

Ancient Egyptian skulls from Thebes in the Anthropological Collection of the Natural History Museum of Paris. I. Skulls from el-Assasif

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Abstract – Nineteen skulls from el-Assasif, part of the necropolis of ancient Thebes, Egypt were examined from the anthropological collection of Musée de l’Homme in Paris. The skulls were gathered by Auguste Mariette and Prisse d’Avennes in the 19th century and are dated to the XVIIIth and XXIIInd Dynasties. Individual craniometric data and indices are presented. The sample contains 4 infant and 2 juvenile crania, women mostly died in adultus, men in maturus age. In the taxonomic examination morphological and cluster analysis show that out of 6 male crania 5 exhibit similarities with samples of Nubian origin, and one cranium has Europid characteristics. High occurrence of accessory sutures indicates periods of starvation. Pathological phenomena as traumatic injuries, cribra orbitalia, porotic hyperostosis, parietal osteodystrophy and a case with multiple cranial osteolytic lesions are described. The lamina cribrosa and/or the foramen magnum were broken only in a small portion of the cases marking the procedures of mummification. The low number of cases and the unrepresentative nature of the sample do not allow comprehensive conclusions, although the published data can contribute to the establishment of the demography and to the assessment of health conditions of the population represented in the necropolis of ancient Thebes. With 13 figures and 11 tables.

Keywords – Assasif, craniometrics, Egypt, Mariette, palaeopathology, Prisse d’Avennes, skull, Thebes

“Je n’ai pas le bonheur d’être égyptologue; mais l’origine de cette civilisation égyptienne, qui nous étonne encore après tant de siècles, m’a bien des fois préoccupé”

PAUL BROCA (1861)

INTRODUCTION

The anthropological collection of the Musée de l’Homme belonging to the Muséum national d’Histoire naturelle in Paris, France contains approximately 150 human skulls from the necropolis of ancient Thebes, which is situated on the West bank of modern Luxor in Egypt. According to the documentation of the collection, the skulls originate from different regions of the necropolis, from el-

Assasif, Dra' Abu el-Naga, Deir el-Bahari, Sheikh Abd el-Qurna, Deir el-Medine, Qurnet Murai, Medinet Habu and a portion of the skulls is unspecifically localised to Qurna or Thebes (Fig. 1). The present article is intended to be the first element of a series of anthropological studies analysing these crania arranged by their site of provenance.

The ancient Theban skull repertory of the Musée de l'Homme was collected in the 19th century. This characteristic of the examined anthropological material poses several problems that have to be considered when evaluating the results of the anthropological analysis. The reliability of the dating of the skulls to an exact historical period documented in the catalogue of the collection is questionable. The archaeological characteristics of the Theban necropolis hardly allow precise dating of human remains: closed, intact archaeological contexts suitable for credible dating are very rare due to the multiple reuse of tombs in sequential historical periods. Ancient and modern plundering of the cemetery also disturbed the archaeological context in great extent. Additionally the methodology of 19th century archaeology in Egypt does not fulfil the requirements of modern scientific standards. Besides chronological problems the representativeness of the museum collection also has to be taken into account: during the excavations the skulls were not collected with the aim of a systematic anthropological survey, the choice of the cra-

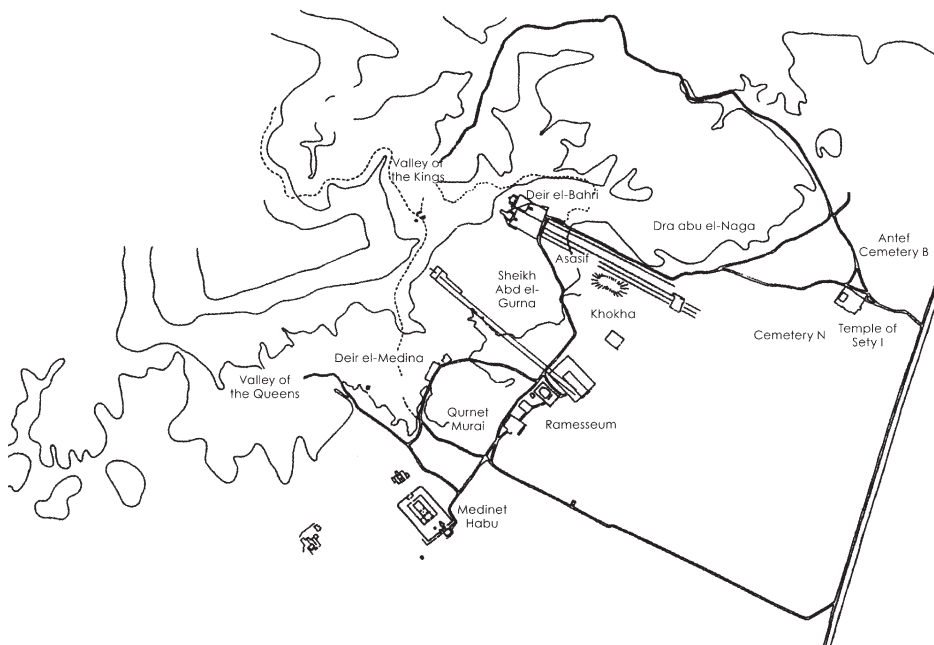


Fig. 1. Schematic topography of the Theban necropolis (after ASTON 2003: Fig. 3)

nia is probably merely incidental and taphonomical features of the human remains could also influence the sampling i. e. well preserved skulls were most likely chosen.

Abbreviations – A. D. = anno domini, after Christ; B. C. = before Christ; cit. = cited by; d = diameter; f. = feminine; fig. = figure; Fr. = French; inv. no. = inventory number; l. d. = lateris dextri, right side; l. s. = lateris sinistri, left side; M = mean; M. = monsieur, mister; N = number of cases; No. = number; n. = noun; p. = page; S. D. = standard deviation; TT = Theban Tomb; Vmax = maximum value; Vmin = minimum value.

MATERIAL

Nineteen skulls from el-Assasif were examined. The crania are well-preserved, in most of the cases the mandible is also available (Table 1). Acquisition data of the skulls from el-Assasif documented in the catalogue of the Anthropological Collection of the Musée de l'Homme are shown in Table 2.

Table 1. State of preservation of crania

Inventory number	Calvarium	Mandible
2326	complete	fractured
2328	fractured	complete
2332	complete	complete
7356	complete	complete
7357	complete	complete
7358	complete	complete
7359	complete	complete
7360	complete	complete
7361	complete	complete
7362	complete	missing
7383	complete	complete
7389	complete	missing
7390	complete	complete
7413	complete	complete
7414	complete	complete
7415	complete	complete
7416	complete	missing
17943	complete	missing
22812	fractured	complete

Table 2. Acquisition data of skulls of el-Assasif

Inventory number	Inventory number of A. Mariette	Additional notes on the skull	Dating	Collector
2326			“The last period of the Egyptian monarchy”	É. Prisse d’Avennes
2328				É. Prisse d’Avennes
2332			XVIIIth Dynasty (1550–1295 B. C.)	É. Prisse d’Avennes
7356	No 367	1867 16	XVIIIth Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7357	No 368	1867 16	XVIIIth Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7358	No 369	1867 16	XVIIIth Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7359	No 370	1867 16	XVIIIth Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7360	No 371	1867 16	XVIIIth Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7361	No 372	1867 16	XVIIIth Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7362	No 373	1867 16	XVIIIth Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7383	No 394	1867 16	XXIIInd Dynasty (945–715 B. C.)	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7389	No 400	1867 16	XXIIInd Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7390	No 401 ? (illegible digits)	1867 16	XXIIInd Dynasty	A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7413	No 424	1867 16; 28 novembre 1867		A. Mariette; donation of Ismail Pasha, Khedive of Egypt

Table 2 (continued)

Inventory number	Inventory number of A. Mariette	Additional notes on the skull	Dating	Collector
7414	No 425	1867 16		A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7415	No 426	1867 16		A. Mariette; donation of Ismail Pasha, Khedive of Egypt
7416	No 427	1867 16		A. Mariette; donation of Ismail Pasha, Khedive of Egypt
17943		1910 26		Vve Demarcay (Vve = veuve n., f., / Fr./ - widow)
22812	illegible	29 novembre 1867; 1953–39		A. Mariette; donation of Ismail Pasha, Khedive of Egypt

As it is indicated in Table 2, crania from el-Assasif originate from the collections of Auguste Mariette and Prisse d'Avennes.

Auguste Mariette (1821–1881), a French Egyptologist, who was appointed as director of the Egyptian Antiquities Service in 1858 by Said Pasha, the Ottoman viceroy of Egypt, orchestrated several archaeological excavations throughout Egypt from Giza to Elephantine including the Theban necropolis (VERCOUTTER 1986: 100–111). At his extensive excavations Mariette employed local *reises* (supervisor of workmen), European adventurers and amateur archaeologists as overseers of field-work, whose working methods and accuracy of documentation do not comply with the demands of modern archaeology (RAVEN 1991, REID 2002: 101). Mariette also showed a preference for accomplishing representative functions, he was responsible for the presentation of Egypt on the *exposition universelle* organised by Napoleon III in Paris in 1867 where he accompanied Ismail Pasha, Khedive (viceroy) of Egypt, successor of Said Pasha (REID 2002: 128). Théophile Gautier, the French writer who visited the world's fair, reports that besides observing an unwrapping of a mummy, he saw an exhibition of several hundred skulls removed from ancient Egyptian mummies in an anthropological museum set up in one of the Egyptian pavilions on *Champ-de-Mars* (GAUTIER 1882: 98–99). Mariette in his guidebook of the three Egyptian pavilions of the

Egyptian park provides a detailed description about the room of anthropology: he mentions 500 Egyptian mummy skulls arranged by chronological order and by provenance and six bandaged mummies in their sarcophagi (MARIETTE 1867: V–VI, 95, 99). The anthropological room was not freely accessible, special permission was necessary from the secretary-general of the *Société d'Anthropologie de Paris*, who was at that time Paul Broca, the neuroanatomist, definer of the Broca's area (BROCA 1866, MARIETTE 1867: 99). Paul Broca, on the seance of 4 October 1866 of the *Société d'Anthropologie*, when he announced that the Anthropological Society was commissioned by the Egyptian authorities to organise an Egyptian craniological exhibition in the world's fair of the following year, specifies that the skulls for the exposition will be provided by Auguste Mariette, who possesses 250 crania, but who promised to augment the number of skulls to 500 by making mummy heads collected in hypogea (BROCA 1866). The date 1867 marked on skulls from the collection of Mariette (Table 2) probably indicates that the mummy heads were donated to France by Ismail Pasha for the occasion of the universal exhibition of 1867.

Prisse d'Avennes (1807–1879) the French counterpart of David Roberts, was an engineer-architect and artist, who devoted his life to draw and record the ancient and islamic monuments of Egypt (BLOTTIÈRE 1991, DAWSON & UPHILL 1995: 343–344). He spent several years in Luxor, once between 1839–1844 when he found accommodation in one of the rear rooms of the temple of Karnak and in the tomb of Ahmose (TT 83) on the west bank; later, in 1860 he conducted archaeological excavations in Medinet Habu with the permission of Auguste Mariette (RAVEN 1991). The Musée de l'Homme possesses a letter of Prisse d'Avennes which he wrote to Monsieur de Quatrefages, head of the Department of Anthropology and Ethnology of the Muséum national d'Histoire naturelle in Paris, one month after he finally left Egypt for France in June 1860 (RAVEN 1991). In his letter (Fig. 2) he offers his collection of 29 Egyptian skulls with an annexed catalogue to M. de Quatrefages, and assures him that for the sake of scientific comparison he will put at his disposal his drawings portraying ancient Egyptians copied from historic monuments, as soon as he will have finished putting his plates in order for his album. The complete letter is disclosed below:

Paris, 10 Juillet 1860.

Monsieur,

Je m'empresse de vous adresser le catalogue des crânes contenus dans la caisse confiée dernièrement aux soins du Consul général de France en Egypte, pour vous être expédiés au Muséum.

Cette récolte n'est pas aussi abondante que je l'espérais. D'abord parce que les hypogées commencent à s'épuiser, puis parce que la plupart des momies sont mutilées, détruites ou tellement brûlées par la préparation que les crânes se disloquent aussitôt qu'on les enlève des bandelettes qui les contiennent. A Thèbes, un gouverneur de la province, irrité des profanations qui se commettaient journellement, a fait réunir un grand nombre de momies et a fait mettre le feu à tous ces débris humains qu'on fouillait sans respect; La grotte de Samoûn [located at modern Al Maabdah, North of Assyut] elle même, ce vaste charnier de l'heptanomide, est tellement ravagée par les Touristes qu'on a peine aujourd'hui à y trouver quelques pièces intactes et que je n'ai pu en rapporter qu'une seule tête;

J'ai commencé dans la nécropole de Memphis une collection de têtes contemporaines des Pyramides. Un de mes amis, employé aux fouilles du Pacha m'a promis de compléter cette caisse et de me l'expédier aussitôt.

Dès que j'aurai mis mes papiers en ordre, je m'empresserai, Monsieur, de vous porter quelques estampages pris sur des monuments de diverses époques; Ils vous permettront de comparer les têtes de momies avec les représentations figurées et de vous former une idée complète de la Race qui a civilisé la vallée d'Égypte.

Tout ce qu'on a écrit sur ce sujet laisse encore beaucoup à désirer, surtout sous le rapport de la représentation des types sculptés ou peints sur les édifices qui ont toujours été très mal reproduits.

Puis, on n'a guère mis à contribution que les monuments du nouveau royaume, tandis que pour avoir des renseignements précis, il aurait fallu puiser aux sources primitives, aux monuments des premières dynasties. Quand vous vous occuperez de la race égyptienne, je mettrai à votre disposition des dessins, des calques et des estampages dont je ne puis me départir avant d'avoir réglé l'ordonnance des planches de mon livre sur l'art égyptien.

Pardonnez-moi Monsieur de n'avoir pu faire davantage pour vos recherches auxquelles personne ne s'intéresse plus que moi, et veuillez agréer l'assurance de ma considération la plus distinguée.

*Prisse D'Avennes
(23, rue Mayer)*

Museum d'Histoire Naturelle

Caisse contenant 20 crânes recueillis en Égypte, par Prisse D'Avennes.

N° 1 – Crâne d'un Nègre du Soudan, mort à l'hôpital du Caire. Complet.

N° 2 – Crâne d'un Arabe de la Haute Égypte (Syout). Complet.

N° 3 – Crâne d'une hypogée de Sakkara de la 4° à la 6° dynastie.

N° 4 – Quatre têtes de momies de femmes provenant de la nécropole de Thèbes. Époque incertaine.

Labo Anthrop.
Inv. n° 2312 sqq.

Paris, 10 Fevrier 1860. Courrier 18

Monsieur,

Je m'empresse de vous adresser le catalogue des crânes contenus dans la caisse confiée au vicarier aux soins du Consul général de France en Egypte, je vous prie d'être expédier au Muséum.

Cette recolle n'est pas aussi abondante que j'espérais, d'abord parce que les voyageurs commencent à s'épuiser, puis parce que la plupart des momies sont mutilées, détruites ou tellement brûlées par la préparation que les crânes se disloquent au point qu'on retire les bandellettes qui les contiennent. A Elcheh, un quinquennaire de la province, irrité des profanations qui se commettent journellement, a fait réunir un grand nombre de momies et a fait mettre le feu à tous ces débris humains qu'on foulait sans respect. La grotte de Sâmour elle-même, ce vaste charnier de l'Égypte, est tellement ravagée par les Couverts qu'on a peine aujourd'hui à y trouver quelque chose intact (ce que je n'ai pu en rapporter qu'une seule tête).

J'ai commencé dans la nécropole de Memphis une collection de têtes contemporaines des Pyramides. On de mes amis, employé aux fouilles du Taché, m'a promis de compléter cette caisse & de me l'expédier au point.

Dès que j'aurai mis mes papiers en ordre, j'empresse, Monsieur, de vous porter quelques estampages pris sur des monuments de diverses époques.

A Monsieur De Quatrefages, professeur au Muséum &c.

Fig. 2. Copy of the original letter of Prisse d'Avignes to M. de Quatrefages. Pages 1 and 3 (catalogue of crania). Document inv. no. 2312 sqq. labo anthrop. courrier 1860, référence: B.L. Prisse 1, Musée de l'Homme, Muséum national d'Histoire naturelle

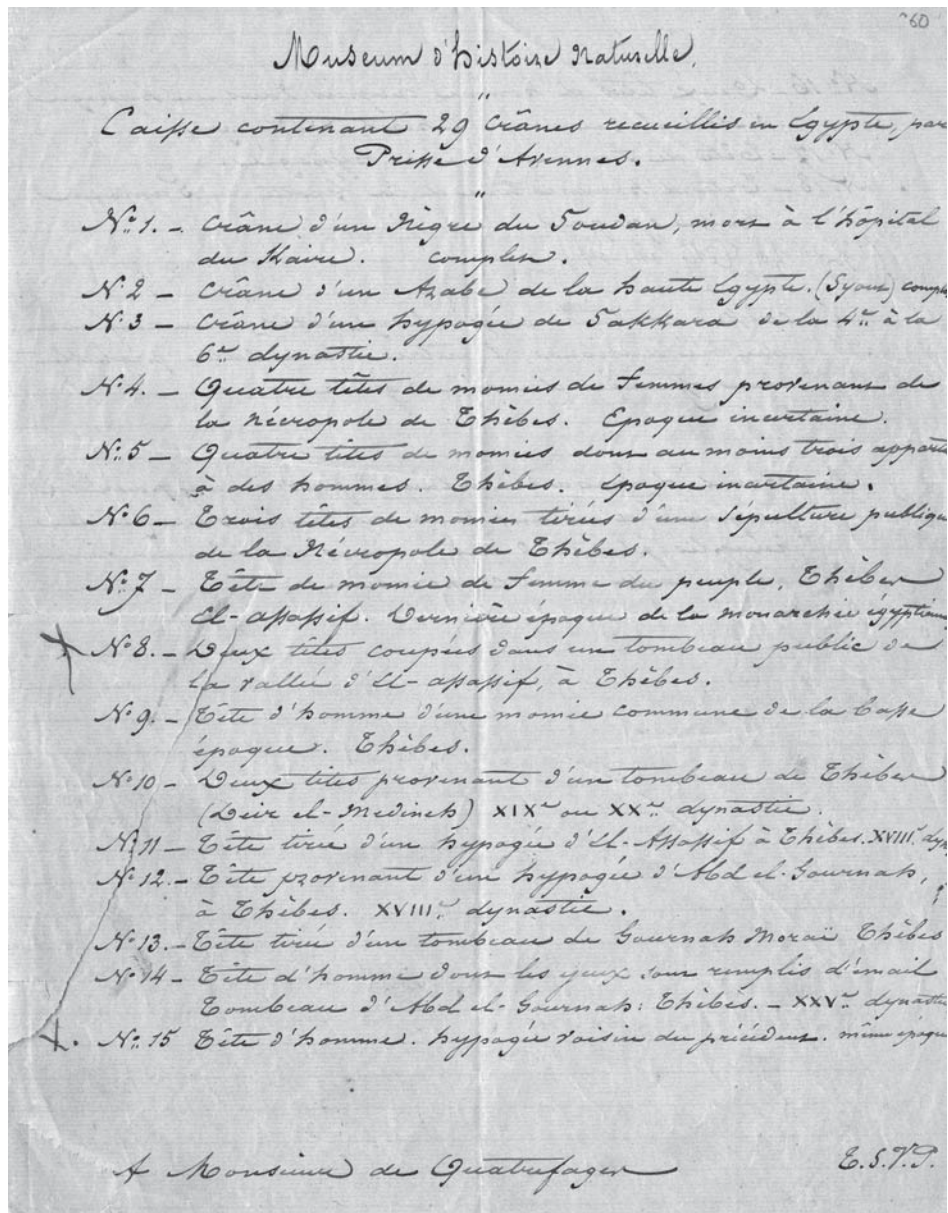


Fig. 2. (continued)

N° 5 – *Quatre têtes de momies dont au moins trois appartenant à des hommes. Thèbes. Époque incertaine.*

N° 6 – *Trois têtes de momies tirées d'une sépulture publique de la nécropole de Thèbes.*

N° 7 – *Tête de momie de femme du peuple. Thèbes – El Assasif. Dernière époque de la monarchie égyptienne.*

N° 8 – *Deux têtes coupées dans un tombeau public de la vallée d'El Assasif à Thèbes.*

N° 9 – *Tête d'hommes d'une momie commune de la Basse Époque. Thèbes.*

N° 10 – *Deux têtes provenant d'un tombeau de Thèbes (Deir El Medineh), XIX° ou XX° dynastie.*

N° 11 – *Tête tirée d'une hypogée d'El Assasif à Thèbes. XVIII° dynastie.*

N° 12 – *Tête provenant d'une hypogée d'Abd el Gournah, à Thèbes. XVIII° dynastie.*

N° 13 – *Tête tirée d'un tombeau de Gournah Moraï, Thèbes.*

N° 14 – *Tête d'homme dont les yeux sont remplis d'émail. Tombeau d'Abd el Gournah; Thèbes. – XXV° dynastie.*

N° 15 – *Tête d'homme. Hypogée voisin du précédent. Même époque.*

N° 16 – *Deux têtes d'homme coupées dans un hypogée d'Abd el Gournah. Thèbes XI° dynastie.*

N° 17 – *Tête de femme – même hypogée.*

N° 18 – *Tête d'homme tirée de la grotte de Samoûn. Basse Époque.*

(Soit 29 têtes osseuses)

La caisse contient aussi deux vases: l'un renfermant du blé antique; l'autre encore scellés, probablement une offrande du même genre.

Les crânes d'époque incertaine proviennent pour la plupart; d'anciens tombeaux violés, saccagés et remplis plus tard, des momies de toute une famille ou de toute une corporation.

(Transcribed by Docteur Thibault Monier, square brackets enclose the remark of Zsófia Komáry).

In his catalogue Prisse d'Avennes lists four crania from el-Assasif: N° 7 can be identified with inv. no. 2326 and N° 11 with inv. no. 2332 (Table 2).

A portion of the skulls from el-Assasif in the Musée de l'Homme was probably already studied by Broca, who measured crania from Thebes of the XVIIIth Dynasty from the collection of Mariette (CHANTRE 1904: 85, 88). In 1929 Nicolaeff performed angle measurements on Egyptian skulls in the Muséum d'Histoire naturelle of Paris from various periods and sites, also from Thebes from the XVIIIth and XXIInd Dynasties (NICOLAEFF 1929).

METHODS

Gender determination was based on scoring 12 morphological characteristics of the skull which presented sexual dimorphism (ACSÁDI & NEMESKÉRI 1970, ÉRY *et al.* 1963). For estimating age at the time of death mainly the ossification of cranial sutures (MEINDL & LOVEJOY 1985, NEMESKÉRI *et al.* 1960) and the wear of teeth (BROTHWELL 1963) were considered. The incompleteness of the sample, i. e. only the skull with or without the mandible was available for anthropological analysis, limited the safety of sex and age determination.

Absolute measurements of the skulls were taken and the indices were calculated according to MARTIN & SALLER (1957). For classification of anthropometrical features categories of ALEKSEEV & DEBETS (1964) were applied.

Comparative analysis was carried out on the basis of crania's similarities in size and shape. Each archaeological site involved in the comparative analysis was characterised by the averages of craniometric data of men. The following 10 measurements were used: Martin 1, 8, 9, 17, 45, 48, 51, 52, 54, 55. The first six measurements were chosen to describe the size and shape of the skull in a multi-directional, general way; with the latter four we intended to outline the finer details of the face. For comparison we used systematic cluster analysis (FÓTHI & FÓTHI 1992). This process was carried out by a software developed for this specific application (GALAMBOS 2012). Data were transformed with Debets' standard deviation values, biological distance was calculated according to (PENROSE 1954), and the distance matrix was analysed by dual sequential method.

In the pathological examination we did not use any diagnostic tool solely macroscopical observation, therefore we restricted the analysis to the description of the morphology of the pathological lesions, diagnoses if any are merely presumptive.

RESULTS

Age and sex distribution

The ratio of men and women (Table 3) is approximately balanced (0.88). In case of juveniles in both cases the degree of differentiation of the skull made sexual determination possible. There are four infant crania in the sample. The majority of women died in the adultus age, while most of the men survived into the maturus age range (Table 4). Since the material studied is not representative, the demography of the cemetery on el-Assasif cannot be established.

Table 3. Age and sex distribution

Inventory number	Sex	Age (years)		
		from		to
2326	female	40	–	49
2328	male	40	–	49
2332	female	40	–	49
7356	female	19	–	20
7357	male	60	–	x
7358	female	60	–	x
7359		5	–	6
7360		12	–	12
7361		6	–	7
7362	male	20	–	39
7383		2	–	3
7389	female	20	–	39
7390	female	20	–	21
7413	female	20	–	39
7414	male	19	–	20
7415	male	45	–	55
7416	male	40	–	49
17943	female	20	–	21
22812	male	40	–	49

Table 4. Age groups and sex distribution

Age Groups \ Sex	Males	Females	?	Total
Infant I.			3	3
Infant II.			1	1
Juvenile	1	1		2
Adult	1	4		5
Mature	4	2		6
Senile	1	1		2
Total	7	8	4	19

Metric characteristics of the skulls

Individual craniometric data and ratios of men and women are shown in Table 5 and 6 respectively. The mean, the minimum and maximum values of Martin numbers, the standard deviation and the standard deviation/mean ratio are presented in Table 7 for men and in Table 8 for women.

Table 5. Individual craniometric data (mm) and indices, males

Martin No.	Inventory No.					
	2328	7357	7362	7415	7416	22812
1	185	179	181	186	183	183
5	99	93	98	100	102	99
8	131	139	142	131	127	135
9	92	89	87	96	95	96
10	113	105	114	112	106	118
11	108	106	110	100	109	120
12	107	98	95	110	100	104
17	126	127	134	136	129	133
40	96	87	92	96	99	–
43	–	94	95	101	104	103
45	–	118	121	116	128	126
46	–	87	91	94	102	–
47	110	–	–	107	–	–
48	67	66	69	58	65	72
51	36	38	38	37	41	40
52	28	33	34	31	32	35
54	26	23	22	23	24	–
55	46	49	50	45	45	53
62	51	41	43	46	43	–
63	–	32	35	38	37	–
65	110	–	–	110	–	111
66	95	86	–	97	–	92
69	33	30	–	28	–	36
70	55	54	–	48	–	61
71	27	32	–	25	–	34
8:1	70.81	77.65	78.45	70.43	69.40	73.77
17:1	68.11	70.95	74.03	73.12	70.49	72.68
17:8	96.18	91.37	94.37	103.82	101.57	98.52
9:8	70.23	64.03	61.27	73.28	74.80	71.11
47:45	–	–	–	92.24	–	–
48:45	–	55.93	57.02	50.00	50.78	57.14
52:51	77.78	86.84	89.47	83.78	78.05	87.50
54:55	56.52	46.94	44.00	51.11	53.33	–
63:62	–	78.05	81.40	82.61	86.05	–

Table 6. Individual craniometric data (mm) and indices, females

Martin No.	Inventory No.						
	2326	2332	7358	7389	7390	7413	17943
1	172	166	172	180	171	170	173
5	126	–	90	100	95	93	98
8	135	133	137	133	126	126	126
9	93	88	85	93	88	93	91
10	115	106	106	111	106	108	109
11	107	112	105	110	104	105	105
12	97	103	96	99	97	105	97
17	126	–	126	125	126	119	125
40	93	–	–	96	89	92	88
43	99	99	94	97	94	99	95
45	120	125	119	121	115	117	–
46	92	90	90	91	90	93	83
47	–	107	–	–	102	104	–
48	61	68	–	64	62	62	64
51	38	38	40	40	37	38	37
52	32	32	36	31	31	33	33
54	25	24	26	22	24	24	24
55	45	49	47	50	46	44	53
62	45	39	31	44	40	43	41
63	38	40	34	36	34	38	35
65	–	–	–	–	–	101	–
66	–	92	87	–	85	85	–
69	27	28	30	–	26	29	–
70	52	54	49	–	54	44	–
71	33	29	30	–	34	31	–
8:1	78.49	80.12	79.65	73.89	73.68	74.12	72.83
17:1	73.26	–	73.26	69.44	73.68	70.00	72.25
17:8	93.33	–	91.97	93.98	100.00	94.44	99.21
9:8	68.89	66.17	62.04	69.92	69.84	73.81	72.22
47:45	–	85.60	–	–	88.70	88.89	–
48:45	50.83	54.40	–	52.89	53.91	52.99	–
52:51	84.21	84.21	90.00	77.50	83.78	86.84	89.19
54:55	55.56	48.98	55.32	44.00	52.17	54.55	45.28
63:62	84.44	102.56	109.68	81.82	85.00	88.37	85.37

Table 7. Summarised craniometric data and indices, males. N = number of cases, Vmax = maximum value of Martin number (mm), Vmin = minimum value of Martin number (mm), M = mean (mm), S. D. = standard deviation

Martin No.	N	Vmax	Vmin	M	S. D.	S. D. /M
1	6	186	179	182.83	2.56	1.40
5	6	102	93	98.50	3.02	3.06
8	6	142	127	134.17	5.60	4.17
9	6	96	87	92.50	3.83	4.14
10	6	118	105	111.33	4.97	4.46
11	6	120	100	108.83	6.52	5.99
12	6	110	95	102.33	5.68	5.55
17	6	136	126	130.83	4.07	3.11
40	5	99	87	94.00	4.64	4.93
43	5	104	94	99.40	4.62	4.64
45	5	128	116	121.80	5.12	4.20
46	4	102	87	93.50	6.35	6.79
47	2	110	107	108.50	2.12	1.96
48	6	72	58	66.17	4.71	7.12
51	6	41	36	38.33	1.86	4.86
52	6	35	28	32.17	2.48	7.72
54	5	26	22	23.60	1.52	6.43
55	6	53	45	48.00	3.22	6.72
62	5	51	41	44.80	3.90	8.70
63	4	38	32	35.50	2.65	7.45
65	3	111	110	110.33	0.58	0.52
66	4	97	86	92.50	4.80	5.18
69	4	36	28	31.75	3.50	11.02
70	4	61	48	54.50	5.32	9.77
71	4	34	25	29.50	4.20	14.25
8:1	6	78.45	69.40	73.42	3.88	5.29
17:1	6	74.03	68.11	71.56	2.16	3.01
17:8	6	103.82	91.37	97.64	4.62	4.73
9:8	6	74.80	61.27	69.12	5.34	7.72
47:45	1	92.24	92.24	92.24	–	–
48:45	5	57.14	50.00	54.18	3.50	6.46
52:51	6	89.47	77.78	83.90	4.99	5.95
54:55	5	56.52	44.00	50.38	4.99	9.90
63:62	4	86.05	78.05	82.02	3.30	4.03

Table 8. Summarised craniometric data and indices, females. N = number of cases, Vmax = maximum value of Martin number (mm), Vmin = minimum value of Martin number (mm), M = mean (mm), S. D. = standard deviation

Martin No.	N	Vmax	Vmin	M	S. D.	S. D. /M
1	7	180	166	172.00	4.20	2.44
5	6	126	90	100.33	13.06	13.02
8	7	137	126	130.86	4.74	3.62
9	7	93	85	90.14	3.18	3.53
10	7	115	106	108.71	3.35	3.08
11	7	112	104	106.86	3.02	2.83
12	7	105	96	99.14	3.48	3.51
17	6	126	119	124.50	2.74	2.20
40	5	96	88	91.60	3.21	3.50
43	7	99	94	96.71	2.36	2.44
45	6	125	115	119.50	3.45	2.89
46	7	93	83	89.86	3.24	3.60
47	3	107	102	104.33	2.52	2.41
48	6	68	61	63.50	2.51	3.95
51	7	40	37	38.29	1.25	3.27
52	7	36	31	32.57	1.72	5.28
54	7	26	22	24.14	1.21	5.03
55	7	53	44	47.71	3.15	6.60
62	7	45	31	40.43	4.69	11.59
63	7	40	34	36.43	2.30	6.31
65	1	101	101	101.00	–	–
66	4	92	85	87.25	3.30	3.79
69	5	30	26	28.00	1.58	5.65
70	5	54	44	50.60	4.22	8.34
71	5	34	29	31.40	2.07	6.60
8:1	7	80.12	72.83	76.11	3.16	4.15
17:1	6	73.68	69.44	71.98	1.82	2.53
17:8	6	100.00	91.97	95.49	3.30	3.46
9:8	7	73.81	62.04	68.99	3.91	5.66
47:45	3	88.89	85.60	87.73	1.85	2.10
48:45	5	54.40	50.83	53.01	1.37	2.58
52:51	7	90.00	77.50	85.11	4.18	4.91
54:55	7	55.56	44.00	50.84	4.81	9.47
63:62	7	109.68	81.82	91.03	10.68	11.73

Morphological and non-metric characteristics of the skulls

The occurrence of accessory sutures and sutural ossicles is shown in Table 9. Os lambdae, ossa suturae lambdoidea, os epiptericum, os astericum can be observed on the crania. The high occurrence of accessory sutures indicates shorter or longer periods of malnutrition (BOCQUET-APPEL 1984). One maturus male skull (inv. no. 2328) exhibits processus mastoideus bipartitus. Moderate or expressed alveolar prognathia is present in the majority of the cases.

Taxonomic description

For comparative analysis we involved 38 samples from the area of ancient Egypt, Nubia (corresponding to the area below the southern border of ancient Egypt) and the surrounding regions. We characterised the populations with the

Table 9. Morphological characteristics and sutural variations

Inventory number	Os lambdae	Ossa suturae lambdoidea	Os epiptericum	Os astericum	Alveolar prognathia	Apertura piriformis
2326			+		expressed	sulcus praenasalis
2328	+				expressed	anthropin
2332					expressed	anthropin
7356				+		
7357					moderate	anthropin
7358					not possible to determine	anthropin
7359						
7360						
7361			+			
7362					expressed	anthropin
7383						
7389		+			moderate	anthropin
7390					moderate	anthropin
7413		+	+		moderate	anthropin
7414					vertical	anthropin
7415		+			expressed	sulcus praenasalis
7416					moderate	anthropin
17943					expressed	sulcus praenasalis
22812		+			expressed	anthropin

means of male craniometric data. In the course of the analysis of the individual craniometric measurements and morphological features of skulls from el-Assasif, we found that out of six complete male crania three skulls expressly (inv. nos. 2328, 7415, 7416), two skulls partially (inv. nos. 7357, 22812) exhibit Negroid features, and one skull (inv. no. 7362) shows Europid characteristics, therefore we omitted



Figs 3–4. Crania exhibiting negroid features. 3 = Male cranium inv. no. 2328, 4 = female cranium inv. no. 2332, frontal and lateral (l. s.) views. Both crania are characterized by expressed alveolar prognathia, by wide apertura piriformis and by long and narrow calvarium

skull inv. no. 7362 from the comparison. Skulls of Negroid features are depicted on Figures 3–4, the cranium of Europic characteristics is shown on Figure 5.

We performed the comparative study with systematic cluster analysis (FÓTHI & FÓTHI 1992). The dendrogram on Figure 6 is based on data divided by the error, the biological distance was calculated according to PENROSE (1954), the cluster strategy applied was the dual sequential method. In our study we searched for analogues of skulls of el-Assasif, we did not analyse further correlations, hence in Table 10, which shows the distance matrix, we marked only the row corresponding to the distance matrix of the sample of el-Assasif. As the dendrogram and the table of the distance matrix equally show the five male crania from el-Assasif exhibit similarities with samples of Nubian origin. The result of comparative analysis thus corresponds to the metric and morphological evaluation of skulls. However, distance data have high values – which feature can be explained by the high extent of deviation due to the low number of individuals in the sample – the similarity with the four Nubian samples involved in the comparison is consistent, regardless of the method of distance calculation. Nevertheless the biological similarity with the four Nubian samples (Lower Nubian, Meroitic, 0–300 A. D.; Upper Nubian, Meroitic, 0–300 A. D.; Lower Nubian, X-Group, 300–500 A. D.; Upper Nubian, X-Group, 300–500 A. D.) neither signify direct ethnical or cultural relationship nor chronological simultaneity. Instead, the analogy indicates the Nubian origin of the five males from el-Assasif in our sample.



Fig. 5. Gracile dolichocran skull. Male cranium inv. no. 7362, frontal and lateral (l. s.) views

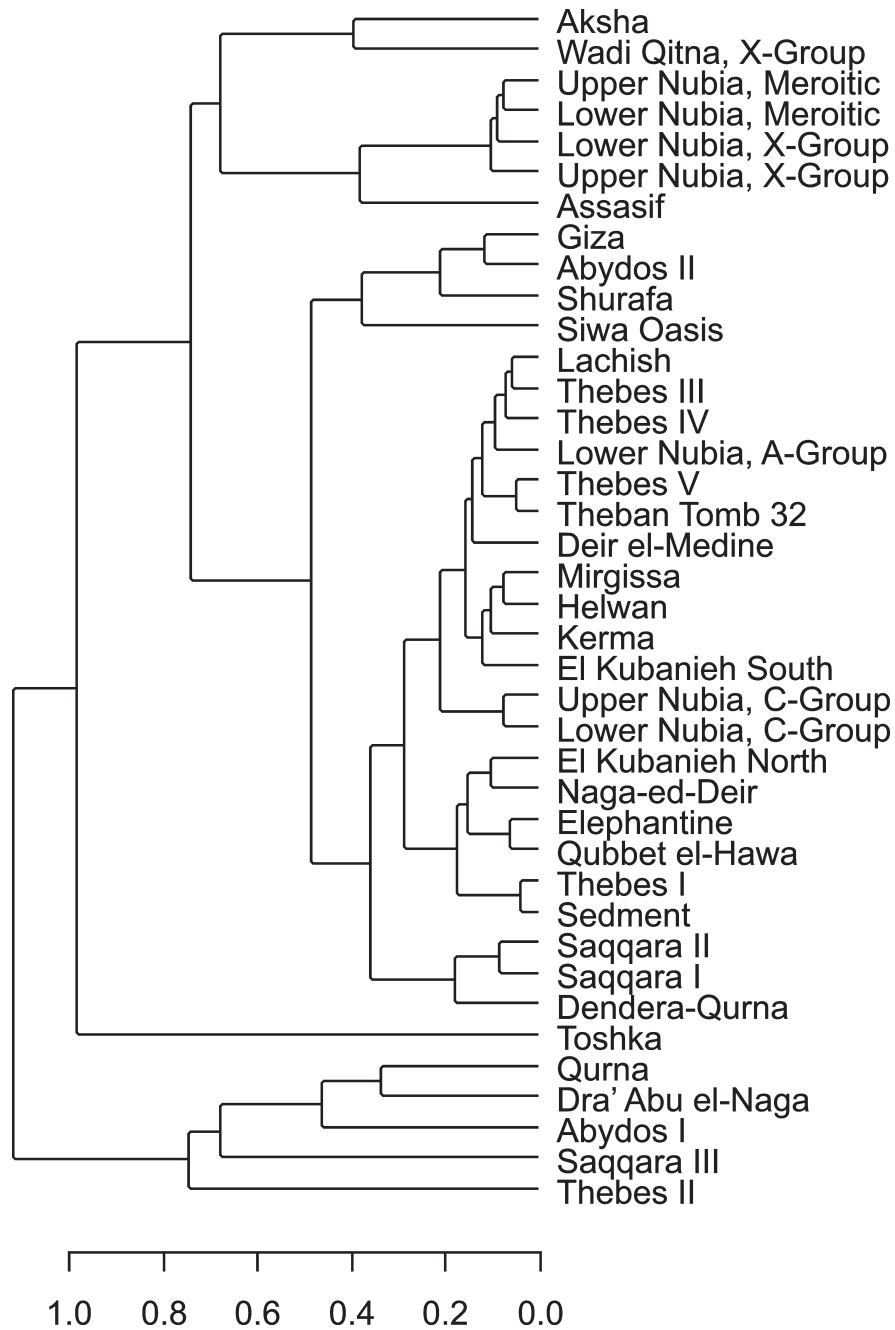


Fig. 6. Dendrogram of the comparison of the sample of el-Assasif with samples from Egypt and the neighbouring areas

Table 10. CR² values between the sample of el-Assasif and the comparative samples. Chronology of TT 32: XVth century B. C.–IIInd century A. D. (SCHREIBER 2010: 87)

Comparative sample	CR2 values
el-Assasif	0
Lower Nubia, X-Group, 300–500 A. D. (BATRAWI cit. SCHWIDETZKY & RÖSING 1976: Tab. 1–2, Lfd. Nr. 36)	0.289642849848317
Upper Nubia, Meroitic, 0–300 A. D. (NIELSEN cit. SCHWIDETZKY & RÖSING 1976: Tab. 1–2, Lfd. Nr. 41)	0.325994519445788
Lower Nubia, Meroitic, 0–300 A. D. (BATRAWI cit. SCHWIDETZKY & RÖSING 1976: Tab. 1–2, Lfd. Nr. 37)	0.380319601212896
Upper Nubia, X-Group, 300–500 A. D. (NIELSEN cit. SCHWIDETZKY & RÖSING 1976: Tab. 1–2, Lfd. Nr. 40)	0.434285225089144
Thebes V, 1554–946 B. C. (SCHMIDT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 149)	0.460567586655279
Deir el-Medine, 1556–1305 B. C. (MATIEGKOVA & MATIEGKA cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 148)	0.469308885911203
Thebes IV, 1556–1080 B. C. (STAHN, MORANT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 145)	0.480423545096138
Lower Nubia, A-Group, 2925–2635 B. C. (BATRAWI cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 77)	0.512047190160956
Lower Nubia, C-Group, 2154–1555 B. C. (BATRAWI cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 150)	0.532419959408437
El-Kubanieh South, 2450–1785 B. C. (TOLDT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 70)	0.545669650453577
Thebes III, 1556–1305 B. C. (MORANT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 144)	0.570629801917224
Lachish, 800–700 B. C. (RISDON cit. SCHWIDETZKY 1972: Tab. 1–2, Lfd. Nr. 36)	0.612374853863114
Thebes, TT 32 (FÓTHI & BERNERT 2010)	0.628656525480852
Siwa Oasis, 0–300 A. D. (DERRY cit. SCHWIDETZKY & RÖSING 1976: Tab. 1–2, Lfd. Nr. 35)	0.629003091982836
Giza, 663–343 B. C. (MORANT <i>et al.</i> cit. SCHWIDETZKY 1972: Tab. 1–2, Lfd. Nr. 37)	0.644818610240986
Kerma, 1991–1650 B. C. (COLLETT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 151)	0.65148638094624
Upper Nubia, C-Group, 2300–1200 B. C. (NIELSEN cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 154)	0.696682420927407
Dendera-Qurna, 663–30 B. C. (MORANT <i>et al.</i> cit. SCHWIDETZKY 1972: Tab. 1–2, Lfd. Nr. 38)	0.70090702958782
Aksha, 0–300 A. D. (CHAMLA 1967)	0.701365981175391

Table 10 (continued)

Saqqara I, 2925–2790 B. C. (BATRAWI & MORANT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 63)	0.726509973255521
Abydos II, 1554–1196 B. C. (SCHMIDT, MORANT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 146)	0.738136911503636
Shurafa, 200–600 A. D. (DERRY cit. SCHWIDETZKY & RÖSING 1976: Tab. 1–2, Lfd. Nr. 34)	0.796630438205217
Helwan, 2925–2635 B. C. (WIERCINSKI cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 65)	0.857699752931177
el-Kubanieh North, 2134–1785 B. C. (TOLDT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 71)	0.860409765018844
Mirgissa, 1900–1500 B. C. (BILLY cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 153)	0.866557047670955
Wadi Qitna, X-Group, 300–500 A. D. (STROUHAL cit. SCHWIDETZKY & RÖSING 1976: Tab. 1–2, Lfd. Nr. 38)	0.871163020505649
Elephantine, 2450–1650 B. C. (RÖSING cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 76)	0.899166293346279
Thebes II, 1556–1305 B. C. (BROCA in CHANTRE cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 143)	0.988350002780426
Qubbet el-Hawa, 2290–1550 B. C. (RÖSING cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 75)	1.01471153835861
Naga-ed-Deir, 2290–1785 B. C. (STROUHAL & JUNGWIRTH cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 69)	1.03366481640898
Saqqara II, 2925–2635 B. C. (WIERCINSKI cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 66)	1.04827110852112
Thebes I, 2134–1991 B. C. (BATRAWI & MORANT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 74)	1.06929343225432
Sedment, 2134–1991 B. C. (WOO cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 72)	1.17715013770892
Toshka, 1991–1550 B. C. (STROUHAL & JUNGWIRTH cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 152)	1.32262129121335
Dra' Abu el-Naga, 2134–1991 B. C. (BROCA in CHANTRE cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 73)	1.41315685280115
Qurna, 1556–1305 B. C. (CHANTRE cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 147)	1.64567823235457
Saqqara III, 2750–2450 B. C. (BROCA in CHANTRE cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 68)	1.67122526524348
Abydos I, 2925–2790 B. C. (MORANT cit. SCHWIDETZKY & RÖSING 1988: Tab. 1–2, Lfd. Nr. 64)	1.68432960119483

Pathology

Cribrra orbitalia, porotic hyperostosis

3 of the 4 infants (inv. nos. 7359, 7360, 7383), a juvenile (inv. no. 7356) and a mature individual (inv. no. 2328) exhibit cribrra orbitalia. One skull belonging to the adult age group (inv. no. 7362) shows symmetrical porotic hyperostosis on the ossa parietalia (Fig. 7) without the presence of cribrra orbitalia. Both cribrra orbitalia and porotic hyperostosis are diagnostic features of anaemias of various



Figs 7–8. Pathological lesions. 7 = Porotic hyperostosis on the ossa parietalia of skull inv. no. 7362, 8 = traumatic lesions on the right arcus superciliaris and above the left tuber frontale of skull inv. no. 2328

aethiology (AUFDERHEIDE & RODRÍGUEZ-MARTIN 1998: 345–351, STUART-MACADAM 1987, WALKER *et al.* 2009). Besides anaemia, cribra orbitalia can be attributed to scruvy (ORTNER *et al.* 1999), to osteitis and might also be a pseudopathological phenomenon (WAPLER *et al.* 2004); the macroscopic observation does not allow differential diagnosis, only the description of the lesion.

Trauma

Traumatic injuries can be observed in two cases: on the os frontale of a mature man (inv. no. 2328) two traumatic lesions are visible (Fig. 8), the os frontale of a mature feminine skull (inv. no. 2326) also exhibits a circumscribed lesion (d = 1–1.5 cm) most probably of traumatic origin (not shown).

Tumor metastasis

The calvaria of a mature feminine skull (inv. no. 2332) exhibits three circumscribed osteolytic lesions (Fig. 9): on the left os frontale (d = 2 × 2 cm), on the right os parietale (d = 3 × 2 cm) and surrounding the sutura coronalis on the

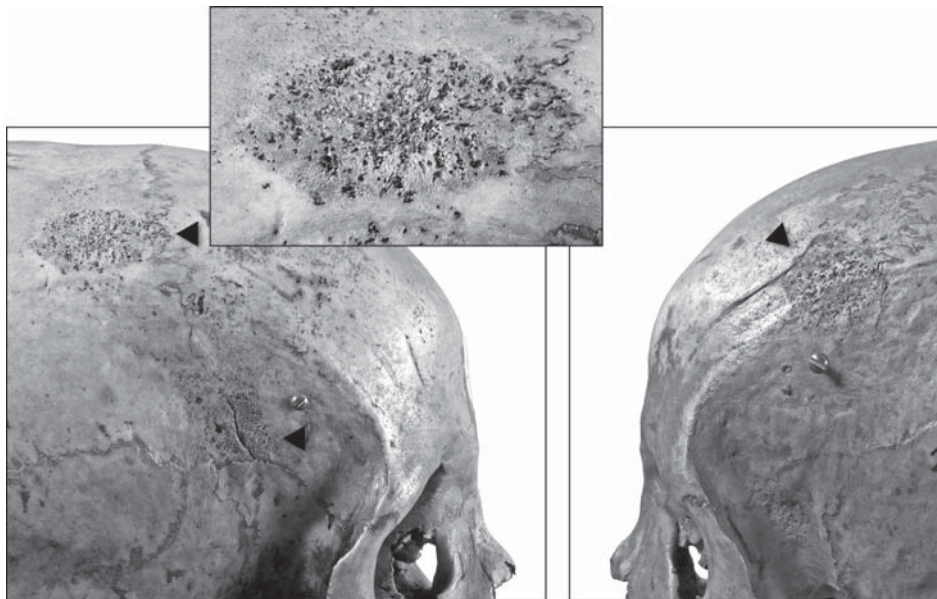
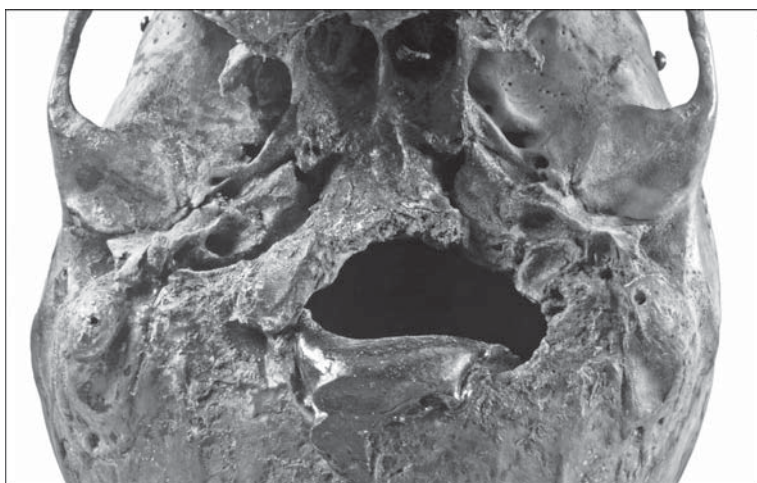


Fig. 9. Multiple osteolytic lesions of skull inv. no. 2332. Circumscribed osteolytic lesions on the right os parietale and surrounding the right sutura coronalis at the sutura sphenofrontalis (left panel); osteolytic lesion on the left os frontale (right panel). Insert on left panel shows the enlargement of the lesion behind the sutura coronalis l. d.

right side, at the sutura sphenofrontalis ($d = 1 \times 2$ cm). The border of the lesions is not sharp, macroscopically no marginal sclerosis is visible. The right processus condylaris and caput mandibulae are reabsorbed, the medial surface of the remaining ramus mandibulae until the height of the foramen mandibulae is rough, uneven (Fig. 11). The left fossa mandibularis and facies articularis is enlarged indicating the luxation of left caput mandibulae (Fig. 10). The osteolytic lesions can be pathognomic to tumor metastases originating from soft tissues like breasts,

10



11



Figs 10–11. Skull inv. no. 2332, 10 = basis, 11 = mandible

lungs, thyroid gland, kidneys or from the gastrointestinal tract (AUFDERHEIDE & RODRÍGUEZ-MARTIN 1998: 388–390, ORTNER 2003: 532–544), in the present case the mandibular reabsorption might be indicative of a primary tumor in the oral cavity or in the parotis.

Depressio biparietalis circumscripta

The depressio biparietalis circumscripta the terminology of which is various in the literature (symmetric osteoporosis, biparietal osteodystrophy, senile depression) is the symmetrical thinning and flattening of the ossa parietalia, which might result finally in the perforation of the parietal bone. Unilateral cases are also known (BARES & STROUHAL 2000: reference 59, non vidi). Histological examination, magnetic resonance and computer tomography imaging show the thinning or the absence of the lamina corticalis externa, the loss or the disappearance of the diploe and an intact lamina corticalis interna in the area of the lesion (BRUYN 1978, LUK *et al.* 2010, TAKATA *et al.* 2008, TSUTSUMI *et al.* 2008, YILMAZ *et al.* 2013). The aethiology of the phenomenon is unknown, TAKATA *et al.* (2008) report three cases in which the senile depression is coincident with osteoporosis, CEDERLUND *et al.* (1982) suggest that the depressio biparietalis circumscripta is a slowly progressive pathological lesion of middle-aged and old patients without clinical significance. In different studies the prevalence varies between 0.4–0.5% (BRUYN 1978) and 2.37% (CEDERLUND *et al.* 1982). It is more common among women (BRUYN 1978, CEDERLUND *et al.* 1982). In the study of CEDERLUND *et al.* (1982) the mean age of males exhibiting biparietal thinning is 63 years that of females is 72 years. The bilarietal thinning of the os parietale is mainly a secondary finding on radiographs and it is presented in the literature in the form of case reports restricted to the description of the morphology of the phenomenon (LIM & SOHN 2001, LUK *et al.* 2010, NAGAYOSHI *et al.* 2009, TSUTSUMI *et al.* 2008, YILMAZ *et al.* 2013). The depressio biparietalis can be observed in archaeological material as well (ARNAUD & ARNAUD 1976, DUTTA 1969), including skulls from ancient Egypt (BARES & STROUHAL 2000, BREITINGER 1983, FÓTHI & BERNERT 2010: 52, RAVEN & TAKONIS 2005: 62–63, SMITH 1906–1907). It seems that the biparietal depression is more frequent among ancient Egyptian crania (SMITH 1906–1907), in BREITINGER's study (1983) the prevalence is 14.4%, in Theban Tomb 32, located on el-Khokha, part of the necropolis of Thebes, its occurrence is up to 30% (total number of adults is 312; FÓTHI & BERNERT 2010: 49, 52).

The circumscribed thinning of the os parietale can be observed in two cases in the examined material of el-Assasif: on the calvaria of a senile male (inv. no.

7357) dated to the XVIIIth Dynasty (Fig. 12), which exhibits a biparietal symmetrical lesion ($d = 6 \times 7$ cm) with mild depression; and on the left os parietale of a senile female (inv. no. 7358) also from the XVIIIth Dynasty. On the latter cranium besides the unilateral mild depression ($d = 6 \times 7$ cm), porotic surface of the os frontale, ossa parietalia l. u. and the os lambdae is also observable (not shown).

Dental pathology

Hypoplastic striae, markers of dietary deficiencies and infectious diseases (HILLSON 1992, LANGSJOEN 1998: 405–407), are visible on the enamel of the teeth of a mature individual (inv. no. 2332). In the mandible of a 2–3 year-old infant (inv. no. 7383) the eruption of the dentes praemolares is asymmetrical on the left and right side. Malposition of a dens praemolaris l. s. can be observed in the maxilla of a 20–21 year old young adult (inv. no. 17943). On the maxilla of a juvenile (inv. no. 7414) a dental abscess can be diagnosed at the position of the 3rd molar l. d.

Mummification

According to the documentation of the Musée de l'Homme the majority of the heads were cut off from mummified corpses on the archaeological site. Acquisition data state that all 4 infants in the sample were mummified. Nevertheless no soft tissue can be observed on any of the heads of el-Assasif. The lamina cribrosa is intact in all skulls except for two cases (Table 11) in which it was perforated in order to remove the brain tissue (Fig. 13). In a small portion of the crania the foramen magnum was broken (Fig. 10) probably for the same purpose (Table 11). In one particular case, dated to the XVIIIth Dynasty the cranial cavity was filled with black resinous substance (Fig. 10). The excess use of black embalming resins applied also in the cranial cavity is characteristic of the period between the Late Dynastic to the Early Roman Age (IKRAM & DODSON 1998: 129, SCHREIBER 2010: 91–92, TAYLOR 2001: 87) which makes the documented dating of this mummy head uncertain, however the lack of the archaeological context does not allow reasonable conclusions.

*

Acknowledgements – The work was supported by the grant of the French Republic to Zsófia Komáry. Thanks are expressed to Bob Kaba Loemba, L'Institut français de Budapest; Alain Froment, Philippe Menecier, Martin Friess, Véronique Labord in the Muséum national d'Histoire naturelle, Paris, France. Photographs in the publication are made by Balázs Tihanyi.

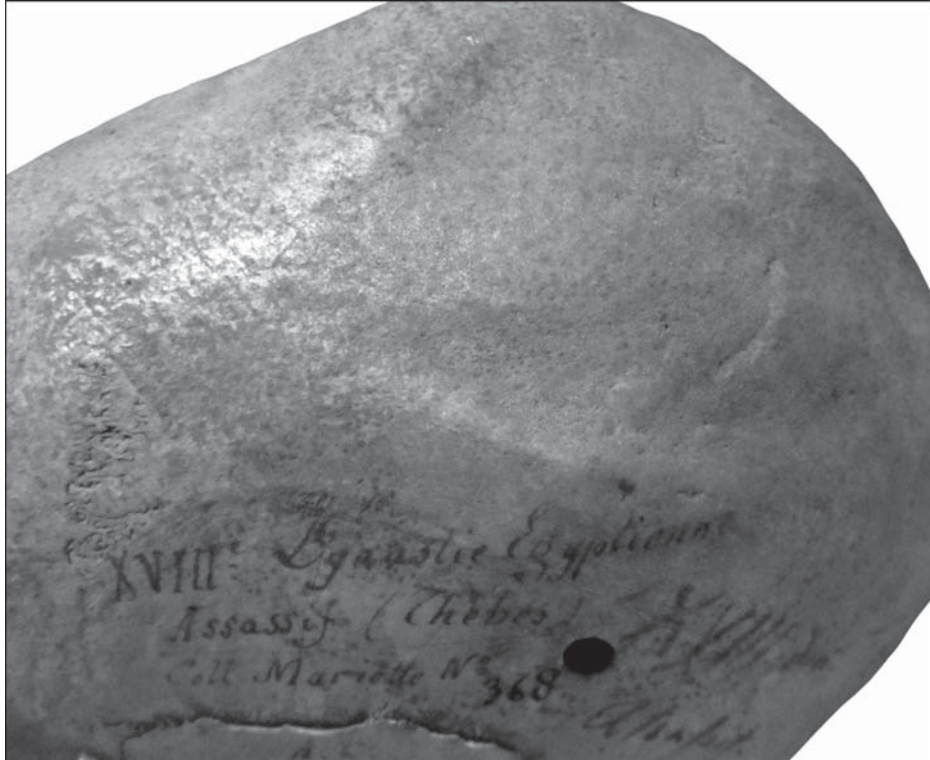


Fig. 12. Biparietal osteodystrophy. Depression on the left os parietale of a senile male skull, inv. no. 7357

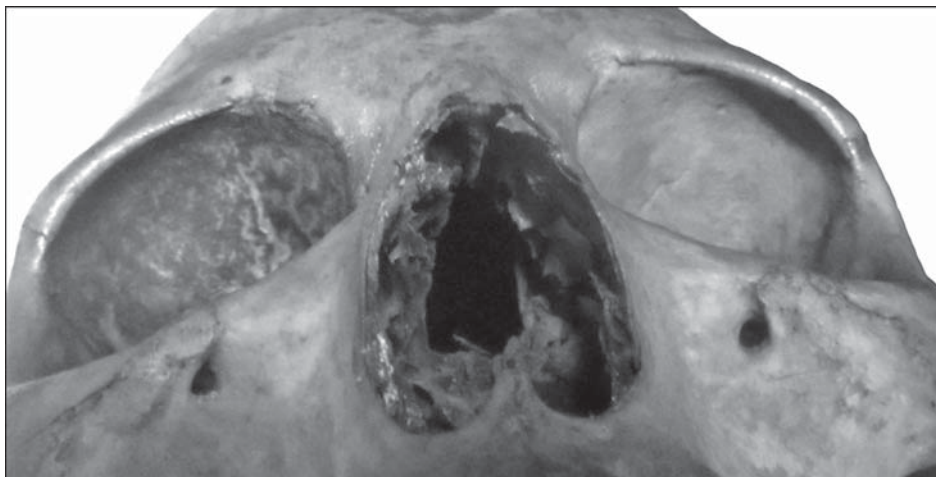


Fig. 13. Perforated lamina cribrosa (inv. no. 2332)

Table 11. Marks of mummification procedures on the skulls

Inventory number	Dating (according to acquisition data of Musée de l'Homme)	Age	Skull detached from a mummy	Lamina cribrosa	Foramen magnum	Black resinous substance
2326	"the last period of the Egyptian monarchy"	mature		not possible to determine		
2328		mature	+	not possible to determine		
2332	XVIIIth Dynasty (1550–1295 B. C.)	mature		broken	broken	present
7356	XVIIIth Dynasty	juvenile	+	intact		
7357	XVIIIth Dynasty	senile	+	intact		
7358	XVIIIth Dynasty	senile	+	intact		
7359	XVIIIth Dynasty	infant I	+	intact	broken	
7360	XVIIIth Dynasty	infant II	+	intact		
7361	XVIIIth Dynasty	infant I	+	intact		
7362	XVIIIth Dynasty	adult	+	intact		
7383	XXIIInd Dynasty (945–715 B. C.)	infant I	+	intact		
7389	XXIIInd Dynasty	adult	+	intact		
7390	XXIIInd Dynasty	adult	+	intact		
7413		adult	+	intact		
7414		juvenile	+	intact		
7415		mature	+	intact		
7416		mature	+	intact	broken	
17943		adult		broken		
22812		mature	+	not possible to determine		

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