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## Mission to Bamiyan, October to December 2003

This short version of the report presents some of the works done during the mission of ICOMOS Germany and the University of Aachen (RWTH Aachen, Lehrgebiet Stadtbaugeschichte), in October–December 2003, and the cooperation with the Italian team working on the consolidation of the Eastern Buddha niche (compare report by Margottini, pp. 175 ff.).

### *Geological investigations at the Western Buddha*

One of the recommendations made during the expert meeting held in Munich in November 2002 was to place the remaining fragments of the Buddha statues according to stratigraphic identification. In order to proceed to this identification, an accurate geological survey is necessary. In Bamiyan, this work was done jointly with Dr Ubat from the University of Cologne. Climbers from the Italian firm RODIO did the measurements in the niche.

Two types of measurements were done successively, each of them identifying a particular characteristic of the stone (colour and magnetic susceptibility). A rope was fixed at the centre of the niche, at the top. Then a climber went down taking measurements at regular intervals with handheld scanners. The exact position of each of the measurements was recorded with the total station from the area in front of the niche. It was not possible to continue the measurements down to the bottom as the wall is not vertical and it was impossible to stay in contact with the surface.

### *Detailed photographs of the Western Buddha*

A set of 17 targets was fixed on the surface of the back wall of the niche to serve as reference points to orient high resolution photographs. This was done by a climber of the firm RODIO. The targets are made of small aluminium squares (8 cm x 8 cm) fixed using stainless steel screws and plugs. The operation was difficult: Many stones are unstable, particularly at the level of what remains of the shoulder of the Buddha, and the surface of the wall being very irregular, it is often difficult to stay in contact with it or to access the points where the targets had to be placed.

### *Survey of the caves in the upper-eastern part of the Small Buddha*

While the Italian team was working on the reinforcement of the cliffs their first priority was to work on the upper-right part of the niche of the Eastern Buddha, which is especially unstable. The critical blocks are secured by long anchors.



Geological investigation at the Western Buddha

One of the difficulties of the operation resulted from the fact that the niche is surrounded by caves. To prevent the risk to perforate them, an accurate survey of their geometry was needed. We surveyed the caves in the upper right part of the Buddha. The operation was difficult because of the irregular geometry. On the other hand, it was not necessary to survey a lot of details as only an envelope of the volumes was needed.

#### *Preparation of mortar samples*

In the framework of the consolidation works done by the Italian team, many cracks were filled with cement mortar. The colour of this mortar is significantly different from the colour of the stone. One of the questions is therefore to decide which kind of mortar has to be used for the pointing. It has to be decided whether the intervention has to be clearly, slightly or possibly not visible. The mortar has also to resist the weather variations. A set of samples was prepared using different proportions of earth, sand and cement.

#### *Documentation of the traditional architecture*

Tolvara is a settlement of about 50 houses, lying in the plain in front of the site of the Buddhas, between Foladi and Bamiyan river (about 15 ha). Most of the houses are of the qala type (qala = fortress): squares of about 30 m of side, formed by walls protecting a variable number of units of living. This kind of architecture is very common in Afghanistan. To some extent and as already mentioned by Meunié (1962) it can also be compared to the architecture in pre-Saharan Morocco.

In general terms, the documentation of traditional earthen architecture is particularly important. Earth is often misunderstood and is still regarded by many as a second-grade material. Studies of particular situations can help to recognise its technical and cultural values. This huge heritage still requires many studies.

On the plan of the Valley of Bamiyan drawn in 1936 by Jacques Meunié, there is not yet a village but just a few separate qalas. The plan does not have very accurate dimensions, but the old qalas can still be identified in the village of today. The situation is rather simple: with the exception of house 39, all the houses with towers at the corners already existed in 1936. This is partly confirmed by photographs taken in 1934 by an English traveller, Robert Byron. Two mills drawn on the plan are still there but completely ruined. More recent photographs (probably taken in the 1960s, as some photographs of the set illustrate the works of reinforcement on the Small Buddha) show the village in apparently the same extension as today.

Qalas usually contain a number of living units, each of them sheltering a family. Most of them are organised around a central courtyard. Some bigger qalas have more than one courtyard. The units occupy from one up to four sides of the qalas. Often, they just have one floor, but there are exceptions. The external walls are built in cob, the internal ones in adobe.

#### *Documentation of the village and its buildings*

A photographic inventory of (nearly) all the buildings of the village was prepared. Once again, the digital photographs are stored on files and organised using HTML files. Those photographs show the different typology, but they also show the very poor state of the village. Most of the houses are destroyed and only a few of them inhabited. The entire vision given by the photographic inventory was completed by more detailed surveys. A set of representative houses was chosen so that they would give a good image of the typological variety. Architect L. Hochscherff surveyed the houses, helped sometimes by U. Dahlhaus and our translator. As a typical piece of local 'industry', a mill was also surveyed.



Photo documentation of the Western Buddha with a set of 17 targets ▷



View of the Bamiyan valley (photo: Mario Santana)

Satellite image of the village of Tolvara (reproduction of the original by Pasco)





△▽ Tolvara in 1934 and 2003 (photos of 1934: Robert Byron)

