

FOSSIL *SUIDAE* FROM OLDOWAY.

By L. S. B. LEAKEY, M.A., Ph.D., F.S.A.,

Honorary Curator, Coryndon Memorial Museum, Nairobi.

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The fossils described in these notes are from the Middle Pleistocene lake deposits which are exposed in the famous Oldoway Gorge, at the south-east corner of the Serengeti Plains of Tanganyika Territory. The term Middle Pleistocene is used in the sense defined by Haug in 1911. The stone age cultures of the Oldoway deposits ranges from Pre-Chellean in Bed I to Acheulean Stage VI in Bed IV (top).

The fossils come from Beds I, II and IV, no fossils of the *Suidae* group having been found on this occasion in Bed III.

The specimens were collected during the last two weeks of August, 1941.

The fossil *Suidae* of Oldoway are well represented in the German collection in Berlin, and in the various collections made by my East African Archaeology Expeditions in 1931, 1932 and 1935, and which are now in the Natural History Museum, London.

A study of the Oldoway *Suidae* was prepared by Professor Dietrich of Berlin, and was published in 1937, in Wiss-Ergben, Oldoway Expedition, under the heading of *Pleistozäne Suidenreste aus Oldoway*, but no reprint of it has ever been received, no review of it seen, and I have been unable to find out what new species or genera he may have described or under what names.*

Apart from this German paper, the only other known notes on the Oldoway *Suidae* are the very brief notes by Dr. A. T. Hopwood of the Natural History Museum, South Kensington, London. These notes were published in the *Annals and Magazine of Natural History*, tenth series, volume 14, number 83. In these notes Hopwood briefly describes a new species of *Potamochoerus* under the name *Koiropotamus majus*, and a new species of *Notochoerus* which he calls *dietrichi*.†

*But see *Postscript* to this article.

†As regards fossil *Suidae* from other parts of East Africa, Hopwood described a new genus under the name of *Metridiochoerus* in the ninth series of *Annals and Magazine of Natural History*, volume 18, page 266, and two new species in an appendix and memoir of *Geological Survey of Uganda*, in 1926.

A much fuller account of the Oldoway fossil fauna has been promised by Hopwood, but nothing appears to have been published. It has, therefore, been decided that the more important *Suidae* fossils in the recently-collected material should be described as soon as possible, in order that other workers in the African field may know something about them for comparative study purposes.

GENUS *MESOCHOERUS* SHAW AND COOKE.

***Mesochoerus olduvaiensis* sp. nov.**

DIAGNOSIS.

A *Mesochoerus* in which the third lower molars have five pairs of lateral pillars instead of four and in which the second lower molars have only the most rudimentary of medial pillars in front of the anterior pair of lateral pillars. The enamel is covered by cement. The crowns of unworn molars are low, compared with those of the genotype and average about 24 mm. instead of over 30 mm.

Holotype: A broken fragment of the left side of the mandible with damaged first molar and with the second and third molars intact. This specimen is from Bed II at Oldoway and is marked (A) in the fossil collection in the Coryndon Museum, Nairobi, Kenya Colony.

Paratype: A broken fragment of the right side of a mandible with damaged first molar and with the second and third molars intact. This specimen is from an older horizon and was found in Bed I at Oldoway at a site several miles away from that which yielded the holotype. It is marked (B) in the fossil collection in the Coryndon Museum.

DESCRIPTION.

Specimen (A). Holotype. A left mandibular fragment with the condylar and part of the coronoid processes broken away posteriorly, and broken anteriorly just in front of the first lower molar. The second and third lower molars are present and intact. The first molar is very incomplete. The lower half of the *corpus* of the mandible is much damaged, especially anteriorly, so that the depth of the mandible cannot be measured accurately.

The third molar (see Fig. 1a. and Plate 60) is composed of five pairs of lateral pillars and nine medial pillars, each pair of lateral pillars being separated from the next adjoining pair by two smaller medial pillars, except in the case of the fourth and fifth pairs at the posterior end, which are only separated from each other by one medial pillar. The medial pillars

FIG. 1.



- 1a. *Holotype* of *Mesochoerus olduvaiensis* (second and third lower left molars).
1b. *Paratype* of *Mesochoerus olduvaiensis* (second and third lower right molars).
1c. Specimen of *Notochoerus deitrichi* (third lower right molar).
1d. Specimen of *Phacochoerus* c.f. *aethiopicus* (fragment of third molar).
1e. *Holotype* of *Phacochoerus complectidens* (fragment of lower third molar).
1f. Specimen of *Sus limnetes* (fragment of third upper molar).

(All approximately natural size.)

whether in pairs or singly, are set along the long axis of the tooth. In front of the anterior pair of lateral pillars is a single medial pillar and two accessory conules and there is also a small medial pillar behind the posterior pair of lateral pillars. The anterior portion of the tooth was already in full wear, but the posterior portion was not yet fully erupted. The third molar has traces of a thick coating of cement, much of which has, however, broken away.

The second molar (see Fig. 1a. and Plate 60) is composed of two pairs of lateral pillars, the two pairs being separated from each other by a single medial pillar. Behind the posterior pair of lateral pillars are two small medial pillars, one behind the other in the line of the long axis of the tooth. At the anterior end of the tooth there is a trace of a very rudimentary medial pillar in front of the anterior pair of lateral pillars.

The first molar is too damaged to describe.

Specimen (B). Paratype. A right mandibular fragment. It is broken posteriorly in such a way that only a very small part of the ramus is preserved, whilst anteriorly, the whole of the area in front of the first molar is missing. The lower part of the *corpus* is also missing. The second and third molars are present and intact, but the first molar is very much damaged.

The third molar (see Fig. 1b.) is not fully erupted and the posterior portion is *not completely developed*. There are four well-marked pairs of lateral cusps or pillars, and a fifth pair in a small and undeveloped state. Each pair of lateral pillars is separated from the next pair by two medial cusps or pillars, these medial pillars being arranged in the line of the long axis of the tooth. There is a single anterior pillar and an accessory conule in front of the anterior pair of lateral pillars. The third molar bears traces of a thick coating of cement which has mostly broken away.

The third molar of the paratype thus agrees in all essential details with the third molar of the holotype, although it comes from a different horizon.

The second molar (see Fig. 1b.) is composed of two pairs of lateral pillars, separated from each other by a single medial pillar. Behind the posterior pair of lateral pillars is a single medial pillar, which, however, seems to be the result of a fusion of two small pillars as a result of wear. In front of the anterior pair of lateral pillars is a small fold of enamel, which may represent a rudimentary anterior medial cusp or pillar.

The first molar is much too damaged for study.

MEASUREMENTS.

	Maximum length of occlusal surface.	Maximum length.	Width of occlusal surface.	Maximum width.
Third molar ... (holotype)	59 mm.	67.5 mm.	17 mm.	25 mm.
Third molar ... (paratype)	54.5 mm.	65 mm.	17 mm.	24 mm.
Second molar . (holotype)	29 mm.	29 mm.	17 mm.	20 mm.
Second molar . (paratype)	29 mm.	29 mm.	18 mm.	21 mm.

The height of the crowns of the unworn posterior and medial pillars of the third molars is 26 mm. in (A) and 26 mm. in (B).

DISCUSSION.

The specimens described above are considered as representing a new species of the genus *Mesochoerus* Shaw and Cooke, as they differ consistently from *Mesochoerus paiceae* in the following respects:—

- (1) The third molars have five pairs of lateral pillars, instead of four pairs, the posterior pair being smaller than the other four pairs.
- (2) There are in all nine medial pillars.
- (3) The crowns of unworn molars are considerably shorter than in *Mesochoerus paiceae*.
- (4) Although the teeth of the new species are shorter in actual point of size, nevertheless they have more medial and lateral pillars than the type specimen of *Mesochoerus paiceae*, and are consistently broader. Length by breadth indices of third molars is 37.02 and 36.9 as compared with 32.3.

Middleton-Shaw and Cooke express the view that their new genus *Mesochoerus* "has affinities with the forest pig, *Hylochoerus*." They further state "in the genotype of *Hylochoerus* the length of the lower molar is 41 mm. which is considerably less than in either Broom's or the present author's specimens." In the collection of skulls of *Hylochoerus* in the Coryndon Museum is one in which the length of the lower third molar is 53 mm. and I would not regard this skull as representing anything like the largest *Hylochoerus* to be found in the East African forests.

I must emphasise that, in my opinion, it is very unwise to place too much value on relative size when comparing fossil teeth with those of living species. Fortunately, as Shaw and

Cooke observe in their paper on the new genus *Mesochoerus*, there are other important respects in which the two genera differ.

Out of eight *Hylochoerus* mandibles in the collection in the Coryndon Museum, only two have even a third pre-molar, whilst the always present fourth pre-molar is never molariform. From the picture accompanying Shaw and Cooke's paper, the lower fourth pre-molar of the *Mesochoerus* mandible is distinctly molariform.

GENUS *POTAMOCHOERUS* GRAY, NON. *KOIROPOTAMUS*
(NOMEN NUDUM).

Potamochoerus majus (Hopwood) (equals *Koiropotamus majus* Hopwood).

DIAGNOSIS.

Hopwood's diagnosis of this new species from Oldoway, which he described in *Annals and Magazine of Natural History*, tenth series, volume 14, number 83, page 547, is as follows: "A *Koiropotamus* with very large upper tusks; three well-marked areas of enamel on each tusk; the antero- and postero-superior areas 12 mm. to 14 mm. wide, inferior area up to 40 mm. wide, near the base of the tusk. Main cusp of lower fourth pre-molar more definitely bifid than in recent species. Length of lower pm2 to m1 about 40% greater than in recent species."

Apart from the statement that the main cusp of the lower pre-molar four is definitely more bifid than in recent species, this diagnosis depends entirely upon size. Moreover, apart from the tusks, the material described by Hopwood consists of the lower dentition, whereas the material to be described now is only the upper dentition.

Since one new species of *Potamochoerus* has already been described from Oldoway, it would be unwise to make a further new species out of the present material at the moment, and I, therefore, propose referring the new material to Hopwood's species, with the proviso that when a complete upper and lower dentition are found in association, it may be necessary to revise this decision. For the present, the new material may be regarded as *syn-types* of *Potamochoerus majus*, extending our knowledge of that species to the upper dentition.

Syn-types: Two maxillae of a single individual containing the third and fourth pre-molars and the first, second and third molars in each case. These two specimens were found in association in Bed I Oldoway and they are marked respectively (C) and (D) in the fossil collection in the Coryndon Museum, Nairobi, Kenya Colony.

DESCRIPTION.

Specimen (C). A left maxilla fragment containing a damaged third pre-molar, an undamaged fourth pre-molar, a damaged first molar, an undamaged second molar and an undamaged and partially erupted third molar.

The third molar is composed of two pairs of lateral pillars, behind which are five smaller pillars grouped irregularly as a talon. The area immediately in front of the anterior pair of lateral pillars is obscured by concretionary material, which it has not been possible to clear away. The two pairs of lateral pillars are separated from each other by a medial pillar.

The second molar is composed of two pairs of lateral pillars, separated from each other by a group of three small medial pillars. In front of the anterior pair of lateral pillars is a large irregular medial pillar while behind the posterior pair of lateral pillars, is a group of four small pillars. Three of these four form the posterior end of the tooth and are arranged transversely across the long axis of the tooth, the other is a medial pillar.

The first molar is too damaged to be described.

The fourth pre-molar is of approximately equal length and width and is composed of one pair of lateral pillars, with one group of small subsidiary pillars anteriorly and another posteriorly.

The third pre-molar is too damaged for description.

Specimen (D). A right maxilla fragment (see Plate 61) of the same individual containing the third and fourth pre-molars undamaged, a much damaged first molar, an undamaged second molar and an undamaged and partly erupted third molar.

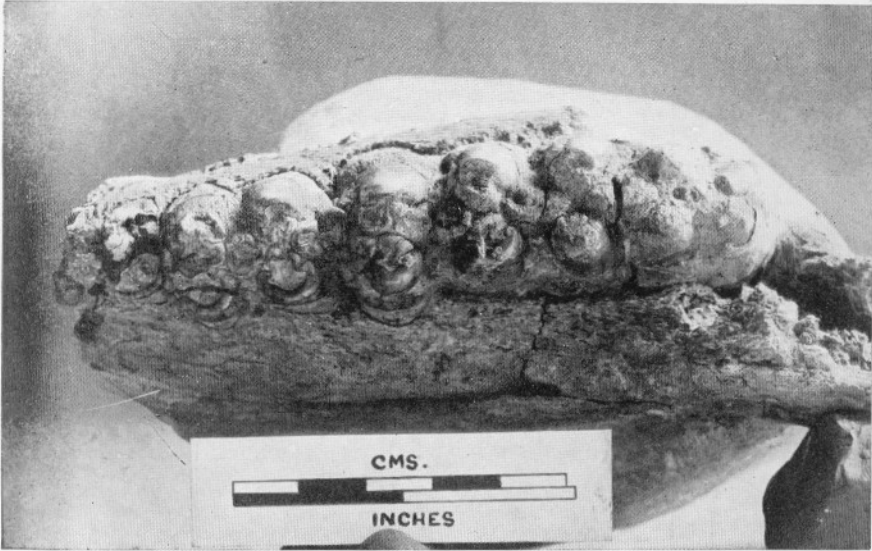
The third molar is composed of two pairs of lateral pillars, behind which are five pillars grouped irregularly as a talon. The area in front of the anterior pair of lateral pillars is exposed and is seen to have one small medial pillar and two very small accessory cuspules on the bucal aspect. The two pairs of lateral pillars are separated from each other by a single medial pillar.

The second molar differs in no way at all from the second left molar already described.

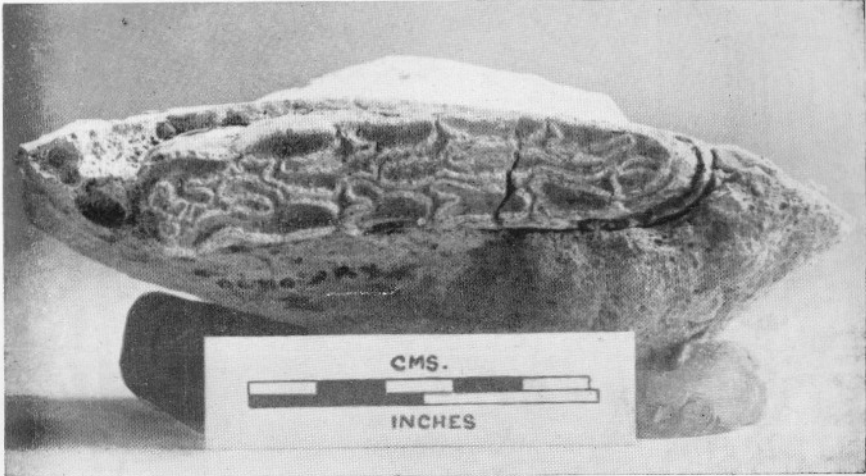
The first molar is too damaged to be described.

The fourth pre-molar is approximately equal in length and width and has one main cusp on the bucal aspect which appears to be composed of the fusion of three cuspules which are clearly distinguishable in the slightly worn occlusal surface of the tooth. Anteriorly there is one distinct cuspule. There is also a small but distinct posterior cusp on the lingual aspect of the tooth.

PLATE 60.

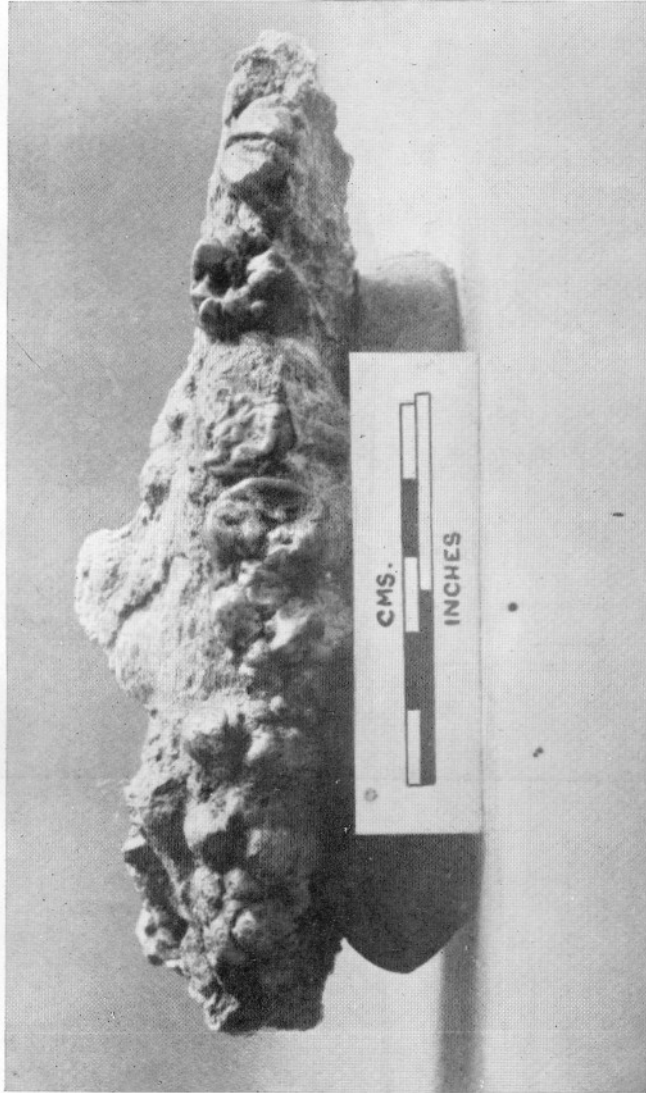


Type of *Mesochoerus olduvaiensis* sp. nov.



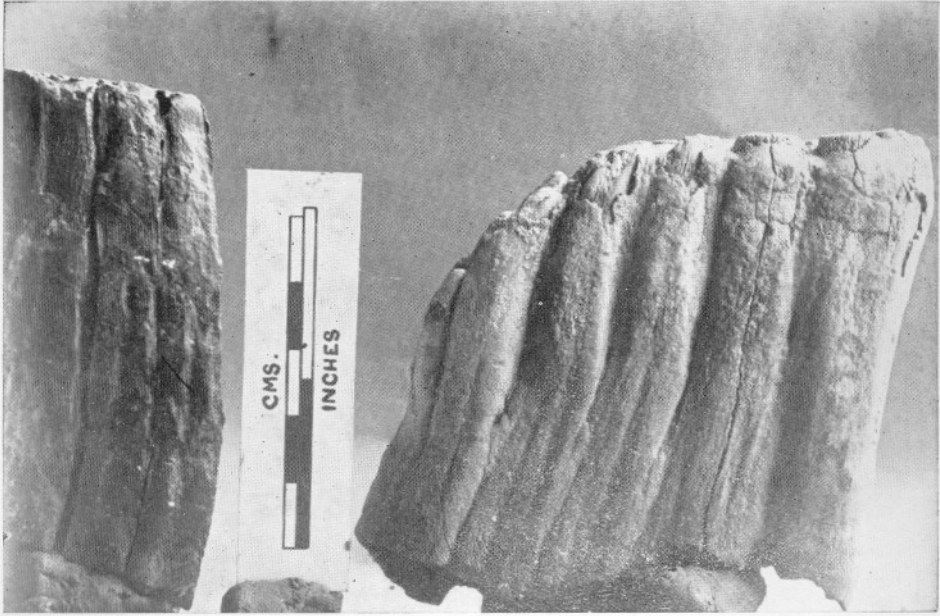
Type of *Afrochoerus nicoli* gen. et sp. nov.

PLATE 61.



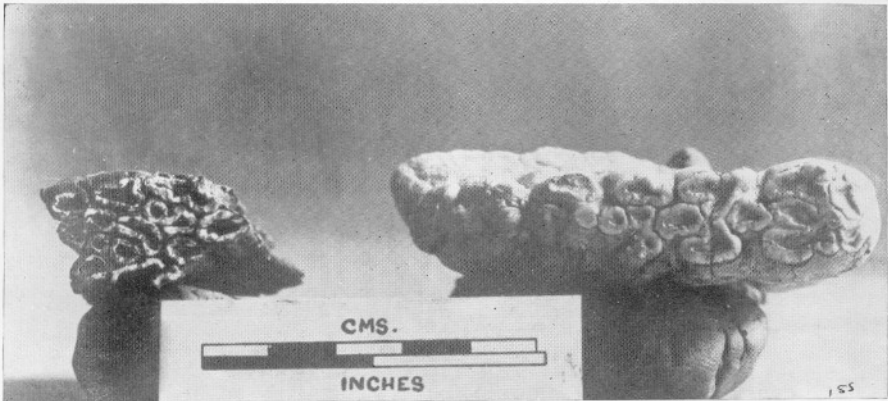
Upper dentition of *Potamochoerus majus* (Hopwood).

PLATE 62.



Type of *Phacochoerus complectidens* sp. nov.

Notochoerus deitrichi Hopwood.



Type of *Phacochoerus complectidens* sp. nov.

Notochoerus deitrichi Hopwood.

MEASUREMENTS.

	Lgth. p3-m3.	Lgth. m3.	Wdth. m3.	Lgth. m2.	Wdth. m2.
Specimen (c) ...	116 mm.	36 mm.	23 mm.	28 mm.	19.5 mm.
Specimen (d) ...	117 mm.	36 mm.	23 mm.	29 mm.	19.5 mm.
Largest modern maxilla of <i>Potamochoerus</i> available ...	103 mm.	36 mm.	21 mm.	24 mm.	23 mm.

	Lgth. m1.	Wdth. m1.	Lgth. p4.	Wdth. p4.	Lgth. p3.	Wdth. p3.
Specimen (c)	19 mm.	16 mm.	15 mm.	15.5 mm.	—	—
Specimen (d)	17 mm.	16 mm.	15 mm.	15.5 mm.	17 mm.	11 mm.
Largest modern maxilla of <i>Potamochoerus</i> available	17 mm.	16 mm.	12.5 mm.	15 mm.	14.5 mm.	11 mm.

DISCUSSION.

The specimens described are provisionally regarded as representing the upper dentition of *Potamochoerus majus*. They are clearly the remains of a species of *Potamochoerus* and as we do not know anything about the upper dentition of Hopwood's species, it is considered unwise at present to make another new species of this genus from the same locality and same horizon.

In respect of size, the fossils described above are larger than the largest example of a living species of the genus available. This is not, however, considered significant in itself.

It is in respect of the arrangement of the secondary pillars of the second and third upper molars and in the detail of the third upper pre-molar that the fossil species *majus* appears to be distinctly different from any of the living species of *Potamochoerus*. These differences, taken in conjunction with Hopwood's notes, seem to indicate that the separation of the Oldoway fossil species from known living species is justifiable.

GENUS NOTOCHOERUS BROOM.

Notochoerus dietrichi Hopwood.

DIAGNOSIS.

The only diagnosis given by Hopwood in his notes on this new species, which he created on specimens from Oldoway, is "a *Notochoerus* with smaller and less complicated upper molars than the genotype *Notochoerus capensis*." No description is given by Hopwood of the lower molars which he includes in

his new species and the measurements which he gives tell very little. In view of this, it is exceedingly difficult to know whether the specimen about to be described should really be included in the species *Notochoerus dietrichi*. As Hopwood has already made a mandible fragment with left molars two and three into the paratype of his new species *Notochoerus dietrichi*, and as the specimen about to be described is from the same area, it is not proposed to do more than describe the new specimen and discuss it in very general terms.

DESCRIPTION.

Specimen (E). This specimen is a lower right third molar of *Notochoerus* type. It comes from the surface of Bed I at Oldoway and is in the collection of fossils in the Coryndon Museum, Nairobi, Kenya Colony.

The tooth (see Fig. 1c. and Plate 62) is composed of five pairs of lateral pillars and eight smaller medial pillars. The tooth is markedly hypsodont, and the small root area is broken away. The enamel is thickly coated with cement.

In addition to the eight medial pillars, there are four small pillars in front of the anterior pair of lateral pillars and five small pillars behind the last medial pillar forming a sort of talon.

The enamel of the two anterior pairs of lateral pillars touches along the medial line, but in the case of the other three pairs of lateral pillars, the lingual and bucal pillars which comprise each pair, are separated by a small medial pillar.

Of the eight medial pillars, the two anterior ones occupy positions separating the first and second, and the second and third pairs of lateral pillars from each other respectively. The remaining six medial pillars are contiguous to each other and occupy the whole medial line of the posterior two-thirds of the tooth.

The enamel pattern of the various lateral pillars varies considerably and in the anterior pair of pillars, the bucal pillar is the larger and in the second pair of pillars, the lingual pillar is the greater.

MEASUREMENTS.

The principal measurements are as follows: Maximum length 75 mm. Length of occlusal surface (the posterior part of which is not worn) circa 69 mm. Maximum width 18 mm, width of occlusal surface 16 mm. Height of anterior pillars, exclusive of roots (which are broken away) 68 mm.

DISCUSSION.

The genus *Notochoerus* is regarded as related to the genus *Phacochoerus*. In the latter genus, it is known that there is a very great range of individual variation, not only in respect

of size, but also to a lesser extent in respect of the shape of the enamel of the pillars. Third lower molars of *Phacochoerus aethiopicus*, the living species in Kenya, range in length from 33 mm. to 75 mm. in extreme examples.

Shaw and Cooke have recently described a new species of *Notochoerus* under the name of *broomi* and they say "As will be seen it is a considerably smaller tooth than any *Notochoerus* teeth hitherto described. It seems probable in fact that it represents a dwarf species of *Notochoerus*." I consider it likely that the range of variation in *Notochoerus* will probably prove to be as great as in the genus *Phacochoerus* in which case in all probability, *Notochoerus broomi* and *Notochoerus dietrichi* will both have to be regarded as mere variations of *Notochoerus capensis*, unless other marked differences are found.

GENUS **AFROCHOERUS** GEN. NOV.

DIAGNOSIS.

Large *Suidae* with hypsodont third molars composed of closely-packed series of cusps or pillars. The enamel pattern of the lateral pillars, both bucal and lingual is not sub-cylindrical as in *Phacochoerus*, but is roughly "Y"-shaped, the fork of the "Y" being formed by a fold in the enamel anteriorly. This character is visible even in teeth which are only just coming into wear and is not due to a fusion of pillars. The teeth have a thick coating of cement.

(The specimen recently described by Shaw and Cooke as *Phacochoerus altidens* has a "Y"-shaped enamel pattern of the lateral pillars and not sub-cylindrical as in *Phacochoerus*. I am of the opinion that when more material of their species is available it may have to be transferred to the new genus *Afrochoerus*. The genus *Synaptochoerus*, van Hopen has certain close similarities with *Afrochoerus*, but Middleton-Shaw believes that the medial projections of the lateral pillars are in this case due a fusion of pillars and that these teeth originally had four rows of columns. It is possible that when more is known it will be found that *Afrochoerus* is a synonym of *Synaptochoerus*. If this is so it must be shown that the characters seen in worn teeth of the latter are already present in unworn ones.)

Before describing the Oldoway species of the new genus, it is proposed to discuss why a new genus has been created, instead of leaving the new Oldoway material in the genus *Phacochoerus*. In the British Museum, description of the generic characters of *Phacochoerus* are the words "last molars in both jaws very large, hypsodont and formed of a closely-packed series of small *parallel and vertical sub-cylindrical denticules*."

The genus already contains a large number of species and sub-species that do comply with this definition, as regards the third molars and, therefore, it seems unwise and unscientific to describe within the genus *Phacochoerus*, specimens in which the third molars do *not* fit in with this definition. More especially is this so when we know that true phacochoeres were present at the time that these allied animals were alive.

Middleton-Shaw has shown that occasionally modern phacochoeres do have more than one row of medial pillars, but such an occurrence is not ruled out by the generic definition of *Afrochoerus* or of *Phacochoerus*. It is even true that an occasional pillar in a *Phacochoerus* tooth is not quite sub-cylindrical, but in the teeth on which the new genus is based, *none* of the pillars of the lateral series have a sub-cylindrical enamel pattern, and the distinguishing characters are known from a long series of teeth.

The variation in size in the molars of individuals of living species of the genus *Phacochoerus* is very great, much greater than that mentioned by Shaw and Cooke in their paper on *Phacochoerus altidens*. These authors state that in an extensive collection of teeth of *Phacochoerus* at their disposal, the largest molar is 58 mm. long and the average is 49 mm., in lower molars.

The following measurements are of the lower third molars of ten adult specimens in the Coryndon Museum, of the living species of *Phacochoerus*: 33 mm., 40 mm., 41 mm., 45 mm., 49 mm., 51 mm., 54 mm., 58 mm., and 75 mm. The range is, therefore, from 33 mm. to 75 mm., and the average is 45.9 mm. Since the new genus *Afrochoerus* is clearly related to *Phacochoerus*, it may reasonably be expected that a similar range in size will be found.

***Afrochoerus nicoli* sp. nov.**

DIAGNOSIS.

A species of *Afrochoerus* in which the third molars are composed of two lateral rows of pillars, the enamel pattern of which is exposed on worn teeth as an elongate "Y", the fork of the "Y" being at the anterior end. The shape of the enamel pattern on the medial pillars in slightly-worn teeth is oval. It is a characteristic of the new species that even when the teeth are only slightly worn, the enamel of adjoining pillars tends to join up, this being particularly the case with the medial pillars. As far as the lateral pillars are concerned, the process of fusion of the enamel pattern tends to take place first at the anterior end of the tooth, but in respect of the medial pillars, the posterior ones tend to join up first.

Holotype: A broken fragment of the left half of a mandible, having the third molar in position. This specimen is from Bed II at Oldoway and is marked (F) in the fossil collection in the Coryndon Museum, Nairobi, Kenya Colony.

Paratypes: A right and left lower third molar in different stages of wear. These are marked (G) and (H) and are respectively from the junction of Beds III and IV, and from Bed IV. Both paratypes are in the fossil collection in the Coryndon Museum, Nairobi, Kenya Colony.

DESCRIPTION.

Specimen (F). *Holotype*. A fragment of the left side of a mandible containing the left third lower molar (see Fig. 2a. and Plate 60) which is very slightly damaged at its posterior end. The root sockets of the second molar are preserved, but that tooth is missing. The mandible is broken away in front of the second molar root sockets and posteriorly is broken off immediately behind the third molar. The underneath portion of the mandible is also broken away, leaving only a small part of the alveolar bone on either side.

The third molar is in a fairly advanced stage of wear and, anteriorly, the crown of the tooth is only 17.5 mm. high, exclusive of the short roots. At the posterior end, the crown of the tooth is 32 mm. high, exclusive of the short roots, and 49 mm. high with the roots.

The greatest length of the tooth parallel to the occlusal surface is 90 mm. and the length of the occlusal surface as preserved is 78 mm. and, before being damaged posteriorly, the occlusal length was probably 81 mm.

The tooth has been composed of three rows of pillars, but owing to the fairly advanced stage of wear, the enamel of some of the pillars has joined up, somewhat confusing the original pattern. From a study of specimen (H), the second *paratype*, which is a slightly-worn tooth, and which has been sectioned to show what the enamel pattern would be like in a more advanced stage of wear, we know that this joining up of the enamel of some of the cusps is a definite characteristic of the new species *Afrochoerus nicoli*.

In a worn tooth, which has been chosen as *holotype*, the enamel of all except the two middle lateral pillars on the bucal aspect has joined up with the enamel of all the subjoined medial pillars to form two very complicated enamel patterns, as shown in the illustrations. It should be noted that in the teeth of species of *Phacochoerus* in a similar stage of wear, I can find no evidence of such a fusion of the enamel of the various pillars, although, when an absolutely *extreme* stage of wear is reached, a slight degree of fusion of just a few of the pillars is occasionally found.

FIG. 2.



- 2a. *Holotype* of *Afrochoerus nicoli* (lower third left molar).
2b. *Paratype* of *Afrochoerus nicoli* (lower third right molar).
2c. *Paratype* of *Afrochoerus nicoli* (lower third left molar).
2d. Section of 2c to show the change of enamel pattern as wear increases.

The full measurements of the tooth are as follows: Maximum length 90 mm. Length at occlusal surface (as preserved) 78 mm., (originally) circa 81 mm. Maximum width 18 mm. Width at occlusal surface 17 mm. Height at anterior end (without roots) 17.5 mm. Height at posterior end (without roots) 32 mm., with roots 49 mm. It is not easy to estimate the height of the tooth when unworn, but it must have been in the neighbourhood of 80 mm. high with the roots.

Specimen (G). First *paratype*. This is a third right lower molar (see Fig. 2b.) in a medium stage of wear and with the whole of the root area broken away. The tooth is composed of three rows of pillars, but owing to the stage of wear, the enamel of some of the pillars has joined up, somewhat confusing the original pattern, but not so much so as in the *holotype*. The enamel of the lateral pillars, when not confused with that of the medial pillars, is seen to be "Y"-shaped, as in the *holotype*. The enamel of the anterior pair of lateral pillars, together with that of the second lateral pillars on the lingual aspect, is joined up with that of the subjoined medial pillars to form a complex pattern, but the enamel of the three next pairs of lateral pillars is in each case intact and separate. The enamel of all but the two anterior medial pillars is joined up to form a single elongate island of enamel 42 mm. long. As in the case of the *holotype*, we know from the second *paratype*, specimen (H), that originally this elongate island of enamel was composed of a series of elongate oval medial cusps. The two extreme posterior lateral pillars have their enamel joined at the hinder end.

The measurements of specimen (G) are as follows: Maximum length 74 mm. Length of occlusal surface 72 mm. Maximum width 17 mm. Width of occlusal surface 16 mm. Height at anterior end (without roots) 38 mm. Height of posterior end (without roots) 51 mm.

Specimen (H). Second *paratype*. This is a third lower molar (see Fig. 2c.) only slightly worn. It is considerably smaller than the other two specimens and is probably of a female animal. This tooth has been included as a second *paratype* for the following main reasons:—

- (1) It shows that the teeth of this new species are subject to a considerable size variation.
- (2) It shows the nature of the enamel pattern of the new species before they have been subjected to much wear.
- (3) It shows [in a section which has been cut (see Fig. 2d.)] that the complicated joining-up of the enamel of some of the lateral and medial pillars is a development from an arrangement that is somewhat similar to that found in the genus *Phacochoerus*.

- (4) It also shows that even in a very slightly-worn stage the teeth of the new genus can be clearly distinguished from *Phacochoerus*.

The tooth is composed of three rows of pillars and is only slightly worn. The enamel pattern of the lateral rows of pillars shows the "Y" shape only to a very slight, but yet quite distinct, degree and in the absence of other more worn teeth, or of sectioning, this tooth might possibly have been regarded simply as a *very aberrant* tooth of the *Phacochoerus* group. The medial pillars have a more or less elongate oval enamel pattern, but are not otherwise unusual. The two anterior medial pillars have joined up and have a single enamel pattern, as have the next two.

The measurements of the tooth are: Maximum length parallel to the occlusal surface 71 mm. Length at occlusal surface 60 mm. Maximum width 16.5 mm. Width at occlusal surface 14.5 mm. Height 58 mm. (without roots which are broken away).

* In order to compare the enamel pattern of this slightly-worn tooth with that of the much more worn specimens (F) and (G), this tooth has been sectioned about 30 mm. below the actual occlusal surface in order to see how the enamel pattern would have changed as the tooth wore down.

The description of the enamel pattern at the point of sectioning (see Fig. 2d.) is as follows: The enamel pattern of the lateral pillars (except where the enamel of two or more pillars has joined-up) shows the characteristic "Y" shape of the new genus to a marked degree. The two anterior pairs of lateral pillars have ceased to have separate enamel patterns and instead, the enamel of all four pillars has united into one single continuous line of enamel. In place of the anterior medial pillars, there are two elongate islands of enamel side by side with a very small circle of enamel anteriorly. The enamel of the third pair of lateral pillars has joined up with the enamel of five or six medial pillars to form another continuous line of enamel. The remaining lateral pillars posteriorly are all intact and there is one intact medial pillar posteriorly, but its enamel pattern is more complex than in the unworn tooth.

In respect of detail, the enamel pattern shown in this sectioned tooth differs a little from that seen in specimens (F) and (G), but in general the similarity is very great.

DISCUSSION.

A new genus has been created for a group of *Suidae* somewhat resembling the phacochoeres, but differing from it in certain well-defined characters. It has been shown that even in very slightly-worn teeth the essential characters of the new genus

are recognisable. In worn teeth, the characters are unmistakable. A fragmentary tooth described as *Phacochoerus altidens* by Shaw and Cooke, has a marked degree of resemblance with the new genus and it is suspected that when more complete material is found this species will have to be removed from the genus *Phacochoerus* and placed in the genus *Afrochoerus*. It is possible but I think improbable than van Hoepen's genus *Synapotochoerus* is the same as my *Afrochoerus* in which case that generic name will have to take precedence. The East African species of the new genus is named *Afrochoerus nicoli*, the specific name being taken from the maiden name of my wife, in her honour, as she found the first tooth of this type some years ago. That specimen is now in the British Museum of Natural History, with several others.

GENUS PHACOCHOERUS CUVIER.

Phacochoerus c.f. *aethiopicus* (Pallas).

The Oldoway fossil beds have yielded a number of teeth of phacochoeres which do not appear to differ in any way at all from those of the local living species of the genus *Phacochoerus*. These teeth come from the same horizons as the teeth described above as a new genus allied to the phacochoeres. In the fossil collection in the Coryndon Museum, Nairobi, Kenya Colony, there is only one fragment in the Oldoway material, that seems to represent the living species, but in the collections made by my Expeditions of 1931, 1932, and 1935, there were a number of other examples, which are now in the British Museum of Natural History.

The one specimen collected in 1941, is briefly described here in order to make the picture of the *Suidae* of Oldoway given in this paper more complete.

The specimen is marked (I) in the fossil collections of the Coryndon Museum, Nairobi, Kenya Colony, and was collected from Bed I Oldoway in August, 1941.

DESCRIPTION.

Specimen (I). A fragment of a third molar, broken anteriorly and posteriorly and with the roots damaged.

The fragment shows three rows of pillars (see Fig. 1d.) and all of which the enamel pattern is sub-cylindrical and indistinguishable from that to be seen in the living species.

The fragment as preserved has a length of 20 mm., a width of 15 mm. and a height (exclusive of roots) of 29 mm.

Phacochoerus complectidens sp. nov.

DIAGNOSIS.

A large species of the genus *Phacochoerus* in which the medial pillars are more than twice as many as the pillars in either lateral row (or more than twice as many as the sum total of the two lateral rows of pillars together); and in which the medial pillars are not arranged parallel to the rows of lateral pillars, but instead are grouped in a disorderly and complex fashion.

Holotype: A broken fragment of a very large lower third molar of general *Phacochoerus* type. The specimen is from Bed IV at Oldoway and is marked (J) in the fossil collection in the Coryndon Museum, Nairobi, Kenya Colony.

DESCRIPTION.

Specimen (J). *Holotype*. A fragment of a lower third molar (see Fig. 1e. and Plate 62) composed of three lateral pillars on the lingual aspect of the tooth and ten medial pillars. A part of one lateral pillar on the bucal aspect is preserved. The medial pillars are mostly smaller than the lateral pillars and they are not arranged parallel to the lateral pillars (as is normal in all known species of *Phacochoerus*), but in a confused and disorderly manner (see Fig. 1e. and Plate 62).

The measurements of the fragment, as preserved, are as follows: Length of the preserved part of the occlusal surface 30 mm. Width (exclusive of the external or bucal row of lateral pillars, which is missing except for foot of one pillar) 17.5 mm. Height (exclusive of roots which are broken away) 77 mm.

From these measurements, it is clear that the fragment is part of a very large tooth, but on size alone it would be unwise to make a new species. This has been done because of the number and arrangement of the medial pillars.

DISCUSSION.

For the time being, the Specimen (J) has been made the holotype of a new species of the genus *Phacochoerus*, because no record can be found of any species of this genus with the medial pillars arranged in such a complex way, or which has so many medial pillars in proportion to the number of lateral pillars. It is possible that when more complete material representing this animal is discovered, a new genus may have to be created, or, alternatively, it may be found that it really belongs either to the genus *Afrochoerus* or to *Metridiochoerus* (which it resembles in some ways) and not to the true phacochoeres at all.

GENUS METRIDIOCHOERUS Hopwood.

Metridiochoerus sp.

The 1941 collection of fossils from Oldoway has fragmentary teeth which are definitely referable to the genus *Metridiochoerus* Hopwood, but they are too damaged for specific determination to be safe, and are only mentioned in order to show the great range of the Oldoway *Suidae*. One talon, in particular, has great similarity in points of detail with the talon of the tooth illustrated by Hopwood in his paper in which the new genus was created.

GENUS SUS LINN.

Sus limnetes Hopwood.

A brachydont, broken and much worn third upper molar (see Fig. 1f.) with part of the talon missing would appear to be referable to this species, which was originally described by Hopwood from the Kaiso fossil beds in Uganda.

The specimen which is marked (K) in the fossil collections from Oldoway in the Coryndon Museum, Nairobi, Kenya Colony, has the following dimensions: Maximum length at occlusal surface as preserved 37 mm. Maximum width of occlusal surface 23 mm.

The Oldoway fossil *Suidae* described in this paper are:—

- (1) *Mesochoerus olduvaiensis* sp. nov.
- (2) *Potamochoerus (Koiropotamus) majus* (Hopwood).
- (3) *Notochoerus dietrichi* Hopwood.
- (4) *Afrochoerus nicoli* gen. et sp. nov.
- (5) *Phacochoerus* c.f. *aethiopicus* (Pallas).
- (6) *Phacochoerus complectidens* sp. nov.
- (7) *Metridiochoerus* Hopwood. Species indet.
- (8) *Sus limnetes*, Hopwood.

The associated fauna includes *Deinotherium* (Beds I and II), *Chalichotherium* (Bed I), *Sivatherium*, *Elephas antiquus*, *Hippopotamus gorgops*, *Hipparion*, *Pelorovis*, *Simopithecus*, and about fifty other species, a high proportion of which are extinct.

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POSTSCRIPT. (25/3/42.)

Since this paper was completed I have seen, through the kindness of Dr. Stockley of the Department of Lands and Mines, Tanganyika Territory, a copy of Professor Deitrich's paper on the fossil pigs from Oldoway. Professor Deitrich, in this paper published in Berlin, in 1937, and referred to in my paper, describes the few fossil-pig remains that were in the collection made by the late Professor Reck during his expedition to Oldoway Gorge in 1913. No new genera or species are proposed, Professor Deitrich merely describing the material and assigning it to several genera without attempting to give specific names.

He recognises the following: a *Potamochoerus* (*Koiropotamus*), two species of *Phacochoerus*, and one species which he attributes to what he calls "the *Notochoerus-Metridiochoerus* group." The *Potamochoerus* is represented by a large part of the skull of an immature individual with milk dentition. It is probably a young *Potamochoerus majus* (Hopwood). Of the two species of *Phacochoerus* which Deitrich recognises but does not name, one is based upon a palate with both third molars in position. The second species of *Phacochoerus* is based upon a left, lower, third molar and a broken part of another third molar. The identification of some species belonging to the *Notochoerus-Metridiochoerus* group is based upon a broken third molar and a tip of a tush. Judged by the illustrations the species represented by this material is *Metridiochoerus* rather than *Notochoerus*.