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Report on Safeguarding the Remains of the Buddha Statues, 2009

Eastern Buddha

After the remains of the clay surfaces of the Eastern Buddha still in situ had already been secured in 2008, during our first mission in June/July 2009 it was a matter of backfilling the cracks and needling the brittle back wall of the niche. In this context especially the areas of the statue that had survived the explosions had to be taken into consideration, such as the left shoulder and left fold of the cloak, parts of the head and smaller areas of the right fold of the cloak.



△ The protective net against rockfall had to be taken down

▽ Temporary covering of the brittle parts at the Eastern Buddha by means of heavy-duty tension belts as a first step of securing the back wall



Concept for rock stabilisation

Effectively, for the stabilisation of the back wall of the niche a plan of four stages was intended. Before the works the scaffold was adapted to the individual situation and the protective net against rockfall was taken down.

1. Stabilisation with heavy-duty tension belts

At first, on both sides of particularly brittle spots anchors with ring eyelets were inserted. At these anchors tension belts were attached, which together with timber wedges as interlayers could prevent rock pieces from falling down. These tension belts are only meant as an interim measure and can be removed once the stabilisation is complete.

2. Backfilling the cracks and fissures

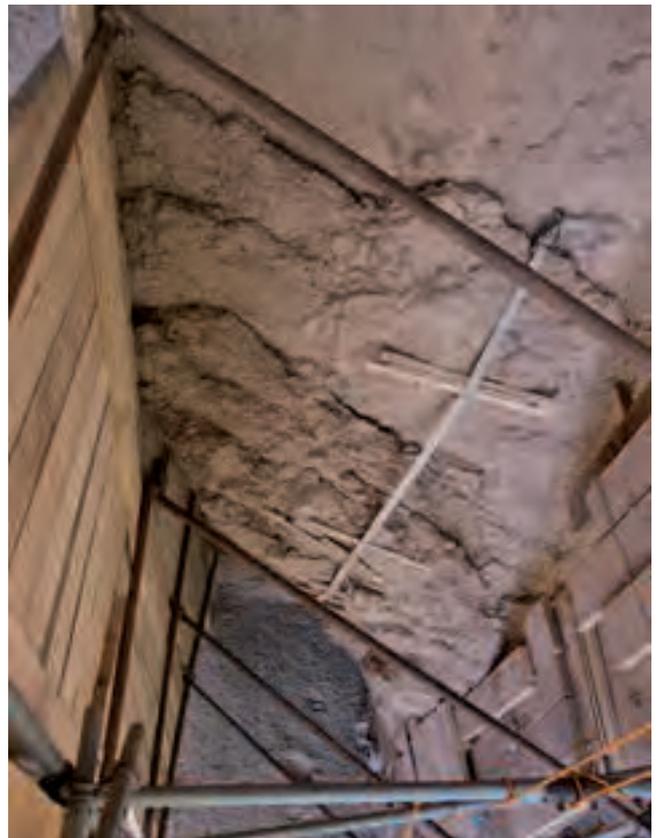
For the backfilling of the cracks first of all the vertical crack grooves were sealed from outside with a mixture of yellow clay and Ledan. After this grouting the mortar mixture was filled in through an opening. Mortar mixture for fissures of up to 20 mm: Ledan TA 1 with washed and sifted river sand, for wider fissures: cement and river sand with Rheobuild 1000 as aggregate (after Tonoli/Crippa). This backfilling was carried out in several phases to avoid the unstable, moisture-sensitive stone of being partially dissolved and to reduce the danger of shearing. To enable the backfilled adhesive mortar to harden work was carried out at several places at the same time. Once a partial improvement of the consolidation was achieved, the grouting could continue at a higher level and then be backfilled.

3. Placing of steel anchors

After the hardening of the mortar the drilling could begin. The backfilling of the cracks led to some degree of stabilisation of the brittle parts; for an additional consolidation steel anchors of one metre length and 12 mm diameter (stainless V4A ribbed bars) were used. With conventional drilling apparatuses (Hilti T76) the drilling was carried out in several steps (8 mm, 12 mm, 16 mm). The holes were freed from dust with compressed air and afterwards the steel bars were fixed with cement mortar.

Salvage of fragments at the Western Buddha

At the Western Buddha the salvage was continued, at first only with shovels and wheel barrows. Later on, a 25 t crane was used for removing smaller fragments which were blocking the entrances to the caves.



Bracket-like cantilevers are added to the scaffold so that the niche's back wall can be reached

- a Temporary covering of the brittle parts
- b Sealing the cracks and backfilling step by step with mortar
- c Drilling of holes for the anchors (Ali Reza and Mujtaba Mirzai)
- d Removal of dust from the drilling holes with compressed air
- e Backfilling of mortar
- f Insertion of steel bars
- g The team at the Eastern Buddha
- h Exposing the Western Buddha's feet





△ a



△ e



△ b



△ f



△ c



△ g



▽ d



▽ h



Removal of rock fragments with a heavy-duty crane (left). The steps near the Buddha's shoulder are cleared of rubble so that a temporary base for the upper zone of the scaffold can be added (right).

Removal of rubble at the Western Buddha





△ The feet of the Western Buddha are exposed

Dinner after a day's work ▽





Removal of rock fragments with a heavy-duty crane



From above the Western Buddha's feet are now clearly visible