9 Raising the Stupa

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9.1 Assemblage of the Frieze

Once completed, the panel was mounted on the runners. Evidently, assembly proceeded in the direction of the Frieze, i.e. from right to left.

First the false railing is mounted, then the panels. See adjacent drawing. The assembly of the false railing involves a base and an upper frame with recesses. Once the base is in place and embedded in the wall, the masons climb up with the masonry to the right height where the frame is then embedded. The work is very delicate, but it is facilitated by the presence of the central false niche and the larger starting pillar (the one on the left). The pillar is mounted in the base, then the four cross-bars are inserted, then the next pillar, and so on **[figs 71, 72a-b]**. The pillars are detached from the stupa wall by a hair's breadth, which makes the process extremely delicate. Imagine, then, the continuous play of light and shadow produced by the false railing. Once a certain number of pillars had been assembled, the upper frame was carefully lowered, making sure that the pillars were vertical enough to fit easily into the upper recesses. At this point, the rear part of the frames, fitted with dovetail brackets, was walled in **[figs 73a-c]**. Nevertheless, the creation of the false railing with these characteristics is another of the numerous 'technical gamble' experimented with the Master at Saidu. Had the false niche not been present, the undertaking would have been desperate. A good static hold of the entire register was in fact guaranteed by the walled bases and cornices, by the high number and frequency of the small pillars (369), one every 5.5 cm, but above all by the fact that the lap started and ended against the solid structure of the central false niche. The

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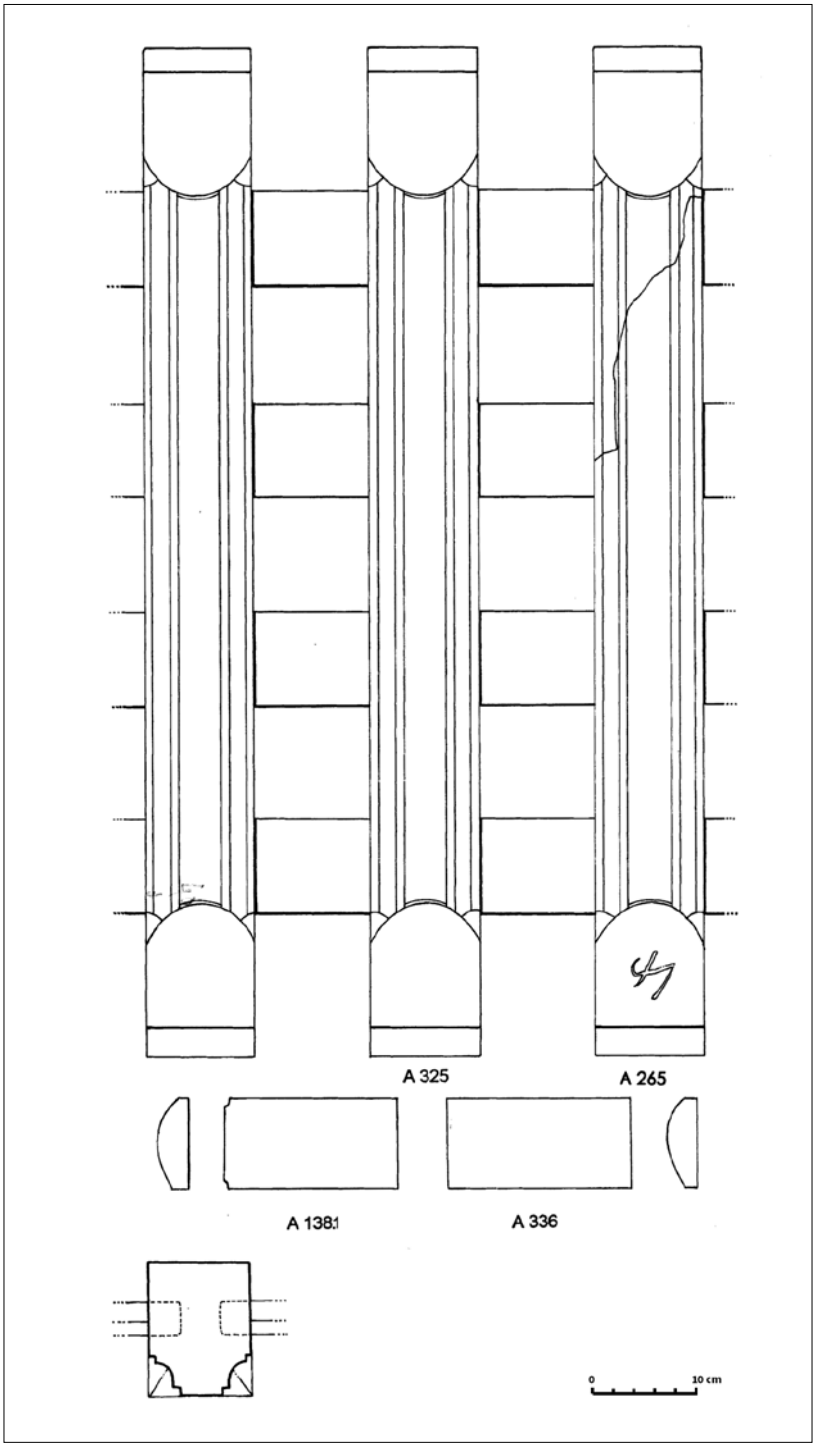

Figure 71 The false railing, assemblage system (after Faccenna 1995a, fig. 79; drawings by Francesco Martore)

Figure 72a-b
SS I reg. 59
(ACT; photo by Edoardo Loliva)

structure, even if it does not appear to be solid, had to be extremely resistant and ready to support, like a pile-dwelling, the positioning of the Frieze.

Once the lower register was completed, the procedure continued with the panels (second register), which also started and ended on the outer pilasters of the central false niche. The panels were then completed with cornices. I will return to this description after lingering over an important detail.

Even if the two registers are reversed, as proposed here (with the Frieze above the false railing), Faccenna's reconstruction envisages that the false-recinto was inserted by means of short recesses in a lower frame with an inverted groove decorated with a row of singing leaves on a fillet decorated with dentils and bars, while the upper part (the Frieze) was inserted in the guides of the upper frame, again with an inverted groove decorated with a row of singing leaves on a plain strip. In the graphic reconstruction presented in this volume, I propose a different solution, however idealised, of the two frames.

As has just been said, the frames are similar, their difference being in the lower fillet and the recesses. The cornice segments attributed to the register of the false railing present a fillet with dentils and bars and are recognisable by the recesses for the upper tenons of the pilasters. The frame segments attributed to the Frieze, with the smooth fillet, have continuous recesses for the upper face of the panels. Faccenna's documentation is very

clear and there would be no doubt. Yet there is a good number (I mean of the total number of segments recovered)[1] of reworked segments, i.e. segments of the false railing register reused for the Frieze. In the reconstructive drawings that accompany this study, I have chosen to go – so to speak – against the evidence and ideally attribute the frames with dentils and bars (dentils-and-bars) to the Frieze **[pl. XIII]**. This is not only for aesthetic reasons. There are a number of clues, which point me in this direction. For example, consider the three cases in which the designer of the Frieze modifies the frames (with dentils and bars) in which the recesses for the pilasters of the false railing were reshaped as a continuous recess for the panels. Apart from these three cases, only two other frame segments with dentils and bars with recesses for the pilasters survive. This is therefore one of the rare cases of technical aporia found at Saidu. In my opinion, four hypotheses arise. The first, which I feel able to discuss, for the reasons I will discuss in a moment, is the one already proposed by Faccenna. The second (a corollary of the first) sees in the remodelling of the frames a phase of restoration that follows the collapse of the false railing (Faccenna 2001, 69). The third is that there was a rethink in the construction phase, that is, that the project of the cornices changed during the course of construction and that it was decided to move the cornices with dentils and bars on the Frieze, but that this project was not completed. The fourth, as an extreme consequence of the previous one (and which I do not support), is that the false railing did not have an acanthus leaf frame and that this, not completed in all its parts, was only for the Frieze. In theory, in fact, the false railing should not have had an acanthus leaf frame (with or without a plain fillet). The false railing (false-*vedikā*) actually represents an enclosure that should be surmounted by a simple roof, as was actually visible on the Stupa itself around the podium and the main staircase. The problem here is that no elements of an ideal simple, rounded projecting roof (*uṣṇīṣa*) have been found to replace the cornice.[2]

Returning to the fillet with dentils and bars, by a logic of aesthetic priority (more complex vs. less complex), that should be more important than the smooth fillet, and therefore attributed to the Frieze instead of the false railing. In my opinion, the Master was late in realising this problem, but he could not have failed to notice it. Therefore, in the drawings, I have chosen to follow an idealised rather than a real reconstruction of this important detail.

The question of the fillet with dentils and bars is actually very important, because it is a 'revealing detail', already a distinctive element in Butkara I in monuments 17 and 14.

Faccenna wrote:

> Il piccolo, ma qualificante dettaglio delle barrette può essere di gran peso nella considerazione degli apporti, contatti e influenze con aree culturali esterne. Mentre il motivo a soli dentelli è largamente diffuso nel mondo ellenistico con profili dei dentelli diversi per larghezza e inter-

1 In all (including the segments found in the new excavations) we have two segments from the false railing register (Faccenna 2001, 310-11), 14 segments from the Frieze register, three of which originally belonged to the false railing register and were reworked. It is not excluded that, once the survey of the Mission's storerooms is completed, some small fragments not considered at the time of the excavations will be found.

2 Otherwise one would think that the two segments with the recesses for the pillars were the result of an error, which was not corrected in time.

Figures 73a-c
SS I reg. 56 (ACT; photo by Edoardo Loliva)

> vallo tra essi, caratterizzanti aree differenti, la presenza delle barrette richiama l'ambiente romano nella rielaborazione che esso compie nella prima età augustea di motivi ellenistici e nella loro diffusione [...] Compare a Roma in monumenti della prima età augustea (Regia, Tempio di Saturno, Tempio di Apollo Palatino, Tempio di Apollo in Circo). (Faccenna 2001, 177 fn. 76)[3]

To conclude this, and in my opinion, to justify the hierarchical superiority of this decorative motif to the plain fillet, I would point out here that the podium or throne of the Buddha in the false niche or central panel of the Frieze, that is, the largest and most central of the sculptures adorning the Stupa, at the centre of the visual and architectural focus, also features a decoration of this kind, with dentils and bars. The problem of the frames therefore remains open.

Leaving aside aesthetic considerations and returning to reality, both frames have – as we have already mentioned – dovetailed recesses for (certainly wooden) cramp **[fig. 73c]**.[4] These wooden cramps must have project-

3 "The small, but qualifying detail of the bars can be of great importance in the consideration of contributions, contacts and influences with external cultural areas. While the denticulated motif is widely diffused in the Hellenistic world with denticulated profiles of different widths and intervals, characterising different areas, the presence of the barrettes recalls the Roman environment in the reworking of Hellenistic motifs and their diffusion in the early Augustan age [...] It appears in Rome in monuments from the early Augustan period (Regia, Temple of Saturn, Temple of Apollo Palatine, Temple of Apollo in Circus)".

4 We have already mentioned the cramps: we have no evidence of iron cramps for the stone in the work on the Frieze. All the cramps we have from the Monastery seem to be carpentry

Figure 74a-b SS I 27 (ACT; photo by Edoardo Loliva)

ed considerably: in this way the supporting frame below and the locking frame above would have been solidly set into the face of second storey as it was raised by the workmen. This way, the panel was set firmly against the body of the Stupa. Thus the work of the sculptors and workmen proceeded in parallel.

Adherence of the panel was ensured with smudges of lime to fill the inevitable gaps between the straight panel and curved body. Where necessary, the semi-column was fixed even more firmly with iron nails, square in section, that were driven from outside and subsequently hidden by stucco work (possibly with a mixture of lime and chlorite schist dust). The shape of the holes suggests that they were arranged before assembly, quite possibly

work, in wood. Cramps came into frequent use in Gandhara from the end of the first century. For the minor friezes and cornices (figured/decorated) they served to mount pieces which were not designed for a specific monument but produced in series, the cramps serving the function of 'universal connector'.

one every so many panels. Very rare is the use of circular holes practically hidden in the panel itself. These could have done while work was underway, only when really necessary, with the use of a hand drill for nails either square (more often) or round (more rarely) in section, used for carpentry and well documented with excavation of the Monastery of Saidu (Callieri 1987). Here, too, stucco work was applied to cover the intervention. This way the frames could have been anchored to the body under construction, setting the panels firmly against the masonry and helping to stabilise all the figurative material. Once the work was completed, the Master proceeded with chiselling of the pupils to perfect the sense of perspective.

Above the decorated cornice of the Frieze ran the final course of moulding (fillet, ovolo, cavetto, reverse ovolo, covering slab). Above, the third storey can be pictured as a free band of the same height as that of the second storey,[5] culminating with the string course, small covering slabs supported by brackets. The presence of this projecting string course is perfectly justified if, as at Amluk-dara and Tokar-dara, we picture it protecting a painted band, possibly displaying garlands. The string course was supported by a series of brackets in green schist with double volute (with vertical central flute), separated by interconnected talc schist flat metopes (coloured?) (l. 19 cm = 0.6 Gft), many examples of which have survived, the projecting parts all measuring in a range of 12-14 cm **[figs 74a-b, 83]**.[6] Thus the string course slab must have projected by about 15-20 cm from the side of the monument.

9.2 Upper Drum and Dome

Shortly after the third storey, from a height corresponding to that of the third storey, begins the curvature of the *aṇḍa* which, like Faccenna, we picture in the form of a slightly depressed arch on a minimal springer. At the level where the curvature begins there may well have been (see the example of Chatpat published in Foucher 1905-51, 59, fig. 12)[7] the *nāgadanta*, i.e. the figured brackets in green schist used as support for real garlands. This way the lower curve of the garlands would have come at about the height of the beginning of the curvature of the *aṇḍa*. The *nāgadanta* are figured brackets leaning forward at an angle of about 45° **[figs 75a-b, 76a-b]**. The brackets were set into the masonry by their straight horizontal shafts or rear tails. Seven preserved brackets of this type have been identified with certainty: some (?) with upper volute and projecting figure of a standing putto represented performing various actions, all offering something: a reliquary held to the chest with both hands, or two bunches of flowers, one in each hand, hands joined in the salutation, or right hand held forward with the left by

5 On the basis of survey on the stupas with preserved superstructure, including Amluk-dara and Abbasaheb-china (Faccenna, Spagnesi 2014).

6 Faccenna 1995a, 518-22, plus a series of at least a dozen from recent excavations. H. 12 cm, w. 0.6 cm, projecting part 12 cm. Note the presence of similar brackets at Butkara III (BK III 1985-1-144 and BK III 1985-1-206; Gul Rahim 2015, figs 202, 205).

7 As suggested to me by Anna Provenzali, who also suggested I should make comparison with the stupa-shaped reliquary in stone from Panr I (P 1132).

Figure 75a-b SS I 62 (ACT; photo by Aurangzeib Khan)

the side.[8] They were set at regular intervals (on one of the stupas comparable to ours in size, at least every 2 m); the garland was hung behind the projecting volute, clearly visible where it fell between the brackets.

On the top of the *aṇḍa*, above the inverted pyramid of the *harmikā* and the railing of the top *vedikā*, the *chattravali* umbrellas may have numbered only three, or five, and appeared small in relation to the sweep of the dome. The surviving slab of the Saidu *harmikā* was in dark grey schist – a material more compact and resistant than the green schist. The three remaining fragments belonged to the lower slab (the smallest), decorated on the side (14 cm in height) with eight-petalled rosettes within a fillet lozenge (Faccenna 1995a, 547-9). The largest fragment, which is intact (1.07 m), should correspond to the central part on which the side parts were mounted, so we can suppose an original width of about 2.5 m per side. Possibly belonging

8 The seven pieces are: S 87, S 363, [S 429], [S 1355], SS I 62, SS I 182, SS I 204. The two pieces here in square brackets are a little different. The others certainly belong to the same series, which belongs to the Stupa. Apart from S 429, they are all fragmentary. Based on the one intact piece, S 429, the average height of the bases would be in the region of 20-22 cm – little, if we consider the general proportions (bearing in mind the *caveat* by Anna Provenzali), sufficient if we take into consideration that the height and projection of the brackets on the string course of the third storey, which certainly belong to the Stupa, never exceed 12-14 cm. Moreover, as emerges from a study being carried out by Provenzali, the *nāgadanta* are a type of architectural elements limited to the very earliest phases of Gandharan stupa architecture. Thus, it seems to me hardly likely that the figured brackets of Saidu do not belong to the Stupa. See also Provenzali 2005.

Figure 76a-b SS I 182 (ACT; photo by Aurangzeib Khan)

to the *harmikā* is a pillar in green chlorite schist, 20 cm in height without base and topping (pillar A 45, with eight-petalled lotus flower at the ends and band decorated with astragali and beads; Faccenna 1995a, fig. 264b). Although Faccenna's idea that these could have belonged to the top railing of the *chattravali* (*harmikā*) is the only one that seems possible (p. 547), in the drawings illustrating this text, the *vedikā* has been deliberately omitted.

9.3 The Umbrellas and the *machinae*

While the architect of Amluk-dara avoided some of the unsuccessful experiments of his precursor at Saidu (the railing on the top of the podium), one experiment that he did not fail to attempt – and succeeded in – was to bring to the top of the stupa at least seven umbrellas or *chattras*, the largest of which had a diameter of 8 m, for a height of the *chattravali* of about 8 m including the exceptionally large *harmikā* (over 4 m wide), a fragment of which, now lost, was noted by Stein in 1926 (Stein 1930, 19). The largest umbrella had a diameter of about 8 m, the second largest 7.2 m. The total weight of the former was over 24 t. These umbrellas were made up of 8 heavy segments bound together by cramps (and metal braces). The fourth umbrella, measuring 4 m, consists of a single piece weighing 9 t. The second to last umbrella had a diameter of 1.65 m.

The height of this structure brings the height of the stupa, measured from the ground, from the 25 m up to the bare dome to a total of nearly 33 m (about 100 Gft) (see Olivieri 2019a). The top umbrellas at Amluk-dara, supported by a forest of wooden props at the sides, came tumbling down on the left side of the stupa and on the stairway in a later phase, in the closing centuries of the first millennium CE, undoubtedly as the result of a violent earthquake. Probably this was the last stage in a process that must have seen, first, the collapse of the wooden props, then the lower umbrellas falling apart as the segments detached, and finally the *chrattavali* collapsing onto itself (the top of the stupa is wide enough to cover the ruins). In a subsequent stage umbrellas slid down the side, taking with them all the brackets and projecting parts of the superstructure from the left side.

At Saidu, on the other hand, still following in the tracks of the Indian tradition, the umbrellas numbered only three (or five?) and were relatively small in comparison with the sweep of the dome.[9] The largest umbrella yielded by excavation had a diameter of 4.8 m, thus projecting well beyond the *harmikā* (reconstructed width about 2.5 m), but only just extending beyond the first curvature of the dome. Its weight is estimated to have been 14 t.[10] If the principle of harmony between the height of the columns and that of the stupa (measured from the podium) applies, given that the columns come to just over 14 m with the lions at the top and the Stupa just over 12 m including the *harmikā*, there could not have been more than three umbrellas (see Faccenna 1995a, 564-5). The second umbrella had a diameter of 3.6 m and weighed 9 t; the third, 2.6 m and 4.4 t.[11] The pinnacle of the *chattravali* must have come a little above the lions. To avoid an optical effect of flattening, the minimum space between the umbrellas must have been of 1 m. The ratio studied at Panr I between the width of the umbrellas and the height of the intermediate joints appears gradually to have diminished (see again Faccenna 1995a, fig. 279). If these proportions were also applied at Saidu, then the first umbrella of 4.8 m came 2 m above the *harmikā*, the other two at a lesser distance. Unless it had five umbrellas, the Stupa would thus have risen for over 16 m from the ground (50 Gft), nearly 3 m above the lions.

In any case, the system to erect the *chattravali* must have been very complicated and dangerous. At Amluk-dara the large umbrellas were divided into segments (usually eight), mounted together and set on wooden props.

9 As for the precise number of umbrellas, little is known (see Schopen 1997, 303-4; also Fussman 1994b, 28-9). Apart from established practice, we must consider the technical difficulties. In the earliest stupas, including Saidu and Butkara I, the umbrellas clearly numbered three (or five): at Butkara I, following the Indian tradition, relatively small, but larger at Saidu. We have clear evidence of seven umbrellas at Amluk-dara. We may imagine that in many cases of high *chattravali* representation is idealised. For the towering *chattravali* and multiple umbrellas, evidence of which we find in the rock incisions of the upper Indus or the bronze models of the seventh-eighth century (see Faccenna 1995a, pls 274-85), and which seem to reflect real architectural elements, we can also imagine wooden structures. The Seṇavarma inscription may already have referred to wooden pinnacle on the Ekaüḍa stupa, which caught fire on being struck by lightning. In the case of many later stupas, dating to the fifth-sixth century, like the stupas on an octagonal plan at Hadda, Bamiyan, Mes Aynak (for example, in complexes 045, 003, 013), one need only consider the rubble masonry technique used, with a lining of small slabs, to realise that such structures could not support superstructures in stone. On the evidence of the pinnacles found at Mes Aynak we can see that the topmost *chattravali* were also made of terracotta, as well as wood. On fires, lightning and wooden or metal pinnacles, see Foucher 1905-51, 84).

10 Fragments C 101 and C 102.

11 Respectively fragments C 95 and A 140 with C 94. If there had been room for a fourth umbrella, we would have to consider fragment C 97 (2 m in diameter and weighing 2.6 t).

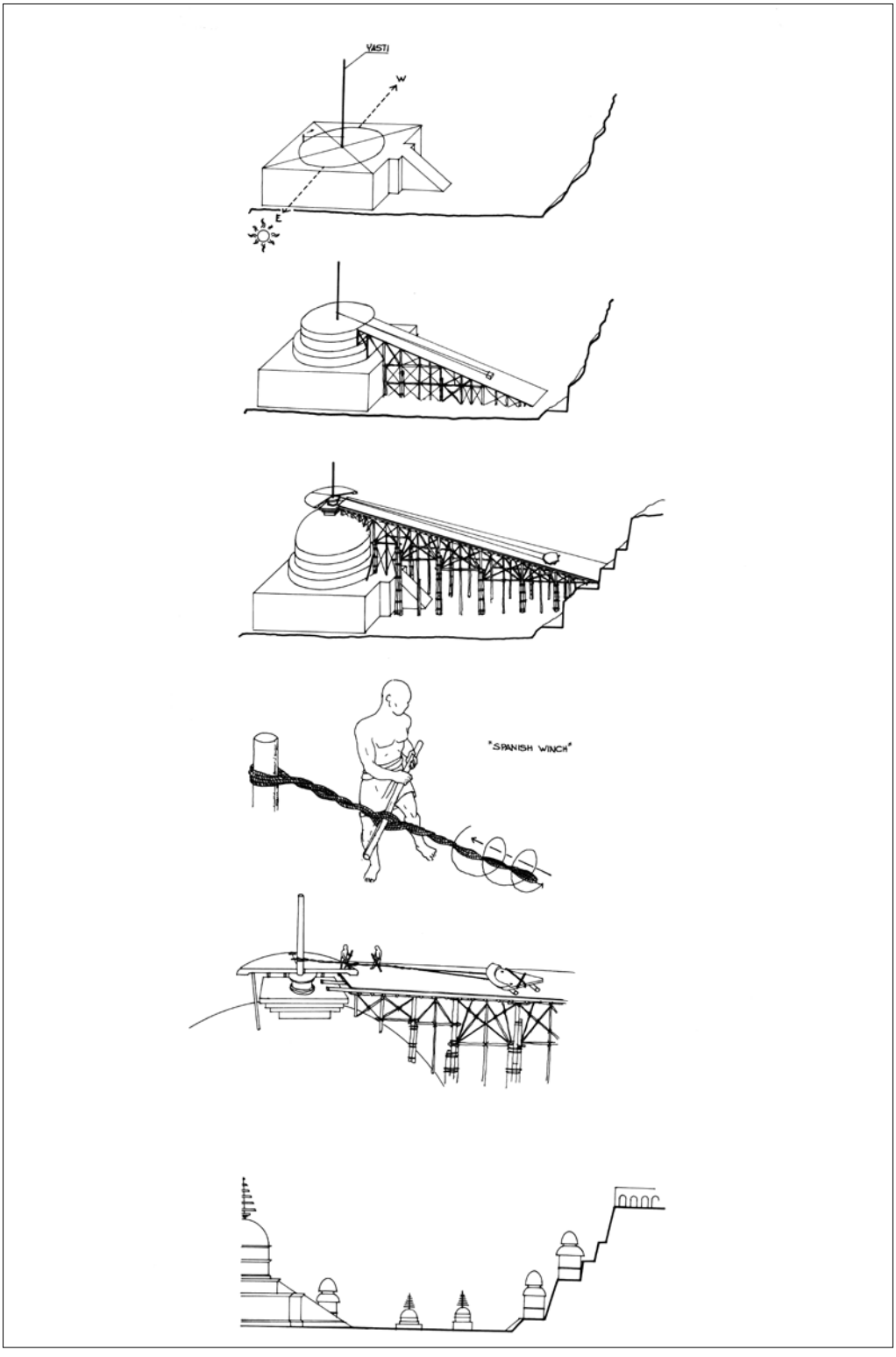

Figure 77 Building operative techniques (drawings by Francesco Martore)

Figure 78 SSI 12, minor stupa (ACT; photo by Edoardo Loliva)

The system used for the operation must have been based on the Spanish winch, making ramps of earth to shift the blocks directly from the terraces of the quarries worked stepwise in the rock slope facing the stupa. Once the work was completed, the terraces were occupied by buildings, minor stupas and other structures connected to one of the monasteries of Amluk-dara (Olivieri 2019a) **[fig. 77]**.

A similar method may have been adopted at Saidu. Using ramps and the Spanish winch is the easiest solution to the problem of the lack of *machinae* (*yantra*) in Gandhara, and indeed in the texts when referring to the construction of stupas, but above all in sculptural depictions. Actually, there are two significant exceptions (which suggests that there may have been many more): in the *Divyāvadāna* and the *Mūlasarvāstivāda-vinaya*.

In the former collection, the story of Makāndika contains reference to a mechanical master. The term recurs in the latter text, describing the attempt by Devadatta, cousin and diehard antagonist of the historical Buddha, to kill the Buddha (one of the last events before the *parinirvāṇa*), with mention of "a master of mechanics" asked by Devadatta to build a "machine operated by 500 men" to raise a huge boulder to drop on the Buddha. The picture changes in some of the scenes at Gandhara, showing the raising of a pillar instead of the boulder. These reliefs were analysed by Maurizio Taddei (1963). Undoubtedly the reason for the erection of a pillar is to be sought – as Taddei points out – both in the transmission of the type of scene well attested in Hellenistic and subsequent art, and in the experience the Gandharan sculptors had of machinery of the sort that must have been used in building, to raise votive columns. Each of these 'exotic' iconographic models or archetypes cited in the art of Gandhara enjoy viability always and only if they continue to have a significant role to play in the context of use, even if they have lost their original narrative meaning. We have seen this in the scenes of wrestlers, and the iconography of Hercules and Antaeus, etc. The scene of Devadatta may therefore allude to the existence of building *machinae* for which no evidence is found in the data offered by art and archaeology.

9.4 Colour and Gilding

The last operation was a matter of plastering and painting, which we have already had occasion to mention. The podium and parts in talc schist masonry (third storey) were, finally, plastered with a lime base (Faccenna 1995a, 125-9, fig. 15). This process had from the outset been deemed necessary not only for protection but also to pick out the parts of the moulding in accordance with the design. To this by no means secondary detail, Faccenna dedicated pages of fundamental importance (129-32). Plastering was carried out frequently, certainly seasonally (126).[12] At Amluk-dara, thanks to the evidence of the collagen in the plaster, we hypothesise a seasonal sequence organised thus:

> [Collagen] was extracted from animal bones in late autumn (when weather is dry and cold and it is more favorable for gelatinization). In late

12 The base or plinth of the podium shows five successive layers of plaster preserved and accurately documented (Faccenna 1995a, 435, fig. 183).

> spring, after the end of the rainy season, when the weather is mild and dry, stucco was prepared. Various binders were used to make the stucco and color layers more stable and weather-resistant. The presence of egg [albumen] in the final layers of the stucco suggests the hypothesis that the stucco surface was dry and smooth when color was applied. In this condition pigments needed to be mixed with a strong binder to adhere to the substratum. (Olivieri 2019d, 127)

As for the colour, little can be added to the observations on the basis of the excavation (Faccenna 1995a, 133-4). The plaster had a warm, ivory or shell hue. If the third storey was surmounted by a string course supported by brackets, on the evidence of what remains and of the example of Amluk-dara, it may well have been painted with garlands; we can be quite certain that the columns were red.[13]

There are no traces of gilding on the Frieze, while it is recurrent in the stupas of the subsequent periods (132 fnn. 1-2). A recent study (Zaminga et al. 2019) on the 2 fragments from a miniature stupa in schist from shrine 54 at Saidu (period III) suggests that the gilding system used might have harked back to a technique widespread in the Hellenistic world.

The Frieze sculptures, with their sage green colour, had not been conceived of as being gilded, nor indeed painted over with the typical shell-coloured lime-based whitewash widespread throughout India for the preparation of paint (Faccenna 1995a, 95) **[fig. 78]**. That the eyes were not painted (and if they were not, what else would be?) is evidenced by the care taken over cutting the details of the iris and pupil. Stucco work on the parts secured with nails, or to cover errors or cracks, must have been carried out with the lime-based mixture of talc schist dust, although we have no traces of it.

Our final hypothetical reconstruction of the side and front façades is summarised in the plates attached to this study.[14]

13 In addition to Faccenna 1995a, consider the three intermediate discs of the capital of column C found in 2011 with traces of red (not inventoried: preserved with register no. SS I 28, 65 and 107).

14 The reconstruction of Saidu offered by Le Huu Phuoc – with two figured registers separated by two pseudo-*vedikā* registers and a towering *chattravali* with eight umbrellas for a total height of about 24 m for the monument – although based on excavation report data is a product of the imagination (Le Huu Phuoc 2010, 175-6, fig. 6.14).