

geometry, high precision will also be obtained. In a situation of increasing labour costs (whilst costs of electronic wizardry may fall), it seems inevitable that automated image matching will in time be more generally adopted.

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PHOTOGRAMMETRY AND THE REPRESENTATION OF ARCHITECTURE

THE Tenth International Symposium on Architectural Photogrammetry, organised by the Spanish National Committee of ICOMOS (International Council on Monuments and Sites) and the International Committee for Architectural Photogrammetry (CIPA) was held in Granada, Spain from 27th to 29th October, 1987. The symposium was attended by more than 100 delegates, the great majority being from Spain itself. The other participants came from 12 European countries and South America as well. Granada is a superb place for a conference, presenting famous examples of architectural heritage and, in particular, the marvellous Alhambra.

The title and the main theme of the symposium was *Photogrammetry and the representation of architecture*. The actual state of a monument is documented by photogrammetric surveys. In general, stereoscopic models of the object are measured by continuous following of architectural lines, resulting in graphic displays such as plans, elevations and sections. However, the production of these documents creates a long line of problems which include selection of an appropriate scale, the completeness and optimal representation of details relating to scale, the choice of a reference plane, the display of complex three dimensional forms or objects which have curved or sculptured surfaces, interpretation by the photogrammetric operator, the use of raw or edited and completed plots, and the requirements and expectations of the architects, art historians, archaeologists and other experts who use the plans. The representation of architecture also depends, from another point of view, on the photogrammetric procedure applied to the survey. This may involve monoscopic or stereoscopic measurement, analogue or analytical restitution techniques, direct or automatic plotting, rectification or differential rectification of photographs and digital image processing. A well attended exhibition during the symposium presented a great number of interesting examples of photogrammetric work. Both the activities of the speakers and their organisations as well as the various difficulties of representation just mentioned were well illustrated.

Almost 30 papers were given which related, more or less, to the topic of the symposium. It is possible to summarise the main points of the presentations under four headings.

Photogrammetry yields a representation of the surveyed monument. Line drawings are usually produced but these are influenced by the interpretation of the photogrammetric operator. Post-processing with editing, correcting and completing is necessary. If the whole procedure is to be successful, the dialogue and the collaboration between the practitioners of architectural photogrammetry and the specialists who use the surveys have to be as intensive as possible. Without conceptual understanding of a monument only unsatisfactory results are achieved.

The representation of the complex reality of a monument is based on the knowledge and appreciation of the human. Therefore definition of criteria for representation which meet the requirements of various users is very important. A methodical approach to this problem leads to a codification relating to the scale and the form, structure and dimensions of architectural detail. Different styles may also determine different codes.

Any photogrammetric survey method influences the representation of a building. Apart from conventional line drawings, rectified photographs and photomaps or orthophotographs can be used. In this case, the quality of the original photograph is an essential factor. Photographic products may also be useful in combination with different graphic or thematic representations if a system of overlay sheets is employed. Compared to analogue methods, analytical photogrammetry offers more possibilities for the survey of buildings. These include the application of partial metric or even non-metric cameras, the arbitrary configuration of photographs, the use of various kinds of information in the object space for the orientation of photographs instead of control points, point by point recording and line plotting. Analytical plotters function as universal restitution instruments. In addition, simpler plotting systems consisting of a point by point recording device and a personal computer may be suitable for producing economical outline drawings of a monument. A set of digital data constitutes a base for computer supported editing by means of computer aided design systems and for computer image generation. However, new types of representation of architecture resulting from modern photogrammetric techniques have to be seriously investigated with regard to the users' demands.

Considering the topics just mentioned, the subject of education and training becomes obvious. The photogrammetrist should learn more about architecture and the architect should obtain a better knowledge of photogrammetric methods. The necessity for intensified education coincides with the fundamental aims of CIPA.

This summary describes the content of the meeting from this reporter's point of view. *Proceedings* which offer the opportunity to study the papers in detail should be published in early 1988.

In the concluding session, after a three day conference filled with the presentation of interesting papers and discussions, the President of CIPA, M. Carbonnell, reviewed the results of the symposium and expressed his and all participants' thanks to the organisers and in particular to A. Almagro and his staff. The delegates enjoyed the Spanish hospitality and the social events, with a reception in the Casa del Chapiz, a guitar recital and an evening visit to the illuminated Alhambra as highlights. The next international symposium sponsored by CIPA will be held in Sofia, Bulgaria in October 1988 and will be devoted to *Contributions of modern photogrammetry, remote sensing and image processing methods to the architectural and urban heritage.*

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INTERNATIONAL CONFERENCE AND WORKSHOP ON ANALYTICAL INSTRUMENTATION

THIS EVENT, sponsored by the International Society for Photogrammetry and Remote Sensing Commission II/Working Group II/1 and American Society for Photogrammetry and Remote Sensing took place from 2nd to 6th November, 1987 in the conference resort of Westcourt in the Buttes, Tempe, Phoenix, Arizona. The chosen location is an impressive hillside resort with excellent facilities for the conference and luxury accommodation for the delegates. The organisers have to be