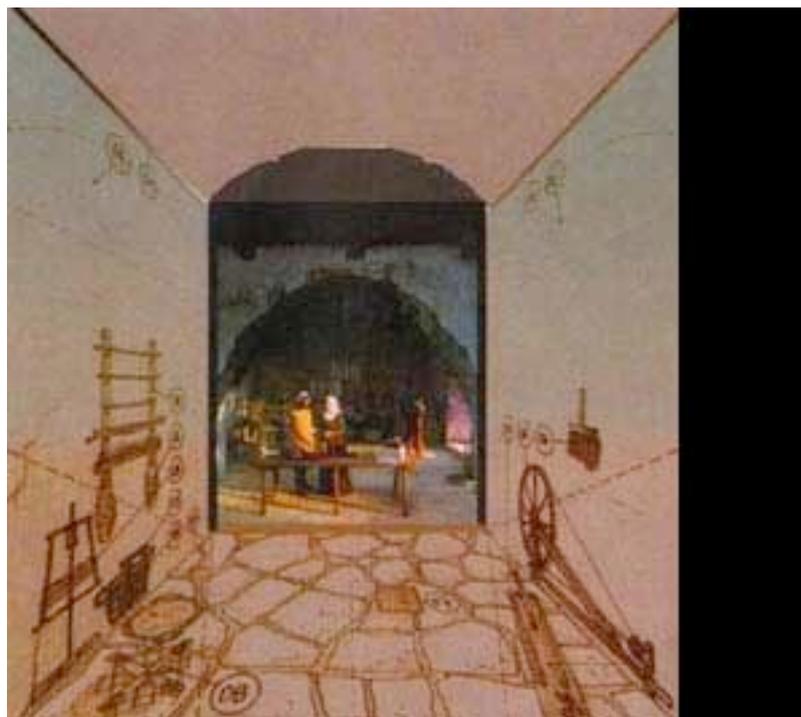


HD en el museo de historia de Valencia



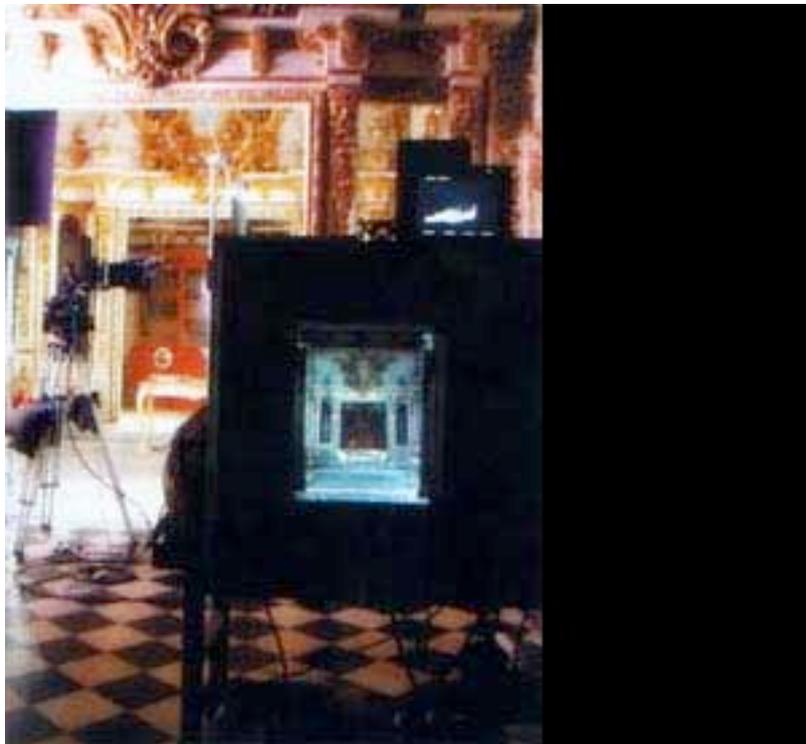
In the year 2001 the Valencia City Council chose, after a disputed selection, the studio General de Producciones y Diseño (GPD) to carry out their most ambitious cultural project: to design and realize the design of the city's History Museum. As a site for the museum they chose an old water deposit built by Ildefonso Cerdá in the mid-19th century , known as the Hipóstila room. The main part of the audiovisual presentation in Valencia's History Museum consists of a series of projections within interactive installations. There are 12 audiovisual segments that will be projected in the museum. Each of these shows scenes from different eras in the history of the city, since its origins in the roman period until the turn of the 20th century. The visitors will be able to look into the past, as if through a window, into 12 different moments in history. Each segment is divided into 5 differently themed clips or sequences, with an average length of 2 minutes and which can be selected at random.



HD to increase realism In order to achieve a greater feeling of realism and make the projections more spectacular, HD was used in all the phases of the process. Using HD provides not only greater resolution but also provides with the opportunity to work with special effects on lighting and composition. The starting point was the use of the Sony HDCAM F-900, with the peculiarity that we shot with the camera at a right angle from the horizontal line of the frame. This way of filming is determined by the size of the screen in the museum, which was 3x 3?57, that is a 1:2 ratio, which looks more square than 1:33. Given that the camera captures the image on a 16/9 CCD, if you want to film on 1:33 or more square formats, you have to mask the viewfinder modifying its horizontal and vertical marks to fit the sought format although

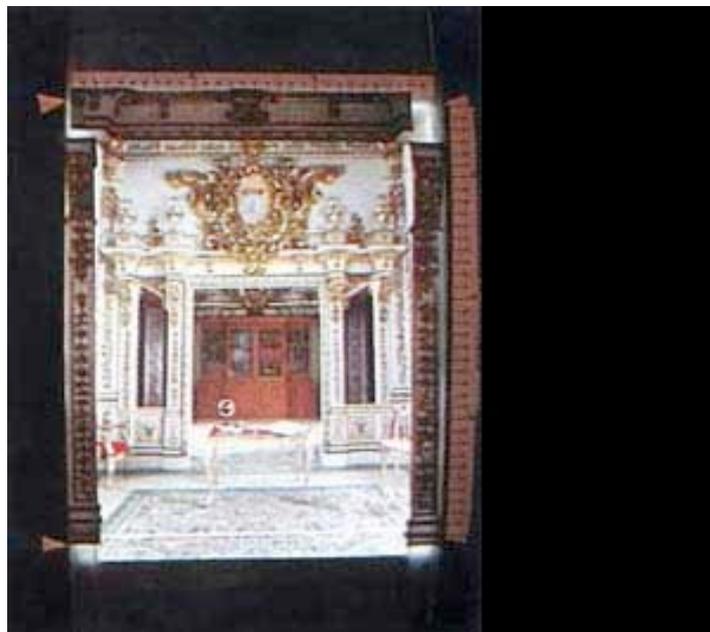
Shooting at 30fps

Given that the image is projected into a space that represents a certain era, the decorative elements had to be integrated into the image, so we used guidelines and masks on the monitor to have an accurate idea of the tableau for the characters' movements. We have shot with the camera set at 30fps, which were then converted to 60i due to the special characteristics of the Mantis player. Although the F-900 records at 60i, after the tests it became apparent that we achieved a greater definition if we shot at 30fps and then convert it to 60i than if we shot at 60i directly.



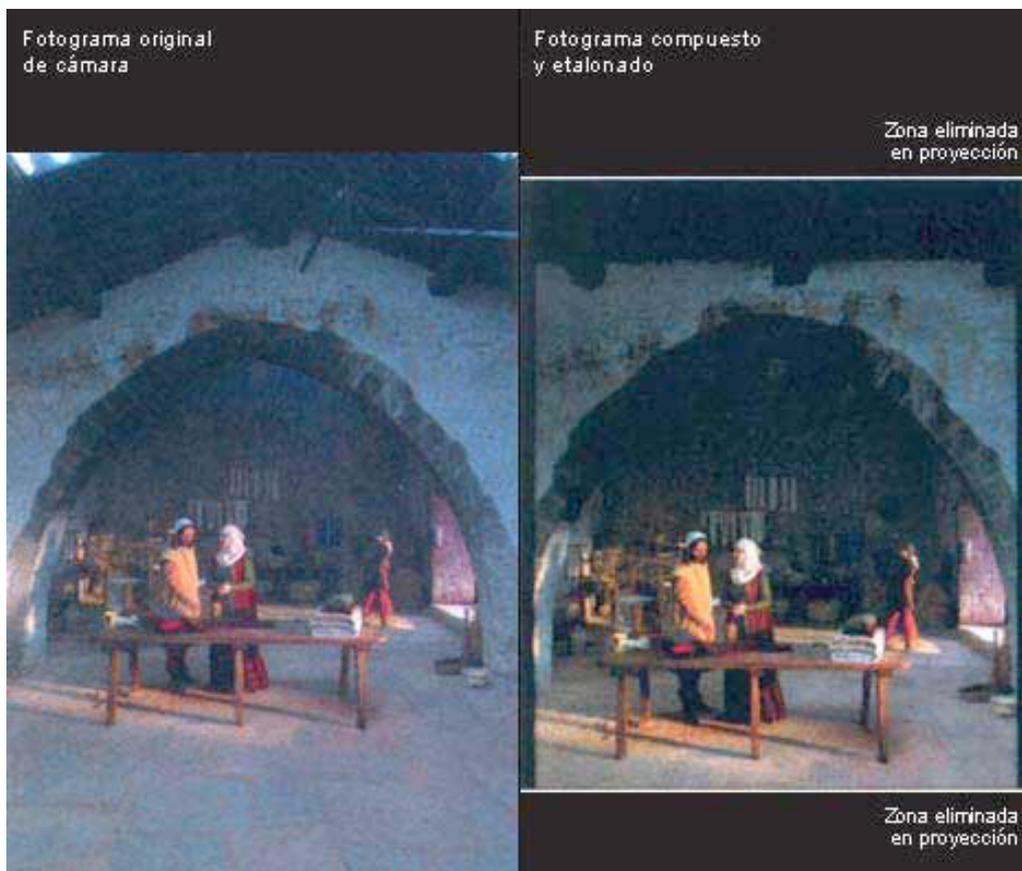
Wide angle lenses The idea behind most of the projections was that they appeared to be an extension of the real space created in the museum. To ensure this succeeded, we had to choose the appropriate lens, the height of the camera and its degree of inclination with regards to the horizontal. We intended to keep all the characters within the shot at a 1:1 ratio at the edge of the frame, to create in the audience the feeling that the characters were actually there. We made tests with a digital Betacam camera with a zoom at different focal lengths in a space that simulated the museum. The first conclusion was that the wider lenses gave better results. Given this, we made further tests with the F-900 with three different lenses: the 5, 7 and 10 mm Digiprime by Zeiss at three different camera heights (155, 160, 165cms) and tilts of up to 10°. We viewed the tests in the museum space with the projector situated at the appropriate distance. From these we found that the lens best suited for our purposes was the 5mm at a height of 1,60 and with a 5° tilt (this angle lowered the horizon giving it a greater continuity with the museum's floor), and maintaining the widest possible framing while at 3,30mts from the objective. Given the fact that the 5mm is very wide and the camera was also tilted, there were slight but noticeable deviations of the vertical lines, which were corrected during post-production to make all the vertical lines parallel without modifying the framing. The quality of the 5mm Digiprime has been excellent for its definition, crispness and colour reproduction, and its exceptional depth and plane separation. We also used the portable Zeiss COLIMADOR to properly adjust the back focus. Our usual set of filters was the 85 series B&W promist.

The camera is placed therefore at 90° with a 5mm, at a height of 1,60, with a 5° tilt and with the aperture in most cases at 4 F-stops. One of the photographic conditions was to have an aperture that allowed us to have everything in focus because given the unusual position of the camera the scenes devised played with the depth in the space.



Menus, lighting

We configured the camera menus to obtain good details in the blacks and as little loss of detail in the highlights as possible. We did this with the "knee", the whiteclip and the slope at around 50, the gamma table at 5 and the 709 ITU matrix, but depending on the clip and the circumstances we modified the matrix, the gamma and the black. To create the atmosphere of the original light soft the era (candles, oil-lamps, petrol, summer or winter light) we created specific lighting designs, working with filters in the lighting instruments, with correctors such as Calcolor, CTO and CTB and slight modifications to the camera's usermatrix, to, for example, boost the warm tones. Once we shot the images we moved to the composition process: Chromas, 3D, lighting effects, etc.



Composición y etalonaje de El Obrador

Hardware and Software

Hardware and Software All the effects have been dealt with in an SGI Octane 2 station con 1/0 in HD, with 3 optic fibre arrays with 1 TB (1000 GB) and with a Jaleo HD software. We corrected the colour (with the image projected on the screen by the projector that will be set up in the museum) applied masks and corrected the geometry produced by the camera lens. To have total interaction with the projections its necessary to use a video server that can be managed by a controller software. After several tests, we decided to use the Mantis server by Visual Circuits, controlled by a touch screen and a CRESTON system that allows us to access the clips in a random way and without jumps in the continuity. Once the images have been processed they are transferred to a PC where they are coded as a high definition MPEG-2. The compression used is a Main Profile MPEG-2 at High Level (MPEG-2 MP @ HL) at a 25Mb/sec bitrate (above the HD broadcast specifications) with a LIgos plugin. This process is quite slow because the image is so large (5 times larger than a PAL surface) so we used a workstation with 2 Intel Pentium 2 processors and a IDE Ultra DMA 4 disc array. The chosen projector is a NEC GT 1150. With a resolution of 1024x768, 300 ANSI LUMENES and several characteristics which help to configurate the system, such as the option of choosing the in-/out- aspect ratio. This allows us to pan et scan in relation to our source which was at 16/9, so the projection beam was filled by our image.

After this process we observed a slight loss of resolution as well as an increase in the noise of the image, loss in detail in the whites and shadows due to the image compression process as well as to the lower resolution of the projector.



Technical info

- Hdcam F900 Camera 30 psi 1/60
- Customized 1:2 screen ratio with the camera at a right angle from the horizontal
- Digiprime 5mm Lens
- NEC GT 1150 Projector