



KOLPOCHOERUS (SUIDAE, MAMMALIA) DENTO-GNATHIC REMAINS FROM ALGERIA: BIOSTRATIGRAPHIC IMPLICATIONS

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Abstract: Dento-gnathic remains of a fossil suine currently housed at the Université d'Alger are accompanied by a label similar to those associated with other fossils excavated by Arambourg in 1951 at Bou Hanifia from deposits that were, at the time, correlated to the upper Vindobonian or late Middle Miocene. The undescribed suine fossils are enigmatic, in that they do not correspond in geological age to other fossils with similar labels. Several questions are posed including the possibility of mis-labelling. The fossils described herein are attributed to the suine *Kolpochoerus maroccanus* and correspond closely in terms of morphology and dimensions to material of *Kolpochoerus heseloni* from the Early Pleistocene of Eastern Africa (Shungura Formation D-G, Ethiopia; Burgi level, Kenya).

Key words: Suidae, Northern Africa, biochronology, Early Pleistocene

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Introduction

We herein describe some well-mineralised suine fossils labelled as coming from “Bou Hanifia” which, if correct, would reveal that the formation, which is well known for having yielded Late Miocene mammals, may also have yielded Early Pleistocene fossils. These remains suggest equivalence to Omo beds C-H in Ethiopia, and the Kubi Algi Formation + Koobi Fora unit 3 in Kenya (ca. 3.2–1.8 Ma) according to Cooke (1985) or to Omo beds D-G and the Burgi level of the Koobi Fora Formation (ca. 2.5–1.9 Ma) following the revision by Cooke (2007). As reported by Cooke (1978a, b, 1985, 2007, Cooke and Wilkinson 1978) these levels are of Pliocene age but more recent work suggests correlation to the Early Pleistocene (Bishop 2010).

We enclose the locality name “Bou Hanifia” in parentheses when treating the suine fossils, because it is possible that the content of the label is incorrect, and the specimen could have come from a younger locality in Algeria, such as the Gué de Constantine (Text-fig. 1), from which fossils were collected by Robert Lafitte. Lafitte was a geologist at the Université d'Alger and doyen of the Ecole des Sciences to which the museum belongs. But at the same

time he was an administrator at SN Repal which worked at both Bou Hanifia and the Gué de Constantine. It is thus possible that fossils collected at the Gué de Constantine got mis-labelled as coming from Bou Hanifia.

Whatever the case, the suine fossils are of interest, so they are described and illustrated so that colleagues are aware of their existence, and so that future research can be directed at resolving their provenience.

Material and methods

The fossils described herein comprise elements of the upper and lower dentition of a species of suid accompanied by a label indicating that they were collected from late Vindobonian (i.e., late Middle Miocene) deposits at Bou Hanifia, Algeria (Text-fig. 2) (Arambourg 1968). The type of label, the black ink, the handwriting, the abbreviations employed and the wording on the label (with the exception of the taxon name which is illegible due to erasure) is the same as those accompanying other specimens from Bou Hanifia excavated by Arambourg in 1951, including the paratype mandible of *Dinocrocuta algeriensis* (ARAMBOURG, 1959) (Text-fig. 2).



Text-fig. 1. Locations of Bou Hanifia and the Gué de Constantine in Algeria.

Even though, at first glance, the evidence of the label seems secure, some questions arise about the specimens. When were they repatriated to Algeria? Is there a possibility that the fossils were either incorrectly labelled or that the data in the label is invalid? Why did Arambourg (1959) not mention these fossils in his monograph on the mammals from Bou Hanifia?

The suid fossils were compared with Neogene and Quaternary material from Africa and Eurasia belonging to the subfamilies Tetraconodontinae (*Sivachoerus* PILGRIM, 1926, *Nyanzachoerus* LEAKEY, 1958; Pickford et al. 2022) and Suinae (*Hippopotamodon*, *Microstonyx*, *Propotamochoerus* PILGRIM, 1925, *Dasychoerus* GRAY, 1873, *Sus* LINNAEUS, 1758, *Kolpochoerus* VAN HOEPEN et VAN HOEPEN, 1932, *Metridiochoerus* HOPWOOD, 1926, *Notochoerus* BROOM, 1925, *Potamochoeroides* DALE, 1948; Pickford 1995, 2013a, 2015, 2020, Geraads 2002, Pickford and Obada 2016, Lazaridis et al. 2022) (Tab. 1).

Measurements of the teeth of species of *Kolpochoerus* were obtained from the literature (Hopwood 1929, Arambourg 1947, Ennouchi 1954, Leakey 1958, Cooke 1976, Harris and White 1979, Harris 1983, Hendeby and Cooke 1985, Geraads et al. 1986, Geraads 1993, Chaïd-Saoudi et al. 2006) to which were added measurements taken by the first author. Ways of measuring teeth vary from author to author, which can introduce errors into metric analysis, but because it was not possible to access all the fossil material, measurements and meristic positions of teeth were provisionally accepted as published, but future study may modify the results somewhat. However, the bivariate and univariate plots (Text-figs 7–11) allow for a certain amount of inter-observer error, without radically modifying the outcome. For example, a difference of 3 to 4 mm in the measurement of the length of the M3/ or m/3 is not going to change the outcome of the analyses in Text-figs 7–9. The same problem does not affect the premolars and anterior molars because they were all fully erupted at the time of death. The literature shows that the determination of isolated upper and



Text-fig. 2. Label associated with the fossil suid specimens (a) currently housed at the Faculty of Science, Université d'Alger. The label (a) associated with the suid specimens indicates that the fossils were originally kept at the Muséum d'Histoire Naturelle, Paléontologie, along with other fossils from Arambourg's 1951 excavations at the site, which have similar labels in the same hand writing (see, e.g., (b) cast of paratype mandible of *Dinocrocota algeriensis* housed at the FSUA).

Table 1. List of species of *Kolpochoerus* with which the Algerian suid fossils were compared, listed in their order of creation (Souron et al. (2021) prefer to include *K. phacochoeroides* in the genus *Metridiochoerus*, but we retain it in *Kolpochoerus* pending further studies).

Species	Author
<i>K. phacochoeroides</i>	(THOMAS, 1884)
<i>K. grabhami</i>	(HOPWOOD, 1929)
<i>K. paiceae</i>	(BROOM, 1931)
<i>K. sinuosus</i>	VAN HOEPEN et VAN HOEPEN, 1932
<i>K. majus</i>	(HOPWOOD, 1934)
<i>K. olduwaiensis</i>	(LEAKEY, 1942)
<i>K. heseloni</i>	(LEAKEY, 1943)
<i>K. pachynathus</i>	(ARAMBOURG, 1943)
<i>K. evronensis</i>	(HAAS, 1970)
<i>K. afarensis</i>	COOKE, 1978b
<i>K. deheinzellini</i> (= <i>Dasychoerus arvernensis</i>)	BRUNET et WHITE, 2001
<i>K. cookei</i>	BRUNET et WHITE, 2001
<i>K. millensis</i>	HAILE-SELASSIE et SIMPSON, 2013
<i>K. philippi</i>	SOURON et al. 2015

lower third molars can be difficult (Pickford 2013b) with several instances of upper molars being misidentified as lower teeth (Broom 1925, Hopwood 1926, Leakey 1958) and vice versa. The bivariate plots in this paper accept the meristic positions of teeth as published in the literature, but it is possible that the positions of some of the specimens may have been incorrectly determined (extremely narrow M3/s are likely to be lower teeth, and extremely broad m/3s are likely to be upper teeth).

Table 2. Measurements (in mm) of teeth of *Kolpochoerus maroccanus* from the Maghreb (e – estimated measurement, lt – left, rt – right). Measurements of Mansourah specimens are from Chaïd-Saoudi et al. (2006), those of the Guyot material are from Ennouchi (1954) and those of the specimen from Thomas Quarry L are from Geraads (2002, pers. comm.).

Catalogue no.	Tooth	Mesio-distal length	Bucco-lingual breadth	Locality
FSUA	m/3	57.2	22.2	Mansourah, Algeria
FSUA 7185002	m/3 lt	57.0	22.2	Mansourah, Algeria
FSUA 7185001	m/3 rt	57.1	20.8	Mansourah, Algeria
FSUA “Bou Hanifia”	P2/ rt	13.6	9.5	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	P4/ rt	14.9e	17.1	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	M1/ rt	18e	17.0	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	M2/ rt	26.7	22.1	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	M3/ rt	51e	24.3	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	c/1 rt female	21.5	16.0	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	p/2 lt (alveoli)	9.6	5.5	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	p/3 lt	15e	10.7	“Bou Hanifia”, Algeria
FSUA “Bou Hanifia”	m/3 lt	54.0	21.2	“Bou Hanifia”, Algeria
ISCR 83-53	M3/ lt	49.0	23.0	Guyot, Morocco
ISCR 84-53	P3/ lt	15.0	13.0	Guyot, Morocco
ISCR 84-53	P4/ lt	16.0	15.0	Guyot, Morocco
Thomas L	M3/	47.0	25.1	Thomas Quarry L, Morocco

Abbreviations

FSUA Faculty of Science, Université d’Alger
ISCR Institut Scientifique Chérifien, Rabat

Systematic palaeontology

Family Suidae GRAY, 1821

Genus *Kolpochoerus* VAN HOEPEN et VAN HOEPEN, 1932

Kolpochoerus maroccanus (ENNOUCHI, 1954)

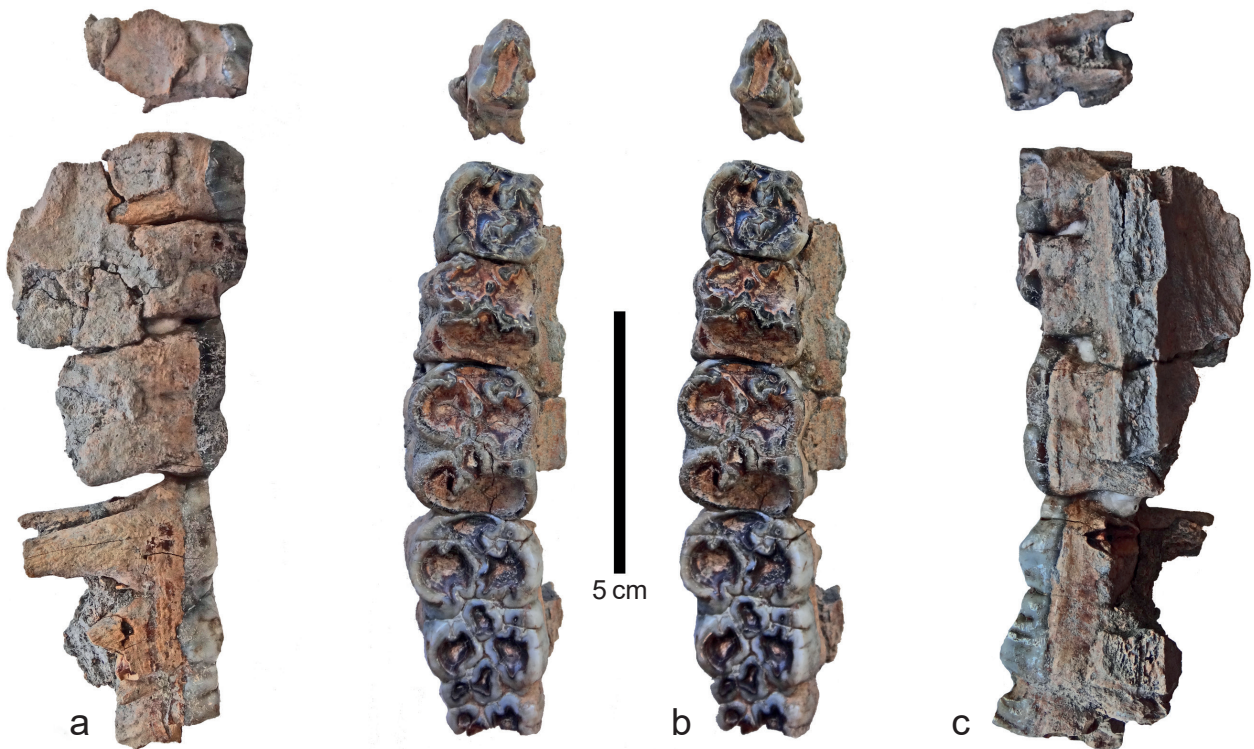
Text-figs 3–6

Holotype. ISCR 83-53, left maxilla fragment with M3/ and ISCR 84-53, left maxilla fragment with P3/–P4/, ISCR 85-53, isolated left upper canine apex, curated at the Faculty of Sciences, Mohammed V University, Rabat, Morocco.

Type locality and age. Guyot, Morocco, Early Pleistocene.

Remark. Material labelled as coming from “Bou Hanifia”. Right maxilla containing, P2/, P4/–M3, left mandible fragments containing p/3 and m/3, isolated left lower canine (female). The fossils are accompanied by a partly illegible label of the Muséum d’Histoire Naturelle – Paléontologie, on which the word “maxillaire” is almost entirely defaced, but the word “mandibule” can be made out with confidence. The “Niveau” (level) is given as “Vindobonien sup.” (upper Vindobonian) and the “Localité” (Locality) as Bou Hanifia (Oran) (Text-figs 2a, 3–6).

Description. Maxilla and upper teeth. The right maxilla is damaged and there is a piece missing between the P4/ and the P2/ (Text-fig. 3). All the teeth are heavily worn. The P2/ has two roots. The paracone has a precrista



Text-fig. 3. FSUA “Bou Hanifia”, right maxilla fragments with P2/, P4/-M3/. a: buccal view, b: stereo occlusal view, c: lingual view.

descending mesially towards the cervix and distally it is confluent with the metacone. The rear of the crown is broader than the main cusps, and there are small basal cusplets lingually opposite the middle (nascent protocone) and rear (nascent hypocone) of the tooth, the whole imparting a triangular occlusal outline to the tooth.

The P4/ is almost square in occlusal outline, with rounded corners. There are two buccal cusps (paracone, metacone) which are separated by a shallow buccal groove. Lingually there is a prominent protocone anteriorly and a slightly smaller hypocone distally. Between the buccal and lingual cusp pairs there are remnants of sagittal cusplets, separated from the paracone by a mesial groove. In addition, there are remnants of a mesial cingulum.

The M1/ crown is so deeply worn that little remains to be described. The crown is comprised of two lophs with a prominent median accessory cusp in the midline.

The M2/ is also heavily worn, but shows that it is comprised of four main cusps with anterior and median accessory cusps in the midline, the posterior one being eradicated by wear. Parts of the Furchenplan are visible on the paracone, but the other cusps are worn beneath the bases of the Furchen.

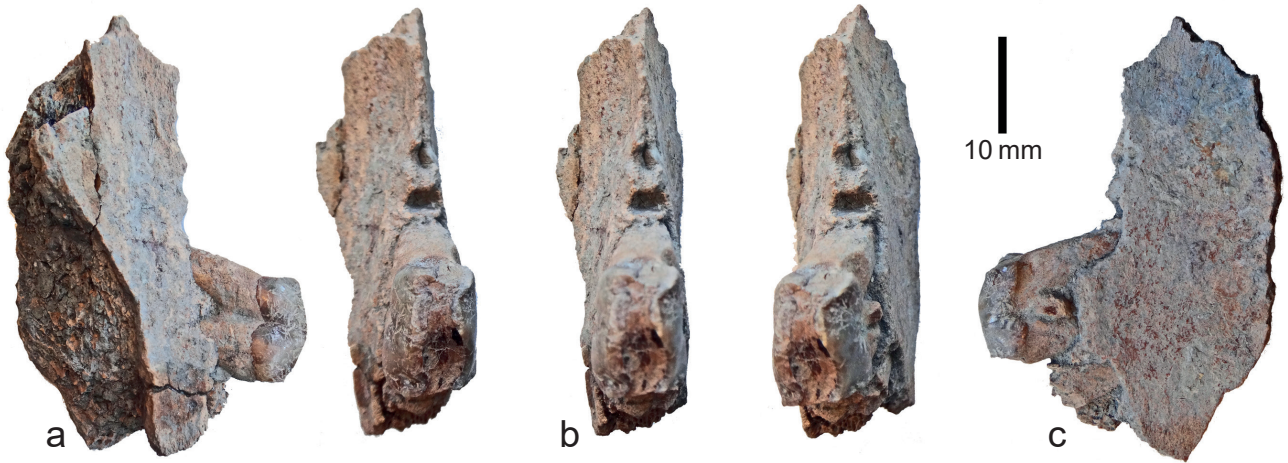
The M3/ is broken posteriorly but it is possible to observe that it consists of at least three cusp pairs separated from each other by median and posterior accessory cusplets. The way that the tooth is narrowing distally close to the break indicates that there was probably not an additional cusp pair, and this allowed an estimate of its total length to be made. In addition, there is a well-formed anterior accessory cusplet and mesial cingulum. The accessory cusplets partly intervene between the buccal cusps and lingual cusps. The buccal and lingual notches are not deeply indented, mainly due to the fact that the crown has worn down close to the

cervix. On the buccal and lingual sides, the cervix is almost straight and is sub-parallel to the occlusal surface.

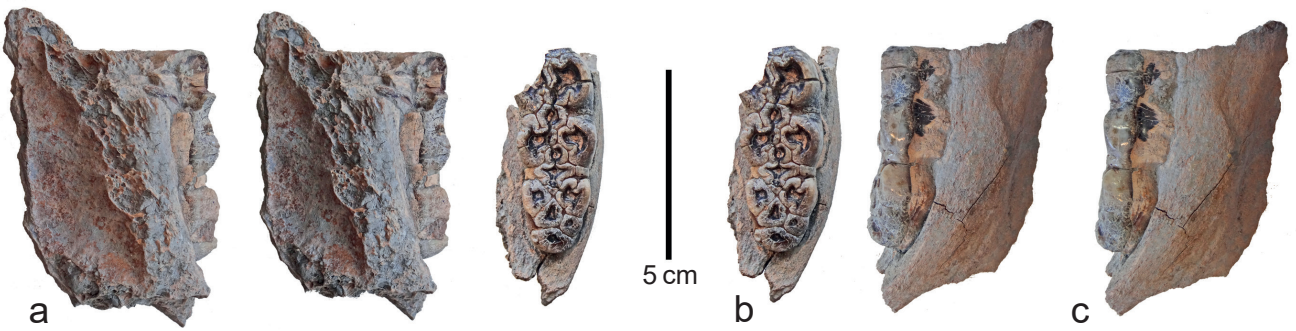
Mandible and lower teeth. A left mandible fragment retains the p/3 and the two alveoli of the p/2 along with part of the diastema in front of the p/2 (Text-fig. 4). The crown of the p/3 is deeply worn but shows a tall main cusp with a broad precristid descending mesio-lingually and a posteristid descending towards the talonid cusplet which is deeply worn.

A second fragment of left mandible contains the m/3 which lacks the mesio-buccal corner of the protoconid (Text-fig. 5). The buccal side of the mandible is broken, but what is left reveals that the jaw was originally very broad (pachygnathic) with a prominent mandibular canal. The m/3 is deeply worn, to the same stage as the upper M3/ indicating that the individual was fully mature, approaching old age, but not yet senile. The crown consists of three cusp pairs and a distal cusplet. The anterior, median and posterior cusplets in the midline of the crown intervene strongly between the buccal and lingual main cusps. The buccal and lingual notches are relatively broad considering the heavily worn state of the tooth, indicating that it falls into the category of mid-crown hypsodonty. In buccal and lingual views, the cervix is clearly visible and it shows no step or offset beneath the successive cusps and it is sub-parallel to the occlusal surface.

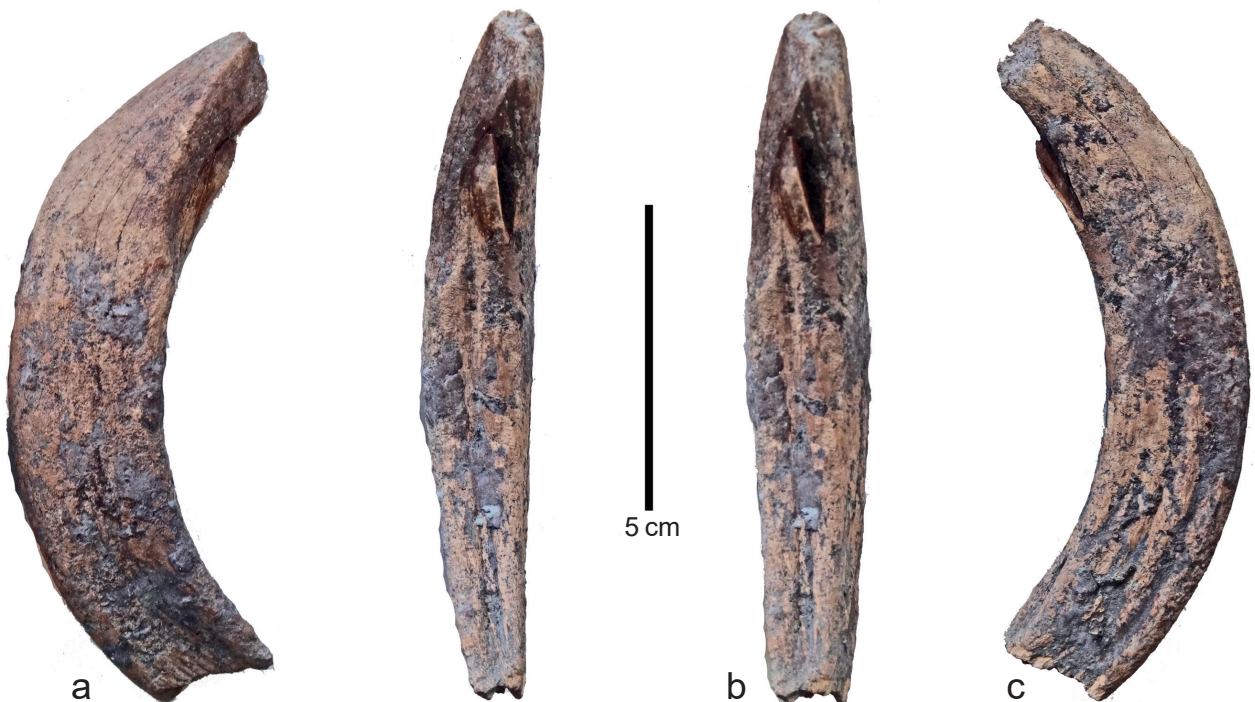
The lower right canine has a low crown (lacking a small part of the apex due to damage), and a root that is about twice as tall as the crown (Text-fig. 6). The apex of the root is still open. The crown is basically verrucosic in section and the root sports a distal groove. The overall morphology of the canine and its diminutive dimensions indicate that it is likely to be from a female individual.



Text-fig. 4. FSUA "Bou Hanifia", left mandible fragment with alveoli of p/2 and complete but heavily worn p/3. a: buccal view, b: stereo occlusal views, c: lingual view.



Text-fig. 5. Stereo views of FSUA "Bou Hanifia", left mandible fragment with m/3. a: buccal view, b: occlusal view, c: lingual view.



Text-fig. 6. FSUA "Bou Hanifia", suid right lower canine (female). a: lingual view, b: stereo dorsal view, c: buccal view.

Metric analysis

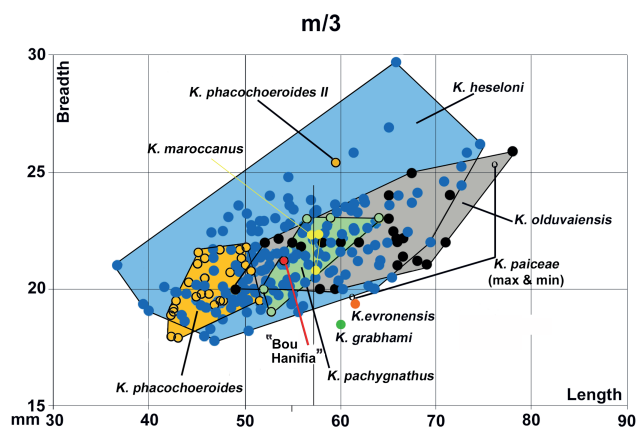
Bivariate plots of the length and breadth of the lower third molars of diverse species of *Kolpochoerus* (Text-fig. 7) indicate that the “Bou Hanifia” specimen is larger than the bulk of material attributed to *K. phacochoeroides* (one specimen labelled *K. phacochoeroides* II is considerably larger than the others and possibly represents a separate species or it could be an extreme variant of the population). The fossil plots close to specimens of *K. maroccanus*, and within the range of variation of *K. pachygnathus* (herein plotted as a subgroup of *K. heseloni*), *K. heseloni* (as a medium-sized individual) and *K. olduvaiensis* (as a small individual).

In the Skurwerug fossil suid skull (Text-fig. 9), the third molars are not fully erupted, so the dimensions were estimated (Hendey and Cooke 1985). Because of this the length measurements used in Text-fig. 9 (symbol “S”) may be underestimated, and if so then they would move the Skurwerug specimen closer to the range of variation of *Kolpochoerus paiceae* from the other localities where it has been recorded.

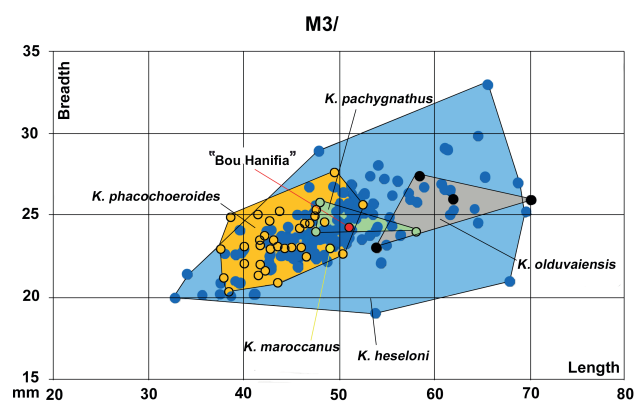
Analysis of the morphology and the lengths of the upper and lower third molars reveals that the “Bou Hanifia” suine sample is close to those from Mansourah and Rabat currently identified as *Kolpochoerus maroccanus* (Text-figs 7–9). The m/3 is slightly shorter than a fossil from Kosti (Sudan), the holotype of *Kolpochoerus grabhami*, but it is considerably lower-crowned than it. The M3/ and m/3 from “Bou Hanifia” plot within the range of variation of *Kolpochoerus heseloni* (near the middle of the range), *Kolpochoerus pachygnathus* and *Kolpochoerus olduvaiensis* (shorter end of the range) but are longer and somewhat lower-crowned than the majority of fossils attributed to *Kolpochoerus phacochoeroides*. The crown height of the molars of the species *phacochoeroides* is one of the reasons why Ramírez-Pedraza et al. (2023) attributed it to the genus *Metridiochoerus*. The much elongated outlier of the latter species possibly belongs to a larger species of the genus.

Geraads (1993) attributed the suids from Ahl al Oughlam to *Kolpochoerus phacochoeroides*, but some authors prefer to include them in *Metridiochoerus* (Cherin et al. 2018, Ramírez-Pedraza et al. 2023). Our own assessment of the skull characters, the mandible and dentition of these suids indicate that the species is better included in *Kolpochoerus* than in *Metridiochoerus*. For example, the large lower canines in adults of *Metridiochoerus* are retained deciduous canines (Pickford 2020) whereas in *Kolpochoerus* the deciduous lower canines are replaced by permanent counterparts at the sub-adult phase of development (Geraads 1993). There are also differences in the type of hypsodonty developed in these two lineages of suids and an additional important character is that in *Kolpochoerus* the mandible is pachygnathic (as in *Dasychoerus*) whereas in *Metridiochoerus* it is not. Thus, we prefer to include *phacochoeroides* in the genus *Kolpochoerus* rather than *Metridiochoerus*.

In passing, we note that Cherin et al. (2018) classified the Tuscan suid as *Sus strozzi* MAJOR, 1881, but this species is classified by us in the genus *Dasychoerus* with which it shares many morphological characters such as



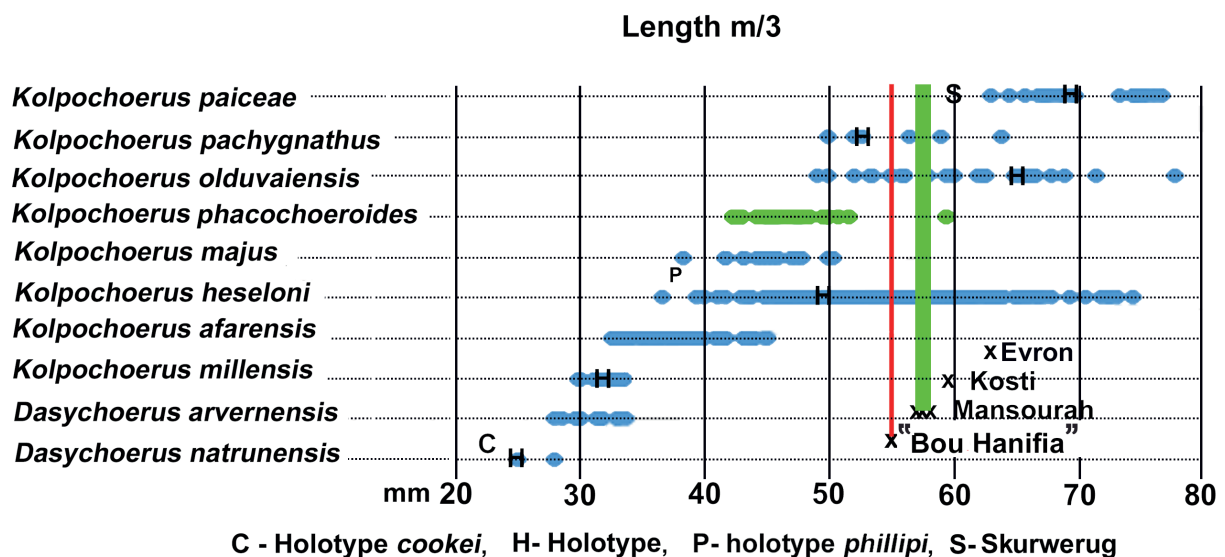
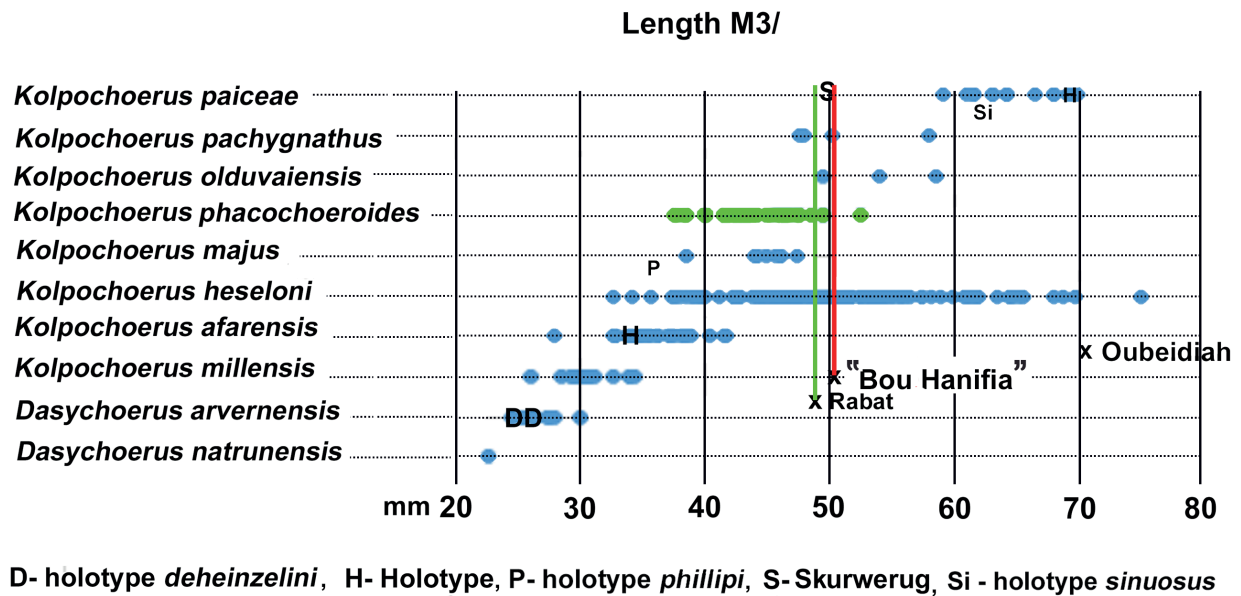
Text-fig. 7. Bivariate (length-breadth) plots of lower third molars of species of *Kolpochoerus*. The “Bou Hanifia” specimen (red) plots close to three specimens of *K. maroccanus* (yellow) and within the range of variation of specimens of *K. pachygnathus* (light green), *K. olduvaiensis* (grey, small specimens) and *K. heseloni* (blue, medium-sized specimens). The single specimen labelled *K. phacochoeroides* II is considerably larger than other specimens attributed to the same species (orange).



Text-fig. 8. Bivariate length-breadth plots of upper third molars of species of *Kolpochoerus*. “Bou Hanifia” (red) falls within the range of variation of several species but is close in dimensions to *K. maroccanus* (yellow).

the pachygnathic mandible and canines that are replaced during ontogeny (Pickford 2012). This classification impacts on the phylogenetic analysis. One of the areas of concern is that *Metridiochoerus* retains the lower deciduous canine into adulthood and its mandible is not pachygnathic (Pickford 2020), whereas *Kolpochoerus* and *Dasychoerus* replace the canines during growth and both genera exhibit marked mandibular pachygnathy. Thus, for these reasons it appears unlikely that *phacochoeroides* belongs to the genus *Metridiochoerus*.

In terms of dental morphology and length of the upper third molar, the closest matches to the “Bou Hanifia” teeth are with specimens from Omo beds C-H in Ethiopia, and the Kubi Algi Formation + Koobi Fora unit 3 in Kenya (ca. 3.2–1.8 Ma) according to Cooke (1985) or to Omo beds D-G and the Burgi level of the Koobi Fora Formation (ca. 2.5–2.0 Ma) following the revision by Cooke (2007) (see also Pickford 2020: fig. 80).



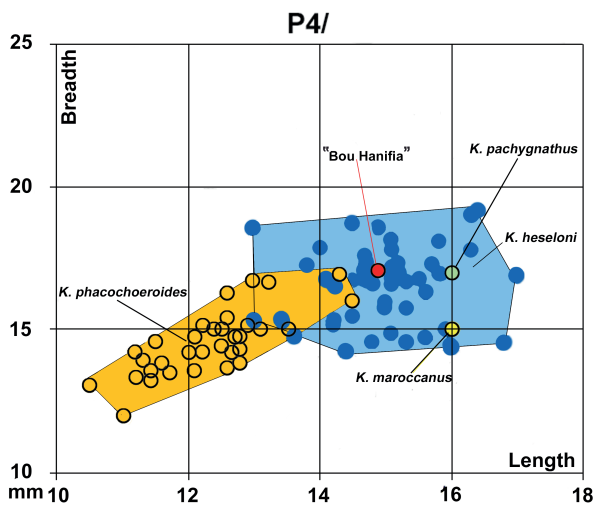
Text-fig. 9. Variation in length of upper and lower molars of species of *Dasychoerus* and *Kolpochoerus* from African localities. Note the excessive range of variation in *Kolpochoerus heseloni* and *Kolpochoerus olduvaiensis* in comparison with other species of the genus suggesting that as currently understood (Cooke 1976, Harris and White 1979) these species are chimaera of two or more taxa. “Bou Hanifia” is shown in red, other North African fossils in green.

Discussion

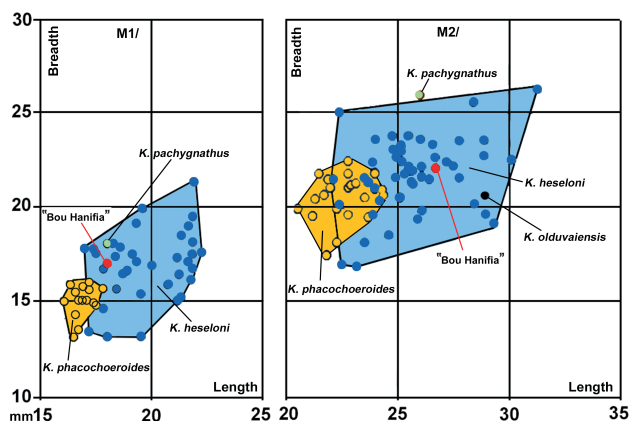
The suid fossils described herein, labelled as having been collected at “Bou Hanifia”, are compared with Late Miocene and Plio-Pleistocene taxa from Africa and Eurasia. The comparisons reveal that they are closest in overall morphology and dimensions to medium-sized specimens of *Kolpochoerus*. The pachygnathic condition of the mandible also aligns it with this genus, as does the fact that the upper and lower third molars (allowing for the broken distal end) are comprised of three pairs of cusps, and that the cervix in the third molars is almost straight from mesial to distal and is sub-parallel to the occlusal surface. Furthermore, the teeth fall into the category known as mid-crown hypsodonty, with relatively broad buccal and lingual notches which contrast

with teeth in which it is the crown base that develops hypsodonty (as in *Metridiochoerus* and *Phacochoerus*) in which buccal and lingual notches are shallow or absent. Furthermore, even though heavily worn, it is likely that the crowns were not very hypsodont when unworn.

Comparison with suids from Eurasia reveal only a few similarities with rare specimens of lower third molars of *Hippopotamodon* LYDEKKER, 1877 from localities such as Karain, Turkey, and Montrigaud, France (Pickford 2015) both of which possess an additional pair of cusps in the lower third molars. Apart from this similarity, however, the teeth of these European individuals differ from their counterparts in *Kolpochoerus* and *Metridiochoerus*, especially concerning the category of hypsodonty expressed in the molars. In other respects, the “Bou Hanifia” specimens described



Text-fig. 10. Bivariate length-breadth plots of upper fourth premolars of species of *Kolpochoerus*. The P4/ of the “Bou Hanifia” suid is longer than all the specimens attributed to *Kolpochoerus phacochoeroides*, and it plots within the range of variation of *K. heseloni*, not far from *K. pachygnathus* and *K. maroccanus*.



Text-fig. 11. Bivariate length-breadth plots of upper first and second molars of *Kolpochoerus*. The first and second upper suid molars from “Bou Hanifia” plot within the lower to middle part of the range of metric variation of *Kolpochoerus heseloni* but fall outside the range of variation of *Kolpochoerus phacochoeroides*.

herein differ largely from all known European suines from the Miocene and Plio-Pleistocene, especially in the shape and proportions of the upper third molars and the degree of hypsodonty. There are some similarities to specimens of *Dasychoerus arvernensis* (CROIZET et JOBERT, 1828) and *Dasychoerus strozzi* (MAJOR, 1881), in particular the pachygnathic condition of the mandible, but few individuals of the latter two species show the presence of additional cusp pairs in the third molars (a single specimen of *D. arvernensis* from Montpellier has this character, but it is a much smaller species) (Pickford 2015).

Among the African Miocene to Plio-Pleistocene suids, the “Bou Hanifia” sample curated at the FSUA correlates most closely, in terms of morphology and dimensions, to *Kolpochoerus maroccanus* (Ennouchi 1954) and to early (smaller) individuals of what, in eastern Africa, have

been called *Kolpochoerus heseloni* (Leakey 1943) and *Kolpochoerus pachygnathus* (Arambourg 1943). Souron (2012) considered that *maroccanus* belonged to the genus *Metridiochoerus* but, even though the sample is not highly informative, in our opinion the holotype of *maroccanus* is closer in dental morphology to *K. heseloni* and *K. pachygnathus*. The synonymy between these three “species” remains to be resolved, so for the time being we treat the samples separately, because uniting them into a single species carries important biostratigraphic and biogeographic implications which may not be warranted.

It is not markedly different in dimensions from *Kolpochoerus grabhami*, from Kosti, Sudan, but the “Bou Hanifia” m/3 has only three pairs of lophids plus a distal cusplet, unlike the latter species which has five pairs of lophids and which has higher-crowned teeth. *Kolpochoerus sinuousus*, *K. paiceae*, *K. olduvaiensis* and *K. evronensis* also possess five or more lophids in the m/3 and are on average larger than the “Bou Hanifia” suine. Other species of *Kolpochoerus* (*K. phacochoeroides*, *K. majus*, *K. afarensis*, *K. millensis*, *K. philippi*, *K. deheinzeli* (= *Dasychoerus arvernensis*), and *K. cookei*) are all smaller than the “Bou Hanifia” sample, and most of them have simpler third molars comprised of two lophids and a simple hypoconulid cusp.

The suid fossils in the Université d’Alger, labelled as having been collected at “Bou Hanifia” are important for several reasons, not least of which is the information that they yield concerning the age of the deposits from which they were collected. The fossils correlate best in terms of morphology and dimensions with East African material of Late Pliocene to Early Pleistocene age, equivalent to Omo beds C-H in Ethiopia, and the Kubi Algi Formation + Koobi Fora unit 3 in Kenya (ca. 3.2–1.8 Ma according to Cooke 1985) or to Omo beds D–G and the Burgi level of the Koobi Fora Formation (ca. 2.5–1.9 Ma, following the revision by Cooke 2007) (see also Pickford 2020: fig. 80).

Conclusions

The suid specimens curated at the FSUA and labelled “Bou Hanifia” consist of fragments of a maxilla and mandible containing cheek teeth and an isolated canine of a female individual, which are close in morphology and dimensions to remains of the species *Kolpochoerus maroccanus*. It is important for Algerian palaeontology to document these fossils, in spite of the presence of a degree of uncertainty about the content of the label that accompanies the fossils. Future field surveys or laboratory tests may resolve the matter.

The “Bou Hanifia” suine fossils are morphologically and metrically similar to medium-sized specimens from eastern Africa attributed to *Kolpochoerus heseloni* (and its junior synonym, *Kolpochoerus pachygnathus*) (Cooke 2007). The best matches in terms of dental morphology and metrics are with specimens from southern Ethiopia (Omo beds C-H), and Kenya (Kubi Algi Formation + Koobi Fora unit 3 (ca. 3.2–1.8 Ma)) according to Cooke (1985) or to Omo beds D-G and the Burgi level of the Koobi Fora Formation (ca. 2.5–1.9 Ma) following the revision by Cooke (2007).

In conclusion, the FSUA “Bou Hanifia” suine fossils are considered to belong to the species *Kolpochoerus*

maroccanus which could, however, be synonymous with the eastern African species *Kolpochoerus heseloni* (or, at a finer scale, to its subgroup *Kolpochoerus pachygnathus*). The specimens are likely to be of Early Pleistocene age.

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