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New Angle creates multimedia experience for Museum visitors

by Lynn Wright

Visitors to the National Maritime Museum Cornwall can enjoy and learn from a whole raft of audio-visual installations and fun interactive touchscreens courtesy of video-&-multimedia production experts New Angle.

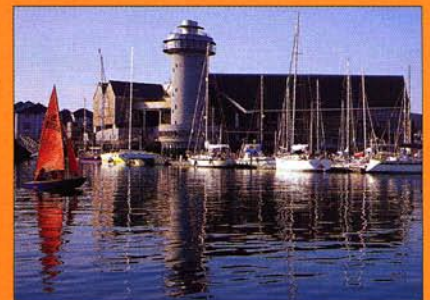
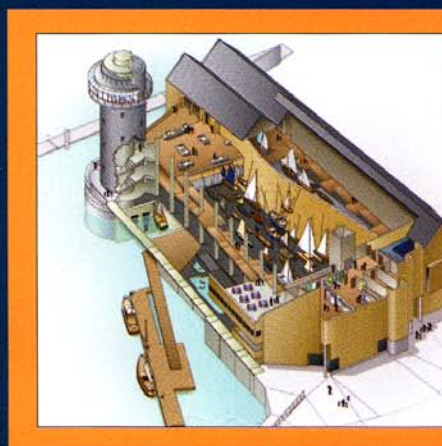
Few places in Britain can match Falmouth's long and proud maritime history, and the town has recently gained a major attraction that reflects this special relationship with the sea. The National Maritime Museum Cornwall, which opened in December 2002, is housed in an impressive custom-designed building on Falmouth's waterfront. Visitors to the museum will be able to explore all aspects of Cornwall's maritime heritage through 12 galleries that offer hands-on displays, interactive entertainment, and video installations.

London-based video-&-multimedia production company, New Angle was responsible for the interactives and installations for the *Set Sail*, *Flotilla* and *Boatbuilding* galleries, along with programmes for the *Tidal Zone* and information plasmas at the Museum's entrance.

Audio-visual sequence

The *Set Sail* gallery brings to life the story of nine boats in an audio-visual presentation that introduces visitors to the themes explored throughout the rest of the Museum. Part documentary, part abstract visuals, the presentation employs archive film footage, new digital video, still images, and 3D animation to create an immersive experience across a 25-x-10-foot video wall consisting on three large front projections and nine rear projections.

In the vast *Flotilla* gallery, filled with 17 suspended boats, visitors can find out more about each boat through seven interactive stations that feature video and 3D models of the boats. *Boatbuilding* offers the chance to explore the principles of boat construction through a series



Housed in a multi-million pound building designed by architects Long & Kentish on Falmouth's harbourside, the National Maritime Museum Cornwall offers visitors the chance to explore all things maritime.

of fun interactives on four touchscreen displays.

With previous credits such as the Thinktank Discovery Centre in Birmingham and the Singapore Science Centre, New Angle was invited to submit a proposal for the National Maritime Museum Cornwall project by Land Design Studio, the Museum's exhibition designers. In a competitive pitch against other new media companies, it was essential, explains David Bickerstaff creative director of New Angle, that the team be able to demonstrate an understanding and enthusiasm for the subject matter, as well as be inventive and creative in their approach without proposing potentially expensive solutions.

With the job in the bag, New Angle received a comprehensive brief from Land Design Studios and Tim Gardom Associates. "It was obvious to us that

there had been a lot of brainstorming and research activity prior to our appointment," says Bickerstaff.

Once the scope of the project had been established, New Angle began to flesh out its proposal with meetings with curators, writers and hardware suppliers.

Having created the original concepts for the galleries, Land Design Studios was open-minded about the onward development, which, says Bickerstaff "resulted in a valuable period of experimentation and collaboration".

"Momentum was always maintained by making the decision process inclusive and keeping the client involved at each stage of progress, no matter how small," he says.

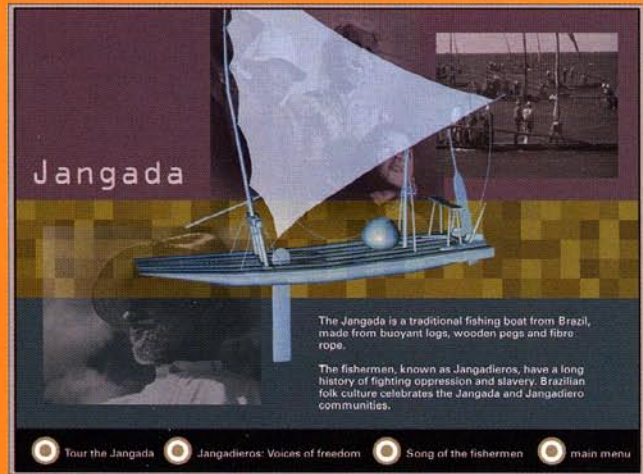
To ease the workflow of such a large scale

Flotilla/Boatbuilding galleries: creating informative and entertaining interactives

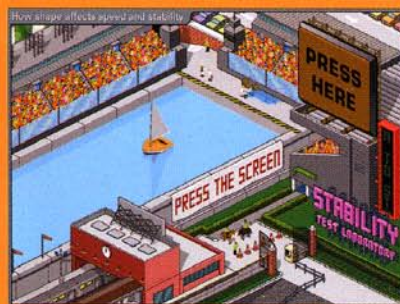
The Flotilla gallery is a vast space that extends over three floors, and is filled with 17 hanging boats. Seven interactive stations each consisting of a touchscreen and winch handle are placed along two ramps that connect the first and second floors. The *Flotilla* interactives tell the stories of the 17 boats in a series of short movies. 3D models of the boats that can be scrolled or scanned by turning the winch handle, allow the visitor to make connections between the physical and digital displays. The animation of the 3D boats can be sped up or stopped by the winch handle interactions. The

visitor can choose their own subject matter and author their own experience, with each boat having three video stories attached to it.

As the interactives in these galleries were set into physical displays, it was important that the graphic style chosen by New Angle worked with the exhibition graphics. Equally important was the need for the interactives not just to repeat the exhibit's subject matter but allow visitors to explore it further. Accessibility, dwell time, and information flow were all considerations when planning the architecture of the interactives.



The *Boatbuilding* interactives saw the New Angle design team work closely with the Museum's technical experts on the gallery's subject matter – the principles behind boat construction such as buoyancy, shape, speed, propulsion, and so on. Key to the success of the four touchscreen interactives in this gallery is a strong graphic and animation style. Not only does this enhance the 'playfulness' of the interactives, explains Bickerstaff, it helps convey complex scientific principles in a way that's understandable, yet interesting and enjoyable for visitors of all ages.



project, Bickerstaff involved just a few key decision makers from the design and client teams in the concept discussions – only milestone presentations were given to the full team. "This cut out a lot of bureaucracy and allowed us more time to experiment and test out scenarios," he says. "It's much easier to discuss and progress ideas with three or four people than with a full team of 12 or 14."

The biggest challenge for the New Angle team was sourcing the vast amount of images and video needed for the project. The *Flotilla* interactive, for example, required a choice of three one-minute video

stories for each of the 17 boats on display. "That's 51 stories to research, collect images and video sources for, clear copyright and digitize before any editing or presentation can commence," says Bickerstaff.

Most of the still images were sourced through the National Maritime Museum in Greenwich, which has an extensive library of donated and collected material. All the stills imagery was digitized to New Angle's specification by the museum's photographic services department and supplied to the team on CD.

New Angle's research team was responsible for finding the bulk of the moving imagery, which

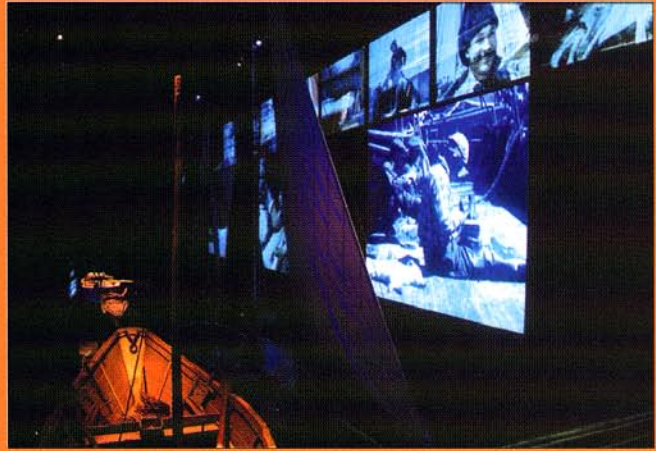
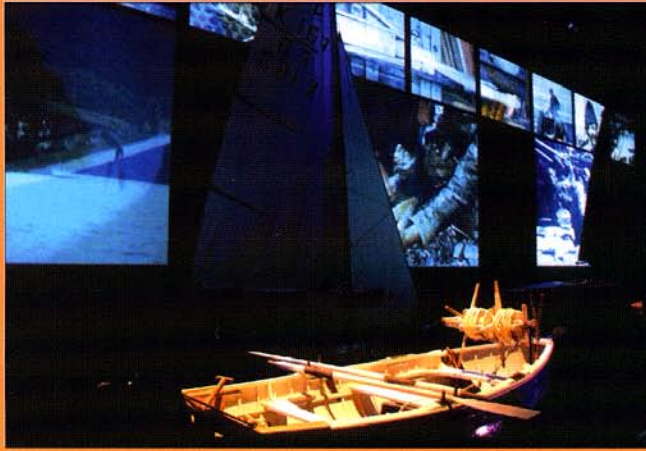
involved a great deal of detective work and persistence, says Bickerstaff. Some footage had been donated to the Museum already, but for the rest the research team turned to independent filmmakers, private individuals, and institutions such as the BBC.

Footage was supplied mainly on Beta Sp or DigiBeta tapes, which the New Angle team captured using Digital Voodoo D1 64AV cards in Apple Power Mac G4s.

"These cards save video as QuickTime files with no compression, capturing and playing real-time D1 PAL directly through Apple Final Cut Pro or Adobe



Set Sail installation: a mixed-media sequence that works as an introduction to the Museum



One of the most visually impressive installations New Angle created for the Museum is a vast video wall in the *Set Sail* gallery. Roughly 25 feet wide by almost ten feet high, the wall consists of three large front projections and nine rear projections, and is supported by a 32-speaker matrix. Serving as a 'title experience', visitors enjoy a visually powerful introduction to the Museum in a ten-and-a-half minute sequence.

"The challenge was to produce a powerful cinematic experience using mixed media of differing quality to flesh out the themes explored throughout the Museum without being too narrative," says Bickerstaff.

Storytellers

The first stage of development was to devise a timeframe and architecture for the sequence, upon which the writers could base their research and scripts. Nine boats feature, loosely themed into three parts – work, design and leisure – and are linked together by a series of abstract sequences including morning clouds, river reflections and a thunderstorm.

New Angle decided to use the large projections to tell the documentary part of the stories, and the nine smaller projections to reinforce the stories, using a more abstract montage of content. To ensure that the screens linked seamlessly, the team decided to work on large After Effects projects that could be cut down and pre-composed into individual screens for the final

production. "It meant we could see and manipulate all 12 screens at once and play with the scale more effectively," explains Bickerstaff.

Using a combination of film footage, digital video, 35mm stills, 2D and 3D animation, Bickerstaff worked on 12 After Effects projects simultaneously, to produce a montage of imagery that constantly moves across all screens, rotating, dissolving and animating. Some sequences were made up of multiple layers of large still images (20,000 pixels wide), animated across all 12 projects at once to simulate drifting clouds. "The render times were immense because of the complexity of the montage and the large number of edits required to keep the sequence moving," says Bickerstaff.

The projects were then cut down into individual D1 renders and transferred to an Avid system where the sequences were engineered together for 12 MPEG video servers. Timecode accuracy was crucial to the success of the installation. The soundscape had to be completed on site by sound designer David Mitcham, as all lighting and sound cues were triggered from the timecode generated by one of the MPEG sources.

Only when the video wall was installed could New Angle be sure of the success of the project. "Managing client expectation was interesting as we could only assure them of what we believed the final outcome would be," says Bickerstaff. "We were fortunate to have a client who showed great belief in what we were trying to achieve."

Software

Macromedia Director, FreeHand, SoundEdit
Adobe Premiere, After Effects, Photoshop
Maxon Cinema 4D
Discreet Cleaner

Hardware

Apple Mac G4 933 Digital Voodoo D1 64AV card
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Medea 300 video RAID drives
Apple Mac G4 400 and G3 350
Compaq P4 1.8GHz PC
Sony PD 150 and PC9e video cameras
Nikon F80 SLR camera
Iiyama and Compaq touchscreens

Details

New Angle, www.newangle.co.uk
020 7713 1277
National Maritime Museum Cornwall,
www.nmmc.co.uk

Premiere," explains Bickerstaff. "With investment in storage, this proved a really cost-effective solution for capturing and editing the large amounts of video content within a very tight budget. The Digital Voodoo cards use SDI in and out so interfacing with Avid systems for final mastering was simple and totally lossless."

3D renditions

Producing 24 3D models of the boats was another big challenge. Accuracy was paramount but as little visual reference material was available, the team had to spend time amassing photographic notation and measurements before they could start constructing the models in 3D. Throughout the process, they worked closely with the Museum's curators to ensure all details were correct.

The models were built in Maxon Cinema 4D. "The speed of its rendering engine helps the modelling and manipulating of polygons, particularly when using hyperNURBs, which was wonderful for defining and editing the curves of the boat hulls," says New Angle's 3D illustrator Mark Crofts.

"Cinema's materials and the material manager gives good control over the properties of an object

and ease the editing or creation of a new material and applying it to the object," he says.

The other software used for the project was chosen for familiarity – "the better you know a software's capabilities, the more experimental you can be with its parameters," says Bickerstaff.

"For us, Director is the industry standard for multimedia," he adds.

From pitch to appointment, production and installation, New Angle spent almost 12 months working on the project. Responsible for nearly 80 per cent of the software and video content for the Museum, the volume of work that New Angle needed to complete within the deadline was immense and the studio had to devise an intensive work schedule according to Bickerstaff. A good collaborative relationship with the client helped smooth the production process. "We were lucky that the client and the design team displayed great belief in what we were aiming to achieve within the timescale," says Bickerstaff.

The National Maritime Museum Cornwall is offering free entry five days a week, Wednesday to Sunday, until February 19 – after which an entry fee will be charged.