

**Photogrammetric Recording of the Hieroglyphic Stairway, Copan, Honduras (Jun 2000, Dec 2004)**

**Client:** Getty Conservation Institute (GCI), Los Angeles, CA, USA

**Brief:** To produce a close range stereo photographic record of the 63 steps constituting the Hieroglyphic Stairway at the Mayan site of Copan, Honduras.

The Mayan site of Copan lies on the south-eastern edge of the civilisation that spanned much of southern Mexico, Belize, Guatemala and parts of El Salvador and Honduras. The magnificent 8<sup>th</sup> century stairway was discovered in 1886 by Alfred Maudslay, the English archaeologist. It is 24m high and has 63 steps. It contains the longest hieroglyphic inscription (1100 glyphs) in the new world, all carved intricately onto the stair risers. It is also subject to severe weather variations and although now protected by a shelter has suffered badly from decay and wear. The site was listed a UNESCO World Heritage site in 1980.



To underpin the conservation and management plan, a precise survey was required so that the surface detail could be accurately mapped. Close range photogrammetry was chosen and Photarc were asked by the GCI to put forward a proposal to record the stairway in as much detail as was both practical and economic considering the constraints of the site and the fragility of the monument.



A site visit took place prior to the survey to determine methods, equipment, health, safety and logistics. For the main campaign a Rolleiflex 6006 camera was used to produce complete coverage at a scale of 1:25. For control 1600 small control targets were fixed carefully to the surface using a solvent based barrier to protect the stonework. These were coordinated by conventional survey methods to achieve a precision of 1-2mm. Two photos were taken at each position so that an archive could be established both locally and at the GCI. More than 3500 photographs were taken in the five week trip and all film was processed on site by local staff.

The photography has been extensively used in the condition reporting process. It has also been used experimentally in the creation of a realistic virtual model, which may, if completed, help epigraphers in their interpretation of the glyphs.



There is also an extensive photographic archive of the stairway housed in controlled conditions at the Peabody Museum in Boston, MA. The first images date from 1894 (during excavation) and it is obvious that the glyphs have suffered considerable deterioration in the 100 years since exposure.

A study (with the Peabody) is to be conducted of the archive photography to determine its suitability for quantitative analysis. It has already been discovered that there is coincidental stereo coverage and this could be used to enhance the 3D model.

A return visit took place in December 2004 to continue the study and to train local staff in photographic monitoring techniques.

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