THE DOUBLE DECEPTION OF I CORSARI

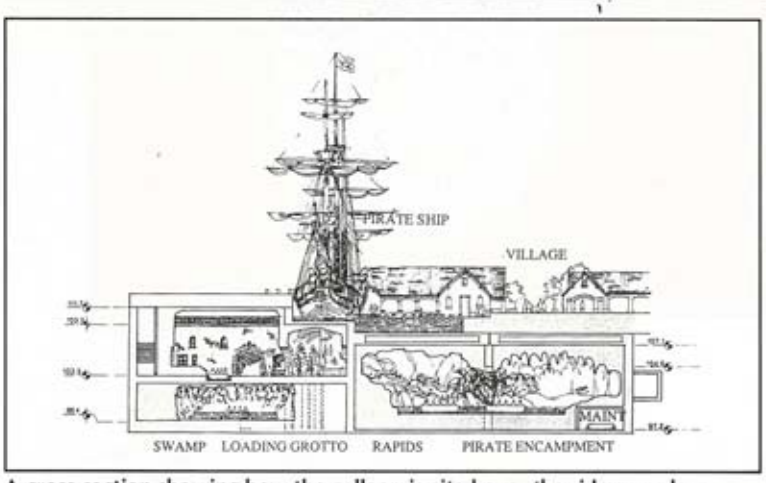
John Offord goes deep behind the scenes of a new and unique 'technological' ride at Gardaland in northern Italy

Hidden within the 7,000 square metre maze of a huge purpose-built underground concrete nuclear-type bunker located underneath a pirates' galleon, and sited within the popular Gardaland leisure park on the south-eastern shores of Lake Garda, is a new 'ride' that has been drawing visitors in their hundreds of thousands since its opening in the Spring of 1992.

'I Corsari' (The Legend of Jason Montague and the Black Corsair) is the name of this unique pirate adventure, and its special interest to us is the way creative talent, most particularly from the US and UK, has been harnessed to provide the ultimate in magic, mystery and deception. You will be easily deceived on this ride from the moment you make your way down through the hold of the galleon, and queue up for the underground boat journey. When you've finished the quarter-of-a-mile circuit you'll probably want to go round again, and again, as most visitors do, either in an attempt to see all the bits you missed or in a vain attempt to work out how it was all achieved.

The magic of the scenery, the flowing water, the movement and so on is an application of more readily understood skills. But the behind-the-scenes imagineering that was produced largely 'off-site' is much more secret and for the layman probably impossible to figure out. However, I'll attempt, with assistance from some of the principal people involved, to let you in on a few of the details.

First, I should set out to put the adventure into context. The ride uses a number of pairs of 20-seater boats which proceed from the grotto loading area through a sequence of 18 separate 'scenes' of various lengths. The whole ride tells a story, rather than running through a continuous sequence. Each of the scenes is a theatrical set, with a show that follows the boats' movement, allowing a fully planned sequence. The activity in each of the scenes involves complex animatronic human figures, trees and animals and even special effects ranging from water explosions to swimming rats. Audio plays a major part in every scene, with general background tracks and many spot effects tracks for specific effects. A theatrical lighting scheme and many optical, video and slide special effects all combine to produce the magic that is special to 'I Corsari'.



A cross-section showing how the galleon is sited over the ride complex.

Project management for this great adventure was in the hands of Mellon Stuart International of Orlando, Florida and the key names involved with all the specific elements of mystery (see comprehensive listing at end of this piece) are, as you will note, either by name and/or location, a high-powered bunch, well-versed in handling out-of-the-ordinary projects.

Overall production was in the hands of Richard Crane. "The project has a number of obstacles to overcome," he explained, "not the least of which was the extremely tight schedule in which to complete it. By the time all of the approvals had been obtained, there was less than one year in which to complete the design, fabricate and install. The reason it was successful is due entirely to the fine co-operation within the team and their orchestration by Mellon Stuart International.

"Geographically, the team included members from Florida, California and the UK and a couple of meetings along the way were necessary but most of the co-ordination was accomplished electronically through facsimile messages and by transmitting drawings from one computer to another through telephone

Gardaland and the I Corsari pirates' galleon.

Scene 16: the great battle is about to commence with cannon balls sending huge geysers of water into the air.

From concept through to reality. The sea monster makes its appearance.

modems. Just a few years ago this could never have been accomplished in the time available."

The project was sensibly organised into three phases of work: outline design, detailed design and production and each stage was approved by the client before the next was begun. Because the initial work was fee-paid, the right amount of time and effort could be put in to develop the ideas and their costs, and the owners of Gardaland had accurate information upon which to make decisions. "So often, initial concept and development work is expected without fees," explained Malcolm Lewis of London-based Media Projects International, who took care of the audio visual aspects of the project. "This limits the quality of the information and is often a false economy on the part of owners and developers."

The project began with a briefing organised by HHCP, the designers and architects, which brought the whole team together, allowing for everyone to put faces to names and develop a relationship. "This made working together much easier and the barrier of distance between the UK and US teams virtually disappeared," continued Malcolm Lewis. "There was an excellent team spirit and easy communication."

I can testify to the amount of preparatory work involved simply by glancing through various inch-thick volumes of scripts, story boards, scene structures, 'storyline and atmosphere drawings for a 'dark ride' and 'Technical analysis for a dark ride' that are sitting on my desk as I put this piece together.

Back to Malcolm Lewis, who describes in detail some of the secrets of deception.

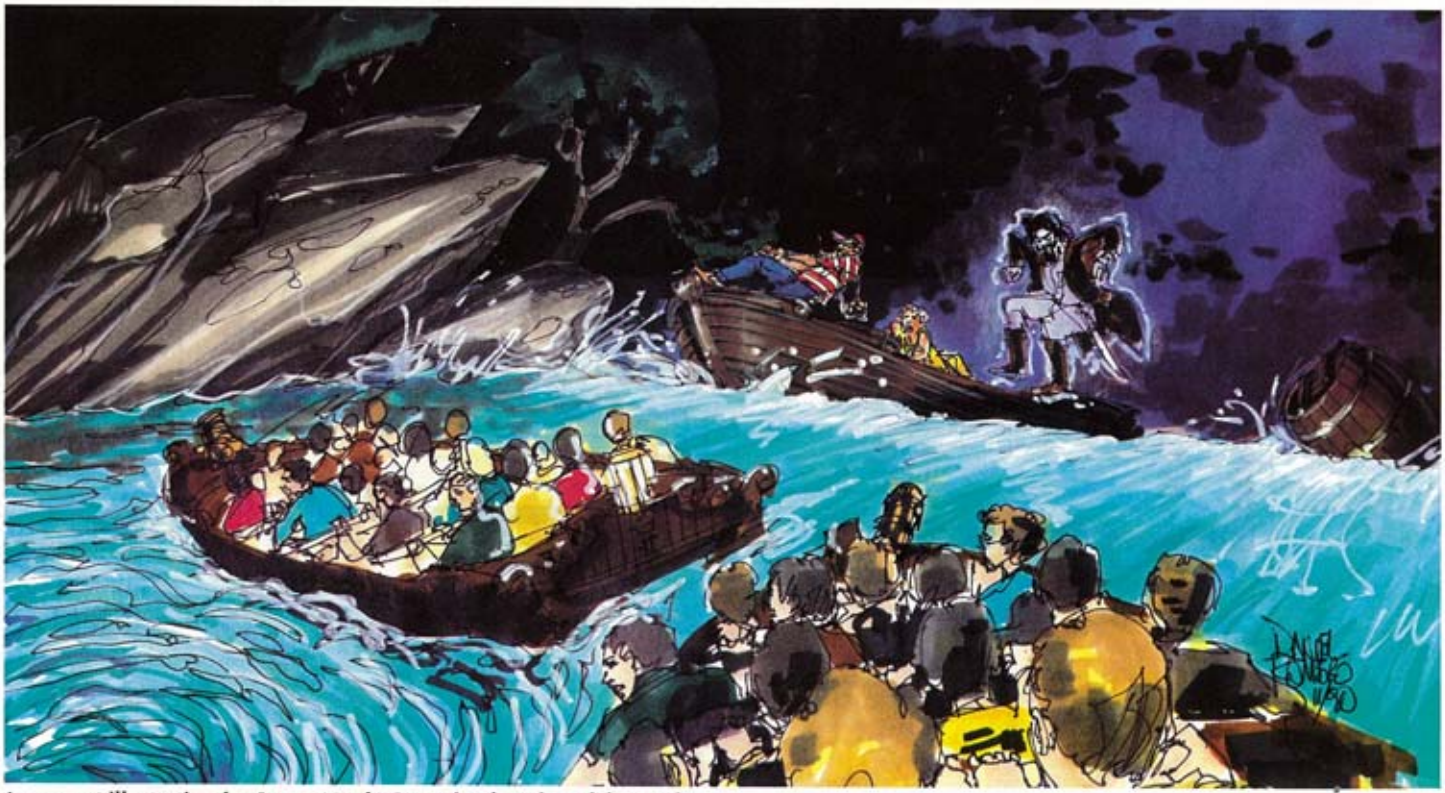
"The two most challenging sequences we had to create were an underwater scene with Corsari and Honorata, and Jason Montague's ship firing on the fort and visitors. The underwater scene had to be convincing. We created four layers of image and combined them in the edit. The first layer was our two actors, swimming as if under water and 'guiding' visitors out of trouble. They were suspended on Kirby harnesses two mètres above the floor, in front of a blue screen with two wind machines below them.

"This was the only scene that was shot on 16mm film because we had to shoot at 100 frames per second to 'slo-mo' the action. The harnesses became quite painful after a while but traditional fortitude and masses of foam rubber near private parts saved the day! It wasn't really dangerous, but diving towards wind machines requires a certain nerve. In the event, the very expensive period dress, covered in lace, did become a casualty when it got caught and torn in the machine. Thank God for insurance!

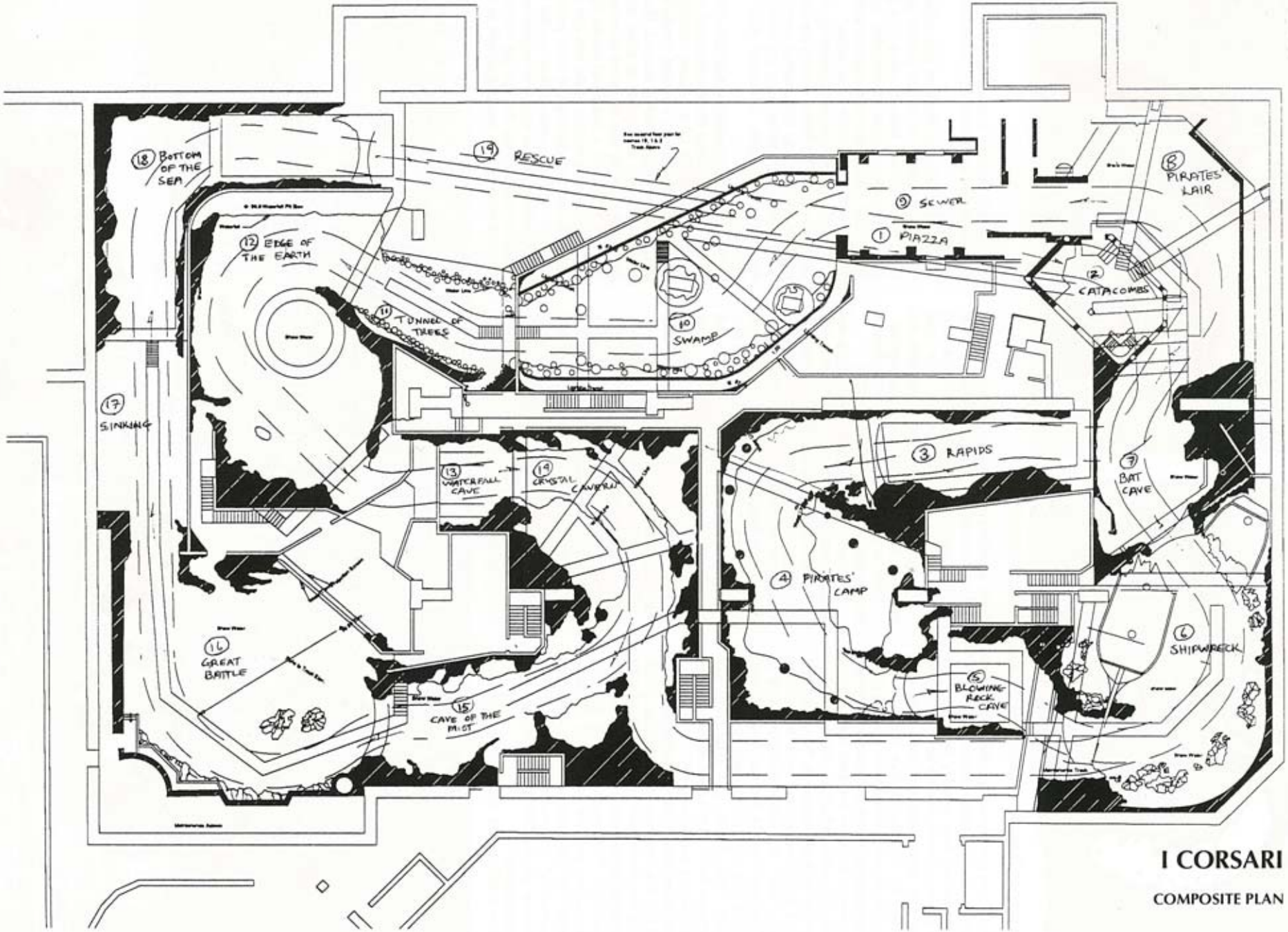
"We shot flickering shafts of light reflected from broken pieces of mirror placed under water in flat dishes, bubbles rising in a glass tank, and in a warehouse in Edmonton, exotic tropical fish. When combined together with the live action, it is absolutely convincing."

Probably the most physically exciting part of the ride is the scene where visitors are caught amongst the crossfire, with canons seemingly firing within inches of the boats and landing in the water alongside, complete with the necessary spray.

"The ship firing at everyone had to be ghostly and fire its cannon in a certain sequence, to an accuracy of tenths of a second," explained Malcolm Lewis. "It was a model, made by a company coincidentally named 'Pirate Models'. Though we looked at other model makers, their name was too good an omen to pass up! They built a one-sided model 60cm long which was a replica of the full-size ship above the action which is the entry point for the ride. It had canons that could fire individually and had a couple of explosions on board for when it was hit. We got the scene after five takes, which was just as well as with



A concept illustration for Scene 12 of I Corsari: 'The Edge of the Earth'.



I CORSARI

COMPOSITE PLAN

PROJECTION - SCENE 8
REVISED DRAWING
Option A

Balcony - I Corsari Nero & Honorata

scale: 1. 50
drawn by: Malcolm Lewis
date: 29th Nov. 1991

NOTES:
1. This drawing shows the maximum imagesize made possible by piercing the existing wall shown. It is smaller than originally envisaged and shown in previous drawings and requires the window apurture to be reduced in height from MI's current drawings.

2. An estimate of the variation in audience sightlines, as they approach, has been made. This requires the raising in height, of the balcony bottom parapet, to 30cm.

MediaProjects

The model makers (incidentally called Pirate Model Makers) priming the cannon on the model ship so that they fire according to a timed sequence during filming. The ship, after much video post-production to make it appear ghostly, is projected via two, in-register video projectors in the battle scene. Visitors on the ride, when they go through the battle scene, experience large splashes near to them as the cannon shots fired by the ship fall into the water. The fort returns fire. This is a large scale scene with powerful special effects which include a portion of the fort falling towards the visitors after it had been hit.

each take, the on-board explosions were very effectively reducing its splendour.

"In the edit we had to time the cannon shots precisely and give the ship a 'ghostly aura'. This was done after much experimenting with a monitor showing the image being put under a

During the video shoot, Jason Montague (white plumed hat - alias Richard Crane) and some of his motley crew. Jason and his crew appear in different ways in different scenes, in life-threatening situations.

caption camera, with tracing paper over the top, to provide a soft key that could be coloured and superimposed over the original image. In all, we re-edited this scene six times as different calculations of its timing in relation to ride boat speeds were sent from Italy!

"The video image of the pirate ship was projected into a large Pani projection of a moon-lit sea. This background image was substantially retouched - the moon and the rocks were re-positioned - using Photoshop on the Apple Mac. This is something that would have cost a fortune out-of-house a few years ago.

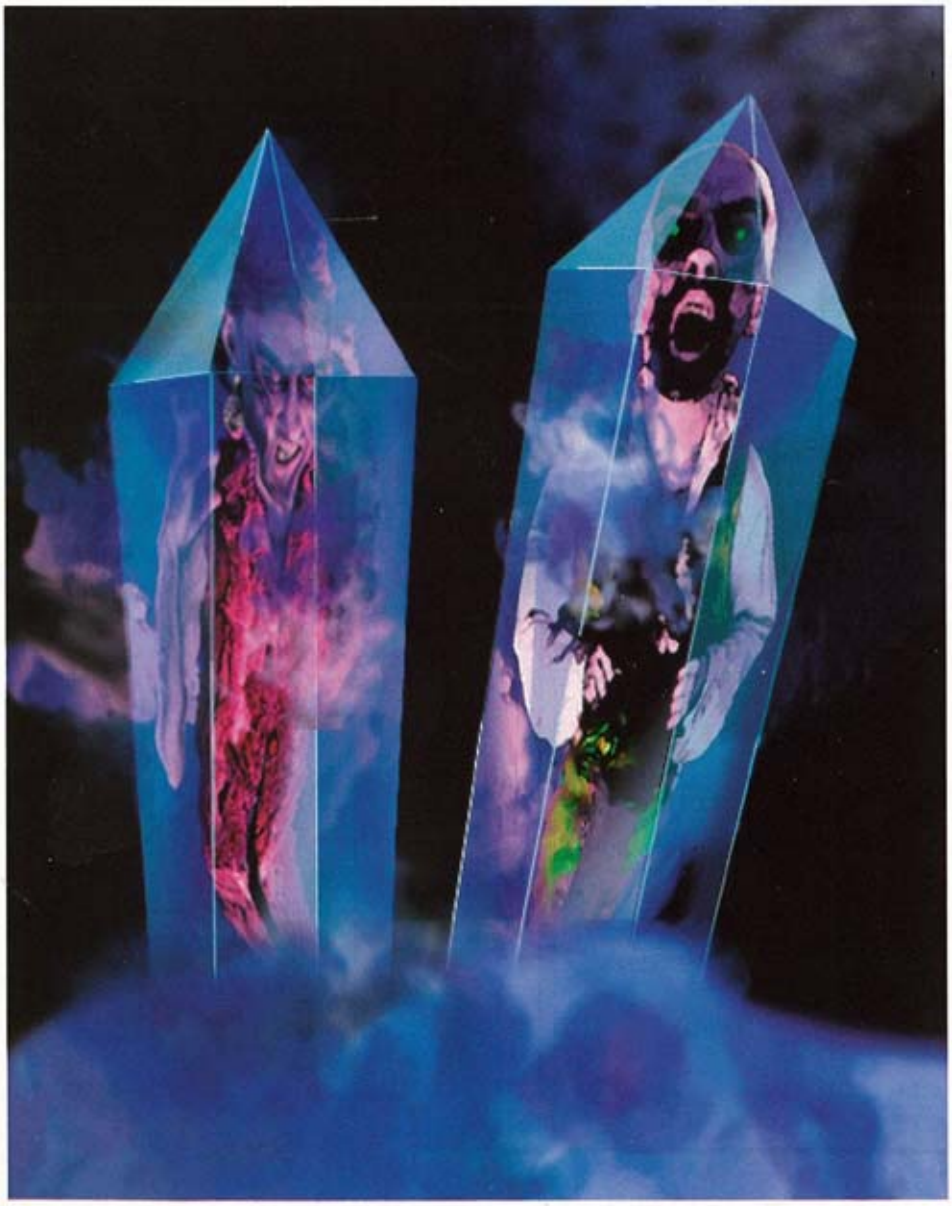
"The Mac also came into its own for the Crystal Cavern scene. Here we started with straightforward studio shots of a number of evil-smelling pirates, then scanned them into Photoshop and distorted them to a point where their own mothers would not have recognised them! As well as distortion, we changed their costume colours and swapped various pieces of anatomy to create six pirate 'spirits' from an original set of four pictures."

Control and systems design for I Corsari came under the wing of Kevin Murphy, divisional manager for Leisure Systems at Electrosonic Ltd of Dartford in the UK.

"The design stages presented some interesting problems," said Kevin. "In convincing the American specialists and especially the animatronics (Creative Presentations) and special effects (Technifex) teams to use the Electrosonic Ancor system. There was some reluctance to use a show control system they had no experience of, but the programming went so well on site that any doubts were very soon dispelled.

"The particularly important point to this ride is that every scene runs as a show, triggered every time a boat enters. Great care had to be taken to ensure that all the action unfolded around the boat as it progressed through each scene, to give visitors a story. Some last minute unscheduled changes in the ride speed necessitated some quick programming changes, but the ease of Ancor programming allowed this to be done with the minimum of fuss."

The actual programming and rehearsal of



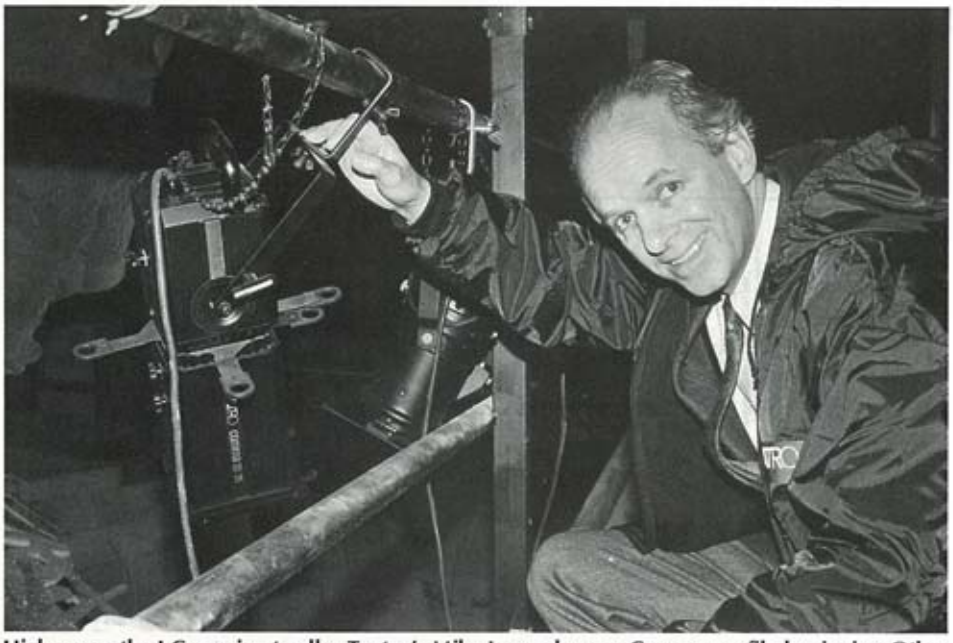
The distorted images of pirates which appear 'frozen' inside large crystal clusters are shown left and above. The pirate characters were photographed straightforwardly in the studio, the images were then scanned onto optical disc and worked upon in Media Projects' office on an Apple Mac (2FX) in Photo Shop. These files were then converted into 35mm transparencies. These particular transparencies were shot off the Mac screen to check for size proportion and alignment on site, before the bulk copy run was carried out.
Photos on this page by Malcolm Lewis.

each scene involved the use of a PC based programming station with a special panel complete with servo driven sliders, joystick and switches. The completed programmes were then recorded onto solid state EPROM based show cards for the highest level of reliability. All audio is replayed using the Electrosonic ESTA tapeless audio range, and general background tracks are also recorded onto EPROM. Every audio channel was equalised using Electrosonic modular mixers, with amplification by Rane and Crest. The main show loudspeakers are Turbosound and LEM, and any spot effects are replayed using JBL Control series.

Ian Scott was Electrosonic's project engineering manager, and the man responsible for all implementation in production, final designs and all on-site work. "The final design, wiring and production of 16 control racks and 11 lighting racks was carried out at Hawley Mill (HQ of Electrosonic) with staged shipments and installation in Italy to match the construction schedule," he explained. "The production schedule was always extremely demanding. Once we had been given the go-ahead for the project, following the design stage, Museum Services (responsible for scenic design) were already putting together the first scenes. The final system is based around four main control areas, with an overall supervising and operating console room overlooking the grotto boat-loading area.

"In order to provide real flexibility in production to the show producer, we had to put together and record most of the tapeless audio system on site. Tony Frossard (SAV) carried out any final editing on site using the installed audio system to check the required effects. A complete tapeless audio recording facility was then used to record the sound EPROM's from approved audio tracks - a job that is usually carried out back at Hawley Mill. At least there were no major surprises, and we managed a fairly immediate turn-round in the EPROM loaded tapeless audio cards."

One new item the Electrosonic team now have to include in their tool-kit is a pair of waders! To install sensors and get to vital parts of the ride after the water had been put in, they were an essential fashion and practical accessory.



High up on the I Corsari catwalks, Teatro's Mike Lowe shows a Comma profile luminaire. Other Teatro equipment included 8 Diluvio 500W cycloramas, 11 Tratto 1000W profiles, 207 Comma 650W profiles, 71 Punto 500W fresnels and 131 Top hats fitted to the Comma profiles.

One of the biggest problems facing the installation team was the multicore control cable that was required to meet the Italian fire regulations. "The cable we had to use was particularly stiff and inflexible," said Kevin Murphy, "but the colour coding available for the cables, generally 4-pair in an overall sheaf was very limiting. The choice was down to black sheaf with four black pairs! With thousands of control channels, both analogue and digital, this took a considerable amount of time and patience."

Lighting design for I Corsari was executed by DHA Design Services, the team being led by David Hersey working with associate designers Ted Mather and Adam Grater. "Being involved in the initial stages was a bonus often denied to lighting designers," explained Adam Grater, "and, along with plotting out a good overhead catwalk grid, we were able to build up a set of 'Design Intention' sheets which helped us develop our palette and equipment lists, get our requirements integrated with the rest of the team, and carry it all through to the commissioning."

The manifesto for each of the scenes makes for intriguing reading. Take scene 12 ('Edge of the Earth') as an example:

1) Cloud effects on all rocks swirling counter-clockwise.

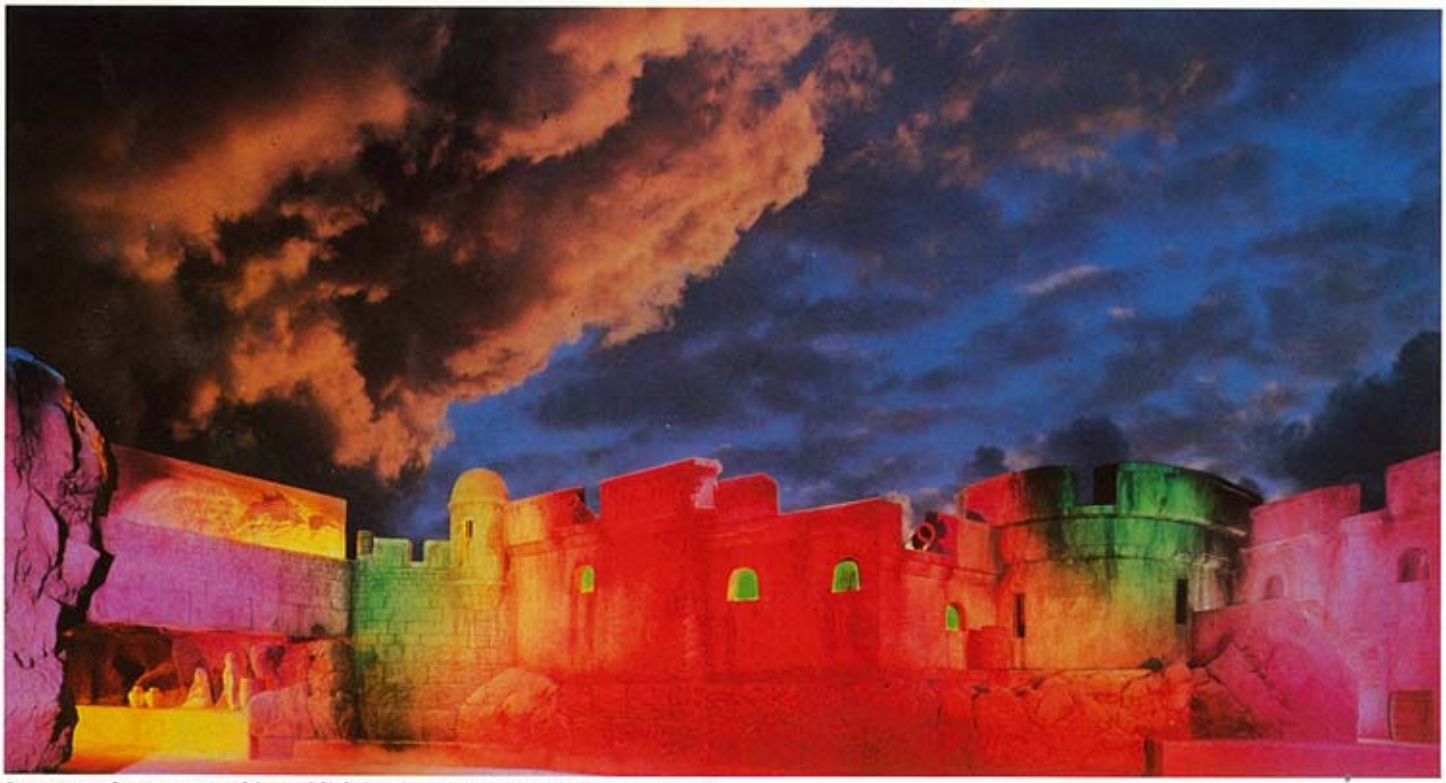
2) Dark blue fill in fresnel wash.

3) Pinspots and cool moonlight breakups on boat, barrel and tourist.

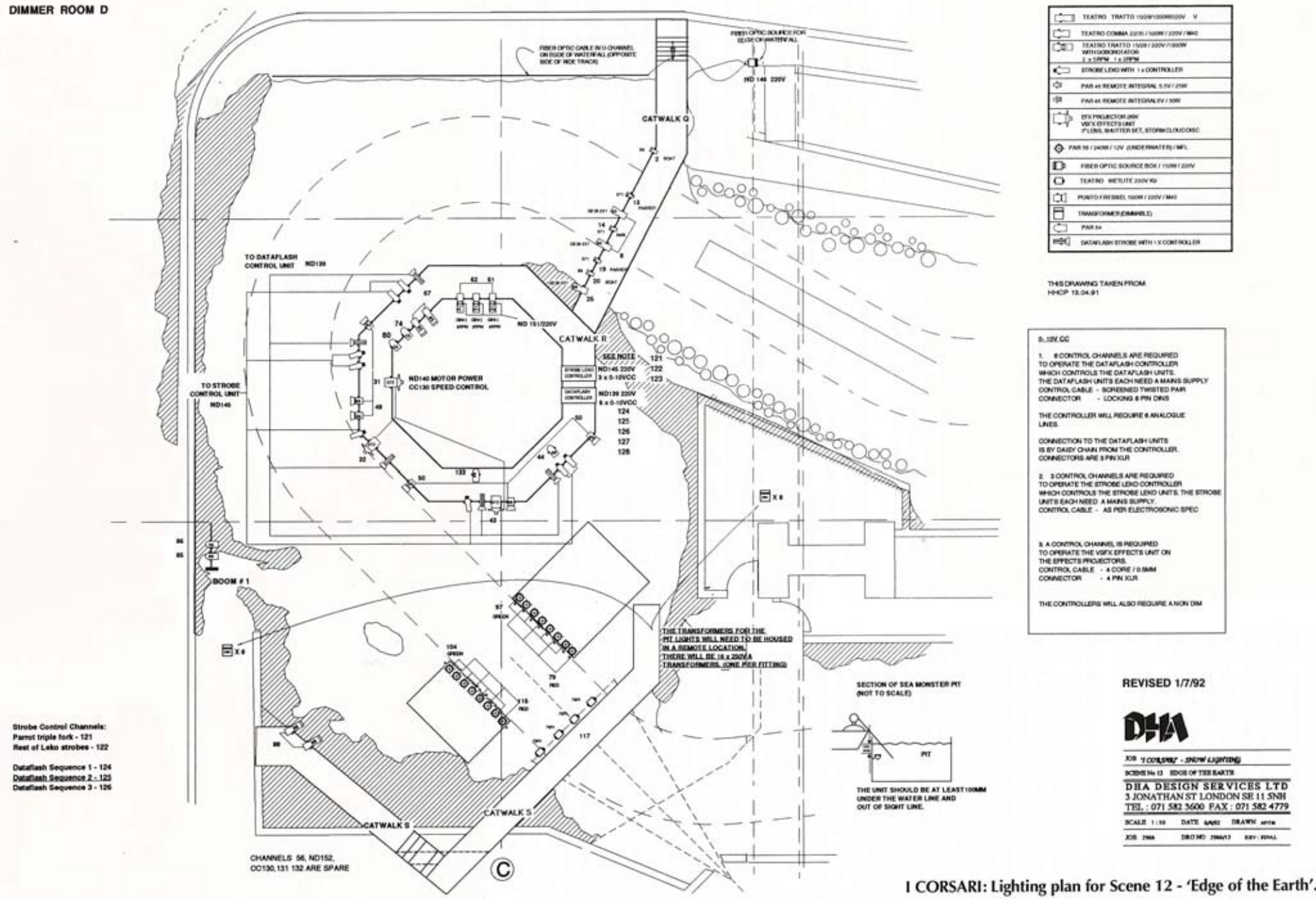
4) Fibre optics to light edge of earth. Mount on far side with U-channel to direct light upwards.

5) 10 strobe Lekos with lightning templates and five Dataflash strobes for lighting on rock walls throughout.

6) Three gobo rotators for whirlpool focus in three different sizes. Variable speed on a channel to speed up as water speed increases.



Scene 16: the scenographic and lighting masterpiece of the 'Great Battle'.



Strobe Control Channels:
Parnot triple fork - 121
Rest of Leko strobes - 122

Dataflash Sequence 1 - 124
Dataflash Sequence 2 - 125
Dataflash Sequence 3 - 126

I CORSARI: Lighting plan for Scene 12 - 'Edge of the Earth'.

One of the four dimmer rooms situated in the I Corsari complex.

Bernie Allison of Mellon Stuart in the main control room.

Vary colour slightly.

7) Underwater Pars in Red (pre-boil), Green (appearance) and NC (climax) for monster head and tail. Mount on side of concrete pit walls.

8) Downlight and crosslight from catwalks for head and tail.

9) Downlight waterfall with three cir Ministrip (light blue, dark blue, green).

An interesting note at the foot of this section in the manifesto further advises the light artist: *'Most fantastical action scene of all. Swirling clouds and lightning everywhere. Then monster appears in a great flourish! Wow!'*

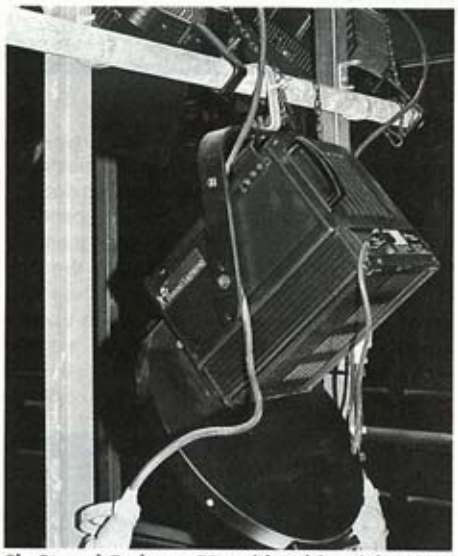
The bulk of the standard lighting equipment comprises mainly Teatro fittings (a choice possibly influenced by the factory being literally up the road). Wherever possible, lamps were fitted with long life M class lamps (levels in this kind of work are generally pretty low) and lamp life is further enhanced by each scene being triggered by the approaching boat, the lights ramping up to do a series of cues, and then settling back to preset level as the boats depart.

Back to Adam Grater. "The lighting was written on a Colortran Prestige, supplied by XTBA, and then downloaded into the Electrosonic system for continuous playback. Other equipment heavily used included the excellent White Light VSFX units, rather a lot of tubular ripples, the occasional M16 and one or two (or more) gobos and animation discs.

"Some specials were produced: in particular the load scene, originally seen as a piazza, had lots of moonlight filtering through a tree canopy overhead. However, as one or two financial problems occurred it was re-themed as a grotto and we lost our lighting positions due to the new design. Grasping the obvious, we decided to fill it with larger than life practicals - sort of gothic pirate chandeliers - which were detailed by Mike Almond and, along with numerous other types of ships lamps and hand-held pirates lanterns, were beautifully made by P.L.P. in London.

"Further down an entire scene is full of translucent crystals, the brief having them all in one colour as the boats entered the scene, and then cycling through a range of pastels as the rest of the scene was revealed. A neat little three (dichroic) colour M16 downlighter (by Laser Systems) stood on its end sorted this one whilst further down the ride, an entire scene (the bottom of the sea) painted in UV is lit with UV tubular ripple units (adapted by Bev Bigham of Lighting Technology and Howard Eaton), along with animation discs fitted onto Light Projects UV Par 36s.

"The ubiquitous Mac reared its head again as we were able to translate the original design drawings (on AutoCAD) into our system (Powerdraw) and use these for the backgrounds of the 18 lighting plans. On-site computers and a printer then allowed for each scene to be updated as it was progressed, and an individual A3 was created for each area to work from whilst plotting. This was an interesting period as it could only be done from the audience point of view and wading through a fairly rapidly flowing, cold and dark river (containing hidden obstacles such as 20' pits with animatronic serpents) may not be considered over conducive to the creative process. On one occasion, the desire to scuba-plot became too much for one of our more distinguished colleagues. He, of course, was the one man with waders that didn't leak."



Six Strand Cadenza EPs with White Light VSFX motorised effects units were employed at various points on the ride.

"The completed project shows how a strong team of specialists getting together can provide the very best result," said Electrosonic's Kevin Murphy. "During design meetings in the UK and US, expertise and experience tended to overlap, creating some very positive and quite exciting interaction, even though the team had never worked together as a whole beforehand. Once each stage was defined, the specialist teams concentrated on their own areas of the ride to ensure the latest and best ideas were utilised efficiently. "The end result is really one of the finest rides I have experienced and a project to be proud of."

Another man who thoroughly enjoyed seeing the project come to fruition and who is still based on the site is Bernie Allison of Mellon Stuart. With Mike Lowe of locally based Teatro, who supplied the majority of luminaires installed on site, he took me for an almost dry walk (without waders) through the labyrinth. After 24 years in the US military he's fallen in love with show business and this corner of Italy and is hoping to stay with Gardaland and I Corsari. Bernie assisted on project management and has worked on the mechanics since the ride has been in operation.

"It's been lots of work but a pleasure to make this thing happen," he said. "Scenographically it's extremely entertaining and the special effects and lighting that go with it add the final touch to making the ride one of the best in the world. People applaud when they get off the boats at the end of the ride, before queuing up to go through again!"

I Corsari

Gardaland, Castelnuovo, Italy

Main contractor and Project Management: Mellon Stuart International (US)
Show Production: Richard Crane Productions (US)
Set Building and Design: Museum Services Inc. (US)
Show Control, Lighting and AV Control Systems: Electrosonic (UK)
Animatronics: Creative Presentations (US)
Audio Visual Production: Media Projects International (UK)
Special Effects: Technifex (US)
Lighting: DHA Design Services (UK)
Sound: Tony Frossard
Ride: Intamin (Switzerland)

LIGHTING & SOUND International

PIRATES IN CRYSTALS: VISUAL MAGIC AT GARDALAND, ITALY

PHOTOS: MALCOLM LEWIS

- Italy's Gardaland: the Technology behind I Corsari
- Specials: Lepage at the RNT; Valley of the Kings; P&O in Hong Kong
- Talking to Lights: David King on the BBC's new Voice Control System
- Strand Lighting International: Tony Gottelier talks to Chris Waldron
- Company Profiles: Canon Audio and White Light
- Intelligent CD control from Revox

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