

THE STRATIGRAPHY OF WEST SAQQARA

Preliminary remarks

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The observations presented in this article concern the part of the Saqqara necropolis situated between the temenos wall of Netjerykhet's complex and the Dry Moat, a depression running on a north-south axis about one hundred meters west of it.¹⁾ Discoveries made in sectors I/H, I/I, I/D+D1, and I/F1 in the 1999 season have greatly contributed to our knowledge of the complicated stratigraphy of the site.²⁾

Two reservations should be made at the start. Firstly, the final analysis of site stratigraphy is dependent on both past and future data from archaeological and sedi-

mentological research,³⁾ including laboratory analyses. Secondly, a complete geological and archaeological profile of the area will be possible only after the excavations have reached the temenos wall of the Step Pyramid enclosure on the east, and after at least the eastern edge of the Dry Moat has been traced on the west. These two objectives will be the focus of the coming season. The present observations are limited to remarks on the natural processes and human activity taking place in this area, as related to the vertical and horizontal stratigraphy.

¹⁾ Cf. N. Swelim, *The Dry Moat of the Netjerykhet Complex*, in: J. Baines (ed.), *Pyramid Studies and Other Essays Presented to I.E.S. Edwards* (London 1988), 13-22.

²⁾ Cf. the report by K. Myśliwiec in this volume. All the subsequent references to numbers and names of various structures (areas, chapels, shafts etc.) are as on the plan in fig. 2 on p. 91 above.

For the general results of the excavations, which are ongoing since 1987, see the reports by K. Myśliwiec, T. Herbich, with contribution by A. Niwiński, *ET XVII* (1995), 179-203; K. Myśliwiec, *PAM VIII, Reports 1996* (1997), 103-109; id., *PAM IX, Reports 1997* (1998), 90-99; id., *PAM X, Reports 1998* (1999), 81-90.

³⁾ I am much indebted to Prof. Dr. Elżbieta Mycielska-Dowgiałło and Dr. Zbigniew Szafrąński for a discussion of their earlier research on the subject, and their help in interpreting the new evidence. The results of their studies have been published in: E. Mycielska-Dowgiałło, B. Woronko, "Analysis of mineral deposits in the northern wall of Pit I", *PAM IX, Reports 1997* (1998), 106-115; earum, "Genetic-climatic interpretation of mineral deposits uncovered in section N and sections perpendicular to it", *PAM X, Reports 1998* (1999), 107-112; Z. E. Szafrąński, "Observations on Stratigraphy. Northwestern part of Area I/E-F (former Pit I/E-F)", *PAM X, Reports 1998* (1999), 91-97; E. Mycielska-Dowgiałło, Z. E. Szafrąński, B. Woronko, "Reconstruction of morpho-dynamic processes during the last 4700 years period in archaeological site (Area I) at Saqqara (Egypt)", in: *Gearqueologia i Quaternari litoral. Memorial M. P. Fumanal* (Valencia 1999), 167-178.

SITE PERIODIZATION

At least five phases of site occupation – some divided into subphases – have been identified.

I. TERRACES OF THE THIRD DYNASTY

This phase could be connected with quarrying activity, construction of the Dry Moat and arranging the area around the enclosure of Netjerykhet. The area west of the temenos was leveled forming terraces cut in bedrock,⁴⁾ with an average difference of levels (step height) equal to about 1.6-1.8 m. The width of the terraces varied from several to over twenty meters. The

run of the rock surface may be reconstructed on the grounds of excavations in the area of Meref-nebef's chapel and to the west of it, where the bedrock has been exposed, and the exploration in Areas I/G and I/H, where the level of bedrock is clearly observed in the shafts. The elevation of the terraces (starting from the west) is c. 46.9; 48.5; 50.3-50.5; 52.5-53.00 m above sea level;⁵⁾ their upper surfaces are slightly inclined towards the west. The fissures in the rock visible in the I/F1 trench, about twenty meters west from the façade of Meref-nebef's chapel, and the resulting NE-SW slant of the step probably



Fig. 1. Area I/F1. South trench wall. Visible ghost wall in front of a step cut in bedrock (Photo A. Ćwiek)

⁴⁾ The presence of the terraces was noted already by Szafrński in *PAM X, Reports 1998* op. cit., 91.

⁵⁾ The fourth terrace from the west seems to be higher than the others, unless there are two smaller steps, as the bedrock level in Shaft 32 was recorded at 50.1 m above sea level.

demanded a retaining north-south wall to be built here. A low step (10-15 cm high) visible in the ground to the west most probably corresponds to the western face of this wall, the existence of the latter further confirmed by traces of white gypsum mortar in front of the step. The wall is even more obvious in the north and south sides of the trench, where a big cut, exactly in line with the presumed wall, can be observed (*Fig. 1*). The angular fragments of fine limestone that fill this "ghost-wall" are all that has been left of the plundered and cut wall blocks. Rough limestone blocks and mudbricks found arranged in a N-S line on the upper level to the east of the slanting step may suggest that the wall was intended not only as a means to correct the direction taken by the terrace, but was wider and higher, creating a kind of additional temenos wall.

Another structure, which may be connected with this phase of occupation of the site is an enigmatic corridor, hewn in the underlying layers of *tafl*,⁶⁾ discovered in 1999 during the exploration of Shaft 37 at the west end of trench I/F1. It seems that the constructors of the shaft (most probably in the Sixth Dynasty) accidentally broke into it. The corridor continues eastward, possibly as far as 80 m, in the general direction of the Netjerykhet complex, with which it may perhaps be related. At its western end (about ten meters away from the shaft) it seems to be cut and filled with

debris coming from the surface, possibly reflecting the position of the Dry Moat.

This particular arrangement of the area most probably reflects the fact that the main access to the Second-Third Dynasty royal necropolis, and especially to the Step Pyramid complex, was from the north, starting at Wadi Abusir and following the western and then southern edges of the Dry Moat.⁷⁾ Thus, the view of the complex and its neighborhood from the west was of primary importance.⁸⁾

This phase may plausibly be dated to the reign of Netjerykhet

II. SIXTH DYNASTY NECROPOLIS

The Sixth Dynasty necropolis consisted of three parts, each with different characteristics, arranged longitudinally, following the terraced cut of the ground. It seems that at some point in time between the creation of the terraces and the building of the first tombs a considerable amount of debris (limestone breccia, *tafl*, and brick fragments) was accumulated on the surface in this area (especially on the upper steps). Consequently, all the structures of the necropolis between Meref-nebef's chapel and the temenos wall were built on top of this debris, in some places as high as two meters above bedrock. An exact date for this deposit is still difficult to establish.⁹⁾ The necropolis consisted of:

A. Lower area, including the tomb complex of vizier Meref-nebef, and possi-

⁶⁾ *Tafl* (Arabic) is a marl, clayey rock. At Saqqara, layered gray and yellow-brown-colored *tafl* strata intersect strata of tertiary limestone.

⁷⁾ Cf. D. Jeffreys, A. Tavares, "The historic landscape of Early Dynastic Memphis", *MDAIK* 50 (1994), 150-1.

⁸⁾ I. Mathieson, director of the National Museums of Scotland Survey Project to study the West Saqqara area from the Abusir valley down to Gisir el-Mudir, is of the opinion that a large part of the rock surface in the so-called West Wadi, also outside the Dry Moat, was leveled during the Second or Third Dynasty (personal communication).

⁹⁾ Its lower layer, which could possibly be dated to the Third Dynasty, is, at least in the most part, a natural gravel sediment, consisting of limestone breccia, flint and chert pebbles, and plant remnants (Mycielska-Dowgiałło, Szafranski, Woronko, op. cit., 169-170). The remaining part of the debris could have been accumulated in the late Fifth or early Sixth Dynasty, when the area south and west of the Step Pyramid became a popular burial ground.

bly other tomb complexes to the north and south of it. The funerary complex of Merefnebef comprised a rock-cut, finely decorated chapel, hewn in the rock facade of the third terrace, with lower and upper courts in front of it (surrounded with a rough stone wall), and a superstructure built on top of the layers of debris above the chapel. It was a brick mastaba (built mostly of *tafl*-bricks) with niched walls and a core of gravel. Inside the superstructure, a big shaft was hewn in bedrock to a depth of over ten meters.¹⁰⁾ At its bottom there is a burial chamber with a limestone sarcophagus. The upper parts of the shaft were built of rough stones bonded in mortar. On the eastern side of the mastaba a brick chapel was added some time after the building of the niched superstructure. A big stone offering table, false door and a lintel were found in this chapel.

One should note the existence of an Old Kingdom (Sixth Dynasty?) shaft and two structures of *tafl* bricks (presumably dating from the same period) at the far end of Area I/F1. It is quite clear that the superstructure connected with Shaft 37 and possibly other structures existing in this place were destroyed by natural downslope movement into the Dry Moat depression, as well as by human activity (it seems that the occupational level in Ptolemaic and Roman times was very close to the bedrock surface, a fact confirmed by numerous burials deposited in an almost homogenous sand layer that reaches the rock in this place).

B. Area adjacent to the mastaba of Meref-nebef on the east, full of shafts and only minor traces of brick superstructures. The depth of the shafts varies from 5 to 15 meters. It is quite obvious that this part of

the necropolis existed for a longer period of time, as many of the shafts appear to have been hewn among the earlier ones, given that they sometimes cut into another shaft or chamber. Although the architecture above the shafts is much destroyed, the surviving remains and the limited available space suggest that these tomb superstructures must have been very small. They were built of bricks and possibly furnished with limestone false doors, as indicated by the discovery of the false doors of Tetiankh, Hetepu, and the priestesses of Hathor: Djesti and Kheti.

C. Area extending to the east (possibly adjacent to the temenos wall). It is covered with larger structures consisting of a mastaba superstructure (composed of a brick retaining wall surrounding a core filled with *tafl* and limestone chips) with a few burial shafts, and a brick chapel with a false door on the east. The mastaba of Pehenptah/Pehi is the best preserved example of such an architectural complex.

The monuments of the necropolis date from the middle of the Sixth Dynasty into the First Intermediate Period. One of the latest structures of this phase is probably Chapel 5. It is a kind of square mastaba, built of dark-gray mudbricks, with a chapel adjacent to it on the east. A big pit bisecting this building (a robbers' trench probably, made to reach Shaft 32 beneath it) revealed traces of several earlier phases of construction, visible in the north wall of the pit. A lintel and a jamb of one Ni-Pepy, originally probably part of a false door, were found thrown into the hole in the chapel floor. From the epigraphic point of view these pieces may be dated to the late Sixth Dynasty or the early First Intermediate Period (Eight Dynasty).

¹⁰⁾ According to K. Myśliwiec, this shaft could possibly date from an earlier period and was merely reused for Meref-nebef (incorporated into his mastaba), cf. id., *PAM X, Reports 1998*, op. cit., 84.

The growing density of the structures on this necropolis is further evidence for its long use. This is clearly visible in the case of Chapel 4, which was cut into the south-west corner of the mastaba of Pehi, as well as Chapel 2, the eastern wall of which was added to the west side of the mastaba of Pehenptah (the latter wall being inclined towards the center of the building) with an entrance – the only possible means of access – located in the far north end of the chapel.

The relative dating of selected structures in Area I/H-I/I is presented in the form of a Harris matrix (Fig. 2).

III. DESTRUCTION OF THE OLD KINGDOM STRUCTURES

A stratum of anthropogenic destruction of the Old Kingdom structures (e.g. brick robbing), and possibly also plundering of

the burial shafts, as well as natural erosion processes, is clearly distinguished over a large part of the site. It consists of layers – in various proportions – of angular fragments of limestone, small limestone chips, *tafl*, numerous *tafl*-brick and mudbrick fragments, pottery sherds, faience plaques, bones, and organic material. The upper surface of this stratum created a weathering-soil horizon, as it was an occupational level, and was occasionally covered with mud floors (Fig. 3: 9-12). This phase can be dated tentatively to the later part of the First Intermediate Period. The layers overlying this stratum are for the most part huge deposits of aeolian sand, with traces of rainfall (Fig. 3: 4-7).¹¹⁾ The phase is very clearly visible also in the evidence of accumulation layers recorded in front of Merefnebef's chapel: a deposit of *tafl* and limestone fragments on the floor of the lower

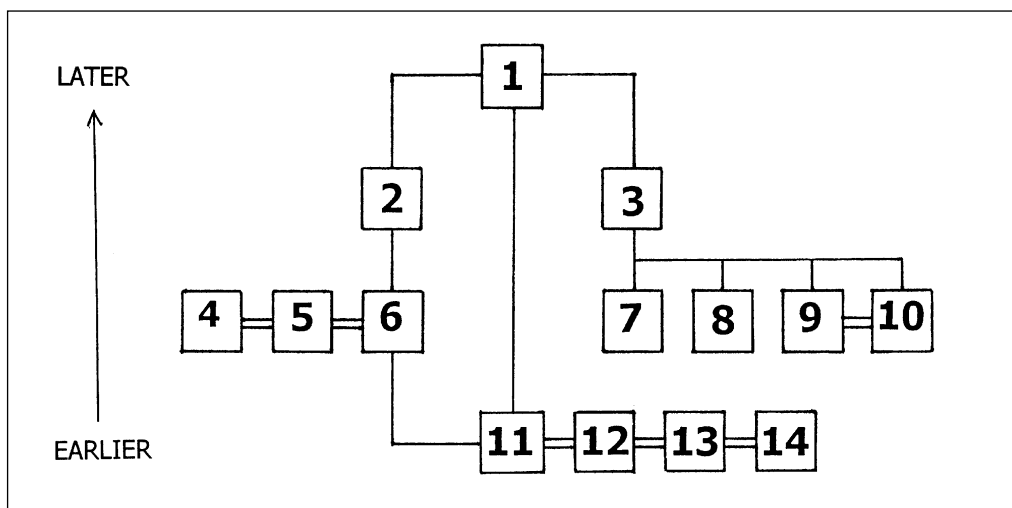


Fig. 2. Stratigraphic sequence of selected structures in Area I/H-I/I: 1. Brick platform; 2. Chapel 4; 3. Chapel 5; 4. Shaft 2; 5. Shaft 23; 6. Chapel 2; 7. Shaft 39; 8. Shaft 40; 9. Shaft 29; 10. Shaft 32; 11-14. Mastaba of Pehenptah/Pehi (chapel 3, shafts: 26, 31, 34) (Interpretation A. Ćwiek)

¹¹⁾ On the relations of these layers to climatic changes, cf. Mycińska-Dowgiałło, Woronko, *PAM X, Reports 1998*, op. cit.; Mycińska-Dowgiałło, Szafranski, Woronko, op. cit., 177-8.

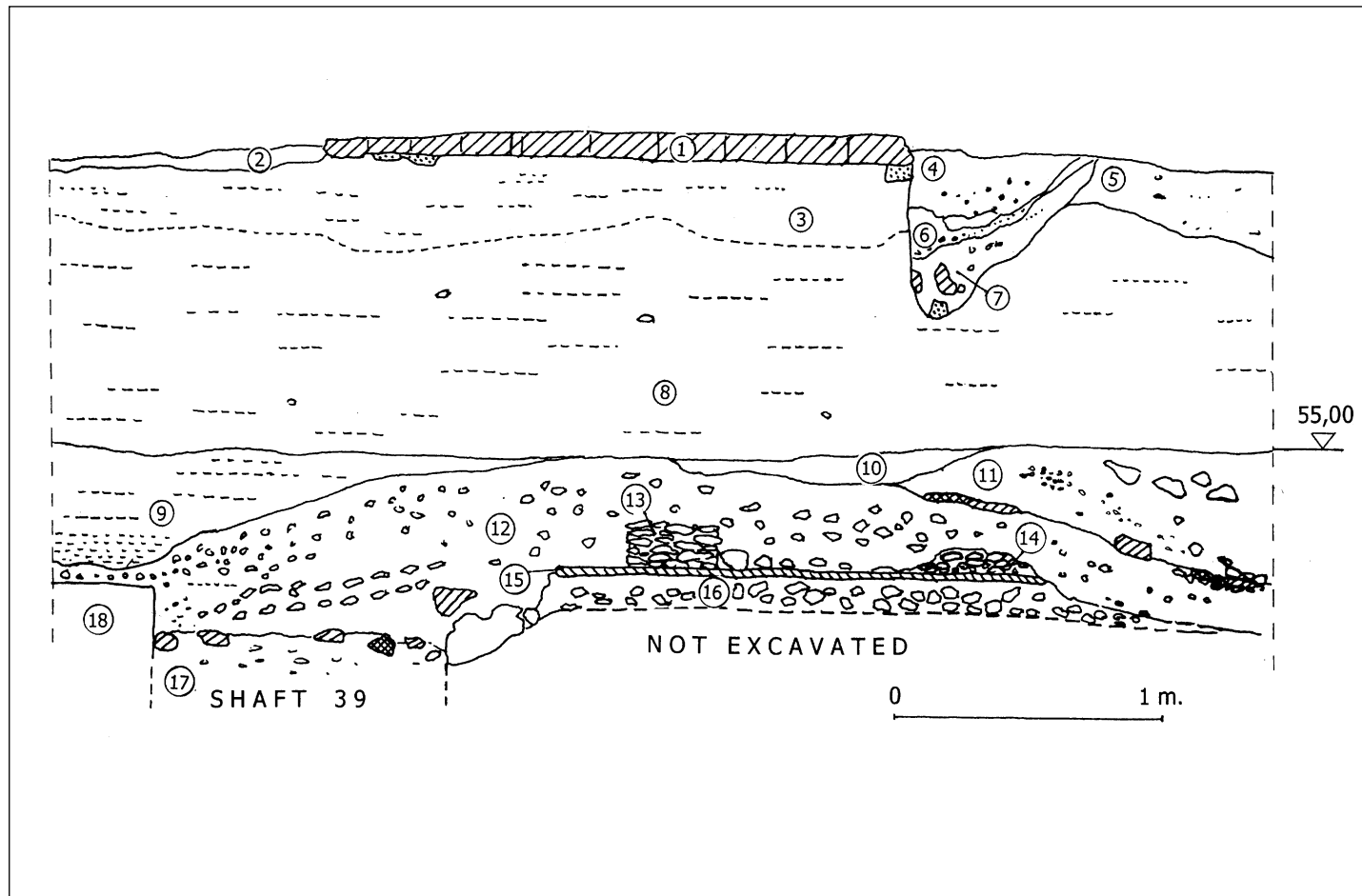


Fig. 3. Area I/I. East wall of the sector under the brick platform
(Interpreted drawing A. Ćwiek, after field drawing by M. Radomska)

court covered with a stratum of aeolian sand of considerable depth, inclined westwards. At some point, intensive flooding and downslope movement of the accumulated material caused the destruction of the western wall of Meref-nebef's mastaba, which was of a retaining character for the entire superstructure filling over the roof of the chapel. This wall, built of tafl bricks in 90%, fell to the west, down into the lower court in front of the vizier's chapel, covering the underlying deposits.¹²⁾

IV. BRICK PLATFORM.

An enigmatic structure was discovered in Area I/I, just on the eastern border of the excavated area. It is a large mudbrick platform extending for over 10.5 m longitudinally and 8.5 m latitudinally. On the north it is bounded by a wall of small tafl-bricks, its surface rising at an angle of 5° toward the east. Though the bricks in the platform (dark-gray)¹³⁾ mudbricks of a size 32-34 x 15.5-16 x 9.5-10 cm, with red and brown potsherd inclusions) resemble those used in the building of Chapel 5 (being only slightly thicker), the eastern cross-section under the platform proves that the said platform must date to much later times (cf. *Fig. 3*). One observes layers of debris separated by a thin mud floor, reflecting the phase of destruction of the Old Kingdom structures, and overlying

them a thick (over 1 m) layer of almost pure aeolian sand immediately under the platform (cf. *Fig. 3: 3,8*).

The layering above the platform exemplifies a similar situation (*Fig. 4*). A more than 1.5 m thick layer of wind-blown sand separates it from an upper layer consisting of yellow sand with large quantities of white limestone blocks and laminae of limestone powder (cf. *Fig. 4: 3-4*). This layer most probably resulted from stone robbing and cutting at the site, most probably in the Ptolemaic period or later. The supposed reuse of Old Kingdom bricks (the tafl bricks in the ramp-like wall may also have been reused), as well as the occurrence of Old Kingdom pottery sherds (including a rim of a Sixth Dynasty Medum-bowl found in the mortar)¹⁴⁾ does not help with the dating of the platform, beside constituting an obvious *terminus post quem*.¹⁵⁾ One may suppose, however, that the thick layer of wind-blown sand under the platform reflects hundreds of years of accumulation at least.

V. PTOLEMAIC AND ROMAN NECROPOLIS

After a long period of aeolian-sand accumulation, reflecting the abandonment of the site, it again became a burial ground, possibly as early as in the Late Period,¹⁶⁾ but with most of the burials dating to

¹²⁾ Cf. K. Myśliwiec, *PAM VIII, Reports 1997*, op. cit., 107; id., *PAM X, Reports 1998*, op. cit., 82; Z. Szafranski, *PAM X, Reports 1998*, op. cit., 93, 95, fig. 2; E. Mycielska-Dowgiatło, B. Woronko, *PAM X, Reports 1998*, op. cit., fig. 8 and p. 111.

¹³⁾ According to K. Myśliwiec, this shaft could possibly date from an earlier period and was merely reused for Meref-nebef (incorporated into his mastaba), cf. id., *PAM X, Reports 1998*, op. cit., 84.

¹⁴⁾ I owe this observation to Anna Wodzińska.

¹⁵⁾ Similar dating problems occurred in Trial Pit 4, located some 50 m southeast of the main area. It was excavated in October 1999 to a depth of about 0.5 m in order to verify the results of a geophysical survey. A mudbrick wall, visible in computer plotting and initially interpreted as a wall surrounding a possible Persian shaft (judging from the square plan) turned out to be built of Old Kingdom bricks.

¹⁶⁾ Szafranski, *PAM X, Reports 1998*, op. cit., 96, n.

Ptolemaic and Roman times. Numerous burials (mummies in cartonnages, wooden, clay or reed coffins, or without any box) were deposited in the upper layers of the sand stratum, occasionally buried in deeper pits cut into the underlying Old Kingdom structures (e.g. Burial 74, deposited in the SE corner of Chapel 2). The only architectural remains (apart from the enigmatic brick platform) that are to be connected with this phase comprise a broad wall running NS immediately to the east of

Meref-nebef's mastaba, constructed of limestone blocks (presumably robbed from the temenos wall of Netjerykhet's complex) discovered in 1997.¹⁷⁾ It was founded on a thick layer of sand. The purpose of such a structure (traces of which are still visible in the south wall of the trench) remains obscure. To this period one can also attribute the above-mentioned layers of limestone fragments and powder, reflecting extensive plundering of stone from earlier structures and its reworking.

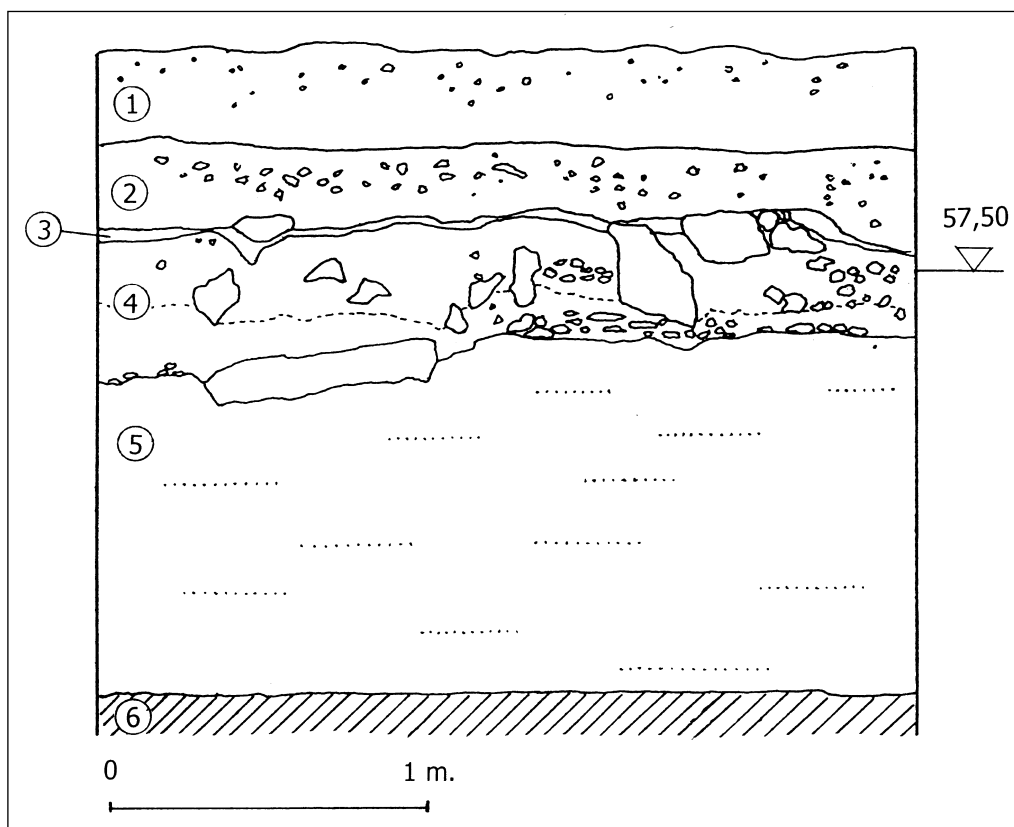


Fig. 4. Area I/I. East wall of the sector above the brick platform
(Interpreted drawing A Ćwiek, after field drawing by M. Radomska)

¹⁷⁾ Mysliwiec, *PAM IX, Reports 1997*, op. cit., 90.19.

ADDENDUM

Four types of objects, found widely dispersed (in various places and on various levels) all over the site, deserve special attention, because of their potential value for chronological analyses. These are: pottery, bricks, faience plaques, and limestone fragments with traces of drilling operations. The problem of the supposed reuse of bricks and sherds, signaled above, requires further investigation, given the amount of evidence coming from the site. For example, many walls in the Sixth Dynasty structures had been built from reused material, with *tafl*- and mudbricks of various dimensions occurring together in the same piece of brickwork. Faience plaques, of the kind well documented for the first three dynasties, have been found in large number (over 130 in the 1999 season). In most cases, they seem to be residual in the layers of debris over Sixth

Dynasty structures, but some of them were found at surprisingly low levels. If they come from the so-called 'Blue chambers' under the Step Pyramid and the South Tomb of Netjerykhet, this would point to an early (Sixth Dynasty or even earlier?) date of the plundering of the Step Pyramid. It remains possible, however, that they come from another early royal monument in the vicinity. Regarding the limestone fragments that bear traces of drilling operations (*Fig. 5*),¹⁸ they are not only found dispersed all over the site, but also a large deposit of these artifacts was discovered in Area I/D+D1 in the layer of debris covering the rock surface. This would also point to an early date, although considering the purpose they probably served,¹⁹ one may assume that they could have been produced for a long period of time.



Fig. 5. Limestone pieces with traces of drilling
(Photo A. Ćwiek)

¹⁸ Cf. D. Arnold, *Building in Egypt. Pharaonic Stone Masonry* (London-New York 1990), 266, fig. 6.21; C. M. Firth, J. Quibell, J.-P. Lauer, *The Step Pyramid*, vol. II (Cairo 1936), Pl. 86.6; 93.1-2.

¹⁹ Contrary to Arnold's opinion that these stones were used as a support for objects that were being drilled, our evidence suggests that the drilling was intentional, connected somehow with the production of limestone powder for plaster or paints. Many of the pieces found bear traces of drilling from the opposite sides; moreover, the holes are spaced irregularly, but very close together, covering and piercing virtually the entire stone. In the author's opinion, a flint-pointed drill was used, simply to obtain limestone powder in a quicker and more expedient way than grinding the stone, which could produce the same fine-grained uniform material, but after a much longer time.