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Stone Transport and Stonemasonry: The Figurative Ostrakon British Museum EA 23341

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This paper is the publication of the British Museum figurative ostrakon EA 23341. The sides of the ostrakon present the sketches of scenes closely intertwined: the transport of a raw stone block by means of a sledge, and stonemasons at work. Egyptian tomb painting offers some evidence of dragging of statues, portable objects, and funerary equipment on sledges pulled by men. Representations of the transport of stone blocks are very rare in comparison. One example, though severely damaged, is represented on the walls of the tomb of Rekhmira in Thebes, which also features stonemasons at work. Interestingly, the sketches on EA 23341 mirror Rekhmira's scenes. The drawing of the transport of the stone block is exceptionally valuable here as it may enable the reconstruction of the scene in Rekhmira's tomb.

Keywords: Figurative Ostrakon; New Kingdom; Stone Transport; Stonemasonry; Rekhmira.

ISSN: 0001-9046 (print) 1827-7888 (digital)

DOI: 10.26350/001217_000091

The figurative ostrakon with accession number EA 23341 is stored at the British Museum, London (figs. 1 and 2). It was purchased from Rev. Greville John Chester in 1889 (1). An image of this ostrakon, with basic short piece of information, is in the catalogue of Ramesside ostraca from the British Museum collection (2). The provenance is unknown. According to Demarée (3), it dates to the New Kingdom, probably to the Nineteenth or Twentieth Dy-

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I am grateful to Dr. Ilona Regulski, Curator of the Egyptian Written Culture of the Department of Egypt and Sudan of the British Museum (London, UK), for giving me permission to publish this object.

(1) G. SEIDEMANN, *Forgotten Pioneers in Archaeology in Victorian Oxford: The Rev. Greville John Chester (1830–1892)*, «Oxoniensia» 71 (2006), pp. 145-150.

(2) R.J. DEMARÉE, *Ramesside ostraca*, London 2002, p. 24, pl. 66.

(3) *Ibidem*, p. 24.

nasty. Made of limestone, it measures 12cm × 13.5cm. Limestone was the most suitable material for sketches as its surface was neither too porous nor too dense (4). Both sides of the stone have drawings. For practical reasons, I have assigned the letters 'A' and 'B' to each side. The drawing of side A is in black and red ink (5), while that of side B is monochrome (black ink only).

The scene on side A

Side A offers scenes on two registers (fig. 1). The uppermost one illustrates the transport of a stone block on a sledge. The use of sledges to move sta-



Fig. 1 - Ostrakon EA 23341, side A (photograph: © author).

(4) See B.G. ASTON *ET AL.*, *Stone*, in P.T. NICHOLSON, I. SHAW (eds), *Ancient Egyptian Materials and Technology*, Cambridge 2000, pp. 5-77; E. BRUNNER-TRAUT, *Egyptian Artists' Sketches. Figured Ostraca from the Grayer-Anderson Collection in the Fitzwilliam Museum, Cambridge*, Leiden 1979, p. 2.

(5) The brush strokes in red ink are those reproduced in a lighter shade (greyish) in the image.



Fig. 2 - Ostrakon EA 23341, side B (photograph: © author).

tues, obelisks, architectural elements such as columns and architraves, and pieces of funerary equipment is known from tomb depictions, reliefs, and vignettes on papyrus. Made of oak or beech, sledges consisted of two parallel runners connected by crossbeams (6). Only a few exemplars have been discovered. According to William F. Petrie (7), the «portion of a large sledge for dragging stone» was found near the Middle Kingdom pyramid of Lahun

(6) For more information and preserved examples of ancient Egyptian sledges and model sledges see D. ARNOLD, *Building in Egypt. Pharaonic Stone Masonry*, Oxford 1991, pp. 276-280; D. PARRY, *Engineering the Pyramids*, Stroud 2004, pp. 105-16; R. PARTRIDGE, *Transport in Ancient Egypt*, London 1996, pp. 131-137; K. YAMAMOTO, *Iconography of the Sledge in Ancient Egyptian Funerary Art*, «Bull. Egypt. Sem.» 19 (2015), pp. 665-674.

(7) W.F. PETRIE, *Seventy Years in Archaeology*, New York 1932, p. 106.

(Faiyum, Middle Egypt) «made from old ships timber» (8). A famous example of a sledge representation is the large mural decorated with the transport of a colossus of the Twelfth Dynasty nomarch Djehutihotep from his tomb at Deir el-Bersheh (fig. 3) (9).

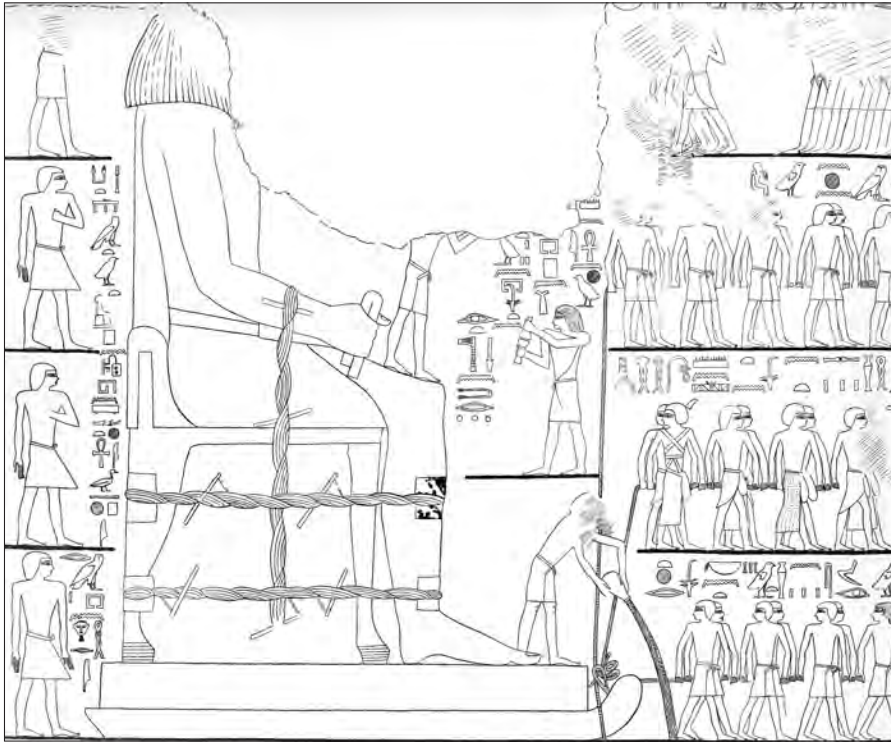


Fig. 3 - Drawing of the transport of the colossus of Djehutihotep, detail, Deir el-Bersheh (after P.E. NEWBERRY 1893).

(8) This sledge may have been used to drag stone blocks from the nearby small quarry. Many inscriptions on papyri discovered within the walls of the close town of Kahun record lists of workers called *ithw inrw* “stone haulers”, who were probably involved in quarrying tasks and construction activities in the area and at the pyramid-site of Hawara. For a detailed discussion on the subject see M. DI TEODORO, *Labour Organisation in Middle Kingdom Egypt*, London 2018, pp. 51-61.

(9) P.E. NEWBERRY, *El Bersheh*, London 1894, pl. XV.



Fig. 4 - Panel of the relief from the tomb of Maya, Saqqara (Courtesy of the Ägyptische Museum und Papyrussammlung, Berlin, acc.no. ÄM 2089).



Fig. 5 - Panel of the relief from the tomb of Maya, Saqqara (Courtesy of the Ägyptische Museum und Papyrussammlung, Berlin, acc.no. ÄM 2089).



Fig. 6 - Drawing of the above panels from the tomb of Maya (after K.R. LEPSIUS 1853) (10).

The transport of a statue also appears in a tomb painting from the Old Kingdom tomb of Ti (11), and on reliefs from the New Kingdom tomb of Maya, both from Saqqara (figs. 4-6) (12).

Examples of the transport of funerary equipment are in the scenes of funeral processions depicted in the New Kingdom tombs of Amenemhat and Païry at Thebes (13). In the first, men tow the coffin of the deceased on a sledge (14) (fig. 7, lower register); in the second, the coffin is carried inside a boat-shaped

(10) K.R. LEPSIUS, *Denkmaeler aus Aegypten und Aethiopien, Abtheilung III, Band VII*, pl. 242a., Berlin 1853.

(11) G. STEINDORFF, *Das Graß des Ti*, Leipzig 1913.

(12) G.T. MARTIN ET AL., *The Tomb of Maya and Meryt I: The Reliefs, Inscriptions, and Commentary*, London 2012, pls. 32-33. The relief cycle is currently stored at the Ägyptische Museum und Papyrussammlung, Berlin, acc.no. ÄM 2089. It includes four pieces representing offering carriers and the transport of statues. It dates to the late Eighteenth Dynasty, the time of Tuthankamun.

(13) The tomb of the scribe Amenemhat (TT82) dates to the Eighteenth Dynasty, reign of Tuthmosis III: NO. DE GARIS DAVIES, A. GARDINER (eds), *The Tomb of Amenemhat (No. 82)*, London 1915. The tomb of Païry (TT139) dates to the Eighteenth Dynasty, reign of Amenhotep III. The Metropolitan Museum of New York has a facsimile painted at Qurna by Nina DE GARIS DAVIES in 1935 (see fig. 8 below). Other notable examples of the transport of funerary equipment by sledge are in the tomb of Païry at El-Kab (EK3) (A. DEVILLERS, *The Artistic Copying Network Around the Tomb of Païry in El-Kab (EK3): A New Kingdom Case-Study*, in G. MINIACI, J.C. MORENO GARCÍA, S. QUIRKE, A. STAUDER (eds), *The Arts of Making in Ancient Egypt. Voices, Images, and Objects of Material Producers 2000-1550 B.C.*, Leiden 2018, pp. 31-48; J.J. TYLOR, *Wall Drawings and Monuments of El Kab, the Tomb of Païry*, London 1895), and in the tomb of Intefiker at Qurna (TT60) (A. GARDINER, A.E.P. WEIGALL, *A Topographical Catalogue of the Private Tombs of Thebes*, London 1913). For more examples see K. YAMAMOTO, art. cit., pp. 665-674.

(14) As the image shows, only the first row of three men pulling is visible due to considerable damage; more men are probable, with or without oxen.

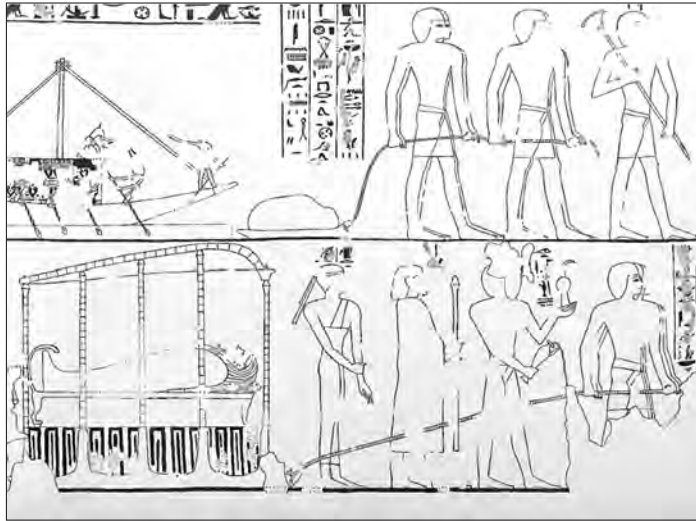


Fig. 7 - Transport of *tekenu* (upper register) and coffin (lower register) by sledge. Tomb of Amenemhat, Passage South Wall, detail (adapted from NO. DE GARIS DAVIES, A. GARDINER, 1915, pl. XII).



Fig. 8 - Transport of boat-shaped shrine on sledge. Funeral procession, detail. Tomb of Païry. Facsimile by Ni. De Garis Davies; tempera on paper (Courtesy of the Metropolitan Museum New York, inv. no. MMA 35.101.3).

funerary shrine mounted on a sledge pulled by eight men and four oxen (fig. 8). In the upper register of the scene of Amenemhat's tomb a *tekenu* (15) is also towed on a little sledge by four men.

(15) The nature of the *tekenu* is not fully understood. Usually represented as a sack or a crouching man with a shroud carried by sledge, it seems to be a central figure of the funerary ritual. Recently, Glennise West suggested that the *tekenu* could be the physical representation of the *ka* of the individual: G. WEST, *The Tekenu and Ancient Egyptian Funerary Ritual*, Oxford 2019. See also J.M. SERRANO DELGADO, *A Contribution to the Study of the tekenu and its Role in the Egyptian Funerary Ritual*, «ZÄS» 138 (2011), pp. 150-162.

The representation of the transport of stone blocks is rare by comparison. The only illustrations known to me are the New Kingdom painting from the tomb of Rekhmira at Thebes (16), and the rock carving Cairo JE 62949 (17). The latter shows the transport of a stone block on a sledge pulled by three oxen (fig. 9). The former matches the drawing of ostracon EA 23341-A.



Fig. 9 - Facsimile of Cairo JE 62949 (© author).

In EA 23341-A, a base line separates the registers and functions as a base for the drawing of the upper register (fig. 1). The upper left corner and bottom lower part of the ostracon are missing, which renders the scenes incomplete. A square stone block is placed on a sledge of which only the front end is preserved. Four standing human figures, likely men, are represented along the visible side of the block, their feet on the sledge, and their hands holding a rope. We can expect four other individuals placed along the opposite side of the block. The rope is stretched at roughly half the height of the block, presumably encompassing it.

On the right-hand short side of the block there is apparently a knot or loop from which the (or another) rope is extended upwards until it bifurcates at the rightmost edge of the ostracon. Another rope, fastened to the same knot (?), is stretched forwards. I propose that (at least) two parallel rows of men were supposed to drag the stone block, following the example of the scene depicted on the walls in the tomb of Djehutihotep (fig. 3). The two ropes, which the artist

(16) Tomb TT100, dated to the Eighteenth Dynasty, reign of Tuthmosis III/Amenhotep II. See NO. DE GARIS DAVIES, *The Tomb of Rekh-mi-Re at Thebes* (Publications of the Metropolitan Museum of Art Egyptian Expedition XI), New York 1943.

(17) M. SALEH, H. SOUROUZIAN, *The Egyptian Museum, Cairo: Official Catalogue*, Mainz 1987, p. 119.

represented on different registers, may instead have been parallel. This is in line with the Egyptian style to draw on higher registers those objects that were further away, which aimed to also provide complete information about those elements of the composition that would not be visible from a single viewpoint. It is worth noting that on EA 23341-A the rope surrounds the block, but does not seem to be tied to the sledge. Nearly all representations of the transport of statues or pieces of furniture show the rope as being secured to the front of the sledge: ropes could be tied to purpose-made beam holes or the runners of the sledge (18) (figs. 7, 8 and 9), or to ring-shaped bronze handles (19) (e.g. figs. 3, 4, 5, and 6). Then the ropes were pulled by men or animals (figs. 3-9). A panel from the bas-relief of Maya (fig. 5) shows two ropes (20) attached to both sides of the sledge's front and pulled by men arranged in pairs on two parallel rows. In the Assyrian representation of the transport of a lamassu-statue (21), ropes are fastened both to the front and rear of the sledge, for a total of four two-fold ropes pulled by four rows of men (fig. 10). Egyptian representations constantly show ropes connected to the sledge's front only.

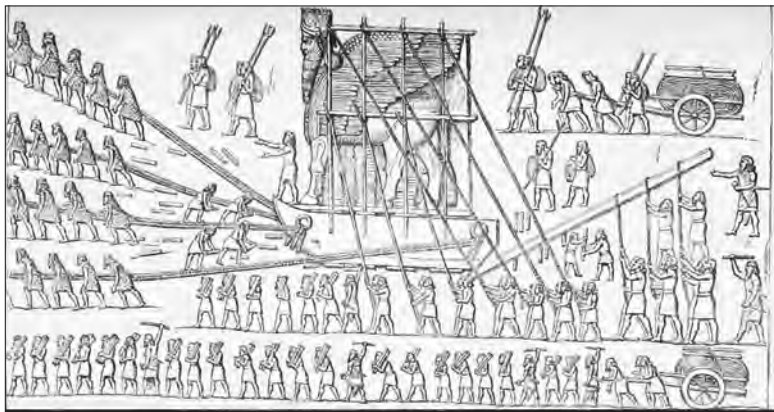


Fig. 10 - Transport of a lamassu-statue, drawing (adapted from A.H. LAYARD 1882).

(18) D. ARNOLD, op. cit., p. 276.

(19) R. PARTRIDGE, op. cit., p. 133.

(20) The ropes are depicted as a single rope which bifurcates at the height of the bottom-end of the skirt of the man who is pouring water under the sledge.

(21) The scene is on a bas-relief from the Assyrian palace of Kujundschik: see Sir A.H. LAYARD, *Nineveh and Babylon. A Narrative of a Second Expedition to Assyria during the Years 1849, 1850 & 1851*, London 1882.

A considerable blot of black ink partially damaged the scene on EA 23341-A. However, we can recognize four human figures standing over the block, likely men. The first man from the left bends towards the surface of the block. The second man is standing. His right hand is raised towards the mouth while the left arm is extended forward, and his left hand holds a sharp object of an unclear nature. Also, the third man is standing, with the upper part of his body slightly bent down, his left hand to the mouth and his right arm left hanging. These latter men probably incite the workers to pull, or give them orders. Similarly, a man standing on the statue of Djehutihotep synchronises the work rhythm by clapping his hands (fig. 3 above), and in the Assyrian bas-relief a man standing on the edge of the sledge coordinates the workers aloud (fig. 10). A fourth man seemingly kneels on the stone-block, reaching out for another man who stands in front of the sledge with his arms raised. The former gives something to the second. In my opinion, these men are handling those rollers which were progressively loosening the rear of the sledge as it moved forward, to reuse them in the front of the sledge.

The same action is represented in the Assyrian bas-relief (fig. 10). Here two men are collecting free rollers behind the sledge, while four others are placing rollers in front of the runners; others are lined in the lower register with additional rollers kept in supply. The use of the rollers was probably limited to stone paving or previously arranged tracks. Where the surface was softer (*e.g.* sand), water (22) was probably poured in front of the runners to lubricate the path and reduce friction to facilitate the movement of the sledge. Pictorial representations and bas-reliefs seem to support that hypothesis: where the water is poured in front of the sledge there are no rollers and vice versa (compare figs. 3-6).

The use of rollers is attested also at Roman quarries. Slipways for slidings stone blocks down from hillsides down to valleys' ramps can be found, for example, at Mons Claudianus in the Eastern Desert, Egypt (23). Also, v-shaped

(22) D. ARNOLD, *op. cit.*, p. 277. According to Parry and Partridge the liquid might have been water or olive oil: D. PARRY, *op. cit.*, p. 106; R. PARTRIDGE, *op. cit.*, p. 134. I consider the use of water more likely as it was a source more easily procurable in abundance and less expensive.

(23) The name Mons Claudianus refers to a complex of granodiorite quarries, a fortified settlement, a temple of Serapis, and a bath. The entire complex was occupied intermittently from the First to Third c. A.D.: D. PEACOCK, V. MAXFIELD, *Mons Claudianus: Survey and Excavation, 1987–1993. Vol. 1: Topography and Quarries* (FIFAO, 37), Le Caire 1997, p. 267; S.E. SIDEBOTHAM, M. HENSE, H.M. NOUWENS, *The Red Land. The Illustrated Archaeology of Egypt's Eastern Desert*, Cairo 2008, pp. 77-82.

wooden sledges (*shura*) on rollers were used in Ancient Japan during the Kofun period (Third-Seventh c. A.D.) for hauling heavy stones to build funerary tumuli (24). A later example of the use of wooden sledges and lubrication to reduce friction comes from Ming Dynasty China (Fifteenth and Sixteenth c. A.D.). According to a recent study, the massive stones (25) used for the construction of the Forbidden City in Beijing (26) were transported over 70km – the distance from the quarry to the construction place – on wooden sledges sliding on an artificial ice path (27). A lubricating water film was probably poured between the sledge and the icy ground (28).

Wooden sledges were used in Italy from the late 1800s to 1965 to move heavy marble blocks at the quarries of the Apuan Alps (29). There, ancient routes called *vie di lizza*, “roads of the lizza”, were used to lower the marble blocks from the quarries down the mountains. *Lizza* was the name of the wooden sledge, and *lizzatura* was the technique that enabled the *lizza* to be lowered (30). Rollers were also handled to ease the movement of the sledge. As the images show (figs. 11-13), the marble block was placed on the *lizza*, which was made of three trunks arranged in parallel with the direction of movement. Ropes, later replaced by steel cables, secured the block to the *lizza* crossing the upper face of the block in the middle, parallel to its long side. The ropes surrounded the block passing under the sledge up until they came out from the opposite side where they were tied to a metal handle called *grillo*. As in Ancient Egypt, padding was placed between the block and rope to prevent abrasion (fig. 3). The ropes for the lowering were rolled around wooden poles anchored to the rock, while their ends were tied to the *grillo* of the *lizza* (fig. 13). The men passed each other wooden beams (rollers) which had been spread over with soap and placed them horizontally in front of the sledge as sleepers.

(24) J. LI, H. CHEN, *Lubrication for Transporting Heavy Objects in the History*, «Tribology Online» 11/2 (2016), pp. 242-244.

(25) Including the *Nine Dragons* – the largest stone carving – which weighted 300 tons ca. (hence also called *The Large Stone Carving*): G.R. BARMÉ, *The Forbidden City*, London 2008.

(26) China's largest imperial palace, *ibidem*.

(27) J. LI, H. CHEN, H.A. STONE, *Ice Lubrication for Moving Heavy Stones to the Forbidden City in 15th and 16th Century China*, «Proc. Nat. Acad. Sc.» 110 no. 50 (2013).

(28) The construction occurred during the winter: *ibidem*, pp. 2023-2025.

(29) F. BRADLEY, E. MEDDA, *Le strade dimenticate. Vie di lizza e discesa del marmo nelle alte valli massesi*, Marina di Massa 1995.

(30) Nowadays, the ancient method of *lizzatura* is commemorated every year with a historic reenactment performed by expert quarrymen.



Fig. 11 - *Lizzatura* at the marble quarries of Carrara, Italy, early 1900's postcard.



Fig. 12 - *Lizzatura* at the marble quarries of Carrara, Italy, early 1900's postcard.



Fig. 13 - Monument to the quarrymen, Colonnata (Carrara - MS- Italy), detail of the *lizzatura* (photograph: © author).

This system reduced the friction between the *lizza* and the rock, allowing the *lizza* to be lowered. The wooden sleepers could be placed on the upper face of the marble block and secured to it to be a ready-to-use supply.

Then, in the lower register of EA 23341-A, is represented a man bent down in the act of collecting a long straight object, possibly a roller. To the left (upper register), we only have traces of two (?) oblique lines in black ink: one of them goes from the top left to the bottom right touching the sledge, the other is very faint and goes from the bottom left to the top right overcoming the upper face of the stone block. Furthermore, a brush stroke is visible on the left, almost level with the line that defines the upper face of the stone block.

Now, if we compare this scene of EA 23341-A with the representation of the transport of the stone block from the tomb of Rekhmira, we can instantly recognize similarities (fig. 14). The scene is very damaged, and Norman De Garis Davies tried to reconstruct it (fig. 15) (31). The facsimile of a portion of the scene, produced by Nina de Garis Davies at Qurna in 1927, shows some details that have not survived through the years (fig. 16). A white block is on

(31) NO. DE GARIS DAVIES, op. cit., II, pl. LVIII.

a sledge and some men are disposed along its long side and over the block, mirroring the scene of the ostrakon. The four men on the block have previously been interpreted as part of an upper register (32); however, the ostrakon and the facsimile of fig. 16 clearly suggest that they were standing on the stone block. The painting, in turn, confirms that at least two men are handling rollers, some of which were piled up on the block itself as a ready-made supply (33).

Regarding the object handled by one of the standing men (see above), the painting does not offer any clues. Norman De Garis Davies reconstructs it as a curved object, albeit with a question mark (fig. 15). Comparable examples seem to be elusive. It might be a stick, like the cane the herdsmen used to drive animals (*e.g.* figs. 8 and 9). However, the man's use of the object does not quite match the herdsmen 'style' (34). Neither would I identify it with a throwing stick – despite the curved shape – because I cannot see what its use could have been in that specific context. The shape matches that of clappers; still, clappers were used in pairs. Regarding the men standing along the sledge, we can spot a difference between the ostrakon and the painting: in the latter, the men's feet are on the ground, and on the sledge in the former. The position of the feet in the painting seems to me more likely in relation to their position on the ostrakon, since those workers had to assist in the transport operation.

Moreover, the ostrakon and the painting complement each other, enabling us to integrate damaged or otherwise lost details and to reconstruct the scene. The ostrakon lacks the leftmost kneeling man on the block (35), who, in the tomb painting, turns his head to the right to pass a roller on, presumably among those left behind as the sledge moved forward; and the painting lacks the rightmost man on the block (36), who, in the ostrakon, bends down to pass a roller on to the man standing in front of the sledge. Regarding the latter, we may hypothesize his presence in the painting, too. Furthermore, the better-preserved section of the painting in the tomb of Rekhmira (fig. 14, leftmost end) shows the presence of a foreman holding a stick, the figures (partially damaged) of three men holding levers, and another man whose body bends towards the back

(32) NO. DE GARIS DAVIES, *op. cit.*, I, pp. 57-58 and his reconstruction (fig. 15).

(33) Only traces of them are left between the feet of the second bent man from left.

(34) See for example H. FISCHER, *Notes on Sticks and Staves in Ancient Egypt*, «Metr. Mus. Journ.» 13 (1978), especially p. 11.

(35) The section of the ostrakon where this man was supposed to be lost part of its outer layer partially obliterating the original drawing.

(36) The entire right side of the painting peeled off.



Fig. 14 - Tomb of Rekhmira, The Passage, South wall. Detail.
Photograph of the current state of the painting © author.

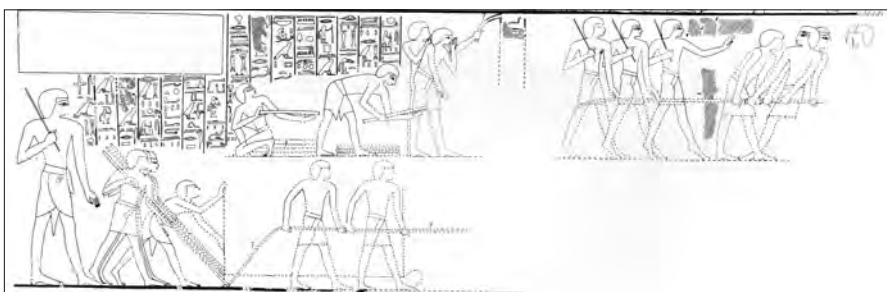


Fig. 15 - Tomb of Rekhmira, drawing. Reconstruction of the scene by Norman De Garis Davies (adapted from NO. DE GARIS DAVIES 1943, II, pl. LVIII).

of the sledge. In the reconstruction of Norman De Garis Davies, the hands of that man lean against the stone block, in the act of pushing it from behind (fig. 15). Accordingly, in EA 23341-A the oblique line that touches the sledge (see above) might be the end of a lever. The use of levers to facilitate sledge hauling also appears in the Assyrian bas-relief (fig. 10) (37). I disagree with the integration of a stack of rollers under the first kneeling man on the block (fig. 15) (38).

(37) Here the levers are huge and probably heavy as they need to be pulled down by ropes held by many men.

(38) In his reconstruction of the scene, Norman De Garis Davies added four poles with a question mark.



Fig. 16 - Tomb of Rekhmira, detail of the transport of the stone block. Facsimile painted by Nina De Garis Davies at Qurna in 1927. Paper, tempera paint
(Courtesy of the Metropolitan Museum of Art, New York, inventory no. 31.6.33).

Despite the damage, traces of rollers should be visible behind his left foot. They do not seem to be there, though, and do not even appear in the facsimile of Nina De Garis Davies (fig. 16). Then to the right, level with the men on the block are three foremen holding sticks behind five men pulling the rope (39). This is the obvious continuation of the scene of EA 23341-A. We could imagine that the rope which bifurcates to the far right of the ostrakon reached an upper level where a row of men pulled it. The right side of the painting has been severely damaged. For this reason, it is not possible to estimate neither the dimension of the sledge and where exactly its front was, or to understand how many men were assigned to each side of it. It is also difficult to accurately follow the 'route' of the rope.

In figures 17 and 18 I tried to reconstruct the scenes of the tomb of Rekhmira and of EA 23341-A by integrating the missing details. Taking the drawing of the ostrakon as a model, I completed the scene of the tomb painting by adding

(39) They are all represented on a different level just as those workers who haul the statue of Djehutihotep (fig. 3).

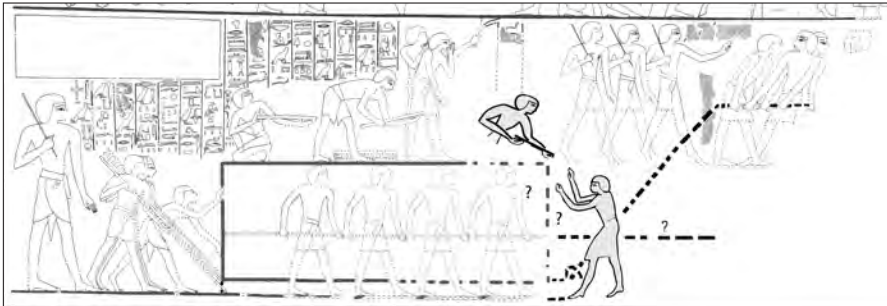


Fig. 17 - Hypothetical reconstruction of the scene from the tomb of Rekhmira according to ostrakon EA 23341-A (© author).

two more workers along the side of the block (40). I also extended a little the block and added the man who sticks out of it, as well as the man standing in front of the sledge to receive the rollers. According to the evidence (see above), a rope pulled by men was supposed to be tied to the front of the sledge, while other ropes could secure the block to the sledge itself (figs. 3, 11, 12). However, as previously mentioned, in both EA 23341-A and the tomb painting there is only one rope which surrounds the sides of the stone in the former and whose ends are missing in the latter. Following Norman De Garis Davies' suggestion (41), and the example of EA 23341-A, I extended horizontally the left end of the rope of the tomb painting. However, since the rope was stretched, we should imagine pads inserted between the rope and the block to make space for the hands of the workers, who can then grab the rope without getting hurt. More-

(40) Though, the number of workers here is uncertain. The presence of a fourth man would require a longer block, and consequently a longer sledge. However, if we move the front of the sledge and the frontal side of the stone block forward, there may not be space enough to include the first man who sticks out from the block on EA 23341-A.

(41) He hypothesizes that the rope surrounded the block: NO. DE GARIS DAVIES, *op. cit.*, I, p. 57 note 41. However, in his reconstructions (figs. 15 and 19) he linked the rope's left end to the back of the sledge. This would be in line with the method used in the Assyrian bas-relief, but against the Egyptian evidence of ropes fastened to the front of sledges only. Nevertheless, the severely damaged scene in Rekhmira's tomb, and the scenes of EA 23341-A and Cairo JE 62949 are the only available illustrations of the transport of huge stone blocks. This makes any reconstruction uncertain.

over, I changed the route of the rope which is pulled by the workers represented on the upper level (42). As we can see in the scene of Djehutihotep (fig. 3 above) – where rows of men are drawn on different levels – the ropes deviate towards the sledge right after the hands of the first men of the rows. Therefore, the extension of the rope as reconstructed by Norman De Garis Davies in the painting of Rekhmira (fig. 15) does not make sense, also considering that the sledge was supposed to be longer than he had imagined.

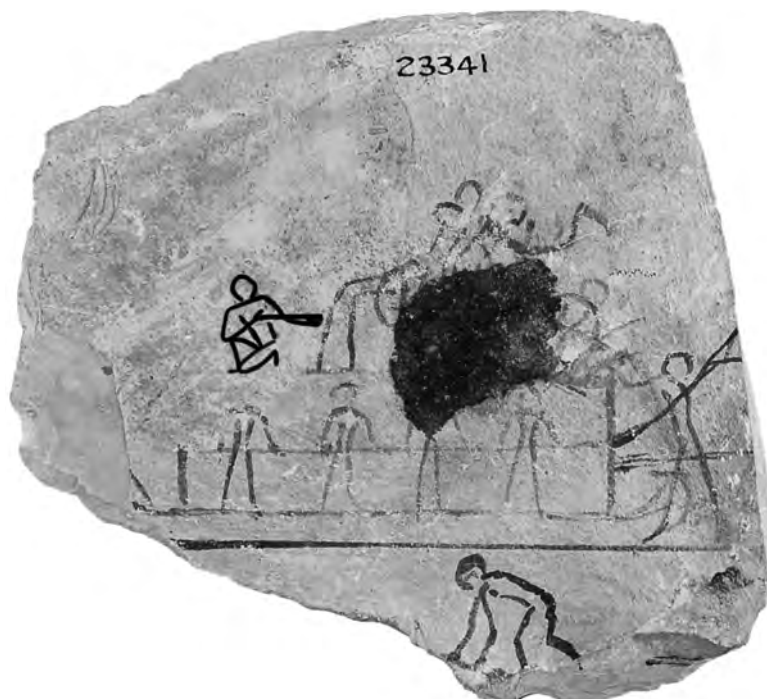


Fig. 18 - Reconstruction of the scene on ostracon EA 23341-A according to the painting from the tomb of Rekhmira (© author).

(42) Norman De Garis Davies drew a shorter sledge. He therefore traced a longer rope which, in the upper level, he extended horizontally too much, overtaking the foremen before deviating towards the sledge (see fig. 15). As mentioned in the main text, the row of men pulling the rope was actually in front of the sledge, along with another row of men or oxen which was probably represented in the damaged part of the painting. In reality the rope did not «go down». Its deviation was the result of the Egyptian way to draw on different levels objects that were further away.

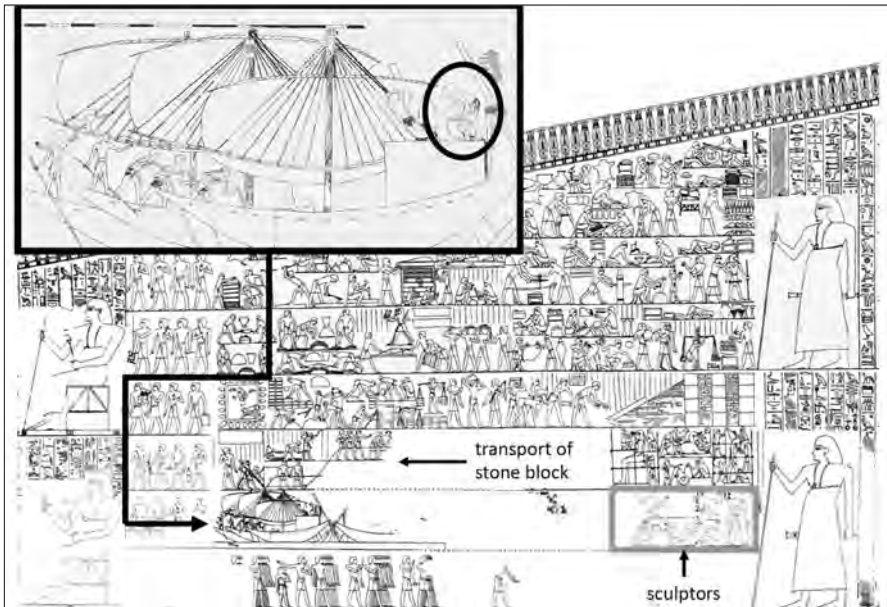


Fig. 19 - Tomb of Rekhmira, South Wall, east half with detail of the scene with transport of blocks by boat and bent men (adapted from NO. DE GARIS DAVIES 1943, II, pl. LVIII).

Besides, taking as a model the tomb painting, I have completed the scene of EA 23341-A adding the man kneeling on the left edge of the block in the act of passing rollers (fig. 18 above). Considering the representation of the statue of Djehutihotep and the modern *lizzatura*, we may imagine that additional ropes secured the stone block to the sledge in reality.

As regards the man outlined in the lower register of EA 23341-A, who I have interpreted as one of the men bending down to collect rollers, I now offer an alternative explanation. In a lower register in the tomb painting of Rekhmira (fig. 19 below), right below the scene of the stone transport, is the representation of the arrival of stone blocks by boat. We can notice men leaning over whilst standing on the block of the first boat in the foreground. If we trace a vertical line from their heads towards the upper register, we can notice that the men are in correspondence with those who stand on the stone block and incite the workers in the scene of the transport by sledge. This coincides with the drawing on EA 23341-A. Despite the lack of additional evidence, I do not exclude that the artist of EA 23341-A started to reproduce the scene of the lower register of Rekhmira's painting.

The scene on side B

The other side of the ostracon offers two scenes which refer to the same subject: stonemasons at work (fig. 2). Like for EA 23341-A, a nearly identical scene is painted in the tomb of Rekhmira (figs. 19-21).

In the upper section of the ostracon and the upper register of the tomb painting, a man is crouching in front of a square stone. His left arm is bent and he holds a chisel whose tip is against the stone. The right arm is lifted and about to strike the chisel with a mallet. He is a stonecutter who is treating a stone block in order to make it ready to be worked and shaped into statues or other items. Comparable representations of stonecutters are on a fragment from a bas-relief of the Ramesside tombs of Nebwenenef in Dra Abu el-Naga (43) (fig. 22), and Sobeknakht in El-Kab (44) (fig. 23).

Rough stone blocks needed to be dressed: the stone was squared, and the surplus removed in order to make its surfaces smooth and plane (45). The latter is the task of the three men drawn in a lower section of the ostracon, and right under the stonecutter in the painting (figs. 20, 21).

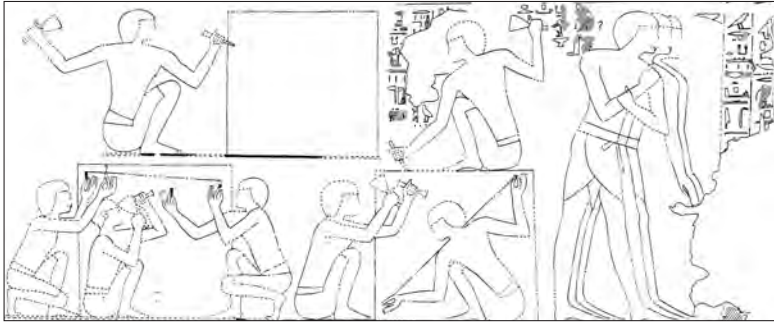


Fig. 20 - Tomb of Rekhmira, the Passage, South Wall, east half, lower section: stone cutters and stone masons at work. Reconstruction of the scene by Norman De Garis Davies (adapted from NO. DE GARIS DAVIES 1943, II, pl. LXII).

(43) Thebes TT157. See E. HOFMANN, *Der Vorhof der Privatgräber nur ein sakraler Ort? Die Anlagen von TT 157 des Nebwenenef und TT 183 des Nebsumenu*, in S. KUBISCH, U. RUMMEL (eds) *The Ramesside Period in Egypt: Studies into Cultural and Historical Processes of the 19th and 20th Dynasties*, «SDAIK» 41 (2018), pp. 149-174.

(44) Thebes TT10. See J.J. TYLOR, *Wall Drawings and Monuments of El Kab. The Tomb of Sebeknekht*, London 1896.

(45) D. ARNOLD, *op. cit.*, pp. 41-44.



Fig. 21 - Tomb of Rekhmira, detail. Masons squaring a block. Facsimile painted at Qurna by Nina De Garis Davies in 1931. Paper, tempera paint
(Courtesy of the Metropolitan Museum of Art, New York, inv.no. 31.6.23).



Fig. 22 - Stonecutter. Bas-relief, Tomb of Nebwenenef, Dra Abu el-Naga; inv.no. 157-1733
(Courtesy of E. Hofmann).



Fig. 23 - Stonecutters. Facsimile. Front Wall, Tomb of Sobeknakht, El-Kab
(adapted from J.J. TYLOR 1896, Plate XV).

Two men tended a string that had identical boning rods at each end. Then the string was pulled taut while another identical rod was passed under it. This method helped see where the surface of the stone was still too high and the surplus had to be removed. In both the ostrakon and the painting we see two men outlined to the right and left of the stone tending the string while a third man is chiselling the surplus away from the stone's surface. However, we can spot little differences. In the ostrakon (fig. 2), the man on the left is sat on his heels and knees in front of the stone block, both arms raised towards the stone, his left hand holding a rod. Also this register of Rekhmira's painting is very damaged. Nevertheless, in the reconstruction of Norman De Garis Davies, and in the tempera facsimiles of his wife we can see that same man kneeling in a slightly different position: he sits on his right heel keeping the leg nearly parallel to the ground but without the knee touching it, while the left knee is up, and the foot rests on the ground. Likewise, the man with chisel and mallet is in the ostrakon drawn seated on both his heels and kneels, the latter touching the ground, while in No. and Ni. De Garis Davies' reconstructions of the painting scene, the man has one knee up (46). The rendering of the man who tends the string from the right side of the stone corresponds in EA 23341-B and Rekhmira's painting, though. He sits crouched on his left heel, the leg nearly parallel to the ground, while his right knee is up and the respective foot rests on the ground. His arms extend towards the stone's surface. He holds the boning rod at the right end of the taut string with his left hand while he is about to pass a third rod under it with his right hand.

The tools represented in the scenes of the ostrakon and the tomb of Rekhmira are typical sculptors' tools. William F. Petrie discovered many examples of wooden mallets, boning rods, and metal chisels in the Faiyum and Theban areas, spanning from the Old Kingdom to Greek times (figs. 24, 26). During the Middle and New kingdoms, wooden mallets were usually made in one piece of wood, with a large head and cylindrical handle (for example nos. 64, 65, and 68 in fig. 24, and fig. 25) (47). These tools were used by sculptors

(46) In Ni. De Garis Davies' facsimile, the man sits on his right leg while the left knee is up. No. De Garis Davies drew the man's right knee up instead. He did not attempt to reconstruct the position of the other (in his case the left one) leg due to the severe damage of the painting. In any case, the position of that man in the painting is slightly different from his position in EA 23341-B.

(47) W.F. PETRIE, *Tools and Weapons: Illustrated by the Egyptian Collection in University College, London*, rep. Warminster 1974 (London 1917), p. 40. See also D. ARNOLD, *op. cit.*, pp. 264-265.



Fig. 24 - Examples of wooden mallets
(after W.F. PETRIE 1974, plate XLVI).



Fig. 25 - Wooden mallet. Egypt, Deir el-Bahri, New Kingdom (Courtesy of the National Museums Liverpool, World Museum, acc.no. 56.21.602).

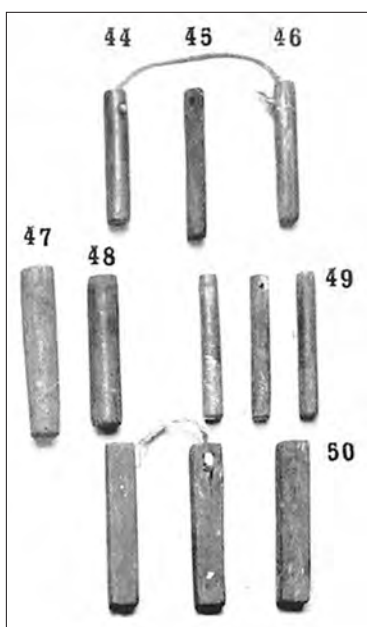


Fig. 26 - Examples of rods (after W.F. PETRIE 1974, plate XLIX).



Fig. 27 - Stone mason's chisel. Bronze or copper alloy. Egypt, Eighteenth dyn.
(Courtesy of the Metropolitan Museum of Art, New York; acc.no. 30.8.115).

to strike the chisel. This type of mallet is easily recognizable in the stonecutter scene of EA 23341-B, and in both scenes of Rekhmira's painting (stonecutting and stone dressing). Boning rods were identical short pieces of wood, which could be cylindrical or shaped as elongated parallelepipeds; the end rods had a hole for the string while the third rod was plain (fig. 26) (48). During dynastic times, chisels were made of metal, mostly copper and bronze, and used for stone working and woodcutting (fig. 27).

Drawing techniques

The surfaces of EA 23341A-B do not reveal any preparatory grid square, which results in mainly irregular proportions. The human figures are outlined and stylized. Overall, the silhouettes do not showcase a care for inner details. However, the canonical representation of the human body – head and legs in profile, and frontal torso – is respected. The drawing is simple and essential, executed in haste using a minimum number of brush strokes, but with a firm hand. In two occasions the artist seems to have been in 'difficulty': in the outline of the solitary male figure of the lower register of side A, and in the outline of the sledge. In the former, the black line which begins just below the neck of the human figure and continues along the back and the left leg is shaking and thick; seemingly the artist used many short brush strokes (fig. 1). Moreover, unlike the other figures, this is the only one who has an inner facial detail: the line which uses to denote the men's hair; faint traces might suggest this detail was present also inside the face of the rightmost man standing on the block with his left arm raised. Regarding the sledge, the horizontal line which defines it is not continuous but segmented: the artist was unable to draw a straight unbroken line.

Underlying red ink was usually used to draw a preliminary first sketch that was subsequently painted in black ink (49). However, in the case of EA 23341, I would exclude that. Lines in red ink are visible all over the drawing of side A (see note no. 5), especially in the outline of the sledge, of the stone block and the rope surrounding it, in the profile of the first three human figures from the right who are holding the rope, and in the profile of the man who sticks out from

(48) D. ARNOLD, *op. cit.*, pp. 256-257; W.F. PETRIE, *op. cit.*, p. 42.

(49) See for example E. BRUNNER-TRAUT, *op. cit.*, p. 3.

the block. The drawing on side B instead is monochrome; there is no trace of red ink. The black ink on side A fades into the red at times. However, there is no clear evidence that the red ink denotes a preparatory stage. The mixture of red and black in brush strokes may thus simply be contingent on the inks at the artist's disposal.

The drawing's style of sides A and B is very similar. However the scenes on side B may reveal finer skills: the artist's hand seems to be less hesitant, more firm and secure.

Final remarks

On the basis of their style, the drawings of EA 23341 could be trial sketches, *i.e.* drafts or studies for a future work. The absence of grid squares and regular proportions may suggest that the scenes on EA 23341 were not preparatory drawings. However they could be loose sketches, *i.e.* spontaneous illustrations of ideas or observations for a bigger opus. According to Hayes, the figurative ostraca from the tomb of Senmut (50) (fig. 28) intended to give the general idea of «the composition and iconography of the scenes and the approximate, relative sizes, and the spacing of the figures» (51). Nevertheless we must consider that EA 23341 seems to be later than the tomb painting of Rekhmira: the latter dates to Thutmosis III (52), the former to the Ramesside period in the Nineteenth or Twentieth dynasties (see above). If the dating of the ostrakon is correct, it was made after the tomb painting; so, the hypothesized bigger undertaking must have been a later painting, still waiting to be discovered (53).

Secondly, the drawings of EA 23341 could be exercises of an apprentice practicing standard themes. This would explain the presence of little deviations from the tomb painting of Rekhmira (see above) and fit with the date issue. We could imagine a young apprentice standing inside the tomb of Rekhmira in front of its wall paintings, trying to improve his drawing skills by copying selected scenes. We have to consider that the scenes of the stone transport and those

(50) TT71, Thebes, Eighteenth Dynasty.

(51) W. HAYES, *Ostraka and Name Stones from the Tomb of Sen-Mut (no. 71) at Thebes*, New York 1942, p. 10.

(52) Hence mid-Eighteenth Dynasty.

(53) As previously mentioned, the Rekhmira scene of the stone's transport seems to be unparalleled.



Fig. 28 - Figurative ostraca with sketches, Tomb of Senmut, Thebes
(adapted from W. HAYES 1942).

with the stonemasons in Rekhmira's tomb were depicted in the lower registers of the east half of the South wall (fig. 19). Therefore, those were among the scenes of the painting most accessible to a trainee. The identification of the bent man of the lower register of EA 23341-A with the man leaning over on the stone block in the boat scene of the tomb may thus be substantiated: the apprentice copied what he could properly see, using the whole surface of the ostrakon.

Finally, I cannot even exclude that the artist drew the scenes of EA 23341 for his own amusement. This, too, would justify the variation of some details. Moreover such a leisure activity could be pursued regardless of a visit to the tomb of Rekhmira. Possibly the stone transport by sledge followed a canonical scheme that was learned and memorised, like the standard representation of the stonecutter with chisel and mallet.