Karol Piasecki, Bogdan Żurawski

Fourth Cataract: Shemkhiya Season 2006

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2008

SHEMKHIYA
SEASON 2006

Bogdan Żurawski

The volatile situation in the Dar Monasir region in January 2006 resulted in the expedition[1] suspending the Hagar el-Beida part of the project (directed by Marek Chłodnicki) and devoting most of the time, from early February to mid March, to an exploration of the Shemkhiya region on both banks of the Nile, upriver from Umm Safaya and downriver from el-Shellal. The region had not been topmost on the agenda due to the fact that it is to be least affected by the Merowe Dam Lake inundation. Apart from the three left-bank strongholds located near the villages of el-Ar (SH1), el-Meghera (SH8) and el-Tina (island of Tanta), which were surveyed and in the first two cases tested archaeologically, salvage operations included two tumulus cemeteries, the Late Meroitic SH5 and SH10, as well as a Christian burial ground SH9 adjacent to the tumuli field of SH10, the latter two situated landwards from the fort at SH8. An anthropological report from the work by the mission's anthropologist, Karol Piasecki, appears below. The khors joining the Nile downriver from Tanta were explored and discovered to abound in rock art (see separate reports by K. Piasecki and E. Kuciewicz in this volume).

The International Middle Nile Rescue Project has been implemented this year as a joint project of the Polish Centre of Mediterranean Archaeology of the University of Warsaw and the Boston Museum of Fine Arts, which provided most of the funding. The moving force behind this idea was Rita E. Freed, Curator of the Department of Art of the Ancient World at the Boston Museum of Fine Arts.

1 Banganarti mission staff in the 2006 season: Bogdan Żurawski, Project Director; Adam Łajtar, epigraphist; Tomasz Płóciennik, epigraphist; Magdalena Łaptaś, iconologist; Magdalena Woźniak, archaeologist/iconologist; Anna Błaszczyk, Ewa Kuciewicz, Mariola Orzechowska, Agata Rak, Anastazja Stupko, archaeologists and draftspersons; Dobiesława Bagińska, archeologist/ceramologist; Marta Momot, draftsperson; Martyna Mazur, Ada Oleś-Niedzielska, archaeology student; Karol Piasecki, physical anthropologist; Lisa Hildebrandt, palaeobotanist; Tadeusz Badowski, restorer; Dorota Moryto-Naumiuk, restorer; Ryszard Szemraj, technical assistant, restorer and building engineering supervisor. The geodesic team comprised Roman Łopaciuk, Wiesław Małkowski and Łukasz Moczulski.
The NCAM was represented by senior inspectors Ayasha and Fathiya Abder Rahman.

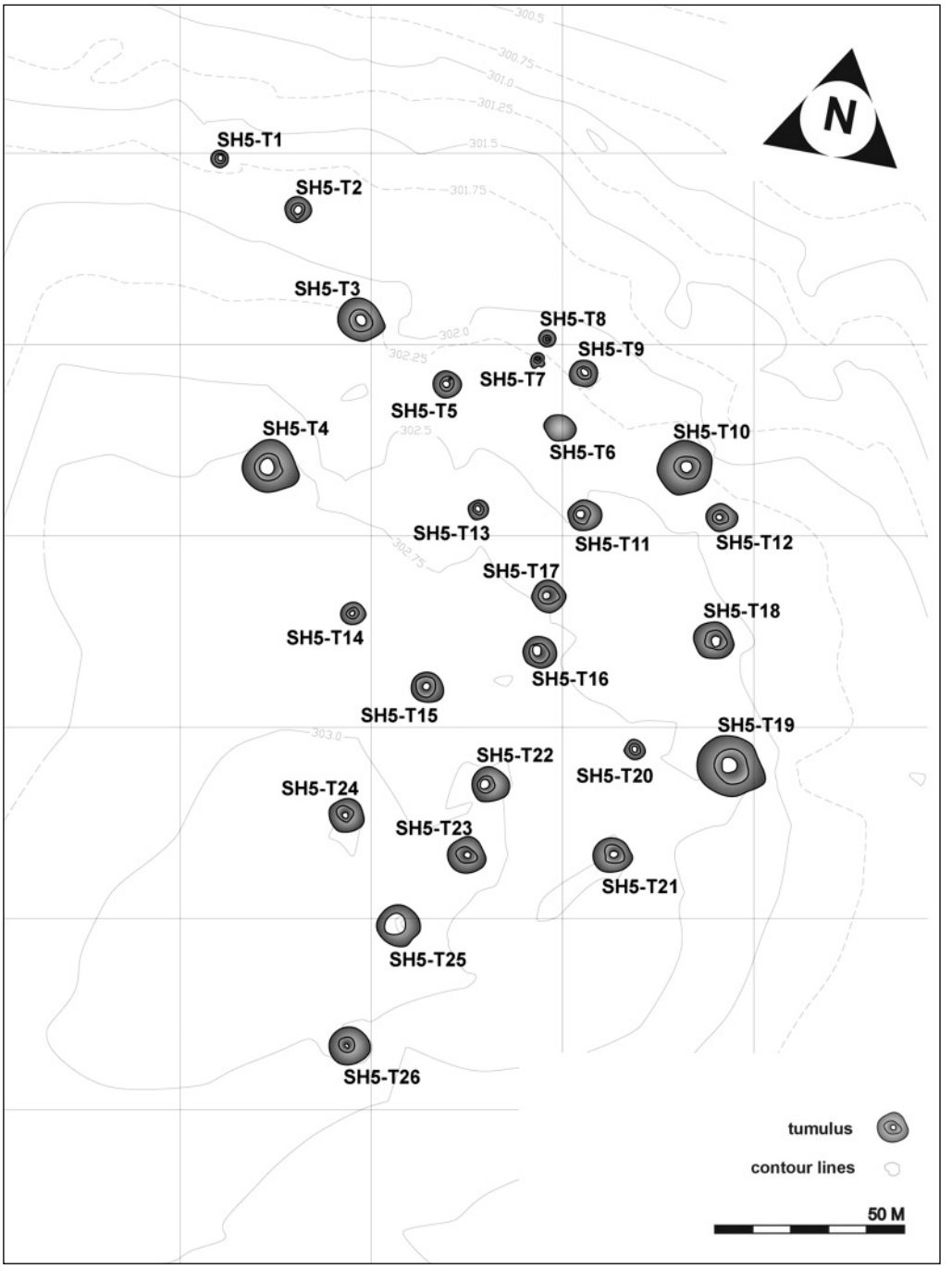

Fig. 1. General survey plan of Shemkhiya SH5 cemetery (Mapping R. Łopaciuk)

TUMULUS FIELD AT SITE SH5

Excavations of the tumulus field at Shemkhiya (SH5) were undertaken in replacement of the suspended work at the mammoth-size tumulus in Hagar el-Beida (for previous work at the HB1 site, see Lemiesz 2007) and nearby. The 26 tumuli here {*Fig. 1*} sit on a gravelly plain about 1600 m west of the local benchmark – el-Ar rock, on an "island" between the Nile and a now defunct paleochannel. There are at least six other tumulus fields within a radius of 2.5 km, those closer to the river identified as bicultural Christian/post-Meroitic units.

Altogether six mounds were explored on SH5, dated by the finds to the 3rd-4th century AD (for a detailed report, see Żurawski forthcoming). They are of two general types: ovoid mound with stone kerb and oval mound of desert gravel without a conspicuous stone core. Three can be numbered among the biggest ones, one is middle-sized, two are small, the diameters

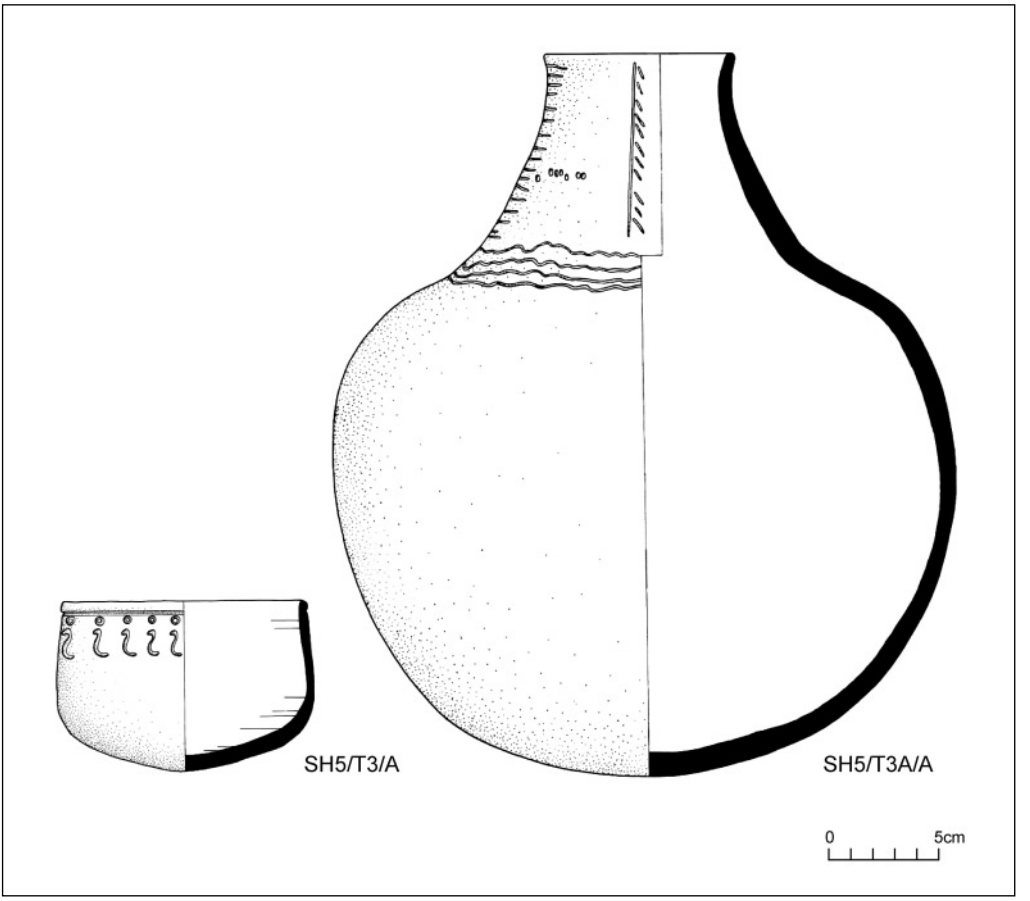

Fig. 2. Meroitic ceramics from an offering pit found in tumulus tomb SH5/T3 (Drawing M. Orzechowska)

of the tumuli ranging from 7.50 m to 20 m (T19). The tumuli of the first type had shafts ringed with stones at the top, filled with mud intercalated with three layers of stones (T3 and T19). The burial chamber of T4 was approached by a sloping dromos with the vertical shaft at the end.

The burials in three cases appeared unplundered (T3, T4, T19) and yet the skeletons were found misplaced, in one case (T19) the body of a woman was found cut in half at opposite sides of the chamber. In T3, a middle-aged (subadultus/adultus) male was buried, apparently in a sort of bag (?) or wrapped in a shroud that has decayed into a compact organic mass, mixed with mud. The skeleton in T4 was that of an adult woman buried on her left side in sub-contracted position with legs bent at the knees, the head to the south and somewhat misplaced. In two burials (T9 and T12), single skeletons of females, 35-45 years old, were found in contracted position on the left side, with the head to the south and facing west. In T6, the body had apparently been laid out on a mat.

Meriting attention was the offering pit found dug in the ground under the mound in the southern part of tumulus T3. It was 0.70 m in diameter and contained a pinkish, hand-made bowl (SH5/T3A/B) and a wet wiped, grayish-brown, blackened jar (SH5/T3A/A) with a wavy-line shoulder ornament and vertical scratched elements, firmly attributable to the Meroitic period [*Fig. 2,* right] Placed around the neck of the jar was a necklace of 60 glass and stone beads threaded on a thong.

Finds from the chambers included a wheel-made, red slipped bowl (SH5/T3/A) decorated with a relief frieze of urei, evidently of Meroitic manufacture [*Fig. 2,* left], discovered by the shoulder blade of the male buried in T3, and a white slipped, wheel-made, footed bowl from the Late Meroitic period, found in the burial chamber of T4. Five vessels accompanied the burial in T12: a deep bowl stood close to the pelvis and legs in the northern part of the chamber, and a spouted bowl and another vessel were placed at either side sides of the skull; a jar and spouted bowl were deposited in the eastern part of the shaft.

The array of beads found with the burials and in the fill of the chambers included strings of beads made of ostrich eggshell predominantly and glass, single beads of stone, carnelian, quartz, glass, faience and glazed, and a glass pendant with threading hole, decorated with a floral motif. In two instances, a copper-alloy earring was also found. A curious amulet(?) pendant made of three sheep bones, perforated and tied together, was discovered near the face of the female burial in T12, which was in any case the most richly equipped as far as jewelry goes.

Fragments of organic substances (perhaps leather) were also noted in some of the burials.

All the excavated tumuli yielded pottery scoopers found in the fill; for example, in T12 two scoopers had been abandoned one above the other, in the upper part of the entrance shaft.

BURIAL GROUND AT SITE SH9

The cemetery of SH9, as well as the nearby tumulus field of SH10, both located inland from the fortress at el-Meghera (SH8) [*Fig. 3*], represent a transitional period between the post-Meroitic and Christian kingdoms. The cemetery sits at the foot of the jebel, 350 m to the east of the rocky outcrop of the stronghold from which it is

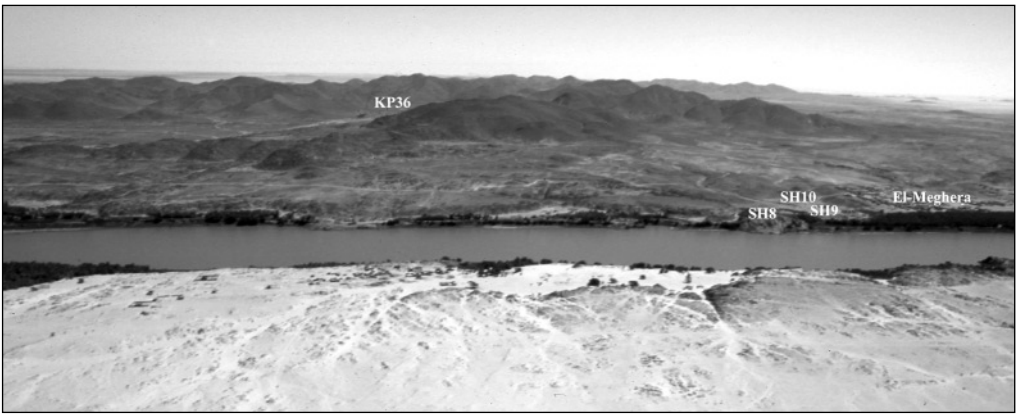

Fig. 3. Left-bank sites SH8, SH9, SH10 and the village of el-Meghera. Gebel el-Gurgurib (with rock-art site KP 36) in the background. February 2003 (Photo B. Żurawski)

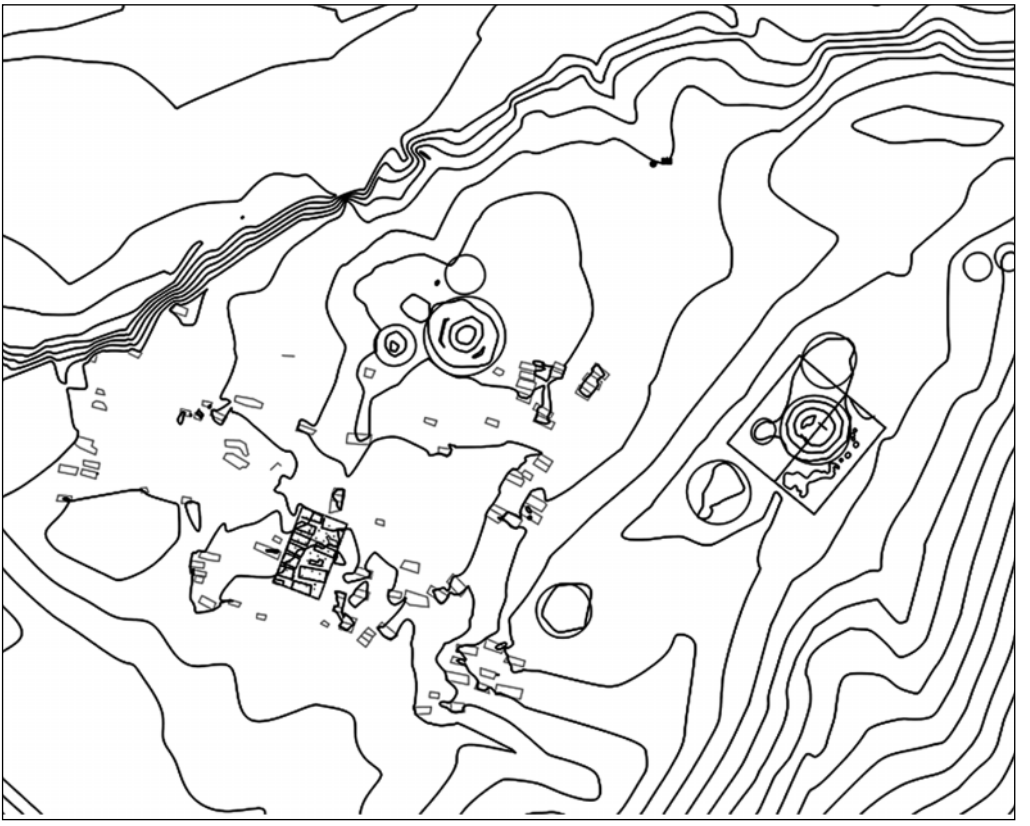

Fig. 4. General survey plan of the cemeteries at Shemkhiya SH9 and SH10 (Mapping W. Małkowski)

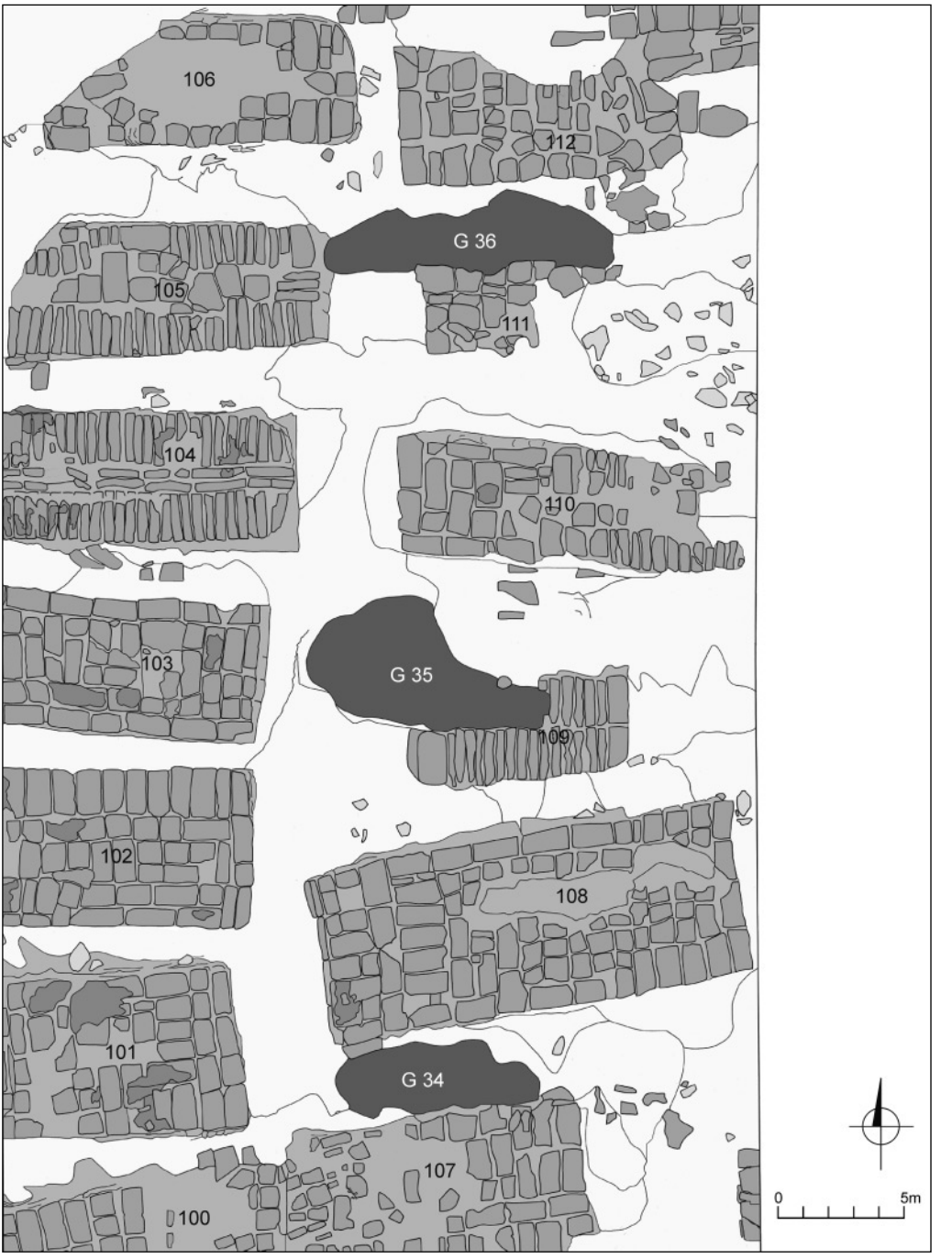

Fig. 5. Plan of graves and platform-like mud-brick features in the trial pit at Site SH9 (Drawing A. Stupko, M. Mazur)

separated by a *khor*. It was surveyed already in December 2004 (Chłodnicki and Żurawski 2005, 380, 382); at the time, about 100 stone superstructures of box grave type were registered along with a sparse scatter of Classic Christian ceramics.

The burial field has now been found to occupy an area of about 1300 m2 (65 m from east to west and 50 m from north to south).[2] It comprises 91 box graves, 67 of which form three separate groups [*Fig. 4*]: 11 graves (G1-G11) in the southwestern part of the site and 32 graves (G12-G43) in the southern part, the two divided by a local road that follows the course of the Nile without disturbing any of the graves, and 24 graves (G67-G91) in the southeastern part. The remaining graves are scattered irregularly in the western part of the site and on higher ground at the western edge of the wadi, where some may have actually been destroyed by water erosion.

A trial pit 10 by 6 m was opened to clear the graves visible on the ground (in preparation for more work in the coming season). Thirteen platform-like mud-brick features were uncovered, all oriented east-west, in two rows within the limits of the trench (the excavators estimated their number at possibly exceeding 400 in the cemetery as a whole) [*Fig. 5*]. These structures were spaced an average of c. 0.30-0.40 m, except for the vicinity of the three recognized graves, where they stood further apart. They were made of mud bricks measuring 0.38-0.40 x 0.19-0.20 x 0.07-0.08 m, no more than three courses in any single case. The bricks were laid either on the flat side (nos 100, 102, 103, 106, 107, 108, 110, 111, 112) or on edge (nos 104, 105 and 109). If laid on edge, the bricks were commonly arranged into the "spine-and-ribs" pattern with a central spine along the longer axis of the grave flanked by bricks laid at right angle to it (Adams 1998: 22). Faint traces of lime mortar do not provide a firm basis to argue that these structures were ever plastered.

The structures appear to have been built at the same time as the graves, as indicated by the position of graves G34 and G36 between them. G35, however, is partly under a brick structure, hence it should perhaps be considered as of earlier date.

Similar features have been noted on the Lower Nubian sites of Arminna (Junker 1925: Pl. XV, upper row), Soba (Welsby, Daniels 1991: 121-123, Fig. 55), where they also appeared between the graves, and Kulubnarti, where they covered the graves (Adams 1999: 16, 43-44, Pls 2:F, 6:E and F). Many Early Christian graves of this type, all marked on surface by a solid rectangular paving of mud bricks laid on edge, some covered with white plaster, were found during survey on the west bank of the Nile south of Faras (Adams and Nordstroem 1963: 45). At Gebel Ghaddar North they covered early Christian burials made around a Post-Meroitic tumulus (Żurawski, El-Tayeb 1994: 301-302, Fig 3, 4). In apparent contrast to the box-shaped stone superstructures that originally stood quite high, the earliest Christian inhumations in the region were

2 Fieldwork in 2006 was headed by Marek Lemiesz with the assistance of archaeologists Tomasz Stępnik, Anastazja Stupko and Mariola Orzechowska, physical anthropologist Karol Piasecki (University of Szczecin), geodesist Wiesław Małkowski (University of Warsaw, Institute of Archaeology), as well as students of the Adam Mickiewicz University in Poznań Marta Mazur (who contributed remarks to the present report), Paweł Polkowski and Alicja Pląskowska.

Fig. 6. Early Christian bowl (Photo M. Lemiesz)

covered with flat mud-brick structures which densely covered the area of a burial ground. Box graves were introduced wherever possible in the gaps between the platforms at a later date. Nevertheless some of the brick pavements might have been also superimposed with stone superstructures. In some cases, these superstructures missed considerably the burial trench they were supposed to cover. However, such axis deflation and even misplacements between the shaft and the superstructure occur frequently in Christian cemeteries in Nubia (cf. Vila 1984: 187).

Only two sepulchers (SH9/G34 and SH9/G35) were explored down to the burial chamber. SH9/G34, seriously damaged, was provided with a subrectangular box, 1.85 m long, up to 0.90 m wide, maximum height 0.50 m. The stones of this structure were medium-sized and elongated, the spaces between the bigger stones filled with rock detritus. Its subterranean part qualifies it as a bottom-niche grave (Adams 1998: 26, Fig. 8.c). The oval pit (1.52 m long, 0.65 m wide and 0.80 m deep) was dug in sandy ground and five big slabs were laid flat across it, the sixth standing vertically at the northern end. The skeleton was that of a child (6-8 years old), found in anatomical order, laid on its back with arms along the sides and slightly flexed legs, the head pointing to the west. No grave goods were found, but there was a petrified animal bone and a shell in the western end of the pit.

SH9-G35 was a superstructured grave with a well preserved subrectangular box (2.30 m long, 1.05 m wide and 0.33 m high) made of two courses of big stones, the inside filled with sand and gravel. Beneath was an irregular, oblong pit (2.02 m long, 0.64 m wide and 1.20 m deep). The skeleton of a female about 22-25 years old lay in shallow side-niche cut along the north wall of the pit (cf. Adams 1998: 26, Fig. 8.b). The body had been buried on its back, head pointing roughly to the west, arms crossed on the pubis. The head and the upper part of the body had been covered with a huge flat stone slab (1.29 m long) placed at an angle by the northern side of the chamber. There were no grave goods.

The very early Christian date of SH9 mud brick pavements was confirmed by the sparse scatter of diagnostic pottery found among the graves. On the strength of analogy from the Dongolese kilns, a substantial fragment of a red-slipped bowl decorated with a cross motif, found among the bricks making up the structure numbered 110, can be dated to the 6th-7th century (Pluskota 1990: 35 and 39, Figs 10-12) [*Fig. 6*].

TUMULUS FIELD AT SITE SH10

The tumulus cemetery SH10 borders on the burial ground of SH9 and indeed the two could be taken as one, considering that some of the box graves were found already among the tumuli.[3] Altogether there are 13 mounds on SH10, grouped in three distinct concentrations. Group A made up of five tumuli (T1-T5) is located more or less at the foot of the gebel, group B, also five tumuli (T6-T10), alongside a local route and the gebel, and finally, group C (T11-T13) on a gravely plateau raised above a wide khor on the northern peripheries of the graveyard. SH10/T1 and the adjacent small SH10/T2, both apparently relatively undisturbed, were selected for archaeological exploration in February 2006.

The ground was cleared and the southern part of the mound of the medium-sized tumulus T1 was explored. The mound was clad with small and medium-sized stones, mixed with pebbles. Beneath it, a trapezoidal shaft with slightly inclined sides and rounded corners, oriented roughly NE-SW, was dug straight down into the rocky alluvial ground to a depth of 1.20 m. It was filled with gravel, silt and pebbles. The bottom was paved with flat slabs. The burial chamber was roughly oval (1.40 x 0.63 m, 0.40 m high) and was dug in the northwestern side of the shaft. The skeleton of a male in his fifties was found in contracted position on the right side with head to the south facing east, arms bent and legs flexed. A huge stone slab, 0.45 m long, had been placed intentionally in an effort to weigh down the body. Shreds of textiles found with the bones featured narrow parallel red and yellow stripes. Neither beads nor other grave goods were found in the burial chamber and entrance shaft.

Offering pits, 0.40 m in diameter, were found outside the original perimeter of the tumulus. They contained organic matter, fragmented animal bones, seeds, and ashes, as well as some pottery (representing a post-Meroitic repertoire), intentionally sealed with a compact layer of big stones and gravel.

The smaller satellite tumulus T2 (2.60 m in diameter, 0.45 m high) had a mound consisting of huge, irregular stone blocks mixed with smaller stones and pebbles in the core, covered on the surface with small stones and pebbles. A vertical shaft filled with stones gave access to the burial pit of irregular shape cut at the bottom. A disarticulated skeleton of a child was found, plausibly buried originally in contracted position on the right side, with the head to the southwest, facing east. A string of ostrich-egg shell beads and a necklace of sun-dried clay beads was found around the arms, head and hips. Close to the neck a string of five spherical beads made of glass paste was found, and a hemispherical dark-red, polished bowl was collected from near the head.

3 The site was preliminarily investigated in the course of the 2004 survey of Shemkhiya (Chłodnicki and Żurawski 2005: 380). Regular excavations lasted from 26 February to 13 March, the field staff being headed by Edyta Klimaszewska-Drabot and consisting of Anastazja Stupko, Mariola Orzechowska and Martyna Mazur. The site was surveyed by geodesist Wiesław Małkowski.

SHEMKHIYA FORTRESS SH8

The dead buried on SH9 and SH10 came from a community living in the shadow of a hilltop fortress dominating the left bank of the river and the fertile hinterland. A detailed two-week architectural and archaeological survey of the SH8 fortifications and *intra muros* structures was completed by T. Stępnik in late February. Clearing of the enclosure wall and limited archaeological testing facilitated a reconstruction of the architectural history of the feature.

The layout of the fortress follows the bipartite scheme of other forts in the Shemkhiya region and downriver with an upper castle in the centre of the lower ramparts, but with none of the poterns, corner towers and semicircular towers, etc., present in most Middle Nile fortifications. Not much has survived of the original structure raised, as suggested by the ceramic evidence, at the onset of the Christian period [*Fig. 7*]. The earliest part was probably a section of the wall made of bricks bonded with lime plaster raised above the highest flooding level. It was here that a river gate plausibly existed, serving to raise goods from boats anchored in the deep waters at the bottom of an almost vertical wall. Loopholes for firearms concentrated around the gates and in the most vulnerable parts of the wall (although with seemingly poor range and visibility) date to a later rebuilding of the fortress.

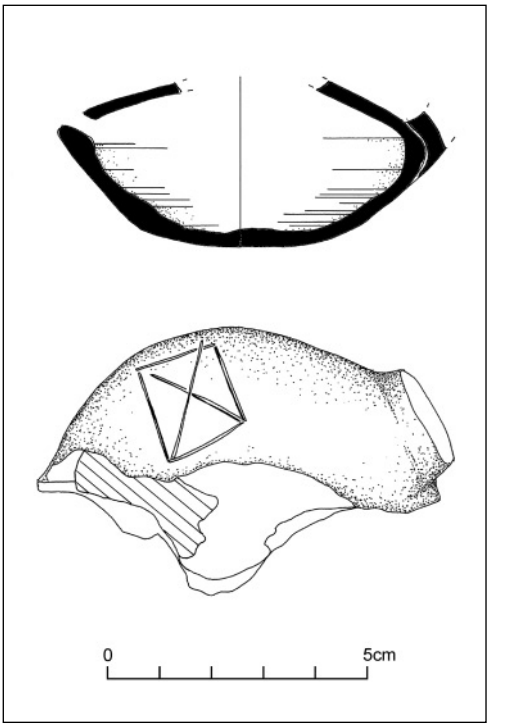

Fig. 7. Fragment of an Early Christian lamp (Drawing M. Orzechowska)

SURVEY BETWEEN SHEMKHIYA AND TANTA ISLAND

Tanta Island was the northernmost point surveyed in 2006 [*Fig. 8*]. It was measured and surveyed, revealing no evidence of any activity before the 17th century or later. Local oral tradition links the fortress with the gold trade.

The region between Shemkhiya and Tanta was also surveyed for rock art, rock gongs and prehistoric sites, registering one hundred sites in all (68 rock art sites, 25 cemeteries or single burials, five abandoned settlements and two rock

gongs). Gebel el-Gurgurib, on both sides of the khor that joins the Nile near el-Tina village, turned out to be exceptionally rich in representations, a total of 436 being registered. These are reported on in some detail in separate contributions by K. Piasecki and E. Kuciewicz in this volume.

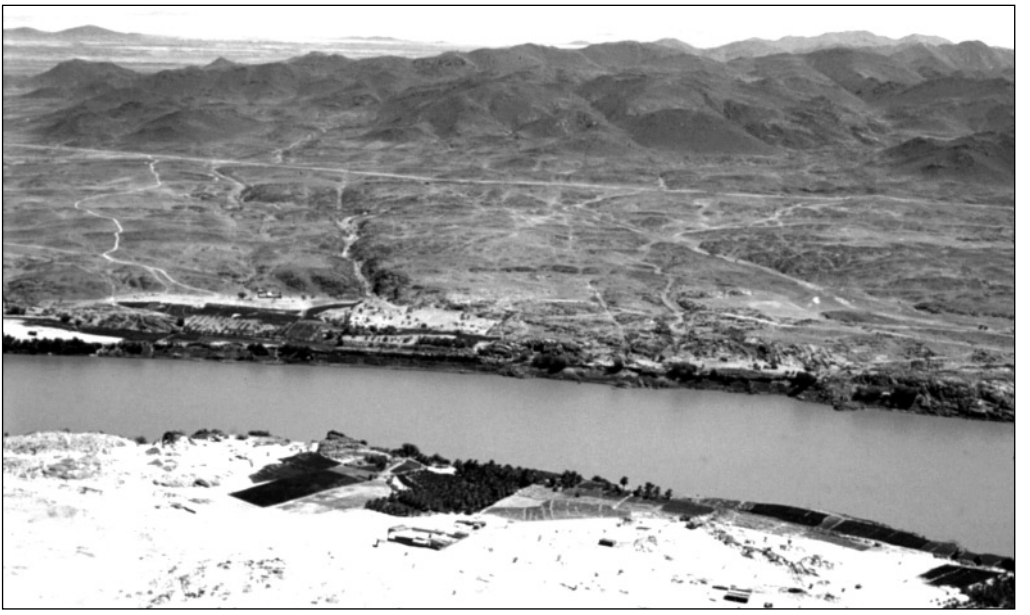

Fig. 8. Left-bank Shemkhiya region upriver from Tanta Island (the island with the fortress seen on the right) with Gebel el-Gurgurib in the background. February 2003 (Photo B. Żurawski)

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APPENDIX

ANTHROPOLOGICAL RESEARCH IN THE FOURTH CATARACT REGION, 2006

Karol Piasecki*

The program of the PCMA Fourth Cataract expedition, directed by Marek Chłodnicki (Archaeological Museum in Poznań) and Bogdan T. Żurawski (Research Center for Mediterranean Archaeology PAS) in January-March 2006 included examination of human skeletal remains excavated in the course of the season. The material originated from Post-Meroitic tumuli fields in the area of Es-Sadda, Hagar el-Beida and Shemkhiya, and a Christian burial ground near Shemkhiya [*Fig. 1*]. Altogether, 65 individuals were examined (23 skeletons from Es-Sadda, 36 from Hagar el-Beida and six from Shemkhiya). With the exception of two skeletons from the Christian cemetery (SH9), all of the remains came from tumulus burials.

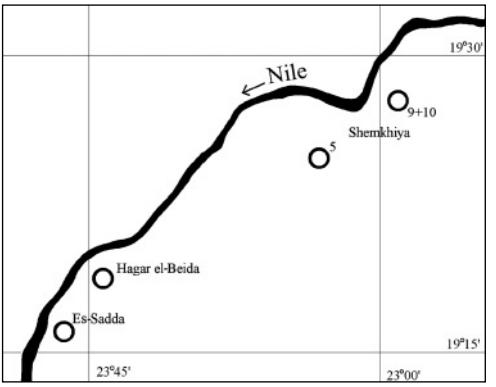

Fig. 1. Schematic localization of sites under exploration in 2006

The condition of most of the skeletons was good or very good. Some material, especially the postcranial one, had either been crushed by the weight of overlying fill or had suffered from partial biochemical destruction. The bones were subjected to morphological examination and measurements, especially craniological (craniometry and cranioscopy) [*Tables 1-6*]. Beside a case of double trepanation of the skull [*Fig. 2*], evidence of trauma or pathology has been observed, particularly of the mastication organs, and will be the object of a separate study. The state of the dentition overall can be evaluated as average, although variable by individual; cases of enamel hypoplasia and caries were rare. Cribria orbitalis were also seldom seen. Frequent alveolar abscesses, occasionally extensive, and changes due to periodontitis, as well as cases of mandibular head hypoplasia [*Fig. 3*], are an indication of numerous pathologies of the dental apparatus.

* University of Szczecin, Chair of Ethnology and Cultural Anthropology

Table 1. Es-Sadda – craniometry

No.	sex	Measurement values														
		g-op	eu-eu	b-ba	au-au	ft-ft	zy-zy	zm-zm	n-ns	n-pr	n-gn	mf-ek	h. orbit.	apt-apt	go-go	kdl-kdl
T1	f	184	128	127	112	93	125*	96	42	68	111	39	32.5	28.5	84	112
T2	m	185	136	126	123	131	99	99	51	70	115	36	29	28	91	120
T3	f	180	138	123	120	91	129	97	49	63	116	40	33	27	93	116
T4	m	185	135	136	124	97	140	102	49	69	115	42	32.5	29(32)	98	126
T5	m	189	140	136	113	91	130	93	49	69	116	38	36	26	90	117
T6	m	197	127	134	124	97	136	100	50	74	117*	40	32	26.5	-	117
T11	m?	194	136	143	119	95	134	94	49	70	116	39	33	25.5	96	117
T13	f	184	128	135	107	93	114	89	44	67	112	35	30.5	23	82	102
T15	m	194	131	132	119	130	99	98	47	68	119	40	29.5	27.5	99	115
T18	m?	191	137	130*	115	104	-	-	-	-	-	-	-	-	85	114
T28	f	173	126	124	105	87	119	93	47	66	112	38	32	26	86	105
T33	f	162	119	123	104	94	111	87	41	62	102	34	28	23	79	102
T47	f	187	127	135	103	122**	92	88	44*	57*	95*	36*	33*	23	92	112
T48	f	191	138*	145*	110*	-	123*	89	46*	62*	108*	38	33*	23.5	96	120
T61	m?	190	129	135	113	96	127	100	50	66	117	39	31.5	28	88	110
T62	m	180	126	126	112	87	122	93	46	65	110	38	30	26	97	106
T69	m	179	136	132	124	96	136	94	46	65	105	3705	32	27	98	112
T76	f?	187	123	115	138	122	94	104	50	72	124	39	38	24.5	94	108*
T77	m	183	135	132	124	99	134	97	52	75	121	40	35	23	97	124
T79	f	174	135	124	121	89	128	99	48	68	113	41	38	28	84	113
T81	m	196	134	128	120	95	129	100	48	63	112*	40	32	27.5	89	108
T82	f?	178	134	129	116	93	123	95	48	63*	105*	38	34.5	28	86	113

**) in excess of standard measurement error*

Table 2. Es-Sadda – cranial indices

No.	Sex	Indices										
		CI	LH	BH	fr.p.	K	V	mf	n	o	m_2	m_3
T1	f	70.0	69.0	99.2	72.7	54.4*	70.8	88.8*	67.9	83.3	156.0	145.0
T2	m	73.5	68.1	92.6	72.8	53.4	70.7	87.8	54.9	80.6	160.5	149.0
T3	f	76.7	68.3	89.1	65.9	48.8	64.9	89.9	55.1	82.5	159.0	147.0
T4	m	73.0	73.5	100.7	71.9	49.3	67.6	82.1	59.2 (65.3)	77.4	160.0	152.0
T5	m	74.1	72.0	97.1	65.0	53/1	74.2	89.2	53.1	94.7	164.5	155.0
T6	m?	64.5	68.0	105.5	76.4	54.4	74.0	86.0	53.0	80.0	162.0	152.7
T11	m?	70.1	73.7	105.1	69/9	52.2	74.5	86.6	52.0	84.6	165.0	157.7
T13	f	69.6	73.4	105.5	72.7	58.8	75.3	98.2	52.3	87.1	156.0	149.0
T18	m?	71.7	68.1*	94.9*	75.9	-	-	-	-	-	164.0	152.7*
T28	f	72.8	71.7	98.4	69.0	55.5	71.0	94.1	55.3	84.2	149.5	141.0
T33	f	73.5	75.9	103.4	79.0	55.9	71.3	91.9	56.1	82.4	140.5	134.7
T47	f	67.9	72.2	106.3	62.3	46.7**	62.0*	77.9**	91.7**	52.3*	157.0	149.7
T48	f	72.3*	75.9*	105.1*	-	50.4**	69.7*	87.8**	51.1*	86.8*	164.5*	158.0**
T61	m?	67.9	71.1	104.7	74.5	52.0	66.0	92.1	56.0	88.8	159.5	151.3
T62	m	70.0	70.0	100.0	69.0	53.3	70.0	90.2	56.5	78.9	153.0	144.0
T69	m	76.0	73.7	97.1	70.6	47.8	69.1	77.2	58.7	85.3	157.5	149.0
T76	f?	65.5	77.5	117.9	84.6	59.0	76.6	101.6	49.0	97.4	155.0	151.7
T77	m	73.8	72.1	97.8	73.3	56.0	77.3	90.3	44.2	87.5	159.0	150.0
T79	f	77.6	71.3	91.9	69.5	53.1	68.7	88.3	58.3	92.7	154.5	144.3
T81	m	68.4	65.3	95.5	70.9	48.8	63.0	86.9*	57.3	80.0	165.0	152.7
T82	f?	75.3	72.5	96.3	69.4	51.2*	66.3*	85.4*	58.3	90.8	156.0	147.0

Indices: Cl. – Cranial Index; LH – Cranial Lenght-Height Index; BH – Cranial Breadth-Height Index; fr.p – Frontoparietal Index; K – Kollman's Upper Facial index ; V – Virhoff's Upper Facial Index; mf – Total Facial Index (morphological); n – Nasal Index; o – Orbital Index; m_2 – Vertical Skull Contour Module; m_3 – Cranial Module

**) calculated from data burdened with measurement error in excess of the standard*

Table 3. Hagar el-Beida – craniometry

No.	sex	measurement values														
		g-op	eu-eu	b-ba	au-au	ft-ft	zy-zy	zm-zm	n-ns	n-pr	n-gn	mf-ek	h.orbit.	apt-apt	go-go	kdl-kdl
HB1/T6	m	179	125	131*	113	96	117	92	50	73	120	41d	31.5d	24	87	106*
HB2/T1	m	186	116	138	117	89	135	102	51.5	70	121	45	33	29.5	99	118
HB2/T2	m	189	125	145	122	98	135	104	49	69	118	41	31	29.5	99	119
HB2/T4	m	172	129	134	122	93	134	87	48	69	115	41	34.5	26.5	93	115
HB2/T12	m	191	135	137	122	100	132	99	48	70	117	43.5	35.5	25	-	-
HB2/T14	m	200	134	128	117	130	99	99	52*	73	123	43	35	28	88	106
HB2/T24	m	180	139	135	116	94	128*	85	47	63	-	38.5	31	29	-	-
HB2/T25	m	183	125	126	106	85	116	91	44	59	101	35.5	30	25	83	105
HB2/T26	m	182	129	131	119	93	126*	98*	47	66	113	39	29	28	87	108
HB2/T28	m	182	140	142	116	87	126	92	51	67	110	40	31.5	23.5	85	108
HB2/T29	m	205	142	142	122	105	139	100	55*	73	123	42.5	34	28(32)	98	123
HB2/T31	m?	185	126	131	124	89	122	94	50	67	112	40.5	33	28	91	111
HB2/T52	m	189	130	136	115	94	130	105	52*	72	124	42	34.5	28	98	115
HB2/T53	f	181	124	126	107	89	116	89	49	56	-	39	36	23.5	-	-
HB2/T54	f	179	126	132	101	89	112	85	40.5	56	95	36	30	23.5	74	99
HB2/T56	f	174	122	133	108	93	115*	92	44	63	102	41	33.5	24	88	102
HB11/T7	m?	186	142**	125-130	130**	100	126*	89	58*	78*	113*	38*	39*	25	74	112

**) in excess of standard measurement error*

Table 4. Hagar el-Beida – cranial indices

No.	Sex	Indices										
		CI	LH	BH	fr.p.	K	V	mf	n	o	m_2	m_3
HB1/T6	m	69.8	73.2*	104.8*	76.8	62.4	79.3	102.6	48.0	76.9	152.0	145.0*
HB2/T1	m	62.1	74.2	119.0	76.7	51.9	68.6	89.6	57.3	73.3	151.0	146.7
HB2/T2	m	66.1	76.7	116.0	78.4	51.1	66.3	87.4	60.2	75.5	157.0	153.0
HB2/T4	m	75.0	77.9	103.9	72.1	51.5	79.3	85.8	55.2	84.1	150.5	145.0
HB2/T12	m	70.7	71.7	101.5	74.1	53.0	70.7	88.6	52.1	81.6	163.0	154.3
HB2/T14	m	67.0	64.0	95.5	73.9	56.2	73.7	94.6	53.8	81.4	167.0	154.0
HB4/T15	m	67.5	68.0	100.8	74.8	52.3	68.7	91.5	73.8	58.5	162.5	152.3
HB2/T24	m	72.2	75.0	97.1	67.6	49.2*	74.1	-	61.7	80.5	159.5	151.3
HB2/T25	m	68.3	68.9	100.8	68.0	50.9	64.8	87.1	56.8	84.5	154.0	144.7
HB2/T26	m	71.0	75.3	101.6	72.1	52.4*	67.3*	89.7*	59.6	74.4	155.5	147.3
HB2/T28	m	76.9	78.0	101.4	62.1	53.2	72.8	87.3	50.0	78.8	161.0	154.7
HB2/T29	m	69.3	69.3	100.0	73.9	52.8	73.0	88.5	50.9 (58.2)	80.0	173.5	163.0
HB2/T31	m?	68.1	70.8	103.0	70.6	54.9	71.3	91.8	56.0	81.5	155.5	147.3
HB2/T52	m	68.8	72.0	104.6	72.3	55.4	69.2	95.4	53.8	82.1	159.5	151.7
HB2/T53	f	68.5	69.6	101.6	71.8	48.3	62.9	-	48.0	92.3	152.5	143.7
HB2/T54	f	71.0	73.7	104.8	79.5	50.0	68.9	84.8	58.0	83.3	152.5	145.7
HB2/T56	f	70.1	76.4	109.0	76.2	54.8*	68.5	88.7*	54.5*	81.7	148.0	143.0
HB11/T7	m?	76.3**	69.9-67.2	88.0-91.5	70.4*	61.9**	87.6*	89.6**	43.1*	102.6**	164.0	151.0-152.7

Indices: Cl. – Cranial Index; LH – Cranial Lenght-Height Index; BH – Cranial Breadth-Height Index; fr.p – Frontoparietal Index; K – Kollman's Upper Facial index ; V – Virhoff's Upper Facial Index; mf – Total Facial Index (morphological); n – Nasal Index; o – Orbital Index; m_2 – Vertical Skull Contour Module; m_3 – Cranial Module

**) calculated from data burdened with measurement error in excess of the standard*

Table 5. Shemkhiya – craniometry

No.	Sex	Measurement values													
		g-op	eu-eu	b-ba	au-au	ft-ft	zy-zy	zm-zm	n-ns	n-pr	n-gn	mf-ek	h. orbit.	apt-apt	go-go	kdl-kdl
SH5/T6	f	173	127*	130*	105	93	112	94	53	72	113	39	32.5	27.5	81	107
SH5/T9	f	192	132*	137	105*	99	119	91	50	66	112	40d	33.5d	26	83	113
SH5/T12	f	200	128*	140*	108*	100	118*	95*	50	70	118*	38*	31*	26*	85	108*
SH9/G35	f	175	127	127	109	96	117	96*	48	65	107	38	29.5	28	82	100
SH10/T1	m	181	133	135	121	89	130	86	53	70	114	38	32.5	24.5	99	116

**) in excess of standard measurement error*

Table 6. Shemkhiya – cranial indices

No.	sex	indices										
		CI	LH	BH	fr.p.	K	V	mf	n	o	m_2	m_3
SH5/T6	f	73.4*	75.1**	102.3**	73.2*	64.3	76.6	100.9	51.9	83.3	150.0*	143.3**
SH5/T9	f	68.8*	71.4	103.8*	75.0*	55.5	72.5	94.1	52.0	83.8*	162.0*	153.7*
SH5/T12	f	64.0*	70.0*	109.4**	78.1*	59.3*	73.7	100.0**	52.0*	81.6**	164.0*	156.0**
SH9/G35	f	72.6	72.6	100.0	75.6	55.6	67.7*	91.5	58/3	77.6	151.0	143.0
SH10/T1	m	73.5	74.6	101.5	66.9	53.8	81.4	87.7	46.2	85.5	157.0	149.7

Indices: Cl. – Cranial Index; LH – Cranial Lenght-Height Index; BH – Cranial Breadth-Height Index; fr.p – Frontoparietal Index; K – Kollman's Upper Facial index ; V – Virhoff's Upper Facial Index; mf – Total Facial Index (morphological); n – Nasal Index; o – Orbital Index; m_2 – Vertical Skull Contour Module; m_3 – Cranial Module
**) calculated from data burdened with measurement error in excess of the standard*

The Es-Sadda cemetery, except for one doubtful child burial, is represented by 22 adult skeletons (12 men and 10 women), mainly of *maturus* or *adultus/maturus* age (although some could definitely be classified already as *senilis*!). Apart from two individuals representing undoubtedly the Black variety, the group was spread more or less equally between the White and a mix of Black and White varieties.

The skeletons examined from Hagar el-Beida (altogether 36), on each of the five sites explored in the region, include both juvenile and adult individuals, although not older than *adultus/maturus*, except for one case. Among the adults individuals there are 25 men and seven women.

The few individuals studied from the sites around Shemkhiya include three adult women from site SH5, one of the White variety. The rest are Black-White half-breeds, as well as one intervariety male skeleton from site SH10. The two skeletons from the Christian cemetery at SH9 are of a child aged 6-8 and of a woman representing the Black-White half-breed.

A closer comparative analysis of skeletons from the Post-Meroitic cemeteries in the Fourth cataract region requires further studies. It should help to verify theories concerning ethnogenetical processes taking place in the region.

Fig. 2. Skull with traces of healed double trepanation (Photo K. Piasecki)

Fig. 3. Pathological changes (hypoplasia) of the articular surface of a mandibular head (Photo K. Piasecki)