

NEW FOSSIL SUIDAE FROM SHUNGURA, OMO.

BY L. S. B. LEAKEY, M.A., Ph.D.

Honorary Curator, Coryndon Museum, Nairobi.

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INTRODUCTION.

The fossil beds on the banks of the Omo River in Southern Abyssinia were first discovered by the French Expedition led by Count Bourg de Bozas in 1902, and an account of some of the fossils collected by this Expedition was given by Haug in his *Traité de Géologie* in 1912.

A reference in the *Field* of December 6th, 1902, says—*inter alia*:—

“Among the finds unearthed, Dr. Brumpt identified the remains of elephants, crocodiles, many large fish, three different kinds of horse, many hippos, five kinds of pigs, and eighteen specimens of antelope. There were also some undoubted flint chippings, the remains of pre-historic workers, so that the discovery is one of the greatest importance.”

In 1932, another French Expedition led by the palaeontologist, Professor Arambourg, revisited the Omo fossil beds and made extensive collections which were taken to Paris. A popular account of the Expedition was written and published by Dr. Jeannel at the end of 1934, and a certain number of scientific papers have since been published giving some of the results of the work done on the collections, but so far as I can ascertain, no paper describing any of the fossil pigs from Omo has appeared.

As a result of the war, it seems unlikely that any further publications can be expected from Paris on the subject of the Omo fossils for some time and it has, therefore, been decided that a description of the fossils from this very interesting locality that are in the Coryndon Museum should be published without further delay, so as to make them available to other palaeontologists working on African fossils.

During 1941, the Coryndon Museum, Nairobi, received from the Omo Valley several small collections of fossils which had been made by Lieut. J. Smuts, Col. Lynn Allen, Mr. James

Scott, and others, whose duties took them to this area. Early in 1942, an opportunity arose, due to the kindness of Major Gregory-Smith and Capt. Jackson, to send a trained collector to Shungura in the Omo Valley. The collector was only able to spend about three weeks at the sites, but during that time, he collected fourteen cases of specimens. Among them are many of great interest and the present paper is the first of several in which this material will be described.

Such evidence as is available suggests that the Omo fossil beds are older than those at Oldoway and that they are probably of Lower Pleistocene age. They are provisionally regarded as being contemporary with the Kaiso beds of Uganda and the Kanam beds of Kenya.

The term Pleistocene is used in the sense defined by Haug in 1912, and since adopted by Leakey, Hopwood, Patterson, and others, as being more satisfactory than any other, when widespread correlations are involved. The definition lays down that if representatives of any of the genera *Elephas*, *Equus* or *Bos* occur in a deposit, then that deposit should be regarded as Pleistocene, rather than Pliocene. As a result of using this definition, many deposits that were formerly classified as Upper Pliocene become Lower Pleistocene, and deposits formerly placed in the Lower Pleistocene, become Middle Pleistocene.

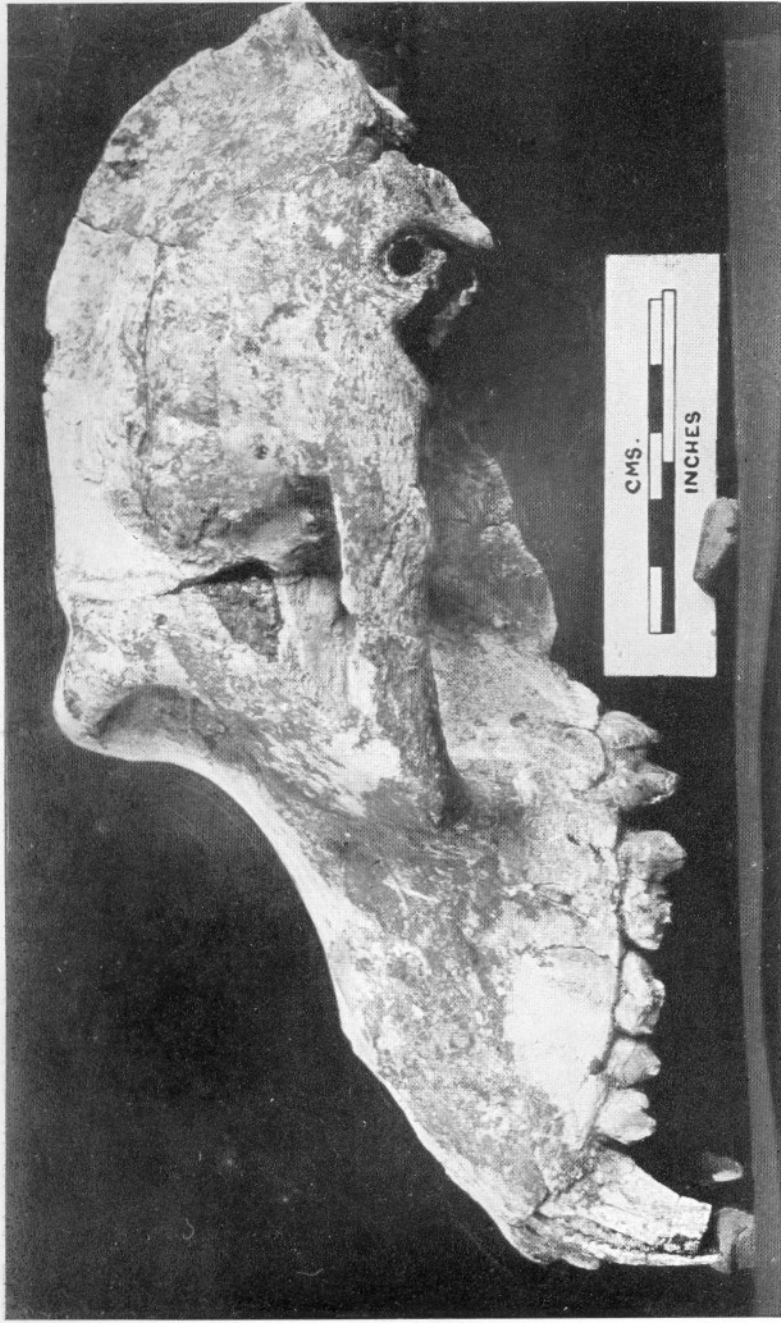
In terms of some of the older definitions, Oldoway would have been regarded as Lower Pleistocene and Omo as Upper Pliocene, but we prefer to regard the Oldoway fauna as representing that of the Middle Pleistocene and that of Omo and Kaiso as Lower Pleistocene.

As might be expected, some of the fossils of the Omo series represent species which also occur in the Oldoway fauna, but the available evidence indicates that the Omo fauna includes a fair proportion of species that did not survive into the Middle Pleistocene as represented by the faunas of Oldoway, Kanjera, and other deposits of that period in East Africa.

The known fauna of Omo includes *Deinotherium bozasi*, *Elephas antiquus*, *Archidiskodon* sp., *Hipparion* sp., and the extinct pigmy hippopotamus first found at Kaiso, *Hippopotamus kaisensis*.

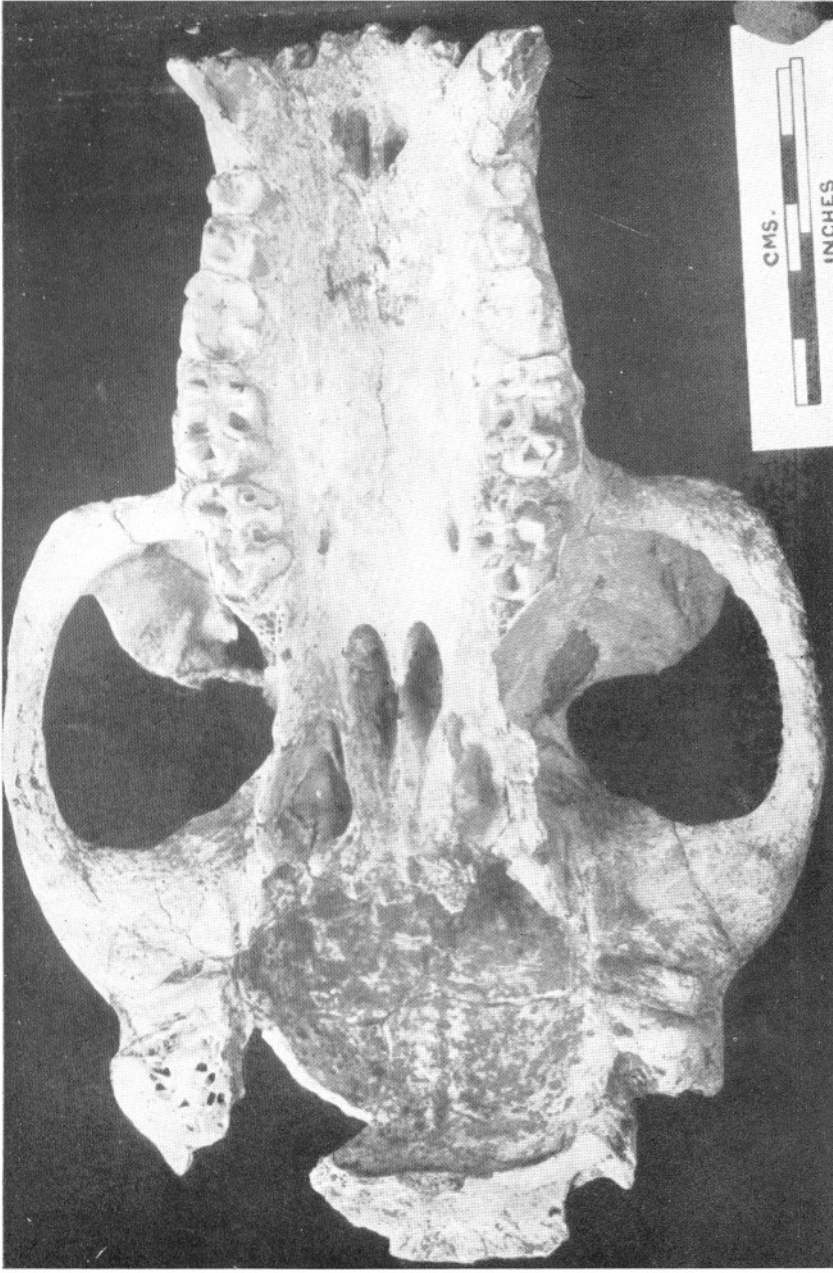
The Omo fossil pigs are of special interest, because they include forms which indicate the stages through which some of the later Middle Pleistocene species may have passed in the course of evolution. Two new genera are described, as well as a new species of the genus *Mesochoerus*.

PLATE 9.



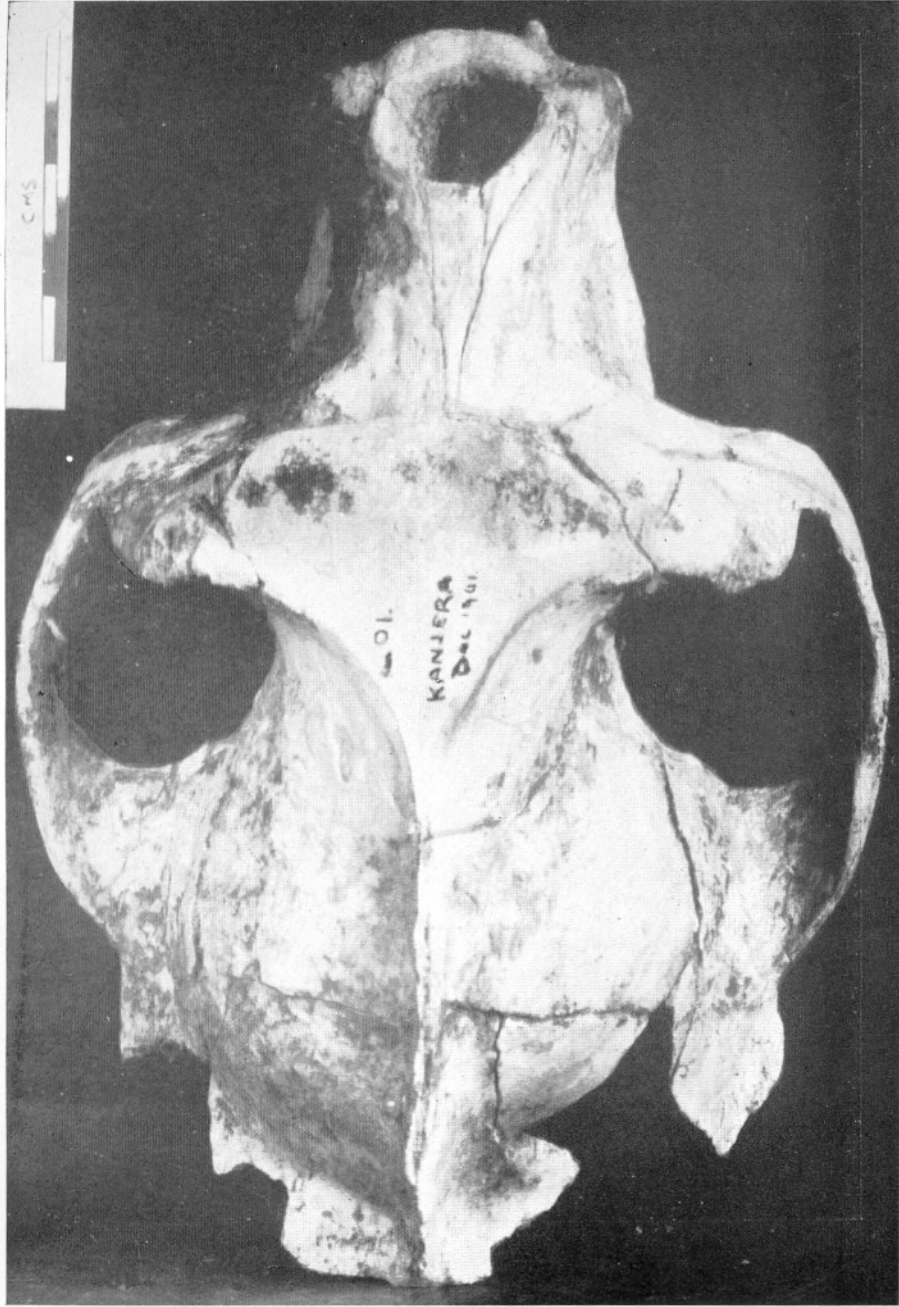
Male *Simopithecus oswaldi*, Andrews.

PLATE 10.



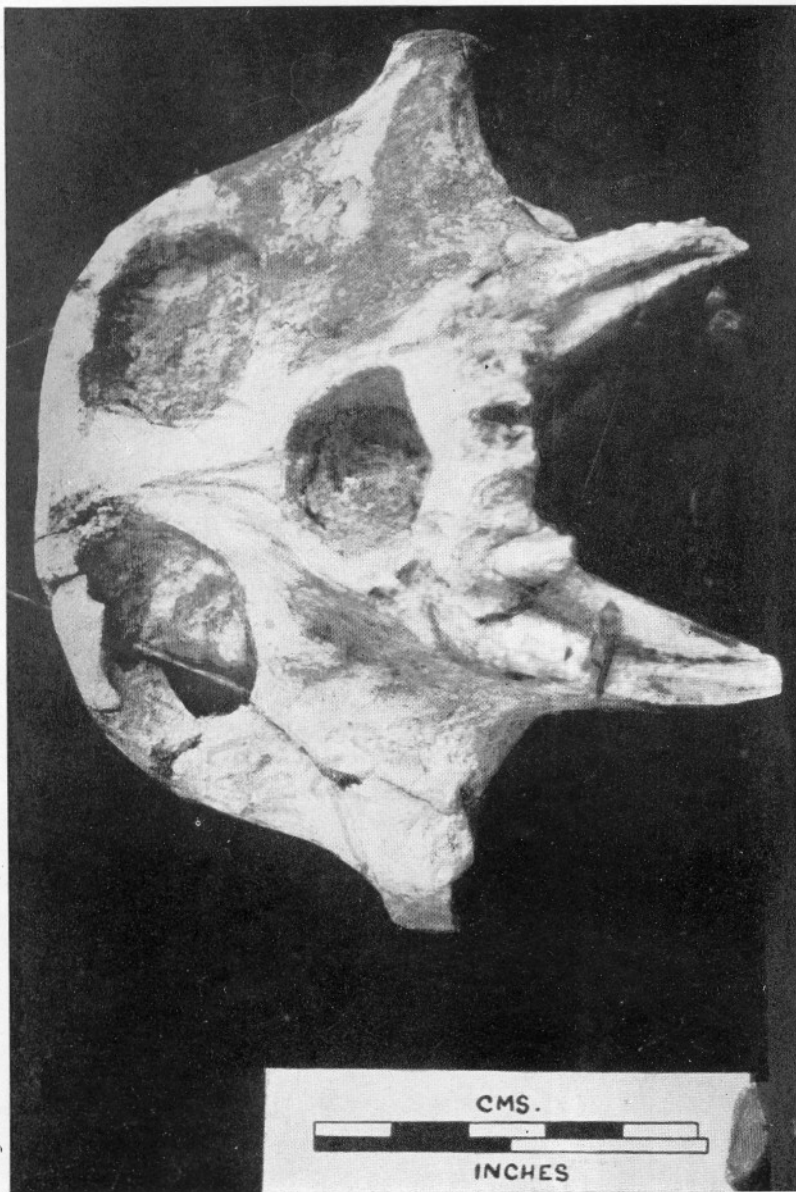
Male *Simopithecus osvaldi*, Andrews.

PLATE 11.



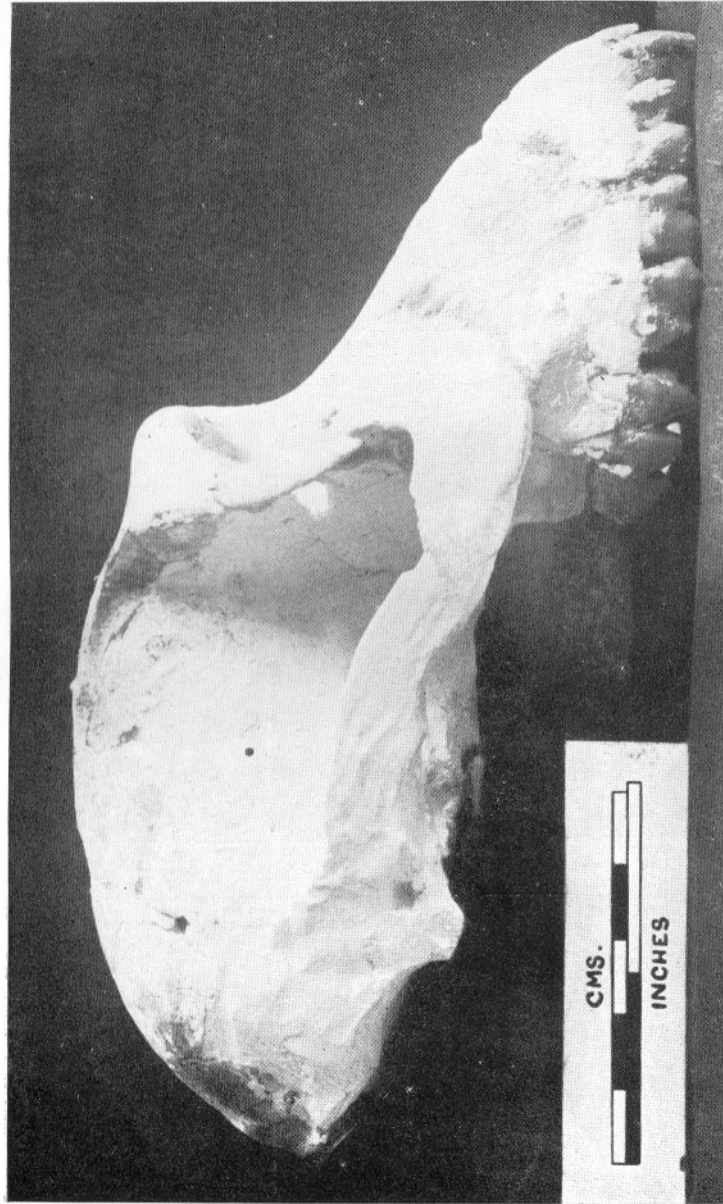
Male *Simipithecus oswaldi*, Andrews.

PLATE 12.



Male *Simopithecus oswaldi*, Andrews.

PLATE 13.



Female *Simopithecus oswaldi*, Andrews.

PLATE 14.

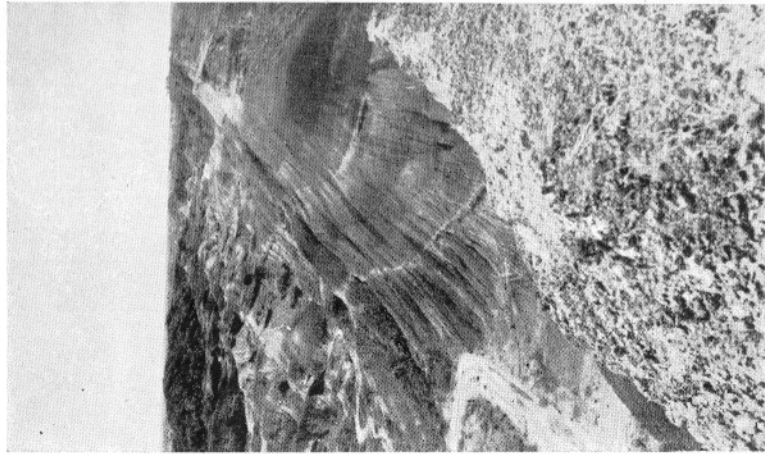


FIG. 1.
Typical view of Omo fossil beds.
PHOTO: CAPT. JACKSON.

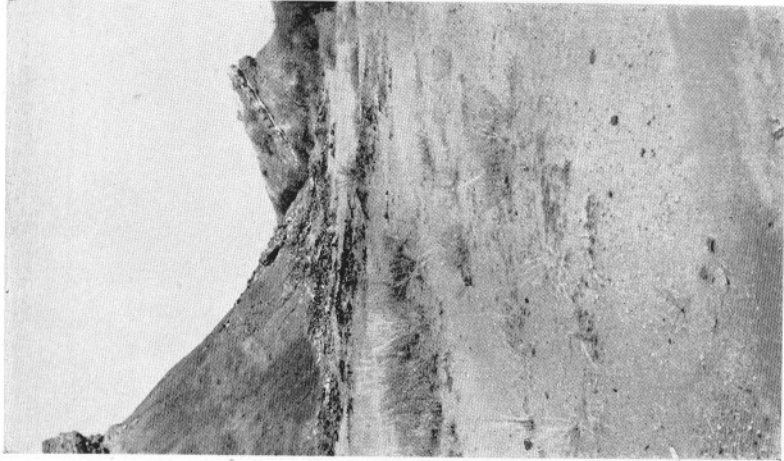


FIG. 2.
View of Omo fossil beds to show tilting
of beds in certain areas.
PHOTO: CAPT. JACKSON.

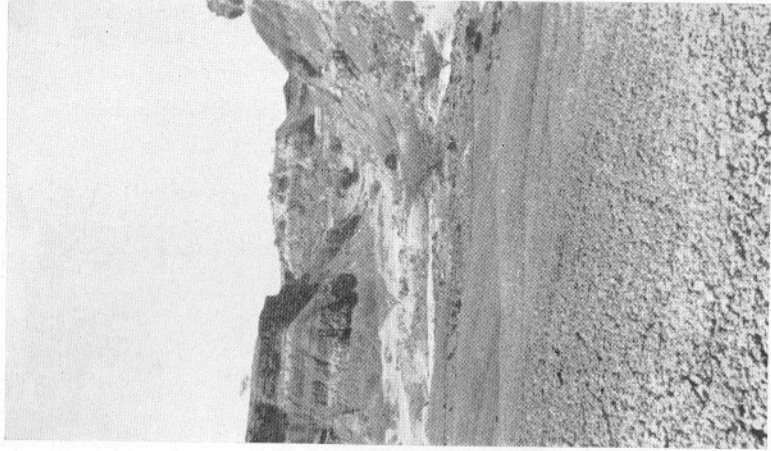


FIG. 3.
Another view of Omo fossil beds,
showing stratification.
PHOTO: CAPT. JACKSON.

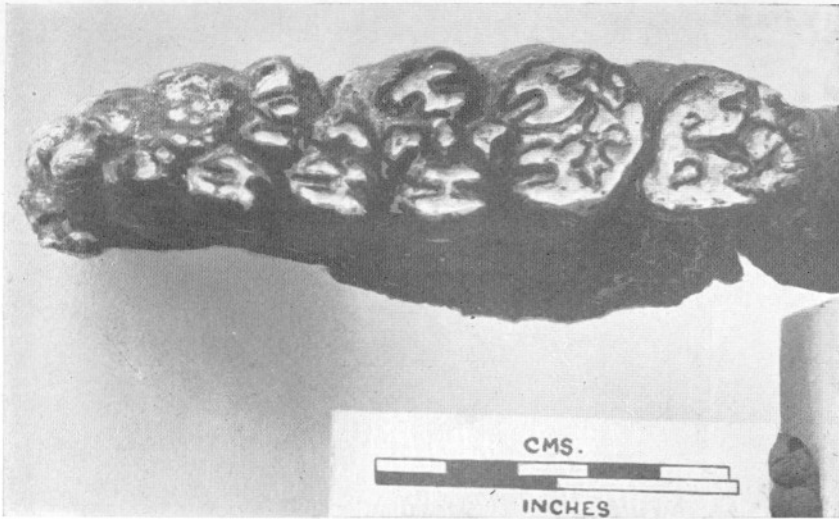


FIG. 4.

First syntype of *Gerontochoerus scotti*, Leakey, gen. et sp.nov.
(occlusal view of upper third molar and part of second
to show enamel pattern).

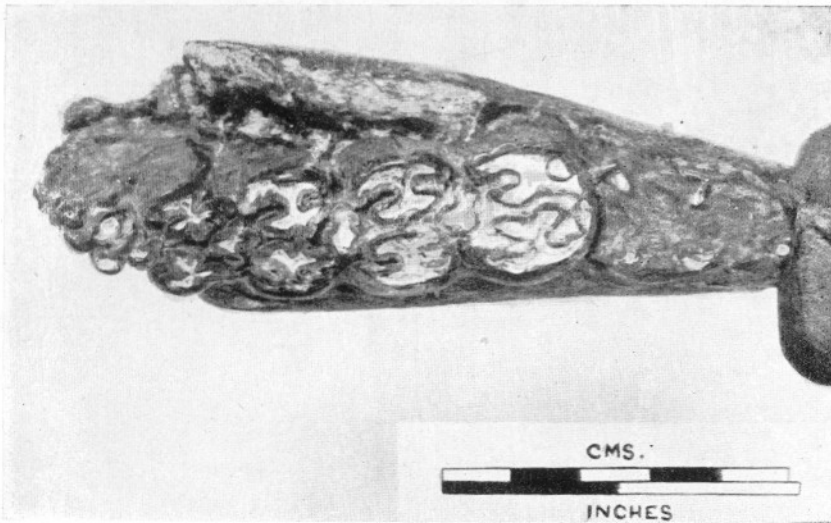


FIG. 5.

Second syntype of *Gerontochoerus scotti*, Leakey, gen. et sp.nov.
(occlusal view of lower third and second molars).

PLATE 16.



FIG. 6.

First syntype of *Gerontochoerus scotti*, Leakey, gen. et sp.nov.
(side view of upper third molar and part of second molar
to show anterior roots).

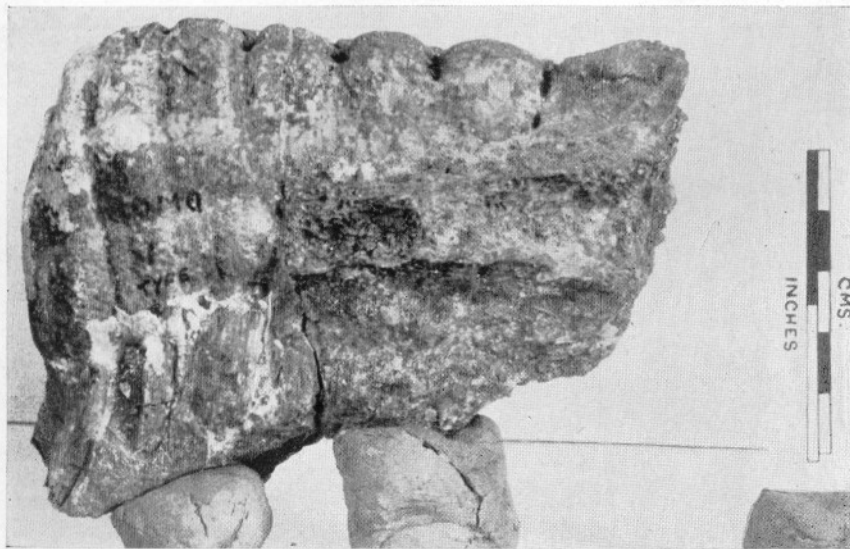


FIG. 7.

First syntype of *Gerontochoerus scotti*, Leakey, gen. et sp.nov.
(side view of upper third molar and part of second molar
to show posterior roots).

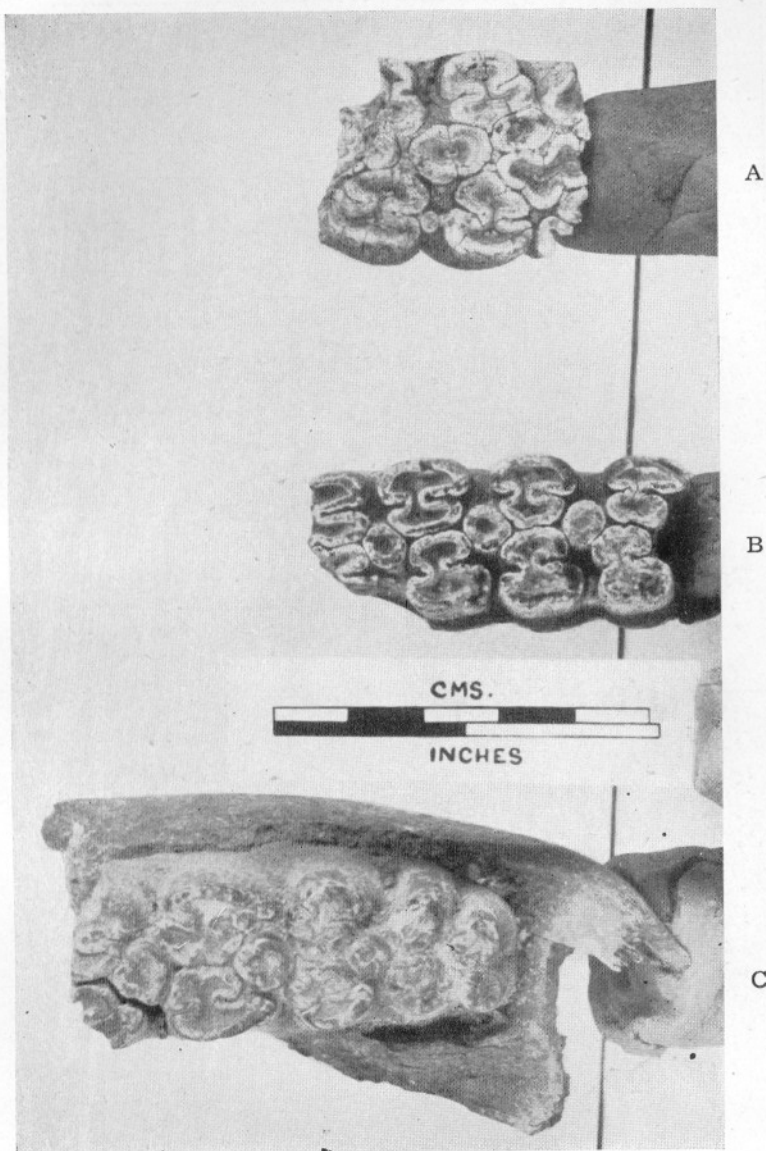


FIG. 8.
Fragments of third molars of *Gerontochoerus scotti*.

PLATE 18.

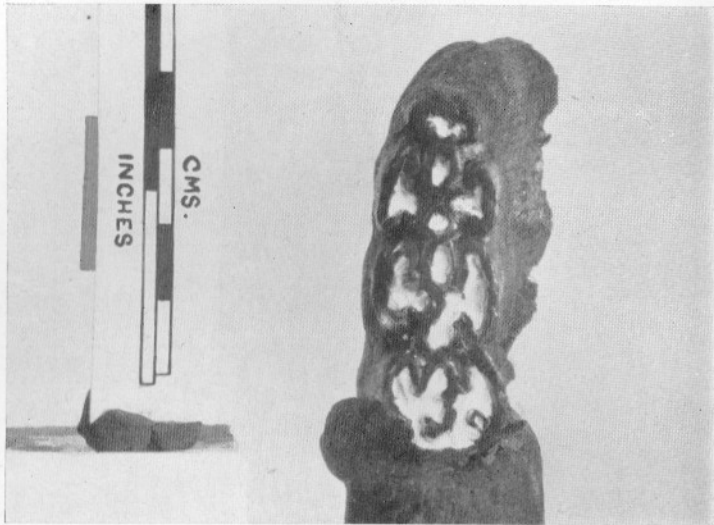


FIG. 9.
Type of *Pro-notochoerus jacksoni*, Leakey, gen. et sp.nov.
(occlusal view of lower third molar).

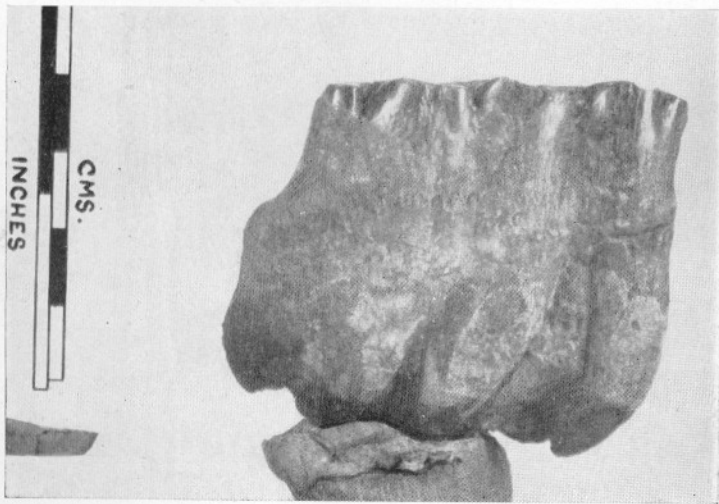


FIG. 10.
Type of *Pro-notochoerus jacksoni*, Leakey, gen. et sp.nov.
(side view of lower third molar to show roots).

PLATE 19.

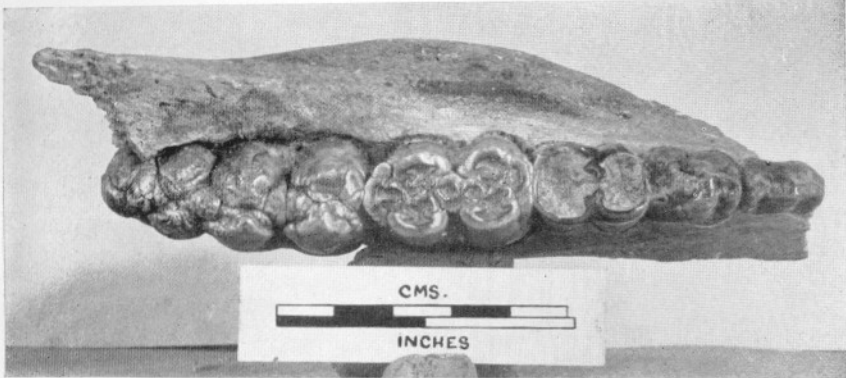


FIG. 11.
First syntype of *Mesochoerus heseloni*, Leakey, sp.nov.
(mandibular fragment).



FIG. 12.
First syntype of *Mesochoerus heseloni*, Leakey, sp.nov.
(side view to show roots).

PLATE 20.

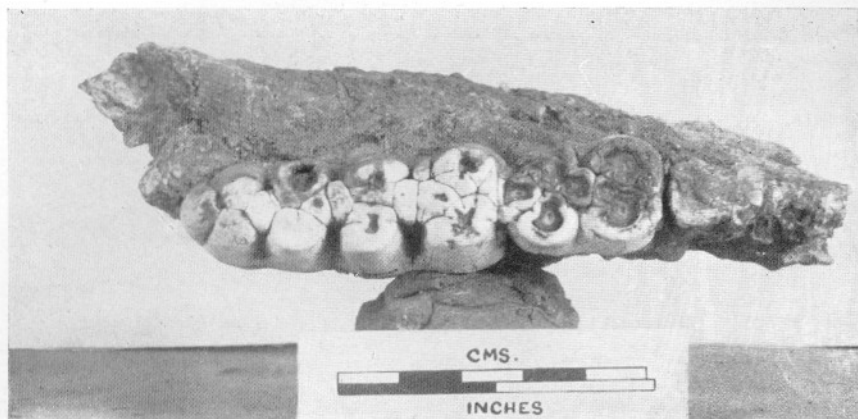


FIG. 13.
Second syntype of *Mesochoerus heseloni*, Leakey, sp.nov.
(mandibular fragment).

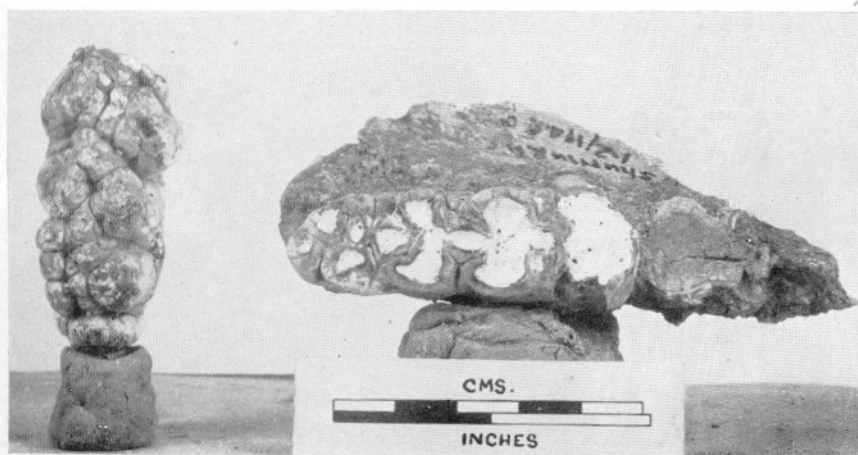


FIG. 14B.
Sus limnetes, Hopwood.

FIG. 14A.
Third syntype of *Mesochoerus heseloni*, Leakey,
sp.nov. (upper third molar).

FAMILY SUIDAE.

GENUS **GERONTOCHOERUS** gen. nov.

DIAGNOSIS.

Suidae with high-crowned and long-rooted third molars composed of four or more pairs of pillars and a small talon. The line of demarcation between crowns and roots very clearly differentiated. Upper third molars more complex than lower.

Gerontochoerus scotti sp. nov. (Genotype).

DIAGNOSIS.

A *Gerontochoerus* of very large size in which the enamel pattern of the third molars exhibits an extreme degree of folding. In the upper third molars, the lateral pillars of each pair are separated from each other by median pillars except in the case of the anterior pair of pillars, but in the lower third molars, the enamel of the lateral pillars comprising each pair touches along the median line and the median pillars merely separate each pair from the next succeeding pair.

MATERIAL.

One maxilla fragment with second and third molars, four incomplete upper third molars, one mandible fragment with second and third molars and five incomplete lower third molars.

Syntypes (A): A right maxilla fragment containing an incomplete upper second molar and a complete upper third molar, catalogued as Omo 1 in the fossil collection of the Coryndon Museum, Nairobi. Collected at Shungura, Omo in January, 1942.

(B): A left mandible fragment containing the second and third lower molars, catalogued as Omo 2 in the fossil collection of the Coryndon Museum, Nairobi. Collected at Shungura, Omo, in January, 1942.

Description of the first Syntype: This fragment of right maxilla with the whole of the third molar and the greater part of the second has been largely cleaned in order to expose the roots sufficiently to ascertain their nature. The specimen now consists of little more than the teeth held in position by a few small fragments of maxillary bone. The third molar, as the more important tooth is described first.

The third molar was not fully erupted and the posterior end is not fully developed. There are five pairs of lateral pillars behind which are two undeveloped pillars than can either be regarded as a talon or as the beginnings of a sixth pair of pillars. That the latter is the more probable explanation is indicated by

another specimen in the collection, where, in a tooth in full wear, the posterior end does not conclude in a talon, but in a pair of lateral pillars.

The lingual and buccal pillars of the anterior pair touch each other along the median line of the tooth, but the buccal pillars of the second, third, and fourth pairs, are separated from the corresponding lingual pillars by a row of median pillars, of which there are six. In front of the anterior pair of pillars there must have been a whole row of small pillars, but with advancing wear, the enamel of these has fused with that of the lingual pillar of the anterior pair to form a complex pattern (see fig. 4). The enamel pattern of the lateral pillars is very distinctive in this species and is constant in all the specimens in the collection. It consists of a sort of dumbbell figure distorted by pressure from end to end and lying transversely across the tooth (see fig. 4).

Each pair of pillars is furnished with long roots, the roots of the anterior pair being the longest. Owing to the fact that the tooth is not in full wear, it is possible to see that the crown was a high one. The fifth pair of pillars were only just coming into wear and the height of the crown at this point is 50 mm.

The following are the full measurements of the upper right third molar of the first *syntype*.

Maximum length 83 mm. Length of occlusal surface (the first five pairs of pillars which are in wear) 76 mm. Maximum width of first pair of pillars 30 mm. Width of occlusal surface at first pair of pillars 23 mm. Maximum width at fourth pair of pillars 28 mm. Width of occlusal surface at fourth pair of pillars 20 mm.

	Height of crown.	Length of roots.
First pair of pillars ...	22.5 mm.	39 mm.
Second pair of pillars ...	26.5 mm.	47 mm.
Third pair of pillars ...	39 mm.	40 mm.
Fourth pair of pillars ...	42 mm.	35 mm.
Fifth pair of pillars ...	50 mm.	22 mm.

The second molar is not complete and the anterior portion including the greater part of the first pair of pillars is broken away. This tooth was, moreover, in an advanced state of wear, the posterior portion being more worn than the anterior part. Before it was broken it is estimated that the second molar was 30 mm. long, as preserved it is 22 mm. long. The enamel pattern of this very worn tooth is seen in the figure. When less worn and complete, it probably had two pairs of lateral pillars and a single median pillar. The posterior roots of the second molar are 22.5 mm. long.

Description of the Second Syntype.

This is a fragment of a left side of a mandible containing the second and third molars. The second molar exhibits an extreme degree of wear, the crown having been worn right down to its junction with the roots. The third molar, on the other hand, was not fully developed and the posterior portion was not yet erupted, although the anterior part is considerably worn.

The second molar is so worn that only the minutest traces of the enamel remain. As preserved, the tooth is 28 mm. long, 19 mm. wide, and the roots are 22 mm. long.

The third molar is composed of six pairs of pillars, of which the first four are in full wear and the last are not yet fully developed. Behind the undeveloped sixth pair is a further rudimentary pair that might perhaps have eventually grown into a seventh pair.

In this lower third molar, as in all other lower third molar fragments in the material which is assignable to this species, the buccal and lingual pillars which comprise each pair touch along the median line. Each pair is, on the other hand, separated from the next succeeding pair by a median pillar. In the anterior pair of pillars, the process of wear has resulted in the enamel of the lateral pillars joining up with that of the minor pillars that, in less worn teeth, lie in front of the anterior pair (see fig. 5). The enamel pattern of the individual pillars in this tooth is a slightly more complex variation of the compressed dumbbell figure than in the first *syntype*, but is basically the same.

The part of the mandible that contains the roots is considerably damaged, so that the roots cannot be studied so well as in the type, but each pair of pillars seems to have been furnished with two roots although it is possible that the roots of the fourth, fifth, and sixth pairs were fused into a single element. The full measurements of the tooth are as follows:—

Maximum length 82 mm. Length of the worn part of the occlusal surface 73 mm. Maximum width at the first pair of pillars 24 mm. Width of occlusal surface at first pair of pillars 21 mm. Maximum width at fourth pair of pillars 22 mm. Width of occlusal surface at fourth pair 17 mm.

	Height of crown (worn).	Length of roots.
First pair of pillars ...	14 mm.	30 mm.
Second pair of pillars ...	17 mm.	32 mm.
Third pair of pillars ...	22 mm.	—
Fourth pair of pillars ...	28 mm.	19 mm.
Fifth pair of pillars ...	32 mm.	—

Additional Material.

In addition to the two *syntypes*, we are fortunate in having a number of other specimens representing the same species, although all of them are incomplete. They indicate, however, the constancy of certain features which have been regarded as typical for the species.

A specimen marked Omo 3 in the Coryndon Museum collection.

This is a fragment of upper third molar with three and a half pairs of lateral pillars intact. The fragment has the whole root area broken away. The anterior half of the tooth is missing as well as the extreme posterior section. As in the first *syntype*, the lingual and buccal pillars of each pair are separated by median pillars, a feature which seems to distinguish upper third molars from lower. The crown of the tooth is high, the height of the preserved pillars being from front to back 44 mm., 50 mm., 52 mm., and 56 mm. The maximum width of the fragment is 27 mm., and the occlusal width is 22 mm. The length of the fragment (three and a half pairs of pillars) is 47 mm. The tooth represented by this fragment was only just coming into wear.

A specimen marked Omo 4 in the Coryndon Museum collection.

This is a small fragment of a very worn upper third molar with the root area as well as the anterior and posterior portions broken away. The lingual and buccal pillars of the pairs were separated from each other by a line of median pillars. The crown is only 24 mm. high at its highest. The width, both maximum and occlusal, is 29 mm. The enamel pattern does not differ significantly from that in the first *syntype* (see fig. 8A).

A specimen marked Omo 5 in the Coryndon Museum collection.

This is a fragment of an unerupted upper third molar. The root area is broken away and the pillars are not fully developed. The average height of the pillars is 40 mm. Width 24 mm.

A specimen marked Omo 6 in the Coryndon Museum collection.

This is a fragment of an unerupted upper third molar with the root area broken away. The average height of the pillars is 38 mm. The width is 24 mm.

A specimen marked Omo 7 in the Coryndon Museum collection.

This is a fragment of the left side of a mandible containing the posterior half of the third molar in full wear. The tooth when complete probably had six or possibly even seven pairs of pillars. The preserved portion has four and a half pairs of pillars; the posterior two pairs are small but well-formed. As preserved, the fragment is 57 mm. long and it is estimated that it was originally not less than 90 mm. long. This figure is

estimated by comparison with the second *syntype*, the posterior portion of which is not fully developed. The maximum width of the fragment is 25 mm. and the occlusal width is 21 mm. As in the second *syntype*, the lingual and buccal pillars of each pair touch along the median line, while each pair is separated from the next by a single median pillar, except for the posterior two pairs, which are not so separated. The height of the crown in this worn specimen averages 26 mm. The roots have not been cleared of bone, so the root length cannot be given (fig. 8c).

A specimen marked Omo 8 in the Coryndon Museum collection.

This specimen is the anterior half of a lower third molar which was only just coming into wear. It is composed of four pairs of pillars, the anterior two pairs showing just the beginnings of wear. As in the second *syntype*, the enamel of the buccal and lingual pillars, comprising each pair, touches along the median line, and each pair is separated from the next succeeding pair by a single median pillar. In this little-worn specimen, it is possible to see clearly the group of small pillars in front of the anterior pair, as they have not yet fused with the enamel of the anterior pair.

The fragment has all the roots broken away. The height of the pillars of the preserved portion of the tooth is: first pair 31 mm., second pair 34 mm., third and fourth pairs 38 mm. The length of the four pillars preserved is 67 mm. The maximum width of the first pair of pillars is 23 mm. and the occlusal width is 17 mm. The enamel pattern is not clearly developed, owing to the very slight wear.

A specimen marked Omo 9 in the Coryndon Museum collection.

This is a fragment of lower third molar lacking the anterior and posterior ends. As preserved, it consists of three and a half pairs of pillars with the root area broken away. As in the second *syntype*, the enamel of the lingual and buccal pillars of each pair touches along the median line, while each pair is separated from the next succeeding pair by a single median pillar. The length of the three and a half pairs of pillars preserved is 50 mm. The maximum width is 24 mm. and the occlusal width is 20.5 mm. The heights of the pillars that are preserved are 28 mm., 30 mm., 33 mm., and 36 mm. The enamel pattern is typical (see fig. 8b).

A specimen marked Omo 10 in the Coryndon Museum collection.

This is a fragment of the posterior end of a lower, third molar. It is water-rolled and much damaged, and lacks the roots. Three and a half pairs of pillars are preserved, the two posterior ones of which are not fully developed. The heights of the pillars are 37 mm., 43 mm., and the last two 46 mm. each.

A specimen marked Omo 11 in the Coryndon Museum collection.

This specimen is the anterior portion of a lower, third molar with the anterior pair of pillars and half the second pair preserved. The roots are broken away. The height of the crown at the first pair of pillars is 36 mm. The occlusal width is 19 mm.

EXPLANATION OF THE NAME.

The generic name is from the Greek words *Gerons* and *Choerus*. The species is named *scotti*, after Mr. James Scott, who brought the first recognisable specimen of this species to the Museum. This is the specimen marked Omo 9.

DISCUSSION.

This new genus of *Suidae* to which the name *Gerontochoerus* has been given, is of special interest, because it exhibits a combination of characters that rather suggest that it represents a stage from which a number of other, later genera may have been evolved. It is NOT suggested that this Lower Pleistocene pig is the actual ancestor of the later pigs, but rather that it is a persistence of a type of Pliocene pig which might very well have been ancestral to a number of other genera.

The high crowns of the third molars suggest affinities with *Notochoerus*, *Metridiochoerus* and even *Phacochoerus*, but the nature of the roots does not allow this comparison to be carried very far. The root form suggests affinities with *Hylochoerus*, *Potamochoerus*, and *Sus. Mesochorus*, as the name implies, stands intermediate between these two groups, both in root form and in the height of the crown and the arrangement of the pillars. In the arrangement of the pillars, the genus *Gerontochoerus* stands closest to *Notochoerus*, but also has characters that are reminiscent of *Hylochoerus*. This similarity is greatest when comparison is made with the extinct *Hylochoerus euilus*, which, however, differs from *Gerontochoerus* in having crowns of medium height and fewer cusps and a marked talon.

In the large number of pairs of lateral pillars (six to eight) of the third molars, *Gerontochoerus* has a character which suggests affinities with *Phacochoerus*,* and if the only material had been teeth with the roots broken away, then the very high crowns might well have led to closer comparison with the genus *Phacochoerus* or possibly with *Notochoerus*.

*NOTE.—In both syntypes the second molars are worn to an extreme degree while the third molars are not fully developed. This suggests that in old animals in which third molars are in full wear it will be found that all the other cheek teeth have been lost as is commonly the case in *Phacochoerus*.

From this brief summary of the resemblances and differences which the new genus shows when compared with known genera, it will be seen that we are indeed dealing with a genus of special interest in the study of African pigs.

GENUS **PRO-NOTOCHOERUS** gen. nov.

DIAGNOSIS.

Medium-sized *Suidae* with long-rooted, medium high-crowned third molars. The crown not clearly differentiated from the roots.

Pro-notochoerus jacksoni sp. nov. (Genotype).

DIAGNOSIS.

A *Pro-notochoerus* about the size of the present-day warthogs with a lower third molar composed of three pairs of pillars and a very small talon. Roots longer and crowns lower than in any known *Notochoerus* to which the new genus has certain marked resemblances in other respects.

Type: A lower, left, third molar in a fragment of mandible, catalogued as Omo 12 in the fossil collection in the Coryndon Museum, Nairobi. (See Plate 18.)

Paratype: A damaged mandible fragment with damaged third and second molars, catalogued as Omo 13 in the Coryndon Museum collection.

Description of Type: When collected, this specimen consisted of a left mandible fragment with the third molar in position. In order to study the root formation, the whole of the bone has been cleared away and the roots fully exposed. The anterior root on the buccal aspect was already broken away when the specimen was found. Apart from this and very minor damage to the enamel of the second pillar on the lingual side, the tooth is perfect. It was in full wear and even the talonid had just begun to come into occlusion. The tooth is composed of three pairs of pillars and posteriorly there is a small talonid. The pillars of the anterior pair touch each other along the median line. Between the anterior pillars and the second pair there has been a median pillar, but owing to the stage of wear, the enamel of this median pillar has joined up with that of the buccal pillar of the second pair. Between the second and third pairs of pillars, there are two median pillars. The enamel of the two pillars comprising the third pair just fails to meet in the median line, and behind the third pair of pillars and separating it from the talonid, is another median pillar.

The measurements of the tooth are follows: Maximum length 53 mm. Occlusal length 47 mm. Maximum width of

crown 21.5 mm. Width of occlusal surface at first pair of pillars 16.5 mm. Width of occlusal surface at third pair of pillars 16 mm. Height of crown at first pair of pillars 20.5 mm. Length of root of the first pair of pillars 34 mm. Height of crown at second pair of pillars 25 mm. Length of roots of the second pair of pillars 37 mm. Height of crown at third pair of pillars 24 mm. Length of the root of the third pair of pillars and talonid combined 37 mm. (*Note.*—Owing to the way that the crown and root area is not clearly differentiated it is not easy to decide just where the crown ends and the root begins.)

The roots are strongly developed. The first and second pairs of pillars each had two, long and well-defined roots, while the roots of the third pair of pillars and of the talonid were fused to form a single flat and compact root.

Description of Paratype: This is a fragment of mandible (right side) containing the second and third molars and a broken part of the first molar, as well as the root sockets of the fourth pre-molar. The third molar had not come into full wear. The whole specimen is somewhat abraded and the occlusal surfaces of the teeth, in particular, are damaged. For this reason, the specimen was not chosen as *type* but only as *paratype*. Its importance lies in the fact that it shows (1) the height of the crown in a tooth that is practically unworn, (2) that it shows the roots of the third molars are fully developed in this species, even when the posterior end of the tooth is not yet in wear, and (3) it enables us to learn something of the second and third molars.

As in the *holotype*, the third lower molar is composed of three pairs of lateral pillars behind which is a median pillar and then a talonid composed of three small pillars set transversely across the end of the tooth.

The roots are as in the *type*. The following are the measurements of the third molar, set out in comparison with those of the *type*:—

Type: (Somewhat worn.) Maximum length 53 mm. Occlusal length 47 mm. Maximum width 21.5 mm. Occlusal width 16.5 mm.

Paratype: (Slightly worn anteriorly.) Maximum length 55 mm. Occlusal length 47.5 mm. Maximum width 20 mm. Occlusal width 16.5 mm.

Type: Height of crown at first pillar 20.5 mm., at second pillar 25 mm.

Paratype: Height of crown at first pillar 30 mm., at second pillar 33 mm.

Type: Height of crown at third pillar 24 mm. Length of roots: first 34 mm., second 37 mm., third 37 mm.

Paratype: Height of crown at third pillar 35 mm. Length of roots: first 26 mm., second 27.5 mm., third 21 mm.

The second molar has an occlusal and maximum length of 28 mm., and a maximum width of 17 mm. Occlusal width 14 mm. The enamel pattern is complex and hard to trace owing to the abrasion of the surface. The tooth is considerably worn and the crown of the anterior part is 12 mm. high. The tooth has long roots.

The third molar is too broken for description, but was about 17 mm. long.

Additional Material: The crown of an upper, third molar with the root area broken away is provisionally placed with this species. It was not fully developed and only the first pair of pillars had come into wear. It is 56 mm. long and has a maximum width of 25 mm. The height of the crown at the anterior pillars is 31 mm. and at the second pillars 35.5 mm. The third pair of pillars and the talonid were not fully developed.

The specimen is marked Omo 14 in the collections in the Coryndon Museum.

EXPLANATION OF THE NAME.

The generic name was chosen to indicate that we seem to be dealing with a pig representing a form from which *Notochoerus* may have been derived. The specific name is in honour of Capt. Jackson who gave valuable help to my collectors when they went to Omo.

DISCUSSION.

The new genus differs from *Notochoerus* in having long well-developed roots to the third molars. These roots are fully formed and closed even when the posterior part of the tooth is as yet not fully developed. All three specimens known—two lower, third molars and one upper, third molar—have only three pairs of lateral pillars and a very short talonid. The arrangement of the lateral and median pillars and the nature of the enamel pattern recalls *Notochoerus* and it is suggested that the new genus represents a definite ancestral form.

GENUS *MESOCHOERUS* Shaw and Cooke.

***Mesochoerus heseloni* sp. nov.**

DIAGNOSIS.

A small *Mesochoerus* with third molars that are very low-crowned in comparison with either of the previously described species, *paiceae* or *olduvaiensis*. Roots of molars longer than height of crowns.

MATERIAL.

Seven mandibular fragments with teeth, two maxilla fragments with teeth and a number of broken teeth.

Syntypes (A): A fragment of the left side of a mandible containing the third and fourth premolars and all three molars. This specimen is marked Omo 15 in the fossil collection in the Coryndon Museum.

(B): A left mandibular fragment with the roots of the fourth premolar and the first, second, and third molars in position. This specimen is marked Omo 16 in the fossil collection in the Coryndon Museum.

(C): A fragment of maxilla with part of the second molar and the third molar in position. This specimen is marked Omo 17 in the fossil collection in the Coryndon Museum.

Description of the first Syntype: This mandibular fragment is very well-preserved. The only tooth that is not in perfect condition is the fourth premolar, which has the posterior cusp broken.

The first molar is in an advanced stage of wear; the second molar is in full, but not advanced wear, while the third molar was not fully erupted and its posterior end not fully developed.

The third premolar of this genus has not previously been described. In this species *heseloni*, it is seen to resemble the corresponding tooth in the genus *Sus* more than that in the genus *Potamochoerus*. It is entirely unlike the third premolar of the genus *Hylochoerus*, in which the third premolar is poorly developed and is shed in early life.

The third premolar is much more robust than those of either *Sus* or *Potamochoerus* available for comparison. It measures 15 mm. long and 10 mm. wide, compared with figures of 12 mm. and 7 mm. for the largest *Potamochoerus* lower, third premolar available. The crown is 11.5 mm. high in a tooth which is only very slightly worn, compared with 8.5 mm. in a *Potamochoerus* tooth in the same stage of wear. *Sus* third premolars available are even smaller than in *Potamochoerus*.

The fourth premolar bears a very marked resemblance to that of the genus *Potamochoerus* and differs greatly from the corresponding tooth in *Hylochoerus*. It is, however, much more robust than the largest, lower, fourth premolar of *Potamochoerus* that is available for comparison. Judged by a photograph of *Mesochoerus paiceae* kindly supplied by Dr. Cooke, the fourth premolar of that species is more molariform than the species now being described.

The measurements of the present specimen are: Length 17.5 mm. Width 14 mm. Height 16 mm. The corresponding figures for the largest available fourth premolar of *Potamochoerus* are 16 mm., 12 mm., and 12 mm.

The first molar is in an advanced stage of wear and only the outer line of enamel left, the whole of the centre of the tooth being worn down to the dentine. The tooth is similar in general characters to the corresponding tooth of *Potamochoerus*. It is, however, larger. The measurements are: Length 20 mm. Width 14 mm. The highest part of what is left of the crown is 3 mm.

The corresponding length in the largest *Potamochoerus* available is 16 mm. and width 11 mm.

The second molar is in full wear and in ideal condition for study. It is composed of two pairs of pillars separated by two smaller, median pillars and with a distinct talonid both anteriorly and posteriorly. It exhibits certain resemblances to the corresponding teeth of both *Potamochoerus* and *Sus* but is larger than any in the comparative material available. I can, moreover, find no example of an anterior talonid in the second molars of these genera. The measurements of the tooth are as follows: Length 29.5 mm. (both maximum and occlusal). Maximum width 19.5 mm. Occlusal width 15 mm. Height of crown 13 mm. The corresponding measurements in the largest *Potamochoerus* available are 23 mm., 18 mm., 12 mm., and 10 mm. in a tooth in the same stage of wear.

The third molar is not fully developed or even fully erupted and only the anterior pair of pillars show any wear. This is a fortunate circumstance, as it makes it possible to compare the crown height with that of the fine specimen of *Mesochcerus paiceas* published by Shaw and Cooke and also with the *paratype* of *Mesochcerus olduvaiensis*, which is also practically unworn.

The tooth is composed of four pairs of lateral pillars, and the lingual and buccal pillars of each pair touch along the median line of the tooth. Each pair of pillars is separated from the next succeeding pair by two smaller pillars set in the median line. There is no talonid behind the posterior pair of pillars (but this is not a constant character as is shown by other specimens in the series). There is a talonid in front of the anterior pair of pillars. As the tooth is practically unworn, it is not possible to describe the enamel pattern of this tooth, but from other lower third molars in the series, we know that the enamel of each pillar is considerably folded (see figs. 11 and 13).

The roots have been exposed on one side and they are seen to be long but open at the extreme tips. This is even true of the second molar, although that tooth is in full wear. The roots of the two posterior pairs of pillars were damaged before the specimen was collected, but it would seem that these two pairs of pillars had their roots fused into a single element.

The measurements of this third molar are shown in a table comparing them with the measurements of the *holotype* and *paratype* of *Mesochcerus olduvaiensis* and the unworn third

molar of *Mesochœrus paiceae*, as these measurements show clearly why a new species has been created.

	Max. . Occ. Max. Height of crowns of pillars						
	length.	width.	width.	1st.	2nd.	3rd.	4th.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.
<i>Mesochœrus paiceae</i> ...	68	—	22	34	—	—	31
<i>Mesochœrus olduvaiensis</i> (holotype) ...	67.5	17	25	23	24.5	26	28
<i>Mesochœrus olduvaiensis</i> (paratype) ...	65	17	24	24.5	24	27	26
<i>Mesochœrus heseloni</i> (holotype) ...	49	—	21.5	22	21.5	20	20
Length of roots:	1st pillar.	2nd pillar.	3rd pillar.	4th pillar.			
<i>Mesochœrus paiceae</i> ...	11 mm.	—	—	—			
<i>Mesochœrus olduvaiensis</i> .	—	—	—	—			
<i>Mesochœrus olduvaiensis</i> .	—	—	—	20 mm.			
<i>Mesochœrus heseloni</i> ...	29 mm.	—	26 mm.	—			

The teeth dealt with above are all lower third molars. Those of *M. paiceae* and *M. heseloni* are unworn, or practically so, and those of *M. olduvaiensis* are only worn in their anterior parts and there only very slightly.

In many respects there is a superficial resemblance between the third molars *Mesochœrus heseloni* and the third molars of *Potamochoerus*, but the resemblance will not bear close examination. In *Potamochoerus*, the lower, third molars have only two pairs of pillars and a talonid and they seldom, if ever, exceed 38 mm. in length.

Description of second Syntype: This is a left mandibular fragment containing the broken roots of the fourth premolar, the first molar in a very damaged condition, the second molar which is in good condition except for the posterior buccal pillar, and the third molar fully erupted and in an early stage of wear.

The premolar and first molar are too damaged to merit description. The second molar differs from the type in having only one median pillar between the two pairs of pillars. Otherwise it does not differ. Its measurements are: Maximum and occlusal length 27 mm. Maximum width 20 mm. Occlusal width 17 mm. Height of crown (which is much worn) 9 mm. Length of roots about 32 mm.

The third molar is composed of four pairs of lateral pillars, the lingual and buccal pillars of each pair touching along the median line. There are two median pillars between the first and second pairs and two between the second and third pairs. The third pair is separated from the fourth by a single median pillar and there is also a median pillar forming a sort of talonid behind the posterior pair of pillars. As in the type, the crown is low and the roots very long. The tooth is only slightly worn and perhaps 5 mm. has been worn away from the surface of the

tooth (not more) anteriorly and less posteriorly. The measurements of the tooth are as follows: Maximum length 55 mm. Occlusal length 48 mm. Maximum width 22 mm. Occlusal width 17 mm. Height of crown at anterior pillars 15 mm. Height of crown at posterior pillars 20 mm. Length of anterior roots 33 mm. Length of posterior roots 21 mm.

Description of third Syntype: This is a fragment of maxilla with a part of a very damaged second molar that was so worn that the whole of the enamel had disappeared, and a third molar in an advanced stage of wear and somewhat damaged. It has been chosen as *syntype* because it is the best specimen in the collection to show the upper dentition and also the nature of the enamel pattern in this species in the final stages of wear.

Nothing can be said about the second molar except that its roots were about 20 mm. long.

The upper third molar was composed of three pairs of pillars instead of the four seen in the lower third molars, but it had a talon of seven smaller pillars in place of the fourth pair, so that the length of the tooth is about the same as in a fully-developed, lower molar. Owing to the advanced wear, the enamel of adjacent pillars has joined up and in fact the enamel of all the three pairs of anterior pillars of the talonid have not been affected by this process, as the talon is not quite so worn as the rest of the crown. The details of the enamel pattern in an unworn upper third molar of this species are not yet known.

The measurements of the tooth are as follows: Maximum length 56.5 mm. Occlusal length 56.5 mm. Maximum width probably 21 mm. Occlusal width probably 21 mm. Length of anterior root 27 mm. Length of posterior root 19 mm.

Additional Material: Two fragmentary right sides of mandibles marked Omo 18 and Omo 19 in the fossil collections of the Coryndon Museum. Both these fragments contain the second and third molars in good preservation and they do not differ in any significant way from the *syntypes*. The measurements are as follows: Second molars—lengths 28 mm. and 30 mm. Maximum widths 18 mm. and 18.5 mm. Occlusal widths 14.5 mm. and 15 mm. Heights of crown 12 mm. each. Third molars—lengths 53 mm. and 56 mm. Occlusal lengths 48 mm. and 51 mm. Maximum widths 19.5 mm. and 21 mm. Occlusal width 14 mm. each. Heights of crowns at first pair of pillars 17.5 mm. and 19 mm. Heights of crowns at fourth pillars 19 mm. each. The roots of these two specimens have not been exposed for measurement.

A right mandibular fragment marked Omo 20 with half the second molar and the third molar in a damaged condition. This specimen does not differ significantly from the other material in the series and is too damaged to be accurately measured.

A fragment of right maxilla containing the second molar, slightly damaged. The specimen is marked Omo 21. The tooth is very like second lower molars in the series and might have been classified as such if the maxillary bone had not been preserved with it.

A talon of an upper third molar marked Omo 22. It consists of the third pair of pillars and the whole of the talon. As in the *syntype*, the talon takes the place of the fourth pair of pillars in the upper third molar.

EXPLANATION OF THE NAME.

The specific name *heseloni* is in honour of Heslon Mukiri the collector.

DISCUSSION.

A new species of the genus *Mesochoerus* has been created for the Omo series, because the third molars of a fairly long series are consistently shorter than those of the two other species *paiceae* and *olduvaiensis* and more important still, because the crowns of the third molars are markedly lower and the roots longer and more developed. The new species shows a certain resemblance to the genus *Potamochoerus* and seem to indicate that the genus *Potamochoerus* is more closely allied to the extinct genus *Mesochoerus* than to any other.

GENUS *SUS* Linné.

Sus limnetes Hopwood.

This species which was originally described by Hopwood from the Kaiso beds in Uganda, which are supposed to be of the same age as the Omo beds, is probably represented in the collection by the crown of an unerupted third upper molar which compares very closely with the type specimen. It is marked Omo 23 in the fossil collections of the Coryndon Museum. It is 50 mm. long and has a maximum width of 23.5 mm. The crown is 21 mm. high at the middle of the tooth (see fig. 14B).

CONCLUSIONS.

The Omo *Suidae* are of special interest in that they provide a glimpse of the probable stages through which some of the pigs of the later geological horizons passed. It is not suggested that these Lower Pleistocene *Suidae* are the actual ancestors of later forms but rather that they represent survivals of forms approximating to the ancestral forms just as the very large mastodons and *Deinotherium* that survive into the Pleistocene represent survivals of the Miocene and Pliocene ancestors of some of the elephants.

When the time comes for a detailed review and comparative study of the living and fossil pigs of the African continent to be made, these Omo fossils may be expected to take an important place in that study. The interesting nature of the few specimens available from a bare three weeks' collecting, make it clear that the Omo fossil beds which extend for thirty or forty miles, will well repay very extensive and prolonged study after the war.

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