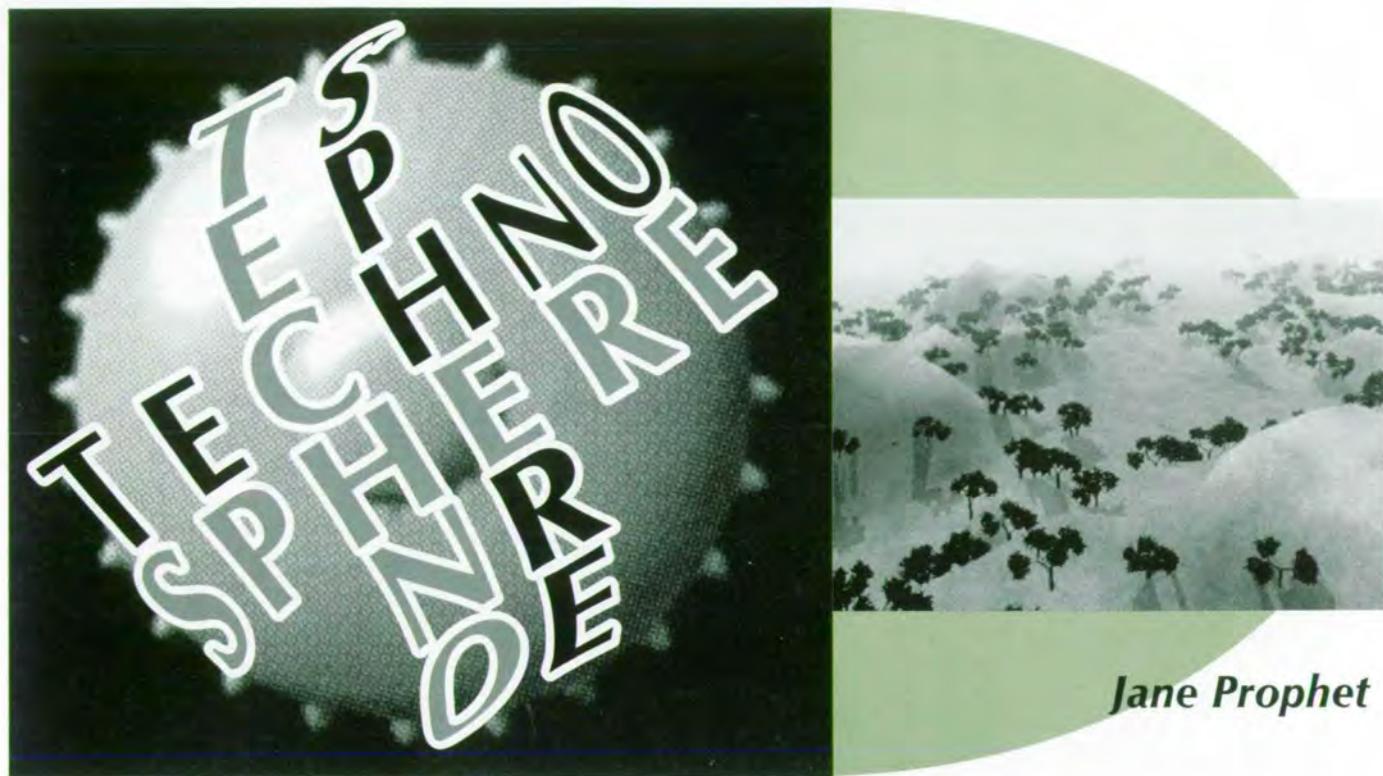
TechnoSphere is a 3D virtual world that is housed on a computer in a University office in London. The project is accessed via the World Wide Web, and by using graphical pages which are part of our Website users can 'build' artificial life-forms by selecting from a range of body parts: heads, wheels, bodies and eyes. Once they've designed their digital beastie clicking on a icon on the screen automatically sends that creature into the virtual world. Once in TechnoSphere the life-forms interact with each other and send email messages about their artificial lives back to whoever designed them. Users can access the project from any computer connected to the Internet which has a colour monitor (work, home, school, cyber-cafes etc), and they need no more than basic computer skills (clicking with the mouse to select body parts and typing in their creature's name and their email address), though they do need either their own Internet or email account if they want to receive messages from the beasties. Feedback from one Canadian education officer in a museum has shown complete novices who had never used the Internet or a computer before were drawn into the

project and designed creatures with minimal guidance:

"I'm working in a museum, from an educational point of view TechnoSphere is a great route in to talking about natural selection, ecosystems and to look at the relationship between body form and life style/function. ... Your site makes it so easy to interest people in such issues (and) also serves to sever the "generation gap" where older visitors who define themselves as technophobes or against computers will become engaged because they are presented with evolution and biology and so by a sleight of hand fail to notice that it's a computer".

There is a cluster of ideas behind TechnoSphere, most apparent is the artificial life and evolutionary aspects of the piece, which a number of Canadian museums and educational establishments have used to raise awareness about evolutionary theories. Of equal importance to me is the notion of TechnoSphere as a process and concept-based art work (early drafts of the idea had a much more abstract 'landscape' populated by moving banks of colour and sounds, rather than a

fractal simulated landscape with mountains, deserts ad forests populated by 'creatures'. As the piece developed other important concerns began to shape it, in particular our responses to the Internet as a communication medium. We wanted to make a site on the Internet which was graphical and interactive. Most sites out there still only provide information to browse through, our aim with TechnoSphere was to offer a site where users did something (designed a creature) and where their interaction had an effect (each creature effects the digital ecology in the TechnoSphere virtual world). It was also important to us to try and get visitors to our site to engage with our project over a sustained period of time, rather than paying a one-of visit (users stay in contact with the project as a result of the 'postcards home' that they get from their beasties and the come back to view images of their creature.

For the Internet version which we opened on September 1st 1995 we settled on the visual metaphor of a seemingly recognisable landscape as we wanted to make the piece accessible and of interest to a broad ranging audience. To date we have 30,000+

users that have designed over 40,000 creatures.

One of the results of TechnoSphere's popularity has been an interest from some museums and galleries to show it within their environs. This raises a number of problems and with these in mind we have made it a central theme in public presentations about TechnoSphere over the last few months. It has become clear from our experiences that simply putting a computer, which is connected to the Internet, into a gallery is profoundly dissatisfying and inappropriate. We have done this twice and in both cases there has been a distinct alienation experienced by the 'audience'. There are a number of reasons for this. Firstly, the context of viewing sites on the Internet, logging on in the privacy of your own home and exploring at will, is disrupted when projects are recontextualised in a gallery. Secondly, visitors to the gallery who are not familiar with using the Internet can get lost unless there is an assistant to help them. In addition, the audience enters the gallery with heightened spatial awareness and with expectations of encountering high resolution images. They are therefore, disappointed as the World Wide Web version of TechnoSphere has images which are necessarily of low resolution. In the Internet version creatures are tagged with the email addresses of their designers and use these to send them email messages, those designed during gallery visits are often made by visitors with no email address so the on-going relationship between artificial life-form and designer is impossible.

In response to these observations we have designed a version for a gallery or museum space which retains the possibility for visitors to design creatures, and we have focused on finding an alternate method for interaction after they leave the gallery. At the same time we have restructured the project so that, while it's association to the Internet is not lost, the particular opportunities that the museum has to offer are taken into account and the

audience can see high quality images.

The planned museum version of TechnoSphere therefore retains the opportunity for visitors to design a creature. The museum will have an individualised version of the project (different looking terrain and different component body parts for the creatures). After designing a creature visitors enter a 'hide' and from here they view large scale high resolution animated sequences from the TechnoSphere world, they see creatures
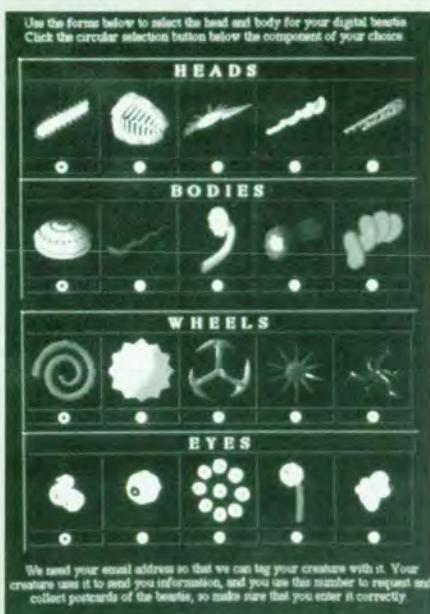
interacting and travelling through the artificial terrain. The panoramic views that they see will include the types of events that will cause creatures to send messages through the post about their activities to their designers (predatory carnivores pursuing herbivores and devouring them, creatures spicing digital DNA with mates and reproducing groups of offspring, young cyber-beasts following their parents until they are big enough to move independently). When they leave the hide visitors collect a colour postcard of the creature that they designed at the beginning of their visit. The creature will be tagged with their postal address and out into a virtual environment with others made by visitors to the museum. Later the visitor will receive a message through the post from their creature telling them of its life so far. Thus the inter-activity that is so popular with the

Internet version is retained. In addition all creatures, and their island of terrain, will be added periodically to the Internet version of TechnoSphere. This will mean that users can continue to get information about their creature if they are on email, and that the museum version has a very important relationship to the Internet version - actions by visitors to the museum will result in seismic events which add the museum islands to the Internet, and this will add new and strange looking creatures to the on-line project and contribute new digital genes to the evolving virtual world.

When we first proposed the project we anticipated a potential audience which ranged from artists and designers to researchers from the Human Genome Project, from school children to grandparents. Even so, we were uncertain if we would reach even a fraction of these people. Emails to us indicate that users have included graphic designers, gangs of school children, and their teachers and parents: "As a teacher I find this excellent ... it lends itself to the unit we are presently doing on Adaption. I got my class in groups and have made them send in their Creature. We have an extensive computer network at the school and unlimited access to the Internet. As an aspiring programmer, the whole nature of the idea of A1 and the games use of it in the Fractal landscape is intriguing".

In conclusion, developing TechnoSphere as an online project has taken our work to a new, more diverse, international audience. The visual presentation of the site, combined with the topical subject matter (artificial life and fractal landscapes) has brought us many young users who are used to screen based interactive information. The sense of personal engagement with their creatures and therefore with the subject matter has meant most of our users are loyal and return time and time again to the project.

Jane Prophet can be contacted via e-mail:
TechnoSphere@Cairn.demon.co.uk

THE EXPLORATORY
OF THE PAST AND FUTURE CITY
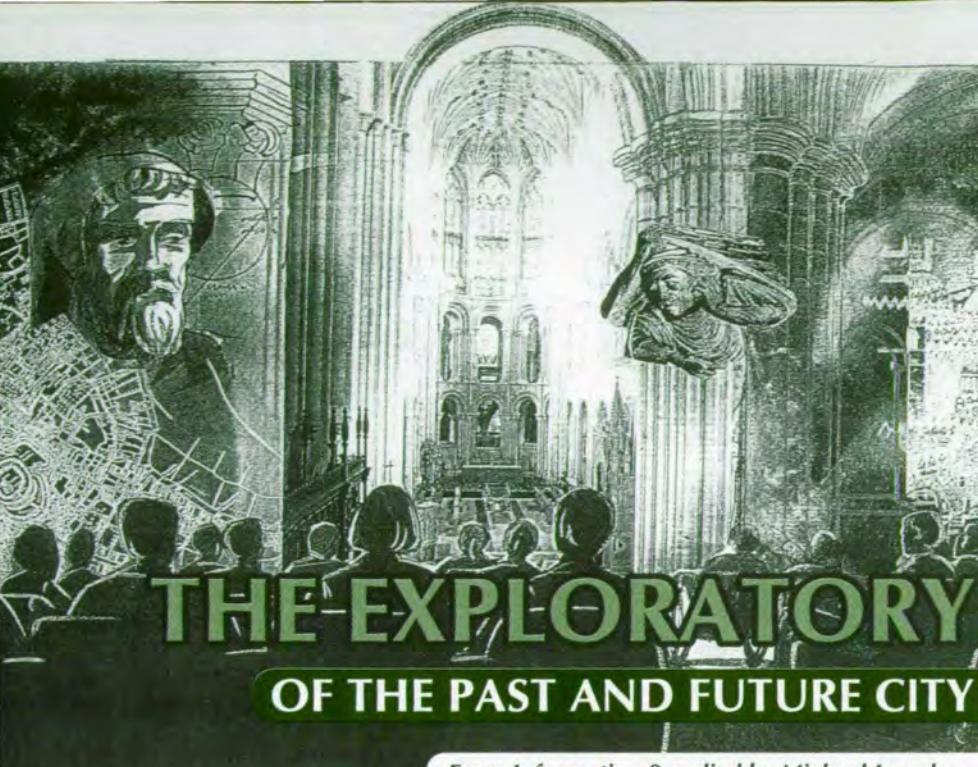
From Information Supplied by Michael Loveday

Although 'the city' has probably been the most significant vehicle in shaping Britain over the last two millennia, there is no single facility which tells its story - there is no 'City Overview'. Elements of particular periods or places come to life through attractions such as Jorvik or Beamish or the Oxford Story but there is nowhere which attempts to address the comprehensive genesis of cities or the complexity of stories attached to that development. In consequence, visitors only see the key elements, the castles and cathedrals, but never the whole picture and therefore, so much of Britain's urban heritage is neglected.

While there are a number of futuristic museums (e.g., La Villette in Paris, Evolon in Eindhoven, Boston Computer Museum) these tend to be science/technology/industry focused looking more at processes or particular fields rather than at the future of cities and their citizens.

A 'City Exploratory' looking at future cities through the use of IT would offer real opportunities to capitalise on the popularity of both technology and 'futures' while providing an important educational resource and a means of engaging tomorrow's citizens in the technology of the next millennium.

Overview

It is proposed that the Exploratory will contain three distinct, but linked, elements:

Time Capsule will employ the latest technology in a virtual reality environment to fly travellers back in time, to experience 'Norwich Past' as a model of other cities, and forward to view cities of the future.

City Exposition (Technopolis) will comprise three themed, interactive galleries, grouped around a central circulation hub. Visitors will enter a dramatic central space containing orientation displays and introductory exhibits which will act as 'tasters' for the main galleries and also the technology to allow individual or group exploration of not only the structural elements of past and future cities, but also the process of urbanisation and the social, cultural and environmental consequences.

Time will include an archaeological presentation of the Norman and medieval remains beneath the site and offer an insight into the process of archaeological investigation. It will be possible to access detailed archaeological data via an Interactive Urban Archaeological Database currently being developed by the City Council, the Norfolk Archaeological Unit and English Heritage.

Time Capsule

Most visitor attractions and museums have a 'key draw' which provides both a focal identity and a novelty element likely to appeal to a wider than core audience. Probably the most exploited example of the genre has been the 'dark ride', pioneered in the 'role model' Jorvik Viking Centre in the mid 1980s, the 'ride' has been replicated, with varying degrees of success, over the last decade (Tales of Robin Hood, Oxford Story).

The benefits of the 'ride' are that it suspends belief by creating a journey into three-dimensional situations offering a degree of interaction well beyond the conventional cinema (smells, motion, touch, all around action). The disadvantages are that it is generally a fixed medium which is difficult to vary or up-date (when you've seen it once there is no incentive for a return visit), it is space hungry, not particularly secure or easy to supervise, mechanically/technologically complex and difficult to maintain. Worst of all, it may now feel rather old fashioned unless an enormous initial outlay is made in creating special ride elements (e.g., the new Disney Indiana Jones ride in California).

The use of virtual reality environments will remain key to the 'suspension of belief' within the time capsule although these will be supplemented by a fuller range of audio visual techniques:

◗ The use of partial wrap around virtual environments plus 3-D techniques will contribute to the 'reality' of the experience.

◗ The use of real time VR as well as video will add to the uniqueness of each ride.

◗ A range of programmable destinations will ensure a considerable variety of trips and therefore repeat visits.

Travellers are settled into an airliner-style environment, which travels

through space and time to specific periods in the history of Norwich. For example, they might "land" on Castle Green in AD 1075.

The craft travels forward through time to 2099 and settles close to City Hall. An elegant glazed structure surmounts the ancient market place and Gentleman's Walk. A regular arrangement of smart stalls selling exotic foods and imported goods criss-cross the site although transactions are cashless. The presence of Christmas trees indicates the festive season, although the temperatures are in the high 70s. The lack of background traffic noise is again significant and the only vehicles to be seen are electric, driverless taxis ranged along Guildhall Hill. The interpreter engages a passer by in conversation asking her the way to the Council offices. She indicates the Guildhall, now the centre for an entirely technologically based service networked out to homeworking staff and councillors. The old City Hall is now a leisure and hotel complex offering an endless range of virtual holidays to actual or imagined destinations. After further discussions about C21st lifestyles and the success of Norwich City in the European and trans Asian Virtual Football League, the interpreter returns and the capsule leaves for the C20th.

THE CITY EXPOSITION

The introduction to the Exposition will be the circulation hub - a dramatic central space containing orientation displays and introductory exhibits with a number of interactive access points. Presentation elements including video projections, lighting and sound effects as well as touch screen interactives will allow visitors to dip into some of the programmes available in the themed galleries. This will effectively be a high tech 'browsing catalogue' for the Exposition: People, Order and Trade.

PEOPLE

Roots: A genealogy database linked to interactive computers and a display wall

utilising a Geographic Information System. The visitor's ticket (a plastic switch card) will be encoded with details about them. On entering the card in a terminal they will be able to access information on the origin of their surname (e.g., French origin, craft origin). It may be possible to chart the genealogy of specific individuals if births/deaths/parish records are held on data files. The GIS monitor will provide information on whether particular surnames are concentrated regionally - this would be of interest to US visitors tracing their ancestors. The GIS could also help to trace historic migration patters (e.g., Dutch/Flemish into England, agrarian populations moving into cities). Roots will also provide the basis for a Millennium Doomsday project whereby, for a modest fee, visitors will be able to enter a data set on themselves as part of a permanent archive for accessing by future generations. There will be networking potential with sources in the local history library and the University of East Anglia (History Faculty and Centre for East Anglian Studies) and for genealogy databases nationally and internationally (e.g., Salt Lake City). This element will

provide the opportunity for either detailed interaction through the computer terminal or for passive observation via the large format GIS wall display.

Alter Ego: interactive computers allowing people to look at how "people like them" lived in the past or may live in future cities. The insertion of the smart card into the computer will provide information on the user (e.g., age, sex, employment, birthplace etc). The visitor will be asked to select a time period and the monitor will display information on the lifestyle (average day, diet, life expectancy etc) of a comparable person in that time period. Thus a 12 year old son of a factory worker now would see that in Victorian times he would have shared a room with 11 other members of his family in a tenement squashed between a brewery and a tannery, a 12 hour day sweeping chimneys, had no formal education and lived on a diet of bread and root vegetables.

Living in the City: Visitors will find themselves in an enveloping multi-projection evocation of the contemporary cultural life of the City. Up to the minute information on

Event Communications
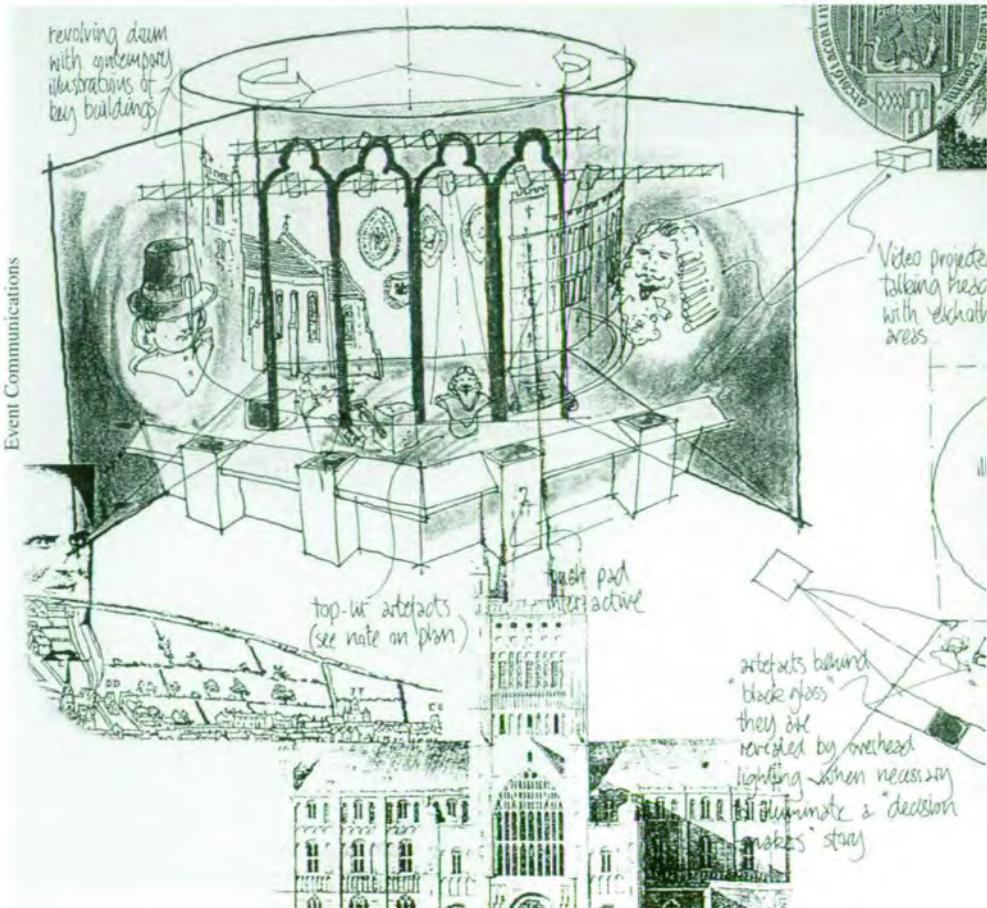
theatre, music, restaurants, exhibitions and events projected on screen and on monitors will provide a comprehensive guide to life in Norwich. Visitors can trace more information about interesting activities from the presentation through interactive monitors. For example, they can access the Virtual City for a trip to Norwich Castle to see the latest exhibition. A print out facility for orientation maps and the issue of exhibition hand-outs would be available.

ORDER

Decision Makers: This section will incorporate a range of media presenting individuals representing different groups responsible for shaping cities. Visitors to cities in general probably have a simplistic view of why these cities are like they are. This element of Technopolis seeks to unravel and explain the complexities of city development via the multiplicity of factions involved - central government, the church, the 'builders' (architects, engineers, planners), financial institutions, industrialists, shopkeepers, local politicians, the military, reformers and ordinary people. Visitors will be confronted by a major element in the development of 'the city' and the representatives of various groups will then argue that they were instrumental in bringing it to fruition. Maintaining the theme of diversity, the media used to represent the many players in the 'city story' will be various and will include:

· holograms of talking heads emerging from actually surviving representations of people from previous periods e.g., the civic portrait collection, sculptures including tomb effigies reconstructions from excavated skulls developed into animatronic represen- tations similar to the Jorvik reconstruction actors role playing

key figures from history e.g., in the way that the Science Museum has portrayed figures from George Stephenson to Neil Armstrong to interpret exhibits

The Norwich collection of Civic Portraits is the largest and most prestigious in the United Kingdom. It depicts an extensive array of civic figures who helped to shape the City's development as well as other local dignitaries such as Nelson. It is anticipated that the use of virtual reality and holography, for example, will actually bring portraits to life and, for instance, Augustine Steward (Mayor of Norwich in 1549 at the time of the Ketts Rebellion) will step out of his picture and recount the period to visitors. In this way, the fine collection of civic art and heritage will cease to be something enjoyed principally by art historians, and will be an accessible and entertaining vehicle to learn about the social history of cities. The Exploratory will provide a unique vehicle for interpreting art objects which are often seen as remote and elitist to the wider population and explaining their significance as part of everyone's heritage.

Citybuilder: A variation on the successful computer games SIM CITY, SIM CITY 2000 and SIM TOWER. This would be a large format, computer generated, 3-D animation of city development at any period over the last two millennia or into the next. It can also be either passive (i.e., wholly computer driven) or inter-active, whereby visitors, individually or in groups, can make decisions which will

change the way in which the city develops. There would be opportunities for special sessions during which groups could role play. This element would be presented in a 'set' replicating a Council Chamber of similar forum. Ultimately it may even be possible for people to 'walk round' the simulated cities by using VR head sets.

TRADE

Citywatch: This exhibit would comprise a multi-monitor wall controlled by touch screen computers and linked by satellite/cable to other historic UK and European cities. These links could be themed to provide a changing and evolving programme for visitors. At a passive level this would enable observers to, for instance, compare the historic shopping streets across six different cities during one month or the Christmas festivities within six market squares during another. At a more active level, complex, inter-active educational projects could be established so the school children in Norwich, Rouen, Koblenz and Maastricht could simultaneously study each others' cities through a live link. Local schools have recently been engaged in a similar project employing the technology at RAF Lakenheath to enable real time studies of volcanoes in Hawaii, as part of the JASON project.

Live Archive: A virtual reality walk around the streets of Norwich with the ability to zoom onto any building or space in real time then to access a data archive providing information about the building's history, its inhabitants and graphic/photographic material covering its former appearance or its predecessors. A similar system based on CCTV is employed for maritime interpretation at the Globe in Plymouth. *City Slices*: A sort of 'body scanner' for cities showing sections through key elements of the past, present and
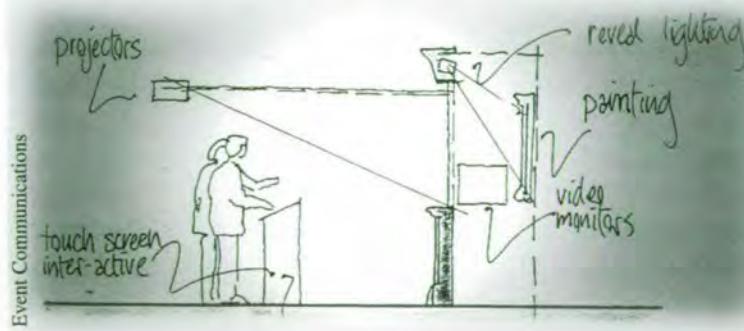
future city. Using a range of media, including architectural and virtual models, to illustrate 'slices' through cities, not unlike those in the Dorling Kindersley publications. This will allow visitors to have glimpses into parts of buildings or structures not normally seen.

SMART CARDS, NEW TECHNOLOGY AND VISITOR MANAGEMENT

The automated ticketing system will be based on a plastic smart-card which will hold a quantity of data relating to the transaction and to the purchases. These cards could be used not only at point of entry but also as access to different elements of the Exploratory. Personal details will request basic information such as name and origin of visitor. This will enable a personal and user friendly response from the terminals accessed within the Exploratory (e.g., 'Good morning Jenny and welcome to the Data Vault'). It will also assist to a degree with elements such as Roots in that the more information held on the access card, the less time the user has to wait at each Exploratory element. From the centre management perspective, this information will be useful in tracking issues such as user catchment and repeat visits and can assist in a targeted and personalised marketing strategy.

A similar system is used in the Musee d'Alimentation (Food Museum) in Vevey where visitors complete a lengthy set of questions concerning their height, weight, age, pastimes, exercise regimes etc. This encoded information then allows a high level of personal interaction with exhibits and a heightened level of satisfaction. Exploratory's questions could include post code, place of birth, age, job, special interests.

Visitor Management

Within the City Exposition, touch screen computers will provide an easily accessible medium for visitors to investigate options. They can indicate which exhibits are heavily used and

recommend viewing sequences to spread the visitor load. Like the Sainsbury Wing computers in the National Gallery, they will have the facility to print bespoked mapped routes for individual visitors. Overall, monitors located within the centre will alert visitors to key events and provide information of the day's programme. Again this will help to control visitor flows and monitoring at each element should facilitate controlled management and the avoidance log jams.

Technology will enable quality control through the 'smart card' regime but also through computer linked monitoring of display use, through video monitored movement patterns and through incentive related pre-coded questionnaires. The product can thus be tailored to the users specific needs and requirements rather than the speculative judgement of the traditional attraction /museum manager as to what might 'pull the punters in'.

In terms of more strategic management, the database built up from the access card information will establish a clear profile of users in terms of their origins, interests (i.e., use logging of different exhibits), social/age profile and repeat visits. This will allow targeted marketing, personalised mail drops, market penetration in areas of poor attraction and exhibition reformatting or replacement to match use. It would also facilitate a 'relationship' between the Exploratory and the visitor sustained by newsletters, user clubs, or friends organisations etc. This then transforms the visitor from an anonymous individual who arrives once then disappears to someone who has an

identity, a link with the Exploratory and whose views and interests can shape the way that the attraction develops.

Networking and Outreach

The Exploratory is intended to be the first step on a path of exploration to the city in the UK, in Europe and beyond. It is hoped that the Exploratory will whet the visitor's appetite, sending them out to discover particular elements of the city in more detail.

Nationally and at a European level there are clear opportunities to establish links through bodies such as the English Historic Towns Forum, the Regional Tourist Boards, English Heritage, the International Commission on Monuments and Sites (ICOMOS), the
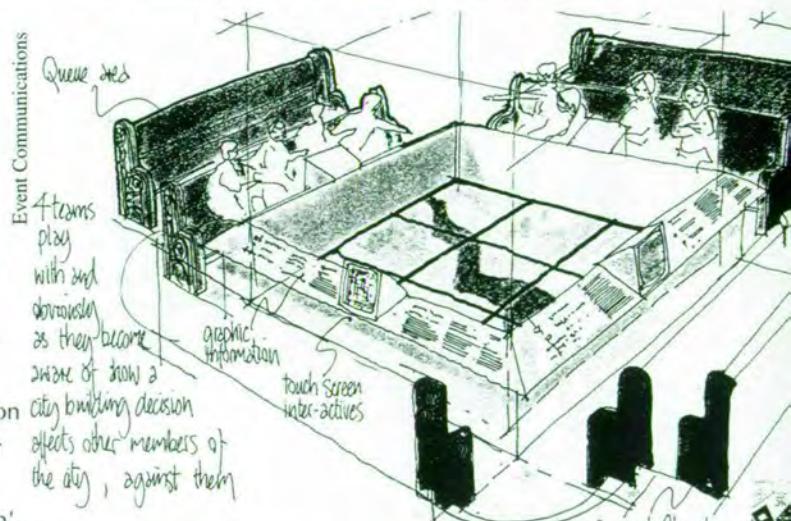
EU or the Council of Europe. The most exciting opportunities are probably for real time digital links and for data exchange, but also for visits by specialists, re-enactment groups, researchers and schools. Finally, at a world wide level, the Internet and Information Superhighways clearly offer significant potential as databases develop and become more accessible.

The Exploratory is Norwich City Council's bid to the Millenium Commission for funding. The design concept was developed by Event Communications Limited.

Michael Loveday is Acting Head of Planning for Norwich City Council

THE NATIONAL TRUST'S MILLENNIUM PROJECT

A THOUSAND THREADS: Linking People and Place

From Information Supplied by
Alex Youel and Camilla Ween

The Thousand Threads Project is the National Trust's response to a request from the Millennium Commission for imaginative projects. The key to the project is a series of visitor centres or "gateways" at the thirty National Trust sites listed below. Four demonstration sites have been developed in more detail: Avebury, Cragside, Fountains Abbey and Snowdonia. The selected project sites demonstrate the full range of the National Trust's portfolio and include landscapes, historic buildings, archaeology and industrial sites.

Avebury	*Lyme Park*
Buckland Abbey	*Malham Tarn*
Charlecote Park	*Mottisfont Abbey*
Clumber Park	*Osterley park*
Cotchele	*Penrhyn Castle*
Cragside	*Petworth House*
Culzean Castle	*Snowdonia*
Erddig	*St Just Coast*
Fountains Abbey	*St Michael's Mount*
Glencoe	*Stowe Gardens*
Gower Peninsula	*Strangford Lough*
Kedleston Hall	*Waddesdon Manor*
Kingston Lacy	*West Weald*
Knole	*Wicken Fen*
Lake District	*Wimpole Hall*

The Trust intends that "the projects will not be warehouses where ideas are stored, but rather factories for the production of ideas". The appropriate use of multi-media is central to the communication strategy at each site. At Avebury, for example a virtual reality reconstruction will be used to illustrate what the site was like in the Neolithic period and over the millennia. Whereas at Cragside and Snowdonia the still effective Victorian multi-media technique "Pepper's Ghost" will be used. A further feature of the project is the access to fragile and inaccessible collections that the new technology will give. At Cragside, Petworth and Waddesdon visitors will be able to explore collections through interactive technology. At Fountains they will also be able to access the existing computerised records of the Abbey buildings using Auto Cad and call up information on individual surviving stones. At Avebury, the enormous archaeological collections will be accessed through digitised databases of artefacts. The themes for interpretation will in each case be site-specific, but all the sites will be linked by new technology and local, national and international links will be made where appropriate.

Design Concept

Each exhibition will be housed within an existing building, itself a key part of the site with its own significance. The designs of each gallery will therefore be site-specific, acknowledging and responding to the 'spirit of place' of each site. The designs will not seek to imitate the buildings' aesthetic, but will reflect the forward-looking aims of the Thousand Threads Project in their sensitive use of new materials and technologies. Modern communication technologies are becoming increasingly 'invisible', bulky computer monitors have been replaced by slim LCD screens, many different surfaces can be made touch-sensitive; an electronic signal can turn a pane of glass into an opaque screen and then return it to its transparent state. The designs will utilise these more discrete new techniques to ensure that technology is the servant rather than the master and that the exhibition sits lightly yet comfortably within its historic setting.

The archaeological landscape is represented by the World Heritage Site of Avebury. Monastic sites and 18th century gardens are represented by Fountains Abbey and Studley Royal Estate, also of World Heritage status. The grand English country house and estate are represented by Cragside the baronial home of Lord Armstrong. The
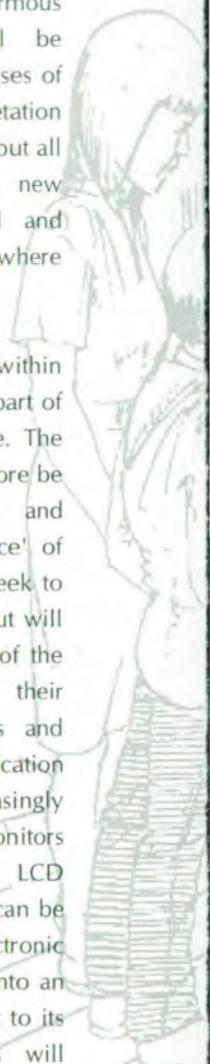
Snowdonia property shows the importance of sustainable development in the heart of one of the most visited regions of Britain.

Avebury

Avebury is the largest and most important prehistoric sites in Britain: and one of only fourteen World Heritage Sites in the country. Part of the appeal of Avebury lies in its mystery and in the fact that the nation's best minds have not been able to solve it.

A series of touch-screen monitors around a 'fly-by-wire' model will give visitors an opportunity to explore the history of the site and to experience its scale and environment by allowing them to move through simulated reconstructions. On other terminals, the various phases of Avebury's history and its monuments will be reconstructed by means of virtual reality animation. Visitors will be able to select a time frame from a time-line at the bottom of the screen to explore the landscape with its monuments in the chosen period. A computer will invite visitors to enter their UK postcode or country of origin to find out where the nearest Neolithic site to their home is. This computer will be linked to a database of Neolithic sites in Europe.

In the introductory orientation area, visitors will be able to take a self-guided 'virtual reality' tour of the site as it is thought to have been in Neolithic times. Using a rollerball, they will control a full-colour 3D graphic reconstruction, based on the latest archaeological evidence which will take them over the extensive site.

Fountains Abbey and Studley Royal Estate

Fountains Abbey and Studley Royal Estate is a World Heritage Site and, arguably, one of the foremost visitor destination in the North of England. The ruins of the Abbey date back to the 12th century and are the most extensive Cistercian ruins in Europe; the 18th century Studley Royal water gardens are

an unusual survival of what was once a popular genre.

As visitors explore Fountains Abbey and Studley Royal they follow the lakes, ponds, sluices, cascades and water courses. All these images will be brought together in the Thousand Threads project within the Fountains Mill.

Use of Water by the Cistercians

The monks of Fountains invested many resources in the supply of sufficient water for the church, the monastery and its industries, and various aspects of this use will be examined. It will begin with an exploration of water as a medieval symbol and its uses in such liturgical practices such as baptism, blessing, washing of hands before mass by the celebrant, ritual cleansing and washing of feet. An interactive will explore our present day water consumption, encouraging visitors to think about their own use of water for such daily activities as bathing, preparing meals, washing, flushing lavatories and so on.

How Aislabie Used Water

In the 18th century water was increasingly appreciated for its natural beauty and for the pure enjoyment it could give, these qualities were fundamental to the creation of the huge mirror-like lakes at Studley Royal Estate. Visitors will be given the opportunity to design a landscape using similar resources to those that Aislabie had to hand. Interactive computer terminals will allow visitors to discover the complexity of the design of such gardens as Studley Royal and to appreciate the skill and imagination that went into their creation. Starting with the site as it was before the designer's intervention, the visitor will be offered a range of possibilities that include making adjustments to the topography, planting trees, laying lawns, introducing ha-has, ponds, brooks, waterfalls, fountains and constructing pavilions. It will be possible to 'test' the result on screen and have a print-out of the

finished design.

Within the dairy visitors will be able to see a reconstruction of the Abbey as it was after completion, presented in the form of a computerised graphic rendering. Visitors will have access to English heritage's Auto-Cad survey of the ruins and they will be able to pinpoint the exact original location of each of the exhibited architectural fragments by means of a dynamic computer presentation.

So, the National Trust's response to a request for imaginative projects from the Millennium Commission has been to propose the use of multi-media in a series of nationwide visitor centres or "gateways". Interpretation will follow these developments with interest over the next year. We look forward to seeing these outline proposals developed into detailed imaginative schemes worthy of the millennial celebrations.

Alex Youel is Head of Marketing at the National Trust. Camilla Ween is Project Manager of the Thousand Threads Project.

This text is based on a presentation they gave to the SIBH seminar on Sustainability at Cropston in June.
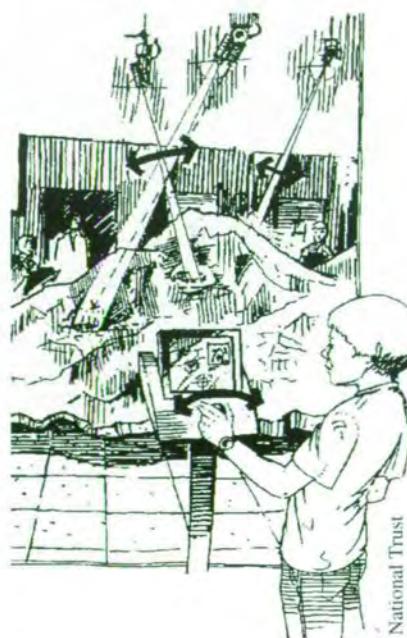
QUAY STAGES

Rob Powys-Smith

IN FATHOMING THE POWER OF EXPLORATION

To any pasty-faced fellow land lubbers out there whose idea of things maritime consists of guiltily enjoying Radio Four's signing-off signature tune 'Sailing By' or lending an ear to the somniferous tones of the shipping forecast, then an afternoon at the National Maritime Museums 'All-Hands' Interactive Gallery is quite simply, compulsive.

The Gallery nestles amongst a 150 seat lecture theatre, an activity room and a seminar venue which when combined are better known as the Leopold Muller Education Centre. The gallery covers 350 m² of floorspace and has been open for just over a year. It was the brainchild of a band of former teachers who together make up the staff of the Education and Interpretation Department. 'All-Hands' incorporates three sections: firstly, there is an area devoted to the 'people' of the sea: a Viking, Tudor explorer, midshipman, Victorian shipbuilder and twentieth century yachtswoman. The second section exhibits the 'skills and technologies' that seafarers used in the past and those that apply today: diving, propulsion, pilotage, gunnery, cargo handling and signalling are the themes represented. Finally, there is an Activity Room which is used for informal workshops and activity sessions which are fronted by one of six interpreters (or a guest presenter) or for formal teaching. The interpreters' role spans orientating visitors in the galley, aiding their handling of the technology, shedding light on discovery methods and flagging-up unfamiliar concepts. In addition, they supervise access to the handling collection.

The designer's desire was to consciously avoid at all costs (the gallery budget was a slimline £400,000) it deteriorating into a 'set-aside playpen', a cul-de-sac for 'cast-away' offspring. The gallery is aimed at school groups, mainly Key Stage II pupils who themselves use 'pester power' and

act as catalysts to attract other target audiences - parents and other members of the family. Words and pictures, activities, real instruments, tools and objects promote questions, engage observation, activate hypothesis forming and demand problem solving. These are noble goals, if they are achieved then attainment targets can be met, in Science and Life Processes: (Levels 4 and 5); Physical Processes: (Levels 3, 4 and 5); Living Things: (Level 3) and Humans as Organism (Nutrition: Level 3) and in History: Vikings in Britain, Life in Tudor Times; Victorian Britain; Britain Since 1930 and Local History.

The interactive technology is reassuringly simple and efficient - 'hinges and boxes' with doors to open, levers to pull and wheels to turn. These go hand-in-hand with replica lockers, chests, masts and oars that are reproduced with meticulous care and attention to authenticity and detail. A 'buffer zone' for rest and recuperation is created by the Museum's largest model (scale 1:16, length 6.5 m). This allows for organised groups to sit and reflect, gather round their group leader while families and elderly folk can relax in front of a video narrative told by the crew of the HMS Cornwallis.

Worksheets have been jettisoned in favour of panels that prompt stimulating questions and pose (illustrated) problems. These are found on the underside of discovery box lids and on the rearside of rotational plinths therein. In tandem with these are peepholes, tactile artefacts (rivets, compasses, nylon and kevlar sheets, winches and pulleys) and objects that can be traced, rubbed or cast (decorated replica wood, stone and metal Viking carvings). Each 'people' exhibit, laid out in a calculatedly structured grid pattern, consists of relevant props (oak-beam hulls, anchor chains, barrels and ropes), a cabinet displaying arresting objects (a portable soap tablet, diaries, log

books and a fold-up telescope and the storm-damaged wheel of Tracy Edwards' yacht, the 'Maiden'), a model vessel and 2/3 discovery boxes. Rivet marks on a ship builders steel chest, a pungent Viking herring and a basket that contains items from Tracy Edwards' 'comfort box' (which includes disposable underwear, begging the question - what would you pack in your comfort box survival kit?) are testimony to the accuracy of interpretive detail. This area plays second stage to the more glamorous 'skills and technology' section. It provides the calm after the turbo-charged, adrenaline-fuelled storm that educational psychologists note as the 'orientational phase' (opening 10 minutes) of a gallery visit. Yet here the curious and inquisitive gain a 'hands-on' appreciation of different historical eras from replica objects and exhibits. It lends a dynamism to the overall experience.

Dynamism and movement are also supplied, as a series of masts lead the eye onto the skills and technology interactives. An imitation weathered sea-groyne divides the buffer-zone from the signalling section. Here in order to transmit messages, flags are furnished with basic instructions, alphabets and codes. Text panels supply the historical and chronological framework. These conspicuously lack jargon and illustrate concepts with photographs and skills with a lively script that recreates dramatic stories. Entertaining and informative vocabulary breathe immediacy and vivacity.

The 'skills and technology' section sees the pace of activity increase, though never to a degree where things get out of control. LOAD UP! involves the user sitting aboard a quayside crane loading shipping crates onto a wooden tug, which if overbalanced, tilts to left or right on a pivot and triggers a red (danger) or a green (safe) light. Constructed from wooden

boards, the interactive's Fisher-Price chunkiness affirms it an air of indestructibility. HOW DOES IT FEEL? explores the qualities required of deep-sea divers to assemble, in this case a three-piece drill bit in the dark. A frosted perspex interface precludes any glimpse of the objects as one strains in the rubber gloves to complete the task. On the other side of the tank partition DIVING DEEP! enables the user to insert hands into a submersible's arms as one begins to appreciate the operational qualities needed to carry-out anything constructive with a pair of pincers. STEER CLEAR! asks you to manoeuvre a cross-channel ferry out of Dover harbour using the helm's steering column, the ship's telegraph, a large-screen video wall and several tracking monitors. Angles, speeds and distances need to be quickly calculated in the restricted space. TARGET PRACTICE! offers the user an opportunity to map the trajectory and set the target of a surface-to-air missile. A central screen illuminates the dark capsule's interior, a thundering crescendo follows a direct hit. SET SAIL allows you to direct an air-stream into the sails of a model yacht, which when filled move it along the central bar of a revolving aluminium frame. Two angled tanks empower the user to pump pistons and turn ship propellers. Next to these is a gleaming brass ship's telegraph from a 1951 P&O cargo boat which offers the chance to send a message from the Bridge to the Engine Room.

"The Navy, Sir, is not a humorous institution" barked that salty old sea-dog Captain William Bligh. Fun and enjoyment are key factors in creating an environment in which young people can learn and develop. Although the darker side of sealife has been minimised. Walking the plank, 'press-ganging', shinning-up the rigging, scurvy and picking weevils out of biscuits are only given cursory treatment and keeping watch on a pitching schooner, for instance, if interpreted well might convey the 'feel' of life at sea and engage the emotions in a moving, affective experience.

The old Chinese proverb 'I hear and I forget/I see and I remember/I do and I understand' is fulfilled admirably. One detects a real determination on the part of the users to concentratedly observe,

thoughtfully enquire, energetically socially interact and expressively co-operate. A primal element inherent in the human psyche is the satisfaction gained from a task correctly and efficiently executed. This quality helps quash any semblance of world-weary cynicism from teenagers and adults. There is a boxed spectrum of skills needed to meet the range of activities. Often in formal groups one can observe mini 'task forces' congregating around an interactive. A doer, an observer, an adviser and a (physical) helper seem to form groups. They inject an urgency and purpose to the proceedings, help stimulate exchanges of ideas, agree and select viable options and cement the resolution of workable theories.

Only gimlet-eyed pedants have offered views which are contrary to the overwhelmingly positive ones in the comments book. The more interesting include: "an extraordinary mix of education and fun", "the supervisor's care and attention made all the difference ... the kids needed her direction", "it's the only way to drag kids into a museum", "I wish the USA had something like this". From a teacher on a pre-school visit "I can't wait to bring the group" and "it raises communal discussions and social intercourse".

The multi-sensory nature of the experience might be developed by using 'aroma-boxes' releasing the smells of trade produce such as rum and molasses from the West Indies, spices from the sub-continent and tobacco from the Americas. Naval costumes of local historical characters like Samuel Pepys and Sir Walter Raleigh could also be used. Audio-wands could playback recorded extracts from Captain Cook's log book or Tracy Edwards' diary. Myths and literary legends could supply new figures such as Jason and the Argonauts, Odysseus, Long John Silver and Captain Cat. Other themes linked to meteorology, associated maritime careers (life boatmen, lighthouse keepers) and current topics like the

hazards of sea transport (the Herald of Free Enterprise, the Braer tanker spillage), the ramifications of new EU fishing directives and the agglomeration of Britain's Imperial Commonwealth past would provide contemporary relevance andenhance the impact that the gallery has on its visitors.

Looking to the future, educationalists and designers will have to chart a course between, on the one hand, the Scylla of increasingly 'hi-tech' communicative media and, on the other hand, the Charybdis of supposedly waning literacy levels.

While King Canute believed the waves would obey his orders, school boys today

National Maritime Museum

commit examination howlers like "Columbus circumcised the globe with a large pair of clippers". The interpretive techniques used in the 'All-hands' gallery ought to mean that the parents of the next generation can rest assured that the likelihood of similar errors occurring are considerably reduced.

Rob Powys-Smith worked as an Enabler at the All Hands Gallery as part of his work placement for an M.Soc.Sc in Heritage Management. He is currently writing a dissertation on the educational effectiveness of child centred interactives for children and family groups.

INTERPRETATION

news

The Interp Edge

John Veverka is offering members of SIBH free review copies of The Interp Edge magazine. See Interpretation Journal Winter 1994/95 (57) page 19 for a review. Perhaps in response to the comment that much of the current copy is promotional advertorial John is asking for offers of papers from SIBH members, and can supply author guidelines on request.

Contact:
PO Box 398, No. Stonington, CT 06359
Telephone: (800) 454-7890

HII news

Heritage Interpretation International have just forwarded their last issue of HII News which as usual is packed with news and events. It includes a review of heritage management in New Zealand and the latest plans for the next World Congress on Heritage Interpretation to be held in Sydney in September 1988. At US $60 for three years membership it is quite a bargain.

Membership Enquiries:

Heritage Interpretation International
Box 7451, NECSC,
Edmonton,
Alberta, Canada T5E 6K1

To contact Helen Collinson,

Editor of HII News:
E-Mail:
Helen Collinson@ualberta.ca

WEST SUSSEX CD
ENVIRONMENTAL AWARENESS IN SCHOOLS

West Sussex County Council have commissioned Focus Four Interactive to produce a CD-ROM aimed at providing information to schools on how people have continually changed the environment from even the earliest of times. The programme will, by using examples found in West Sussex, trace the development of human activity from pre-history, when people trod lightly on the ground to today when the environment is under increasing pressure.

The CD is aimed at key stages 2 and 3 of the National Curriculum and will be highly interactive with pupils able to search under a range of topics. The program will be organised in historical periods, such as Roman, Saxon and Medieval. Within each period the pupil will be able to look into subjects that run throughout the programme such as Transport or Settlement. It is hoped that pupils will begin to see not only the differences between each period but also the similarities and thereby begin to understand that the West Sussex landscape that they see today has evolved over thousands of years.

Phil Davies, Focus Four Interactive

Interpret Britain (which is the short title of the Society for the Interpretation of Britains Heritage) was formed in 1975 to:

▶ *provide a forum for discussion and exchange of ideas on the Interpretation of Britain's Heritage, both urban and rural;*

▶ *disseminate knowledge of interpretive philosophy, principles and techniques;*

▶ *promote the role of interpretation and its value among those involved with recreation management, conservation, education, tourism and public relations in national and local government, charitable bodies and private organisations.*

Interpretation is the process of communicating to people the significance of a place or object so that they enjoy it more, understand their heritage and environment better, and develop a positive attitude to conservation.

The opinions expressed by authors in INTERPRETATION are not necessarily those of the committee of SIBH.

Membership of the Society

Personal members can join the Society in the Full or Associate categories, by election depending on qualifications and/or experience, or in the Affiliate (non-voting) category, which is open. There is also a category of Student membership.

Organisations can join in the Affiliate category, choosing the number of Journal copies/representatives they require. All members receive the Society's journal and other mailings, and have the opportunity to participate in a range of society events.