

PASTEDOWNS - REVEALING THE VERSOS

Among the treasures at Sir John Soane's Museum in London¹ are many albums containing drawings drawn and stuck down by Robert Adam, Scotland's greatest architect². Thus in many cases only the upper surface can be seen and studied.

Removing the drawings one by one would be prohibitively costly, take many months of specialist work and could be damaging. A safe and simple solution seemed impossible until Susan Palmer, archivist and librarian at the museum, recalled that techniques originally developed for watermark research might offer help. Was it possible that the ability to image watermarks could be adapted? She contacted Dr Ian Christie-Miller³ and after discussion a trial was arranged. The results were to prove spectacular.

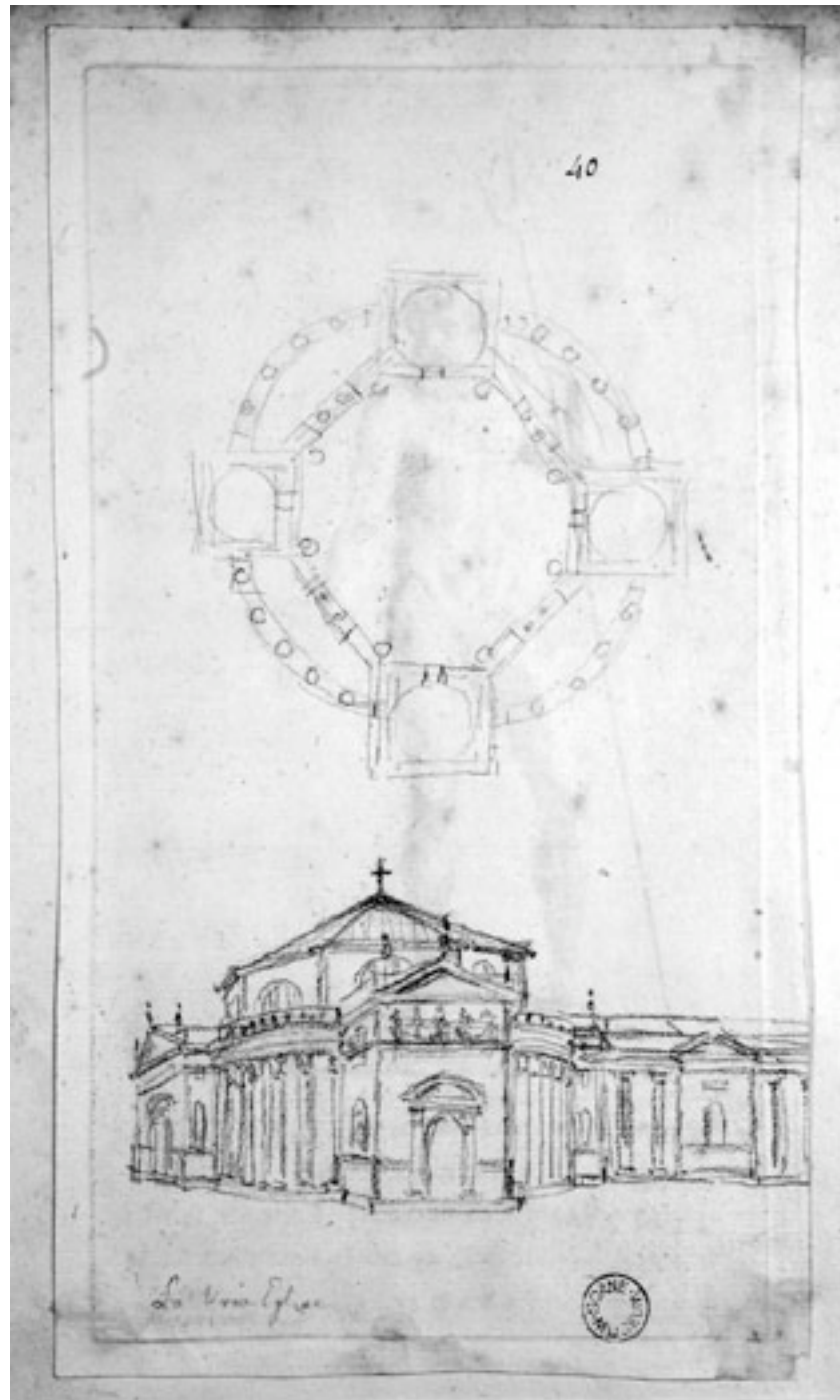
The plan was to use an imaging system provided by SOLAR Imaging of Rochester which allows the coordinated use of conventional (front) lighting with back lighting provided by a 1 mm thick electroluminescent light sheet. Images would be processed using techniques adapted by Ian from research into watermarks.

In late September the equipment was duly installed and tested. Stephen Astley selected volume 55 of the Adam collection. Drawing 40, which was secured at the four corners, was chosen first and is shown here.

¹ <http://www.soane.org/>

² http://sites.scran.ac.uk/ada/documents/adam_r.htm

³ <http://www.earlypaper.com>



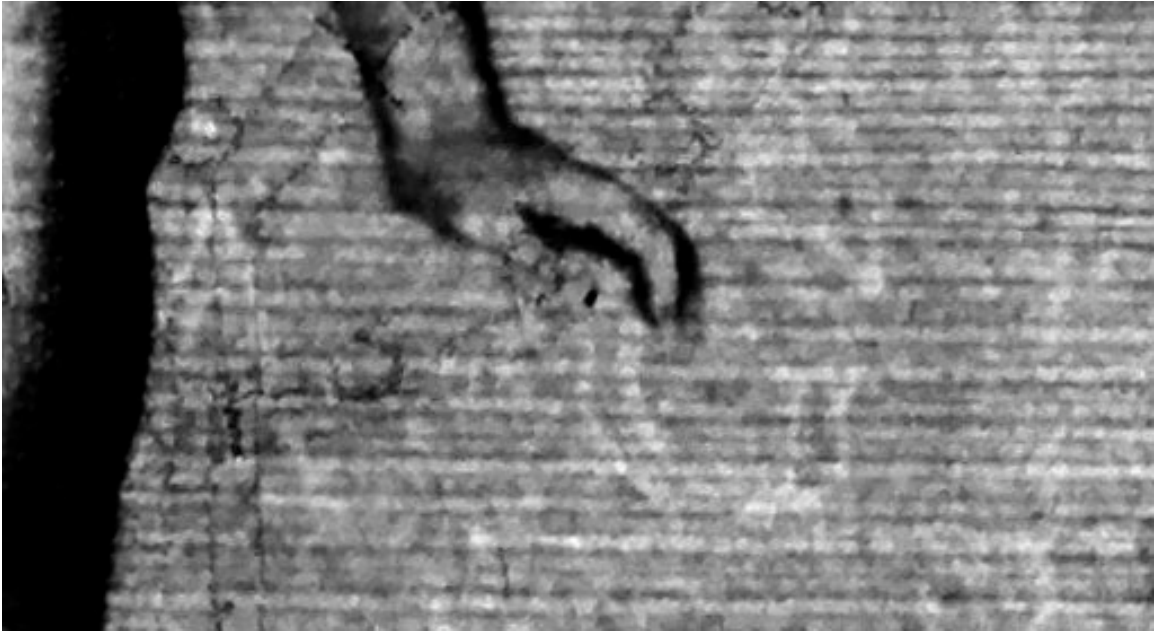
For back lighting it was necessary to insert the 1 mm thick light sheet carefully between the drawing and the backing paper. Three images were taken, the light sheet being

manoeuvred so as to avoid the four contact points. The three images were then combined and are shown here.⁴

⁴ Illumination provided by A4 size light sheet from Howard Eaton Lighting Ltd. <http://www.helluk.com>. Book supported in 'earlycradle' and imaged using Copymaster type device from <http://www.solar-imaging.com/>. Three exposures all at 2 seconds, f11. Image processing with Photoshop.



Under Neptune's outstretched hand there is a clear watermark 'AG', which has been enhanced and is shown next.

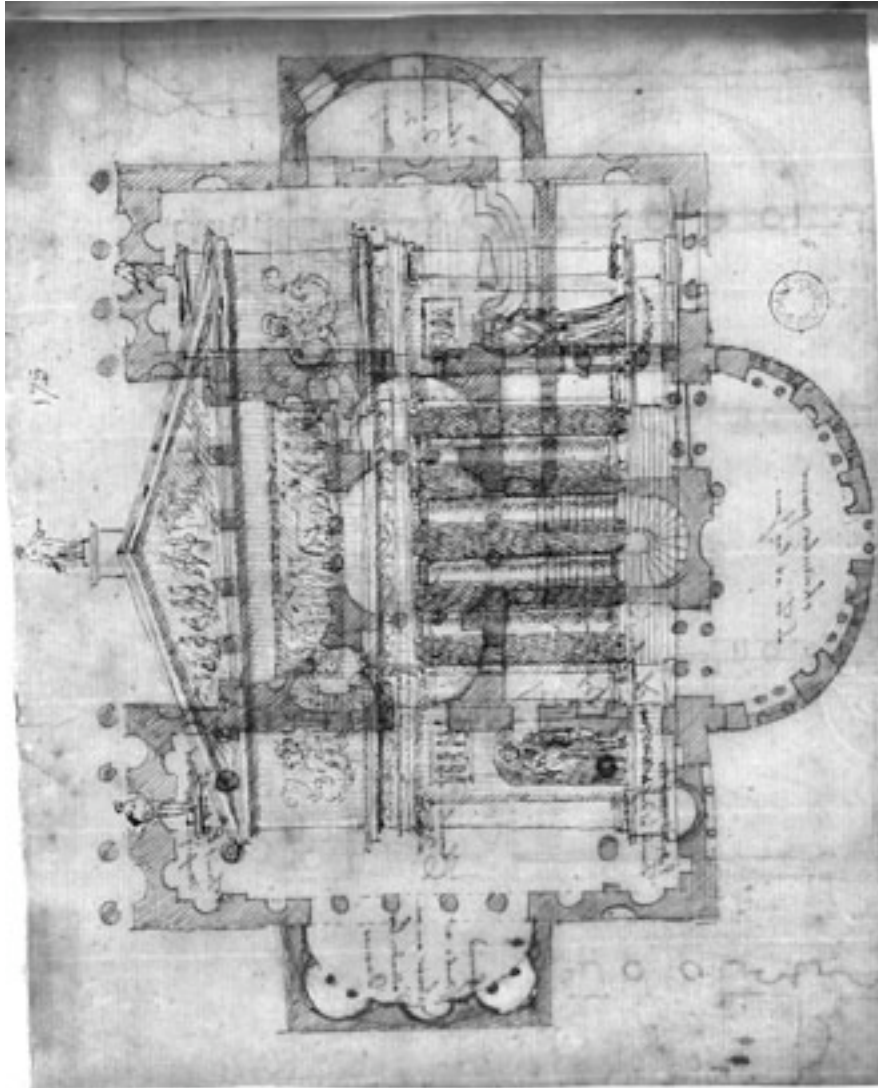


Stephen Astley stressed that for many drawings pasted into albums what we now have is a way of 'seeing' the verso that does not involve prolonged and involved intervention, that would be expensive, and demand major alterations to the original state of the album and drawings, with all the attendant risks.

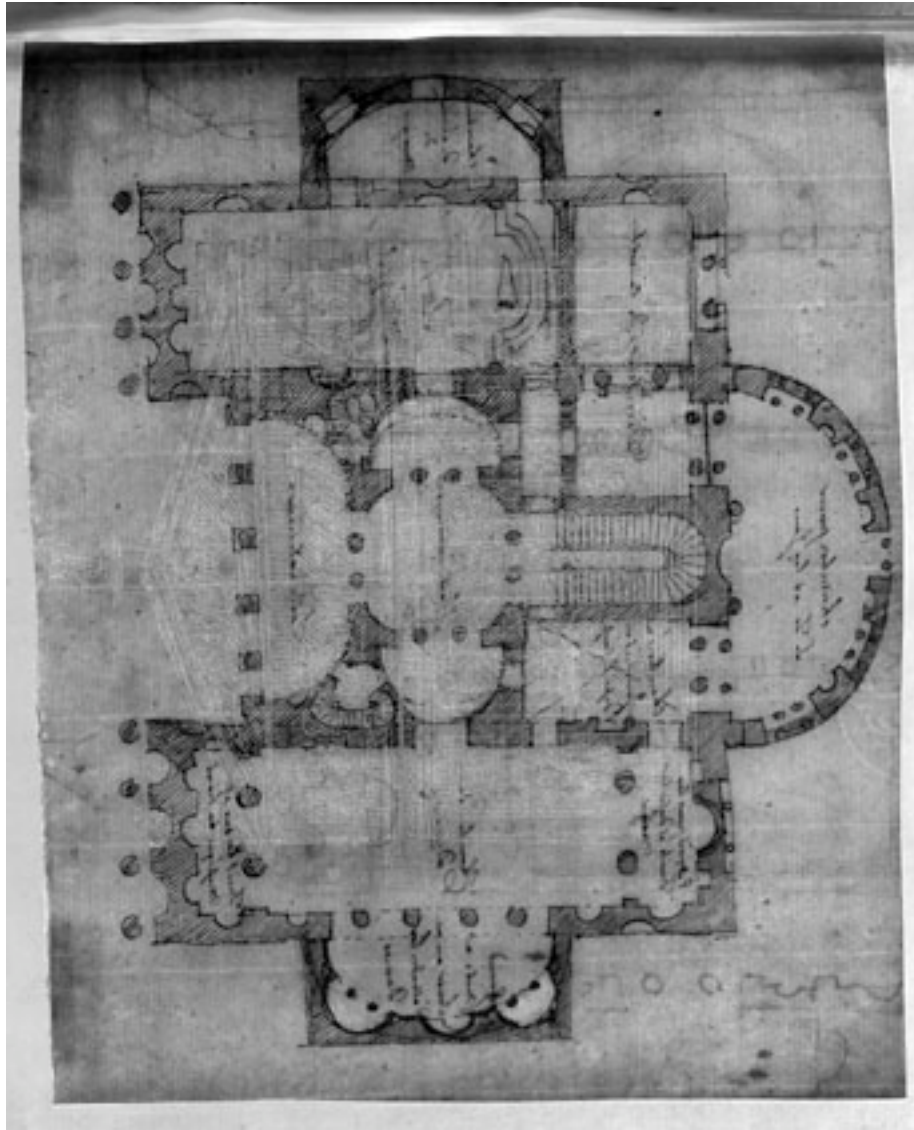
In this instance the image on the underlying surface (obtained by back lighting) was not seriously affected by anything on the upper surface. Number 173 in the same volume posed a more serious challenge.



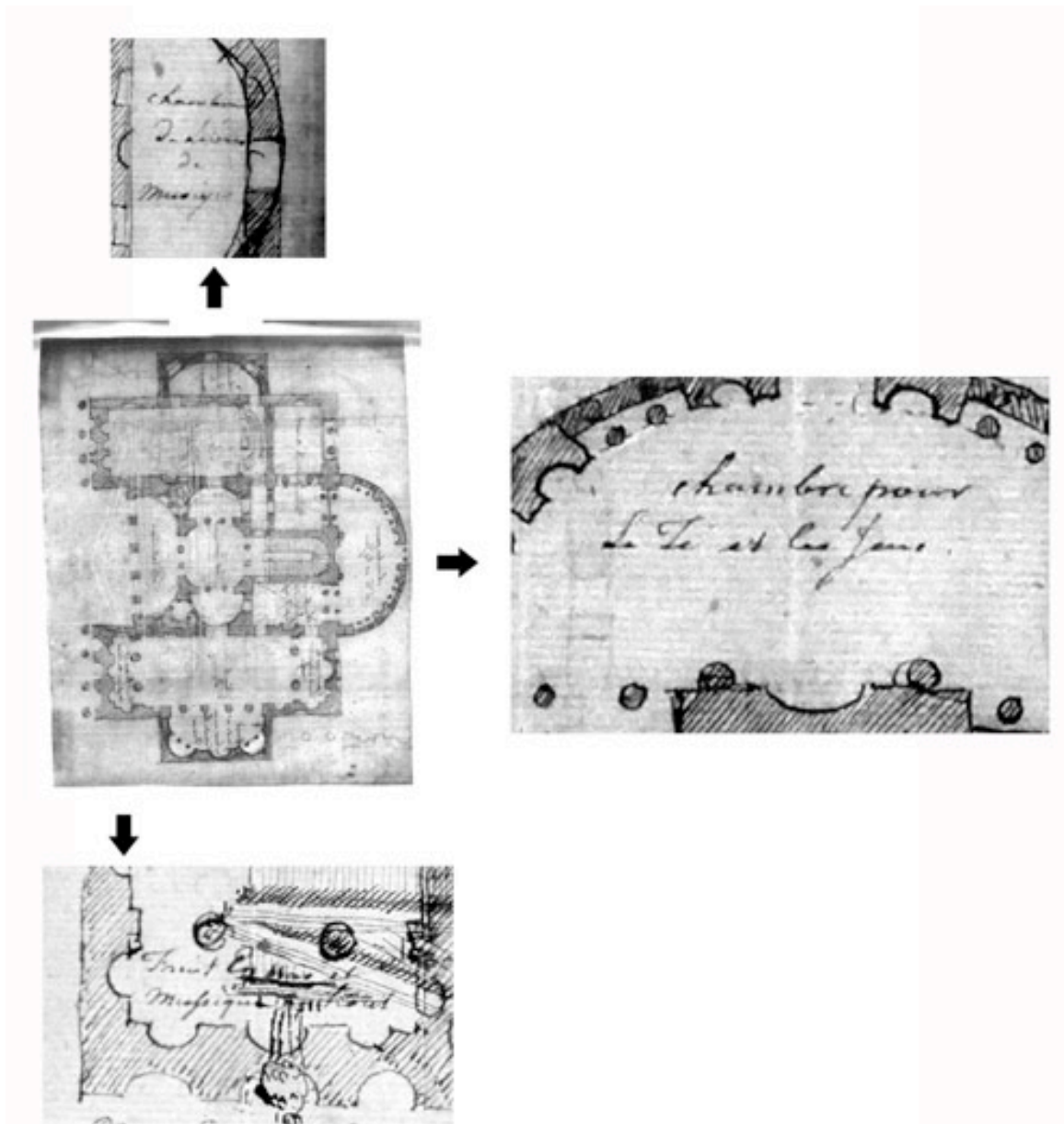
When it came to using the light sheet, as the image below shows, both surfaces were visible. Neither could be easily distinguished.



Help however was at hand thanks to an image processing technique developed by Ian. This computer process allowed the upper surface image to be removed from the underlying image with spectacular success. A simple Photoshop Action, called 'Extract', has been written which automates this image processing. One takes the front lit image, superimposes the back lit image as a Photoshop layer and runs the 'Extract' Action. The front lit image is then automatically removed from the back lit image, as can be seen below.



Details can be discerned, as shown below. At the top there is “Chambre de Livres de Musique”. At the right is “Chambre pour le Te et les Jeux”. At the base is “Fruit en bas et Musique en haut”.



It is to be noted that two arrangements have been described here.

In the first arrangement the light sheet was inserted between the backing sheet and the drawing itself. Thus only the drawing itself was back-lit.

In the second arrangement the light sheet was placed under the backing sheet. Thus both the backing sheet and the drawing itself were back-lit.

One advantage of the first arrangement over the second is that the resultant image is unaffected by the backing sheet. It is also of higher quality (brighter). The disadvantage is that image capture may take longer. In the Neptune case cited above three images needed

to be blended. This was due to the four corners being pasted down which called for the rectangular light sheet to be variously placed so as to maximise the area illuminated. Light sheets can be provided in any dimensions, such as strips. As has been shown above multiple images can be easily blended allowing a seamless mosaic to be assembled.

One advantage of the second arrangement over the first is ease of image capture. Another advantage is that it may not be possible to use the first arrangement eg when the drawing is so securely pasted down that it is not possible to insert the light sheet between the backing paper and the drawing. One disadvantage is that any information on the backing sheet (which is certainly not wanted) is evident. Another disadvantage is that the quality, particularly the brightness, of the image is lesser.

This pioneering technique is already attracting international attention. Robert Allison, Professor of Religion and Classical & Medieval Studies at Bates College, Maine, a watermark expert, on hearing about the system, commented, “The tests you did are very interesting. With codex mss, you often get papers that are stuck together (endleaves). Also pastedowns attached to vellum bindings. Since this is a backlighting process, it wouldn’t work for pastedowns stuck to boards, but I wonder if it would for pastedowns stuck to vellum bindings? Have you tested for that possibility? It sounds to me like this ought to be a tool in the bag of every codicologist!”

For further information please contact Dr Ian Christie-Miller at look@earlypaper.com or visit <http://www.earlypaper.com>