

Selected secondary burials as evidence of later activities at the tomb of Khuwy at South Saqqara

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ABSTRACT

In 2019, during the excavations of the Egyptian mission at the funerary complex of the Fifth-Dynasty King Djedkare (reign ca. 2381–2353 BC) at South Saqqara, Mohamed Megahed and his team revealed the painted tomb of the high-ranking Old Kingdom dignitary Khuwy (Megahed – Vymazalová 2019). Besides the remains of a mummified body that were found scattered inside the burial apartment in the substructure of the tomb, several secondary burials were documented in the layers of debris covering the superstructure of Khuwy's tomb and its near vicinity. This article presents a selection of these secondary burials, including the archaeological context, associated finds and preliminary osteological investigation of the skeletal remains. The simple burials, dating between the New Kingdom and the Late Period, contained individuals of both sexes and all ages.

KEYWORDS

Saqqara – royal cemetery – secondary burial – paleopathology – physical anthropology – pottery

دفنات ثانوية مختارة كدليل على أنشطة لاحقة بمقبرة خوى فى جنوب سقارة هانا فيماز الوفا – زينب حشيش – أحمد جبر – نرمين أبا يزيد

الملخص

فى عام 2019 وأثناء أعمال الحفائر التى أجرتها البعثة المصرية بالمجموعة الجنائزية للملك جدكارع من الأسرة الخامسة (2381-2353 قبل الميلاد) فى جنوب سقارة، كشف محمد مجاهد وفريقه عن مقبرة ذات النقوش الملونة والتى تعود لنبييل رفيع المستوى من عصر الدولة القديمة يدعى خوى (Megahed – Vymazalová 2019). إلى جانب بقايا جثة محنطة تم العثور عليها مبعثرة داخل حجرة الدفن بالجزء السفلى من المقبرة، تم توثيق عدة دفنات ثانوية بطبقات الرديم الذى كان يغطى الجزء العلوى من مقبرة خوى، وأيضاً محيطها القريب. تقدم هذه المقالة مجموعة مختارة من هذه الدفنات الثانوية، بما فى ذلك سياقها الأثرى، واللقى الأثرية المرتبطة بها، كما تقدم أيضاً دراسة أولية لبقايا الهياكل العظمية. هذا وتورخ الدفنات البسيطة للفترة ما بين عصر الدولة الحديثة والعصر المتأخر، وهى التى ضمت أفراداً من كلا الجنسين ومن جميع الأعمار.

الكلمات الدالة

سقارة – جبانة ملكية – دفنة ثانوية – باليوباثولوجيا (علم الأمراض القديمة) – أنثروبولوجيا فيزيقية – فخار

The tomb of Khuwy, which was discovered at Djedkare's royal cemetery at South Saqqara in March 2019, dates to the late Fifth Dynasty (for the preliminary information on this tomb, see Megahed – Vymazalová 2019). Its exploration has revealed a high number of human remains – about 48 contexts with human remains have so far been documented in and around the tomb of Khuwy. These include not only the human remains from the burial apartment of the tomb,

which may have belonged to the tomb owner (Megahed – Vymazalová 2019: 42),¹ but also many secondary burials of a later date as well as scattered bones collected from the debris without any indications of anatomical position. The secondary burials are, in general, mostly simple burials of low-class individuals who lived centuries or millennia after the Old Kingdom and who wished to rest at the royal cemeteries in the vicinity of the pyramid complexes of the Old Kingdom rulers. Such secondary burials are well known from all the royal cemeteries of the Old Kingdom (see, for instance, Borchartd 1909: 71–79; Myśliwiec [ed.] 2008), and they have recently been documented also in the pyramid complexes of King Djedkare and Queen Setibhor at South Saqqara (Megahed – Jánosi – Vymazalová 2019: 19–24, 29, 33–34; Vymazalová – Hashesh 2019). Besides the royal monuments themselves, secondary burials are also found near tombs of important individuals who were buried at royal cemeteries (for instance in the tomb of the vizier Ptahshepses at Abusir, Strouhal – Bareš 1993). In the tomb of Khuwy at Djedkare’s royal cemetery, we can find secondary burials within, above and around the tomb, placed simply in sandy debris, sometimes in a wooden or reed coffin, or in small mud-brick or limestone tombs (Megahed – Vymazalová 2019: 39) (see the plan in fig. 1).

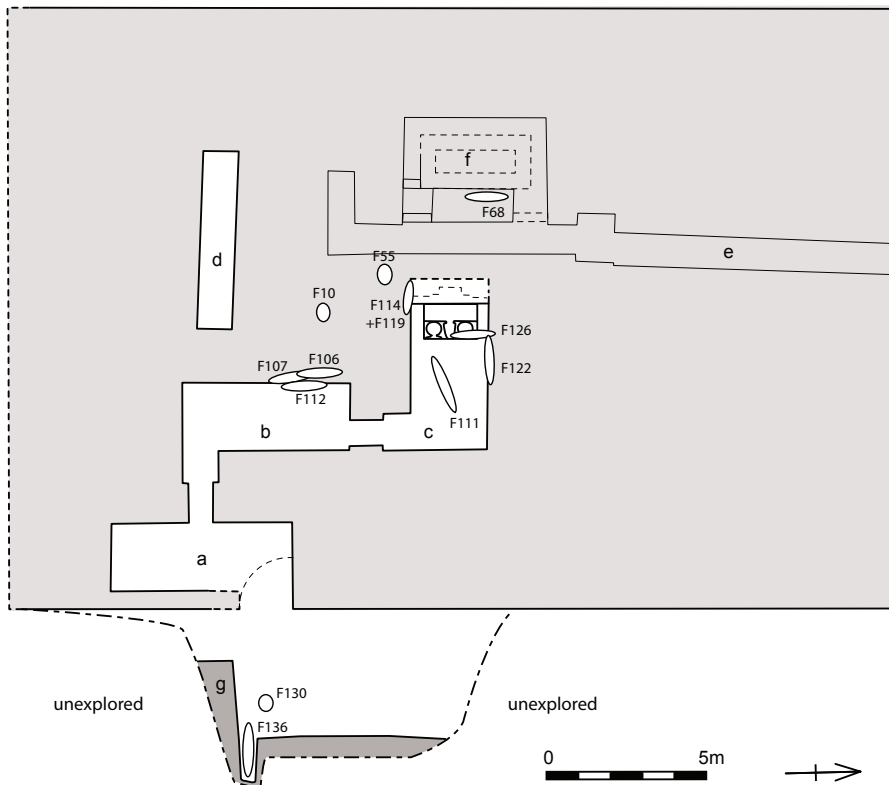


Fig. 1 A plan of the tomb of Khuwy showing: a) entrance room of the chapel, b) north-south room of the chapel, c) false-door room of the chapel, d) serdab, e) descending corridor, f) burial apartment, g) mud-brick installation. The position of the selected secondary burial contexts is indicated by ellipses and find numbers (drawing Djedkare Project, H. Vymazalová)

1 The examination of these human remains as well as other finds from Khuwy’s burial apartment is still in progress, and the dating of these human remains and the identification of its owner have not yet been concluded.

The present article focuses on a group of twelve burial contexts, which, however, constitute only a part (one-fourth) of all the secondary burials that have been found at Khuwy's tomb.² These twelve burials were associated with objects relevant for dating or were situated near burials with such objects. The date determined by means of the associated objects can be further indicated by the type of debris in which each context was discovered, as the different character of sand and its additions seems to be in good agreement with the different suggested dating of these burials. The finds under discussion are mostly pottery vessels but also coffin fragments, beads and a cosmetic jar.

This article provides preliminary information, which will be further expanded as the analysis of the finds from Khuwy's tomb will continue. Nevertheless, a detailed look at the selected burial contexts and their suggested dating can help us understand the development of the area of Khuwy's tomb in the periods following Khuwy's death. In addition, the osteological examination of the skeletal materials can provide the basic age and sex assessment, as well as evidence of diseases and injuries. Such evidence is a testimony to the life of the individuals (Nováček *et al.* 2017); to a certain degree, it makes it possible to reconstruct the health care and diseases in the ancient Egyptian population. Muscle attachment sites and some diseases probably reflect the lifestyle and work load of the individuals studied.

METHODOLOGY

THE METHODS OF POTTERY ANALYSIS

The pottery discussed in this paper includes vessels that were directly associated with the burial context under study. It does not, however, reflect the pottery finds from the surrounding debris, as their analysis is still in progress.

The finds associated with the burial contexts have been analysed according to priorities, first focusing on the pottery associated with burials. The ceramics were sorted based on type-defining features, which included rims, bases, handles, and distinctive fabrics. The shards were cleaned by brush and some of them washed. By means of a lens, the fabrics were examined for fresh breaks of shards and were described according to the Vienna System (Nordstrom – Bourriau 1993: 168–187). The assemblages were divided into categories by fabric and vessel type, as defined by the ratio of the rim diameter to the body diameter (Aperture Index, AI) (see Arias Kytnarová 2014: 51). Shards representative of individual types were selected for drawing and photographing.

THE METHODS OF OSTEOLOGICAL ANALYSIS

The osteological examination of the skeletal remains under study was conducted in several stages: 1) the cleaning for each individual separately with a different-size brush, wooden tools, and magnifying glass to examine the bone surfaces; 2) inventory recording for each bone or bone fragment of each individual (as present or missing); 3) photographic documentation.

2 The exploration of the tomb will continue, and more secondary burials can be expected to be found along the south and west sides of the tomb, which have not yet been cleared.

Excavation number	Position	Elevation	Burial container	Skeleton number	Primary or secondary individual
MSE1-F10-2019	E-W	46.5	pottery	6	primary
MSE1-F55-2019	E-W	46.3	pottery	8	primary
MSE1-F55-2019				7	secondary
MSE1-F68-2019	N-S	46.2	painting wooden coffin	13	primary
MSE1-F106-2019	N-S	45.5	wooden planks	14	primary
MSE1-F107-2019	N-S	45.2	/	15	primary
MSE1-F107-2019				16	secondary
MSE1-F111-2019	E-W	45.5	/	9	primary
MSE1-F111-2019				10	secondary
MSE1-F112-2019	N-S	45.6	/	17	primary
MSE1-F112-2019				18	secondary
MSE1-F112-2019				19	secondary
MSE1-F114+F119-2019	E-W	45.8	reed coffin (?)	20	primary

Sex	Age category	Age assessment	Stature mean	Pathology
NA	infant	0-1 years	/	Woven bone formation has been found on the right tibia and fibula and the left femur.
NA	infant	2-3 months	/	The left tibia shows woven bone formation on the medial surface of the shaft.
NA	adult	Above 20 years	/	/
male	adult	20-24 years	157.37	/
male	young adult	20-29 years	157.82	/
female	middle adult	35-39 years	153.12	The 3 rd and 4 th thoracic vertebrae have a healed fracture on the right articulation facets, the 2 nd lumbar vertebra has a compression fracture on the superior end-plate, and the 5 th lumbar vertebra shows a unilateral spondylolysis
male	adult	above 20 years	/	/
male	young adult	20-24 years	153.73	Healed fractures on the right-hand scaphoid and intermediate phalanges as well as coccyx; lamellar bone formation on the left femur, fibula and patella
female	adult	above 20 years	/	Slight calculus and interproximal caries on the left maxillary premolars
male?	adult	40-49 years	160.63	Both the mandible and the maxilla exhibit the antemortem loss in more than 50% of the teeth, extensive wear and enamel hypoplasia. The hip and knee joints shows osteoarthritis, while the lumbar vertebrae have osteophytes; in addition, the 1 st left metacarpal has a healed fracture
NA	adolescent	15-18	/	/
NA	young child	4-5 years	/	Traces of probably cribra orbitalia in healing in the left eye orbit
female	adolescent	12-15 years	/	Traces of active cribra orbitalia, maxillary sinusitis on right maxilla

Excavation number	Position	Elevation	Burial container	Skeleton number	Primary or secondary individual
MSE1-F122-2019				21	secondary
MSE1-F122-2019	E-W	45.2		22	primary
MSE1-F122-2019				23	secondary
MSE1-F126-2019	N-S	44.9	reed coffin	24	primary
MSE1-F130-2019		43.35		11	secondary
MSE1-F134-2019	E-W	43.5	wooden planks	12	primary

Tab. 1 An overview of the positions, burial containers, and age and sex assessments for the secondary burials from Khuwy's tomb

The material was analysed by visual examination and, where necessary, with the aid of a magnifying glass for identification purposes. This was done with no prior knowledge of associated artefacts so that the assessment remained as objective as possible. Osteological analysis was carried out to ascertain the condition of the bone present, the completeness of the skeleton, the inventory of the skeletal material, the sex, age, metric and non-metric traits, stature, skeletal pathology condition and dental pathology health (tab. 1).

As the human skeletal remains under study come from secondary burials from the debris, they include not only bones *in situ* but also scattered remains (Jasch *et al.* 2015). Therefore, the minimum-number-of-individuals (MNI) method was used with scattered materials to distinguish individuals in each archaeological context. The recording system followed the standards for data collection from human skeletal remains as defined by Buikstra and Ubelaker (1994). The metrics for sex or stature estimation were taken where possible (Bass 1995). Different for-

Sex	Age category	Age assessment	Stature mean	Pathology
male?	adult		157.04	/
male	adult	30–40 years	173.62	Dental problems including caries, periodontal attrition and enamel hypoplasia. Multiple healed traumas in different locations in the body; well-healed fractures on both the right and left ribs, the right 1 st metacarpal, the 3 rd , 4 th , 9–12 th thoracic vertebrae, and the left ilium. Other healing fractures observed in the right pelvic and the 1 st lumbar vertebrae. The two different groups of fractures indicate different timing and biomechanics. The left shoulder and knee joints had osteoarthritis. The osteoarthritis in the left shoulder joint may be related to the well-healed fractures in the ribs, thoracic vertebrae and the left pelvic.
NA	young child	1–6 years	/	/
female	middle adult	40–44 years	148.9	Osteoarthritis and osteophytes on all vertebrae, a compression fracture with fusion on the 2 nd and 3 rd lumbar vertebrae, and well-healed fractures with fusion on the distal left tibia and fibula, a well-healed fracture on the distal left radius
NA	older child	6–9 years	/	/
female	adolescent	14–16 years	/	The right temporal and occipital exhibit woven bone formation on the endocranium, which probably resulted from a non-specific infection or brain trauma; the vertebral column and ribs bear traces of both bone formation and bone loss, which are probably related to tuberculosis or neoplasm diseases.

mulas used the method recommended by Raxter and co-authors to estimate stature for both males and females. This method was developed specifically for ancient Egyptian population (Raxter *et al.* 2008). The measurements were dependent on the state of bone preservation; femur, tibia, and radius maximum length were used to estimate the stature. As for males, femur and tibia [$1.282 (fem_m + tib_m) + 59.35$], femur [$2.257 (fem_m) + 63.93$], and radius [$2.641 (rad) + 100.91$] were employed, while for females, femur and tibia [$1.313 (fem_m + tib_m) + 54.36$], and tibia [$2.699 (tib_m) + 61.08$] were utilised.

Sex was assessed according to the pelvic and skull dimorphic traits where preservation allowed. Using the standards based on Buikstra and Ubelaker (1994) nuchal crest, mastoid process, supra orbital margin, glabella, and mental eminence were assessed in the skull. Sciatic notch and pubic morphology were used in the pelvic.

Age was assessed using epiphyseal fusion (Schaefer *et al.* 2009) and dental development (Al Qahtani *et al.* 2010) where suitable for juveniles, while in adults, pubic symphysis, auricular surface were analysed according to Brookes and Suchey (1990) and Lovejoy *et al.* (1985). Although dental attrition was recorded as well, it was not used for age estimation due to a number of problems related to this technique when used for ancient populations (Brickley – Ives 2008).

THE SELECTED SECONDARY BURIAL CONTEXTS

The burial contexts under study (see the plan in fig. 1) are arranged here according to the excavation numbers. In addition, these finds have been discovered in three distinct areas of the tomb: the area to the east of the tomb near the entrance to the chapel of Khuwy's tomb, where they were placed in the debris near the ground level; the area of the chapel itself, where they were situated on top of the preserved casing blocks and in the layers above them; and the debris above the tomb, namely its central and western parts. These burial contexts thus document the gradual filling of the area of Khuwy's tomb with debris and the use of the area as a secondary burial ground.

For every burial, the text below contains information about the context of discovery, associated finds, osteological examination and pottery analysis. Some of the contexts included only human remains with no other finds, but these were often found near or in direct contact with other, dated burial contexts.

SECONDARY BURIALS ABOVE THE TOMB OF KHUWY

Three burials have been discovered above the central and western parts of Khuwy's tomb at the level of the preserved top of its core walls (the elevation of the burial contexts: 46.2–46.5 m a.s.l.). They were placed in the debris of yellow sand that contained some pottery shards, a small amount of limestone chips and very few pebbles. Two of these burials were placed in pottery vessels and one on a wooden coffin with painted decoration, all of which indicate a Late Period dating of these contexts.

EXCAV. NO. MSEI-F10-2019

This infant burial has been found in the debris above the south sector of Khuwy's tomb, to the west of the north-south room of the chapel and to the south of the false-door chamber. It was interred in a pottery jar with ovoid body and two small handles in the upper part (fig. 2a), made of Nile clay with smoothed surface, which was placed in the east-west direction with the rim to the west. Its partly broken upper part revealed the filling of pure yellow sand with some remains of ropes. Based on the vessel type, this burial can be dated to the Late Period (for parallels, see Budka 2010: 39, fig. 8, no. 571; Aston 1999: 220–221, pl. 67, fig. 1961; Aston – Aston 2010: 67, fig. 21, no. 218).

This burial context contained the remains of one individual of infant age (Skeleton 6). It was badly preserved, with only some long bones remaining from the whole skeleton. Woven bone formation has been found on the right tibia and fibula and the left femur, which may attest to a non-specific infection or the healing of soft-tissue trauma.



Fig. 2 The infant burial MSE1-F10-2019 (Skeleton 6) in a pottery burial container: a) *in situ*, b) the pottery container drawing (photo and drawing Djedkare Project, H. Vymazalová, N. Aba Yazeed)

EXCAV. NO. MSE1-F55-2019

This burial context has been found in the debris above the south sector of Khuwy’s tomb, near the south-west corner of the false-door chamber of the chapel. It contained the remains of two skeletons, one primary and one secondary. The primary context (Skeleton 8) was interred in a pottery jar placed in the east-west direction with the rim to the west. The vessel was surrounded by a small mud-brick construction on three sides (fig. 3a), which probably used to form a small tomb. The vessel itself had a bag-shape ripped body and two small handles in the upper part, and it was made of Nile C fabric with smoothed surface with a white slip

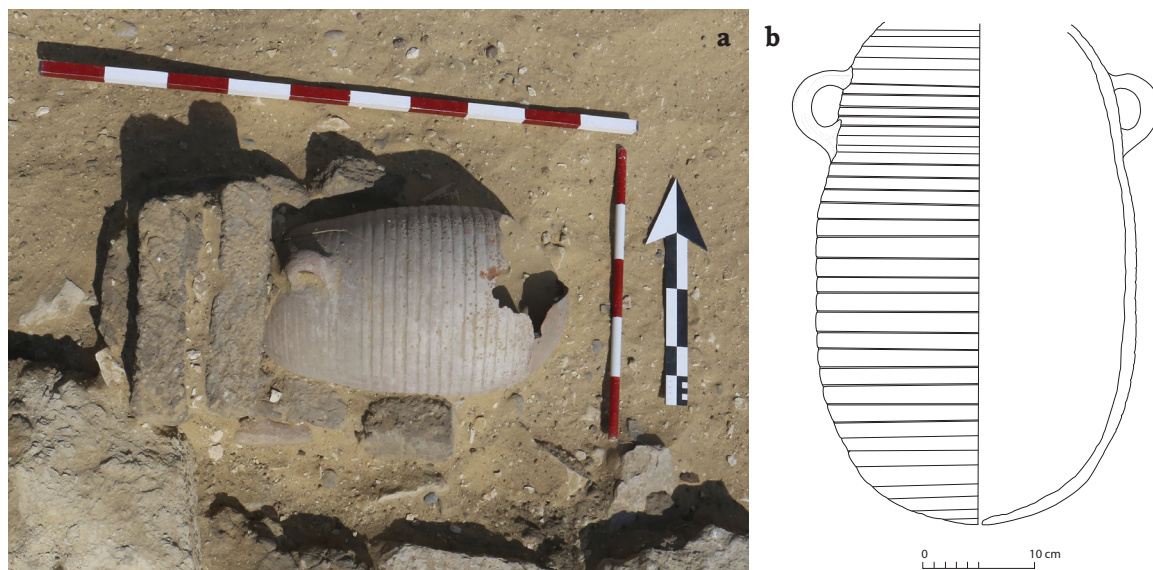


Fig. 3 The infant burial MSE1-F55-2019 (Skeleton 8) in a pottery burial container: a) *in situ*, b) the pottery container drawing (photo and drawing Djedkare Project, H. Vymazalová, N. Aba Yazeed)

on the external surface. This burial can be dated to the Saite-Persian Period (for the closest examples of pottery, see Aston – Aston 2010: 19, fig. 3, no. 60, 26, fig. 15, no. 61). The primary individual was an infant between two and three months of age. It was partly preserved, and the left tibia shows woven bone formation on the medial surface of the shaft, possibly the result of a non-specific infection or the healing of soft-tissue trauma healing.

The secondary individual (Skeleton 7) was represented by several skull fragments, one thoracic, one lumbar spinous process, two long-bone fragments and rib fragments, which were found in the debris surrounding the vessel. This was an adult of unknown sex and age.

EXCAV. NO. MSE1-F68-2019

This context has been found in the debris above the south-west sector of the tomb, to the west of the false-door chamber of the chapel. It contained only one individual (Skeleton 13), who was interred in a wooden coffin with painted decoration, placed in the north-south direction (fig. 4). The coffin is in a bad state of preservation and very fragmented, but the remains of its western (left) side show the yellow ochre background with blue, red and black designs. Among the partly preserved parts of the decoration, we can recognise two mummiform figures with the heads of a jackal and a baboon, with offering tables full of lotus flowers in front of them. A similar type of coffin decoration is attested, for example, from the New Kingdom cemetery at Saqqara (Raven 1991: pl. 17). This type of coffin indicates the Saite-Persian date of this burial.

The body of the deceased has been badly preserved. It was originally placed on the left side with its feet to the north, face to the west; only the bottom part of the body (26 percent of the skeleton) is partly preserved. The burial belonged to a young adult male between 20 and 24 years old. According to the greatest length of the right femur (41.4 cm), he was 157.37 ± 3.218 cm tall.



Fig. 4 A part of the painted coffin from the burial context MSE1-F68-2019 (photo Djedkare Project, H. Vymazalová)

SECONDARY BURIALS FROM THE CHAPEL OF THE TOMB OF KHUWY

The chapel of Khuwy's tomb contained several secondary burials, which were located in the north-south room and in the false-door room (see fig. 1, b–c). The fill of the two chapel rooms reflects different stages of the history of the tomb. The upper layer of the debris consisted of yellow sand with addition of limestone chips, and a small quantity of pebbles, with a rather low number of pottery fragments, and it also contained some fragments of relief decoration from the walls of the chapel (the elevation of the burial contexts: 45.2–45.8 m a.s.l.). The character of the debris in the upper part of the chapel corresponds to the debris above the tomb; therefore, it can probably be dated to the Late Period. The lower elevation of these contexts (see tab. 1) indicates that the area of the chapel was not entirely filled in that period.

EXCAV. NO. MSE1-F106-2019

This context has been found above the casing blocks of the west wall of the north-south room of the chapel, along the core masonry. It contained one primary individual (Skeleton 14) who was extended on the back in the north-south direction, with the head to the south (the skull was missing). The arms were placed along the body and hands on the pelvis. Two wooden planks were placed along the east side of the deceased. Around the bones, it was possible to notice traces of reeds. The burial was of a young adult male between 20 and 29 years old. According to the greatest length of the right femur (41.6 cm), he was 157.82 ± 3.218 cm tall.

EXCAV. NO. MSE1-F107-2019

This context has been found on the casing blocks of the west wall of the north-south room of the chapel, placed along the core masonry, partly under MSE1-F106-2019 and next to MSE1-F112-2019 (fig. 5). It contained the remains of two individuals, one primary and one secondary.

The primary individual (Skeleton 15) was placed in an extended position in the almost north-south direction, slightly leaning to the left side (to the west). The feet were to the north, the skull was missing. The bones were covered with black textiles. The burial was of a middle-adult female between 35 and 39 years old, who was 153.12 ± 1.921 cm tall according to the greatest length of the right tibia (34.1 cm). Her vertebral column shows some pathologies: the 3rd and 4th thoracic vertebrae have a healed fracture on the right articulation facets, the 2nd lumbar vertebra has a compression fracture on the superior end-plate, and the 5th lumbar vertebra shows a unilateral spondylolysis (stress fracture).

The secondary individual (Skeleton 16) was represented by the left fibula and five proximal foot phalanges, which probably belonged to an adult male.

EXCAV. NO. MSE1-F111-2019

This burial context has been found in the debris above the south-east sector of Khuwy's tomb, in the false-door room of the chapel. It contained the remains of two skeletons, one primary and one secondary.



Fig. 5 The burial contexts MSE1-F106-2019 and MSE1-F112-2019 *in situ*, placed next to each other on top of the casing blocks of the chapel (photo Djedkare Project, M. Megahed)

The primary individual (Skeleton 9) was placed in an almost east-west direction with the head to the east, on the right side, with the face to the north, arms in front of the belly, and legs slightly contracted. Several larger fragments of pottery vessels have been found around this burial; their Fifth Dynasty date, however, indicates that these fragments were probably not related to the burial itself. The primary individual was a young-adult male between 20 and 24 years old. According to the greatest length of the right radius (20 cm), he was 153.73 ± 3.731 cm tall. His lower limbs and skull are completely missing. Healed fractures have been observed on the right-hand scaphoid and intermediate phalanges as well as coccyx; lamellar bone formation has been found on the left femur, fibula and patella.

The remains of the secondary individual (Skeleton 10) have been found near the feet of the primary individual. It was represented by an incomplete skull (without mandible), belonging to an adult female. Slight calculus and interproximal caries have been found on the left maxillary premolars.

EXCAV. NO. MSE1-F112-2019

This context has been found by the west wall of the north-south room of the chapel, placed along the core masonry and along the east side of the burial MSE1-F106-2019. It contained the remains of three individuals, one primary and two secondary.

The primary individual (Skeleton 17) was extended on the back in the north-south direction, with the fragmented skull to the north. The left arm was placed along the body, the hand on the pelvis, the right arm under the body, and the legs next to each other.

The primary individual was a middle-adult male between 40 and 49 years old. According to the greatest lengths of both the right tibia and femur (36.9 and 42.1 cm respectively), he



Fig. 6 The superior view of the proximal epiphysis of both the right and left tibias of the burial context MSE1-F112-2019 (Skeleton 17), showing osteoarthritis in the lateral femorotibial joint (photo Djedkare Project, A. Gabr)

was 160.63 ± 2.851 cm tall. Both the mandible and the maxilla exhibit the antemortem loss in more than 50% of the teeth, in addition to extensive wear and enamel hypoplasia. The hip and knee joints show osteoarthritis (fig. 6), while the lumbar vertebrae have osteophytes; in addition, the 1st left metacarpal has a healed fracture.

Several bones of the secondary individuals were included in this context. The secondary remains of an adolescent between 15 and 18 years old (Skeleton 18) were represented by the right radius, the right hand, the manubrium fragment and the left 5th metacarpal.

The other secondary individual (Skeleton 19) included a few skull fragments and the left side of the mandible, which belonged to a young child between 4 and 5 years old. The left eye orbit shows traces of probably cribra orbitalia in healing.

EXCAV. NO. MSE1-F114+119-2019

This burial context has been found in the debris in the south-west part of the false-door room of the chapel, ca. 30 cm below the top of the west core wall. It contains the remains of one individual (Skeleton 20), who was placed extended on the back in the east-west direction, with the head to the east. Only fragments of the skull and the bottom part of the body have been preserved. The hands were placed on the pelvis.

This individual was an adolescent female between 12 and 15 years old. Traces of active cribra orbitalia have been found in the eye sockets, and maxillary sinusitis has been identified on the right maxilla.

The lower part of the chapel, on the other hand, was filled with the debris of brown sand with many pebbles and limestone chips, but very few pottery fragments. This layer was 0.5–1.5 m

thick in the south to north parts of the chapel. This debris corresponds in character to the debris in which the secondary burials were placed in the area to the east of the tomb in front of the entrance to the chapel (see below). Therefore, the burials in this group probably date to the same period.

EXCAV. NO. MSE1-F122-2019

This burial context has been found along the north core wall of the false-door room of the chapel, placed on top of the casing blocks. It contains the remains of three individuals, one primary and two secondary. The primary individual (Skeleton 22) was placed on top of the preserved casing block of the north wall of the chapel extended on the back in the east-west direction, with the head to the west. The skull is missing, and so are the right arm and the feet; *ca.* 70% of the skeleton is preserved. The legs were crossed, with the left calf on top of the right shin.

This burial belonged to a middle-adult male between 30 and 40 years old who was 173.62 ± 3.218 cm tall according to the greatest length of the left femur (48.6 cm). He suffered from various dental diseases, including caries, periodontal attrition and enamel hypoplasia, and his bones reveal that he suffered from osteoarthritis on his left shoulder and knee joints as a consequence of biomechanical stress caused by repetitive workload and trauma (Aufderheide – Rodriguez-Martin 1998).

In addition, his bones reveal multiple healed traumas in different locations in the body, which reflect two different sets of injuries in both timing and biomechanics. Since the first set of traumas in the left scapula, ribs, thoracic vertebrae, right hand, and right pelvic bone were well healed, these injuries must have happened in the earlier part of the life of the individual. They were a result of a fall from height. In addition, the fractures of thoracic vertebrae can be a consequence of carrying a heavy load. The second set of traumas was noticed in the 1st lumbar vertebrae and the right pelvic girdle, and they show no traces of the remodelling

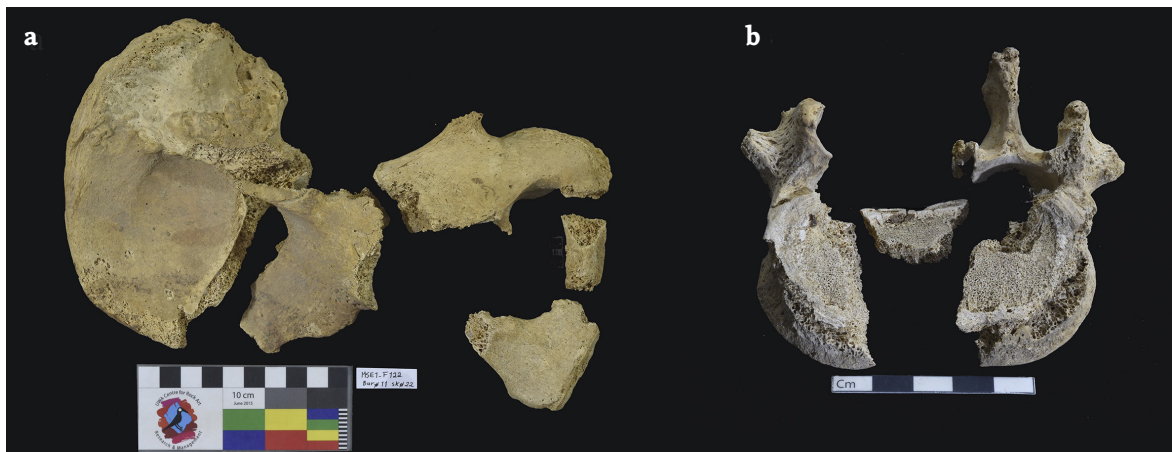


Fig. 7 Parts of the burial context MSE1-F122-2019 (Skeleton 22) showing: a) the multiple unhealed fractures on the right pelvic bone and b) the compression fracture on the 1st lumbar vertebra (photo Djedkare Project, A. Gabr)

of the woven bone formation (fig. 7). This feature indicates that the injuries happened shortly before death, as it takes at least three weeks for the woven bone formation to form (Aufderheide – Rodriguez-Martin 1998). The second injury may thus have been the cause of death.

The remains of the first secondary individual (Skeleton 21) is represented by several long bones of the legs and an arm, and a few rib fragments. These bones probably belonged to an adult male who was 157.04 ± 2.851 cm tall according to the greatest lengths of both the left tibia and femur (34.7 and 41.5 cm respectively).³

The other secondary individual (Skeleton 23) is represented by two parietal fragments that belonged to a young child between one and six years old.

The bottom part of the debris consists of brown sand with many limestone chips and some pebbles (the elevation of the burial context: 44.9 m a.s.l.), which most likely indicates a slightly earlier date of this burial. The character of the debris corresponds to finds of the New Kingdom burial contexts (for comparison, see below).

EXCAV. NO. MSE1-F126-2019

This context has been found in the north-west part of the false-door room of the chapel of Khwy's tomb, to the west of the burial MSE1-F122-2019, at a ca. 30-cm-deeper level. It contained one individual (Skeleton 24) placed in an extended position on the belly in the north-south direction with the head to the south and the face down. The left arm was along the body with the hand under the pelvis, while the right arm was under the body. The lower parts of the legs, which were next to each other, were placed between the casing block of the north wall of the chapel. Many of the bones show dark tissue, and traces of a reed coffin and a mat or a basket have been documented around the bones and above them.



Fig. 8 Parts of the burial context MSE1-F126-2019 (Skeleton 24) showing: a) the compression fracture with fusion on the 2nd and 3rd lumbar vertebrae and b) the well-healed fracture with fusion on the distal left tibia and fibula (photo Djedkare Project, A. Gabr)

³ It is possible that some of these bones belonged to another burial context found in 2020, which had been placed in a cavity within the core masonry just next to MSE1-F122-2019 (Excav. No. MSE1-F398-2020). This context has not yet been examined by the anthropologists.

The individual was a middle-adult female between 40 and 44 years old and 148.9 ±1.968 cm tall according to the greatest lengths of both the right tibia and femur (32.8 and 39.2 cm respectively). Various pathological lesions have been observed on the bones, including osteoarthritis and osteophytes on all vertebrae, and a compression fracture with fusion on the 2nd and 3rd lumbar vertebrae, which indicate workload stress. The well-healed fractures with fusion on the distal left tibia and fibula and the well-healed fracture observed on the distal left radius were probably a result of a fall-related injury (figs. 8a-b).

SECONDARY BURIALS FROM THE AREA TO THE EAST OF KHUWY'S TOMB

These burials were placed by the mud-brick installation that runs in the north-south direction along the east wall of Khuwy's tomb. This installation has not been exposed, and only its western face is uncovered. Several secondary burials have been documented in this area near the entrance to Khuwy's chapel (see fig. 1), placed at the bottom level of the debris consisting of brown sand with pebbles and limestone chips, and some pottery fragments. Based on the associated finds, these burials date to the New Kingdom period.

EXCAV. NO. MSE1-F130-2019

This context has been found in the area to the east of the tomb of Khuwy, near the mud-brick installation that runs along its east wall, and close to the burial context Excav. No. MSE1-F134-2019 (see below). This context contains only secondary skeletal remains (Skeleton 11), represented by skull bones, a fragment of the right scapula, three thoracic vertebrae, right rib fragments and the right ilium. The remains belonged to an old child between six and nine years old. These bones were accompanied by pottery fragments, a pottery vessel, a cosmetic jar and beads (fig. 9). The beads were made of faience and red stone; they include blue and white thin disk beads, dark-blue and red ball-shaped beads, dark-blue beads in the shape of deities and light-blue seal amulets with flat bottoms bearing incised decoration. One has the shape of a hedgehog and bears the inscription *Imn-R^c* between two *nb*-signs on the bottom (for a parallel, see for example Vymazalová – Hashesh 2019: 81; Sowada 1999: 56, pl. 13, 37 TNE94:95), while another one has an oval shape and its bottom bears the name *Nb-M3^ct-R^c* (Amenhotep III).

The cosmetic palm-column flask made of calcite has a long cylindrical body, a flat base and nine rounded leaves at the rim. It contains the rest of a wooden kohl-stick. Such types of flasks date to the Eighteenth and Nineteenth Dynasties; examples can be found, for instance, at the Teti cemetery at Saqqara as well as other sites (Sowada 1999: 42, TNE94:5 B-C, pl. 5; Brovarski *et al.* 1982: 166, no. 182, 183).

The complete pottery juglet found in this context was wheel-made with a red slipped and burnished outer surface; this type of vessels can be dated to the Nineteenth Dynasty (Rose 2007: 267, pls. MD).

The finds help us to date this context to the New Kingdom, according to the pottery vessels probably to the Nineteenth Dynasty.

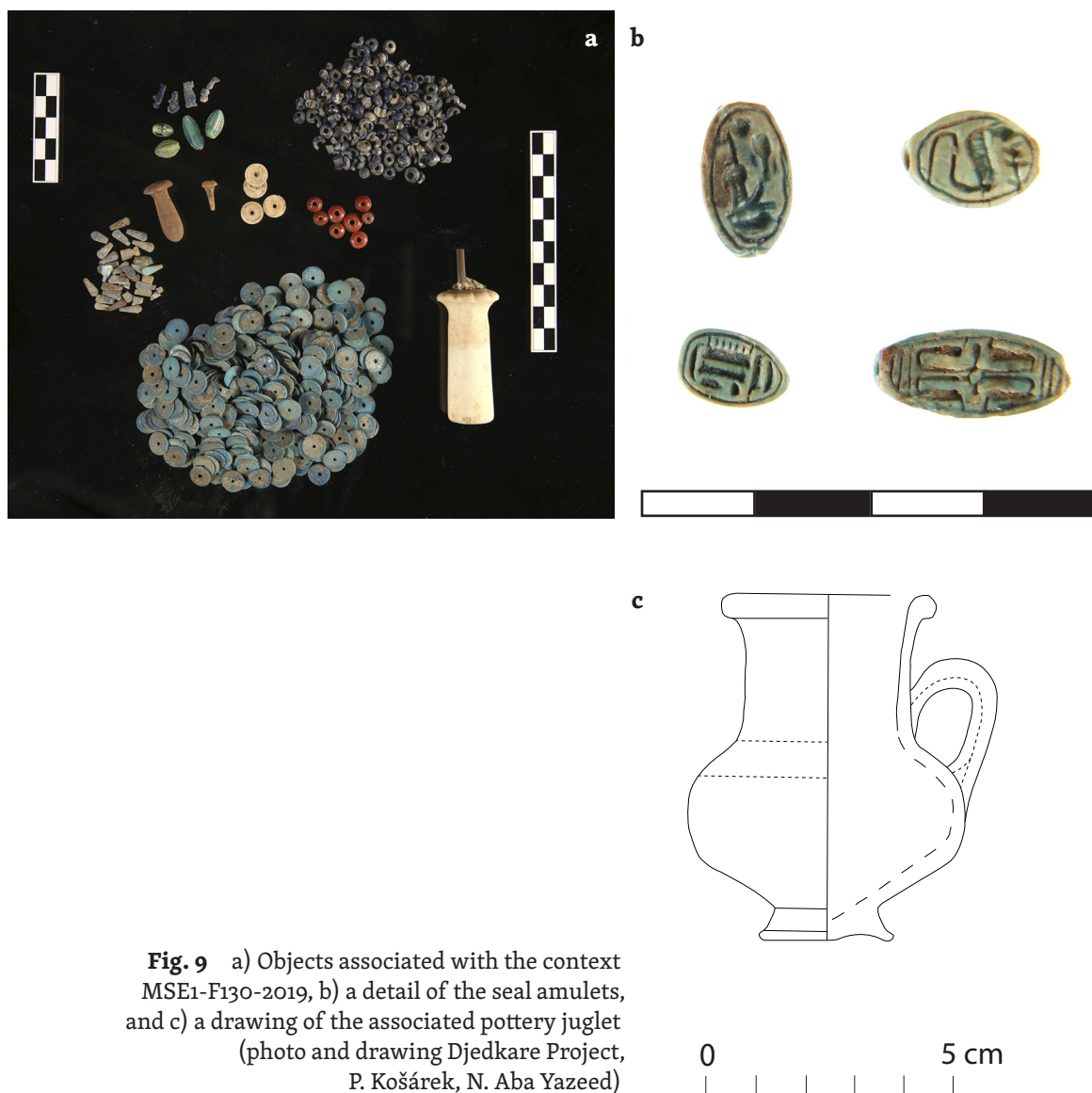


Fig. 9 a) Objects associated with the context MSE1-F130-2019, b) a detail of the seal amulets, and c) a drawing of the associated pottery juglet (photo and drawing Djedkare Project, P. Košárek, N. Aba Yazeed)

EXCAV. NO. MSE1-F134-2019

The burial context has been found in the area to the east of Khuwy's tomb in a 70-cm-deep pit hewn in the mud-brick installation that runs along the east wall of Khuwy's tomb. The burial context contains only one individual (Skeleton 12). The body was placed extended on the back in the east-west direction, with the fragmented skull to the west. The arms were along the body and the hands on the pelvis. The legs were placed next to each other, but the feet have not been well preserved. The bottom part of the burial was covered with a plank of wood, and some wooden nails found by the skull indicate that the wood probably came from a coffin, which has not survived. A silver ring has been found on the index finger (?) of the left hand of the deceased, and a rectangular red-stone amulet has been found next to it. The ring is decorated

with an incised design of a Hathor-headed sistrum and two outward-facing *uraei* (fig. 10; for a parallel, see Sowada 1999: 57, pl. 15, 38 TNE95:167, made of carnelian).

The burial belongs to an adolescent female between 14 and 16 years old. The right temporal and occipital exhibit woven bone formation on the endocranium, which probably resulted from a non-specific infection or brain trauma. In addition, also the vertebral column and ribs bear traces of both bone formation and bone loss, which are probably related to tuberculosis or neoplasm diseases.

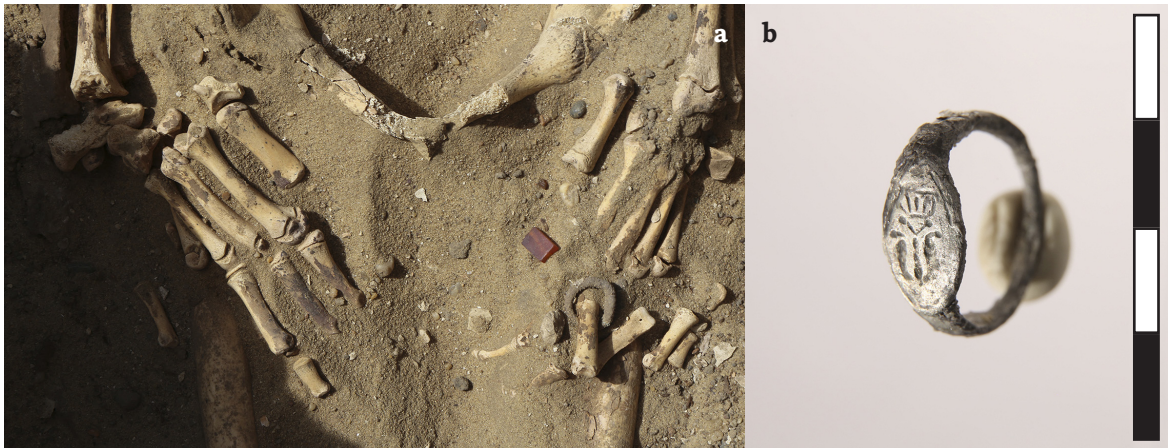


Fig. 10 The silver ring with a Hathor-headed sistrum from the hand of the burial MS1-F134-2019 (photos Djedkare Project, H. Vymazalová, P. Košárek)

CONCLUSION

The group of secondary burials under discussion comes from the area of the tomb of Khuwy, which is situated in the north-east part of Djedkare's royal cemetery at South Saqqara (Megaheed – Vymazalová 2019). This paper has discussed twelve of the 48 contexts with human remains documented in and around Khuwy's tomb. The examined group does not constitute a representative sample of all the secondary burials from Khuwy's tombs, but rather the first group examined. This group includes burials that were associated with dateable objects, mostly pottery, but also the remains of a wooden coffin and some small objects. Other burials in this group had no such finds associated with the human remains, but their location in the tomb, the character of the surrounding debris as well as their position relative to the burials with the objects can also be regarded as indicative.

The upper levels of Khuwy's tomb contained three burials associated with objects, namely two infant burials in pottery vessels and one burial in a painted wooden coffin of Late Period date. The burials to the east of Khuwy's tomb are associated with pottery, beads, a cosmetic vessel and a ring, which can all be dated to the New Kingdom. In the chapel of Khuwy's tomb, we can find burials in two types of debris, which seem to correspond to the two above-mentioned time periods; these burials can thus be probably dated between the New Kingdom and the Late Period.

The pottery finds associated with the secondary burials in Khuwy's tomb include two large jars serving as burial containers for infants (MSE1-F10-2019, MSE1-F55-2019) and pottery vessels representing burial gifts (MSE1-F130-2019).

The osteological examination of the burial contexts under discussion has revealed that besides the eleven primary individuals, these burials also contained eight secondary individuals, whose bones were mixed with the surrounding debris (see the overview in tab. 1). Of the primary individuals in these burial contexts, two individuals were infants (MSE1-F10-2019, MSE1-F55-2019), two were adolescents (MSE1-F114+119-2019, MSE1-F134-2019), and seven were adults (MSE1-F68-2019, MSE1-F106-2019, MSE1-F107-2019, MSE1-F111-2019, MSE1-F112-2019, MSE1-F122-2019 and MSE1-F126-2019). Among the adolescents and adults whose sex could be determined, five were males (MSE1-F68-2019, MSE1-F106-2019, MSE1-F111-2019, MSE1-F112-2019, MSE1-F122-2019) and four were females (MSE1-F107-2019, MSE1-F114+119-2019, MSE1-F126-2019, MSE1-F134-2019).

Among the secondary individuals, often represented by only a few bones, the age and sex assessment was not always possible. Of the eight secondary individuals, three were children (MSE1-F112-2019 Skeleton 19, MSE1-F122-2019 Skeleton 23, MSE1-F130-2019 Skeleton 11), one was adolescent (MSE1-F112-2019 Skeleton 18) and four were adults, including two males (MSE1-F107-2019 Skeleton 16, and MSE1-F122-2019 Skeleton 21) and one female (MSE1-F111-2019 Skeleton 10); the sex of the last individual could not be determined.

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