

Suidea and Tayassuidea from Turkey

Türkiye'nin Suidae ve Tayassuidae'leri

MARTIN PICKFORD
ÇETİN ERTÜRK

The Pines, Fitches Lane, Aldringham, Suffolk, UK.
Maden Tetkik ve Arama Enstitüsü, Ankara

ABSTRACT: Suoid fossils, the subject matter of our study, have been found in the Neogene deposits of Turkey. These fossils have been investigated under the two separate headings of 'Vindobonien' and 'Vallesian-Turolian' faunas. As well of the Suidae and Tayassuidae of Miocene and Pliocene age, a new species (*Taucanamo inonuensis* nov) has been described.

ÖZ: Konumuz olan suoid fosilleri Türkiye Neojen sökellerinde bulunmuştur. Bu fosiller "Vindoboniyen" ve "Valesiyen-Turoliyen" faunaları olmak üzere iki grupta incelenmiştir.

Miyosen ve Pliyosen yaşlı fosil Suidae ve Tayassuidae'lerin yanında yeni bir türün (*Taucanamo inonuensis* nov) tanıtımı yapılmıştır.

INTRODUCTION

This article deals with suoid specimens housed in the Palaeontology Department of the Mineral Research and Exploration Institute of Turkey. The material was collected during the last two decades and contains specimens showing hitherto undescribed morphological features of *Listriodon*, the first recorded libyeochoerus from Turkey and some significant specimens of tayassuids (peccaries) including a new species of *Taucanamo*.

Little detailed work has been done previously on Turkish suids and tayassuids, the most important works being done by Ozansoy (1965) and Hunermann (1975). There are, however, many short notes describing suids from a variety of localities (Table 1) (Ozansoy, 1951; Nafiz and Malik, 1933; Şenyürek, 1952; Tschaehtli, 1942).

Material upon which the present study is based comes from "Vindobonian" localities İnönü, Çandır (Ankara), Milas/Sarıçay (Muğla) and "Vallesian-Turolian" localities Ayaş/Şehlek (Ankara), Kadirli (Adana), Evciköy (Ankara) and Salihpaşalar (Muğla). The former "Vindobonian" localities have yielded numerous *Listriodon* and a few *Conohyus*, *Libyeochoerus* and *Taucanamo*, while the latter group of deposits contain *Microstonyx major* in abundance, fewer *Korynochoerus palaeochoerus* and close relatives, and possibly *Sus sp.* as well as the tayassuid *Schizochoerus*.

The composition and sequence of the Turkish suid and tayassuid fauna is similar to that of the rest of Europe although there is an unmistakable Turkish endemism to be discerned. For example some of the *Listriodon* from Paşalar and Çandır have enormous male upper canines and extremely wide central upper incisors in comparison with *listriodon* from the rest of Europe. *Taucanamo inönüensis*, a new species, is larger than any previously recorded from Europe. *Libyeochoerus cf. khinzikebirus* from İnönü is slightly larger than the type series from Gebel Zelten in Libya, but is substantially larger than its close relative *Kubanochoerus robustus* from Georgia.

The suids and tayassuids described here come from freshwater sediments deposited in several small, shortlived basins in the tectonically active region between the Black Sea and the Mediterranean. The sediments are in cases intercalated between marine beds allowing correlations with the marine biostratigraphic framework. The fossiliferous beds range in composition from conglomerates, through sands and silts, to clays, although the best material comes from fine white to pink marls and marly clays.

Judging from the suid fauna itself, the deposits fall into two main age groups; the *Listriodon/Conohyus* group and the later *Microstonyx/Korynochoerus* group (Table 2). It is possible to subdivide the groups further into early and late *Listriodon* subgroups and a *Korynochoerus* and 'Sus' subgroups based mainly on the primitive or advanced appearance of the contained suids.

SYSTEMATIC DESCRIPTIONS

Family Suidae Gray 1821
Subfamily Listriodontinae Simpson 1945

Genus *Listriodon* H. von Meyer 1846
Species *L. splendens* H. von Meyer 1846

Diagnosis

Large suidae with facial part of skull considerably longer than cranial part. Zygomatic arches weak. No sagittal crest. $I^3C^1P^{3-4}M^3$. Diastemata between I^3 and C^1 , between C^1 , P^1 and P^2 . Central upper incisor wide, spatulate, occludes with I_{1-2} . Canines sexually dimorphic; males with open-rooted, large upward curving upper canines with rounded section and triangular open-rooted lower canines which point outwards, slightly upwards and backwards; females possess closed-rooted short upper canines with incipiently bifurcate roots; female lower canines closed-rooted, short, occlude with I^3 and C^1 unlike the male in which the lower canine occludes only with C^1 . Premolars show tendency to molarization and lophodonty. Strong cingula on P^{3-4} . Molars lophodont formed of two transverse crests, with tendency to reduce the median accessory cusp. Talon weak, talonid strong formed of extra lingual cusp. Symphysis long spatulate, reaches back to P_{2-1} . Basicranium with low glenoid, separated widely from tympanic ridge and paroccipital process. Palatine extends distally well past M^3 level.

Material

Several specimens from Çandır in the MTA Ankara.

Description

The *Listriodon* material from Çandır is well preserved, and consists of many skulls and mandibles of both sexes and also juveniles. There are also several post-cranial remains. At first glance this material is close to *listriodon splendens* from Europe, but there are two clear morphs within the collection; a form with huge upper canines and very wide I^1 but not different in other aspects from *L. splendens* and a second form with smaller canines and less elongated upper central incisors (Pl. 1, Fig. 1). The former variety clearly represents a new type of *L. splendens* not found so far anywhere else in the world outside Turkey, but is similar to material from Paşalar (Hunermann, 1975).

The latter group is typical of *L. splendens*. The two morphs possibly represent different subspecies or species. They do not represent male and female types of a single species, as these can be distinguished in the material from Çandır, the females differing from the males by their shorter and smaller canines (Pl. 1, Figs. 2-5).

For the first time we can obtain a good idea of the morphology of the premaxillae and the orientation of the three upper incisors of *Listriodon* (Fig. 1). The occlusal edges of the upper incisors form a stepped cutting edge (Fig. 2) the wide central incisors occluding with the tips of the lower I_{1-2} . I^2 occludes with the distal scoop of I_2 and the tip of I_3 . I^3 occludes with the distal edge of I_3 and in females but not in males, it also occludes with the canine (Pl. 1, Fig. 3). The male canines are robust upward curving teeth with open roots (Pl. 1, Fig. 6) while in the female it is a two rooted downward pointing tooth (Fig. 3).

	Schizochoerus	Sus sp.	Korynochoerus palaeochoerus	Microstonyx major	Hippopotamodon metei	Listriodon splendens	Listriodon nov. var.	Listriodon cf. lockharti	Libycochoerus khinzikebirus	Conohyus cf. simorrensis	Taouanamo
Çobanpınar											
Kavakdere		?	x								
Muğla		? or ?									
Salihpaşalar				x							
Kadirli			x								
Ayaş				x							
Yassiören	x				x						
Evciköy					x						
Kayadibi					x						
Gediz					x						
Konya Hatunsaray Kayadibi Konya					x						
Hatunsaray Sarışık İnkeri Garkın					x						
Eski Bayırköy				x							
Çevril					x						
Kayseri Erkilet					x						
Dinar Akçaköy				cf	x						
Kınık		x	x	? - ?							
Kayseri Ürgüp Karain					x						
Afyon Sandıklı Kınık					x						
Çorakyerler					x						
Taşkınpaşa					x						
Küçükçekmece			x or	x							
Çanakkale					x						
İlhan					x						
Küçükyozgat					x						
Karacahasan					x						
Mahmutgazi					x						
Çorum Sungurlu Karaçay 1					x						
Çorum Sungurlu Karaçay 2			x								
Çankırı Çorakyerler			x								
Eşme Akçaköy			x			x		x			
Kütahya Sabuncu Sofça				x	x	x					
Yaylacılar						x					
Sinap inferior						x					
Çandır						x					
Balâ						x	x				x
Milas Sarıçay										x	
İnönü								x			
Paşalar						x		x			x

Table 1: Distribution of Suidae and Tayassuidae in Turkey

Çizelge I: Türkiye'de Suidae ve Tayassuidae'lerin dağılımı

Age/Stage (Yaş/Kat)	m.y (Approx) (Yaklaşık)	Localities (Örnek yeri)	Suids.Tayassuids
Turolian	7	Salihpaşalar Kadirli	Korynochoerus/'Sus' Microstonyx
	10	Ayaş - Şehlek Evciköy	Microstonyx Microstonyx
Vallesian	11.5-0.5	/ HIPPARION / Çandır	Listriodon, Taucanamo
late Vindobonian	13	Bâlâ İnönü	Conohyus Listriodon cf. lockharti Libycochoerus, Taucanamo
early Vindobonian	15	Milas - Sarıçay	Listriodon cf. lockharti

Table 2: Approximate biostratigraphy based on the suids alone.

Çizelge 2: Yalnız suidlere göre yaklaşık biyostratigrafi.

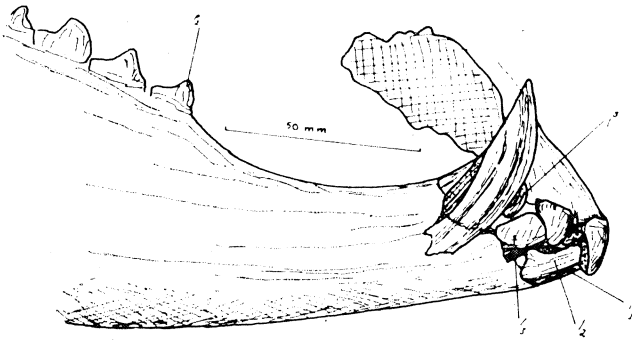


Figure 1: *Listriodon splendens* Meyer, premaxilla and mandible in occlusion, lateral view Çandır/Ankara. AÇH/1331.

Şekil 1: *Listriodon splendens* Meyer'in önüst ve alt çenesinin üst-üste dıştan görünüşü. Çandır/Ankara. AÇH/1331.

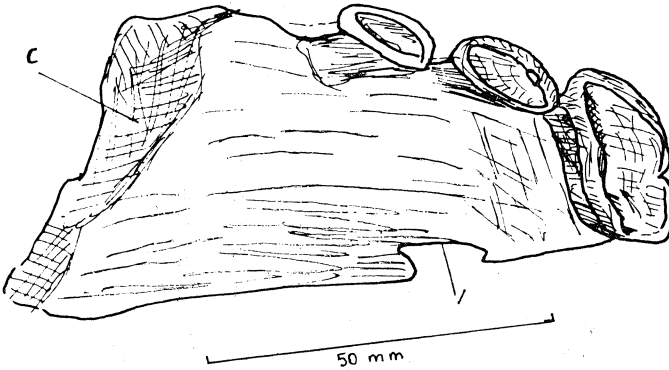


Figure 2: *Listriodon splendens* Meyer, right premaxilla with I¹⁻³, alveolus of C. Çandır/Ankara. AÇH/1332.
c: canine alveolus i: incisive foramen.

Şekil 2: *Listriodon splendens* Meyer'in sağ önüst çenesindeki kesici dişler (I¹⁻³) ve köpek dişi boşluğu. Çandır/Ankara. AÇH/1332.
c: köpek dişi boşluğu, i: kesici diş deliği.

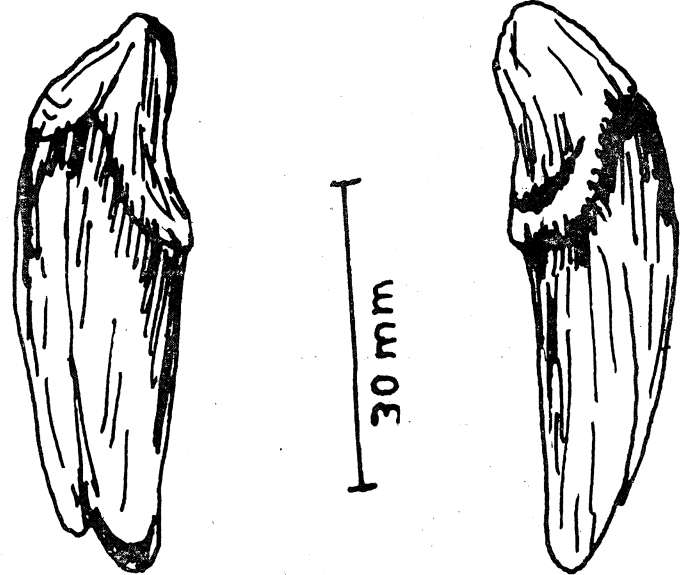


Figure 3: *Listriodon splendens* Meyer, Female upper canine. Çandır/Ankara. AÇH/589.

Şekil 3: Dişi *Listriodon splendens* Meyer'in üst köpekdişi. Çandır/Ankara. AÇH/589.

A juvenile premaxilla from Çandır contains the permanent incisors in their crypts, and the roots of the three deciduous incisors. It is of interest to note that I¹ replaces the positions of DI¹⁻² indicating that the central upper deciduous incisor is probably not very spatulate.

The mandibular and maxillary dentition is very much as it is in *Listriodon splendens* from the rest of Europe so it is not necessary to describe it in more detail.

Species *Listriodon cf. lockharti* (Pomel, 1848)

Diagnosis

A species of *Listriodon* in which the molars are more bunodont and the transverse lophs not so perfectly loph-

like as in *L. splendens*, with more prominent median accessory cusps; diastemata between C and P₂ not as long as in *splendens*; lingual cusp of P⁴ not directly opposite the protocone, so that the loph on P⁴ is not as clear as in *L. splendens*.

Material

A partial skull, mandibles and several isolated teeth from İnönü, Milas -Sarıçay, housed in the MTA, Ankara. AKI/3-780.

Description

The material from İnönü and Milas - Sarıçay closely resembles those of *listriodon lockharti* (Pomel) (vide Leinders, 1975). The transverse lophs of the molars are not so well developed and the cusps are more discrete than they are in *splendens*. Molar enamel is thicker in *lockharti* as in the material from İnönü.

The skull (Pl. 2, Figs. 1-3) consists of the palatal portion lacking the snout and the occiput. The lateral profile of the fragment is very low, partly enhanced by crushing. In dorsal view a huge canine socket forms a substantial projection laterally. It does not possess a canine flange such as those seen in *Hyotherium soemmeringi* and *Propotamiodon*. This socket almost doubles the width of the snout, and imparts a very heavy, solid appearance to the snout. The maxillae are broken off immediately behind M₂, but it is possible to see that the zygomatic root leaves the face at a relatively small angle. There is a longish diastema between the canine and P².

A symphyseal fragment from İnönü (AKI 3/7) possesses two right and three left incisors (Pl. 1, Fig. 9). All the teeth are relatively short, especially I₃ which is so short on its mesial edge that it is triangular. I₂ has a smaller distal scoop compared with *L. splendens*.

Subfamily Tetraconodontinae Simpson 1945
Genus Conohyus Pilgrim 1926
Species *C. simorrensis* (Lartet, 1851)

Diagnosis

Small to medium suids with enlarged P₃₋₄ and reduced P₁₋₂; thick molar enamel; wrinkled premolar enamel: molar cusps tend to be inflated so that cusp furrows (furchen of Hunermann, 1968) are weakly expressed at the surface.

Material

A mandible from Bâlâ, Ankara (AB 2/5) possessing P₃₋₄ M₁₋₃.

Description

This specimen, a cast of which is housed in the MTA, Ankara, possesses typical enlarged and slightly inflated P₃₋₄ of *Conohyus*, and the molars have the bunodont inflated cusps with poor surface expression of the furrow system. Although it is impossible to predict from the cast,

it would appear that enamel thickness was substantially greater than is normally seen in *Hyotherium soemmeringi*. From its size this specimen probably belongs to *Conohyus simorrensis*, a species that also occurs at Paşalar (Hunermann, 1975).

Subfamily Kubanochoerinae Gabunia 1958
Genus Libyeochoerus Arambourg, 1961
Species *L. khinzikebirus* (Wilkinson, 1976)

Diagnosis

A species of giant suids in which the upper incisors are sub4istriodont, but in which I₃ is larger than I₂. Premolars and molars bunodont, and only slightly lophodont. Large P₁₁ not greatly separated from C₁₁ as in *Listriodon*. Posterior choanae V-shaped open immediately behind M₃. Development of 'horns' in some species (? sexually dimorphic character). I¹-I¹ not in contact interproximally as in *Listriodon*. Buccal cingulum on upper molars strongly developed in many individuals. P⁴ entirely surrounded by a cingulum.

Material

An upper second molar from İnönü, in the MTA Ankara. AKI-3/779.

Description

This upper molar is of gigantic size for a suid, being larger even than the type specimen of *libyeochoerus khinzikebiras* (Wilkinson) from Gebel Zelten, and appreciably larger than the next biggest species *Kubanochoerus robustus* Gabunia.

The tooth has four main cusps at the corners with a median accessory cusp at the centre of the tooth. There is a prominent anterior, buccal and distal cingulum (Fig. 4; and small anterior and posterior accessory cusps, the paracone-6 furrow (Hunermann, 1968) is visible from the buccal aspect, a feature which is found only in *Kubanochoerinae*. The hypocone root is characterised by incipient bifurcation so that the lingual outline of the tooth has a medial swelling, a feature which occurs predominantly in *Kubanochoerinae*, and seldom in other groups of suids. The enamel is 2.3-3.0 mm thick on the protocone, and lies intermediate in this respect between *Hippopotamodon sivalense* with thinner and *Tetraconodon magnum* with thicker enamel. The former has no buccal cingulum, while the latter has a prominent beaded one. The molars of these giant suids are thus relatively easy to distinguish from one another.

The molar measures 44.6 mm long by 45 mm wide. This compares with the type specimen of *K. khinzikebiras* where the corresponding measurements are 42.1 and 43.8 mm (Wilkinson, 1976).

Subfamily Suinae Zittel 1893
Genus *Microstonyx* Pilgrim 1926
Species *M. major* (Gervais) 1848-52

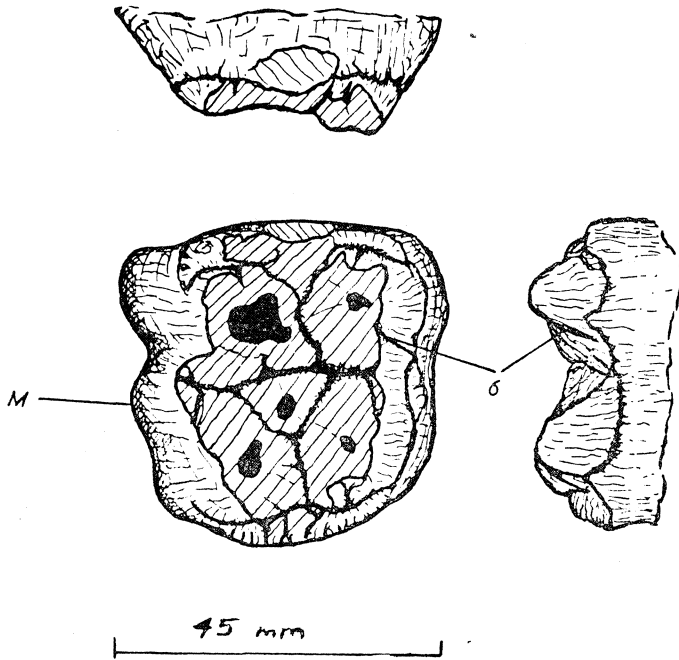


Figure 4: *Libycochoerus khinzikebirus* (Wilkinson) Mesial, occlusal and labial views of left *MK İnönü/Ankara*. AK -3/779. 6:6. furchen M: Extra lingual root.

Şekil 4: *Libycochoerus khinzikebirus* (Wilkinson). Sol M^3 'nin ortadan, çiğneme yüzeyinden ve dıştan görünüşü. İnönü/Ankara. AKI-3/779.

6: 6. buruşuk. M: Dile bakan dış kök.

Diagnosis

Large suids in which the upper and lower canines are very short and stubby. Otherwise similar to other suines. Differs from *Hippopotamodon* Lydekker (= *Dicoryphochoerus* Pilgrim, 1925) which is otherwise very similar, in having thinner molar enamel longer symphysis and diastemata. Canines in *Hippopotamodon* are not reduced but are long and permanently growing.

Material

Several isolated teeth, fragmentary skulls and mandibles, and postcranial bones from Salihpaşalar, Ayaş - Şehlek and Evciköy, housed in the MTA Ankara.

Description

This material is typical of *Microstonyx major* (= *erymanthius*) from Pikerimi, which lies a short distance to the west of the Turkish localities. None of the material warrants detailed description, save for a partial skull which has yet to be properly prepared.

Microstonyx is probably the most commonly found suid in Turkey, having been recorded from 24 localities (Table 1). It is unfortunate that many of the specimens upon which these records are based are not very complete, so it is difficult to obtain an idea of the variability of the species, and whether there is any evolutionary trend within the species through its stratigraphic range.

Genus *Korynochoerus* Schmidt-Kittler 1971
Species *K. cf palaeochoerus* (Kaup) 1833

Diagnosis

A medium-sized suine in which the upper and lower premolars are not as sectorial as they are in *Sus*. Anterior cusplets in P^1_{1-3} not as high as the principal cusps. 'Innenhugel' (Stehlin, 1899-1900) of P^4 not prominent and more or less in line with the principal cusp and the long axis of the tooth, although this cusplet is extremely variable in size and position. Upper P^4 with 2 cusplets in the saggital valley. M^3_3 without extra pairs of columns between the four principal cusps and the talon/id cusp, a feature found in *Sus*.

Material

Several isolated teeth, fragmentary jaws and skulls from Muğla and Adana - Kadirli, preserved in the MTA Ankara.

Descriptions

Most of this material does not warrant detailed description, adding little to our knowledge of the species, although extending its known geographic distribution. There is however, a complete palate from Muğla which is so well preserved that a description is given (Pl 2, Fig. 4). The palate as a whole and its dentition is closely comparable to a specimen from Munich described by Stromer (1526, quoted in Schmidt-Kittler, 1971). The premolars and molars and molars are relatively simple although P^4 possesses the usual two extra cusplets in the saggital valley. The anterior cusplets in P^{2-3} are not high, but are approaching the condition seen in species of *Sus* so that this specimen is probably of a late population of the species. P^1 is small, is in contact with pa but is separated from the canine by a diastema. An age of Turolian is suggested by the morphology of the premolars. The molars are rather more bunodont and slightly thicker enamelled than in *Sus scrofa* or *Sus minor*. The M_3 which is partly erupted, is not as elongated distally as the M^3 of *Sus* and does not have extra pairs of cusps in front of the main talon cusp. On the balance of evidence we put this specimen in *Korynochoerus* although it shows several features indicating an advanced (and presumably later) population of the species *K. palaeochoerus*.

Discussion

Korynochoerus Schmidt-Kittler, 1971, is very close if not generically identical to *Propotanochoerus* Pilgrim, 1925. Work in progress on the Siwalik Suidae of the Indian Subcontinent, shows that there are fewer differences between *Propotamochoerus hysudricus* and *Korynochoerus palaeochoerus* than there are between *Sus scrofa* and *Sus foarbatas*. Although this study is not complete, it would be well to keep in mind that *Korynochoerus* may be synonymous with *Propotamochoerus*, in which case the latter is the valid generic term.

There are close similarities between *Microstonyx* Pilgrim, 1926 and *Hippopotamodon* Lydekker, 1877 (= *Dicory-*

phochoerus Pilgrim, 1925) and Himermann (1975) was unable to separate the two genera during his determination of Turkish suids. However, the work on Siwalik suids under way at present, shows that there are real significant differences between them, which could be of generic importance. In fact most of the material mentioned by Hunermann (1975) belongs to *Microstonyx*, but *Hippopotamodon* also occurs in Turkey (Ozansoy, 1965). A mandibular fragment described by Hunermann (1975) as *Sivachoerus giganteus* probably represents *Hippopotamodon* judging from the difference in heights of the main cusps. One of the characteristics of *Hippopotamodon* is the great difference in cusp height of unworn molars, the buccal cusps being considerably lower than the lingual ones. In *Sivachoerus* in contrast, the outer (buccal) cusps are nearly as high as the lingual ones, and the enamel is thicker. The presence of *Sivachoerus* in Turkey is thus still not proven. Ozansoy (1965) described a complete mandible of *Hippopotamodon* as *Dicoryphocloerus metelai*. It is close to *H. sivalense* both in morphology and size.

Family Tayassuidae Palmer 1897
 Subfamily Doliochoerinae Simpson 1945
 Genus *Taucanamo* Simpson 1945
 Species *Taucanamo inönüensis* nov.

Holotype

MTA AKİ 3/4, palate with canine and right dentition.
 Type Locality

İnönü, Ankara - Turkey. (About 35 metres below a locality with the same name mentioned by Ozansoy, 1965. The present locality has no *Hipparion* while the one described by Ozansoy does.)

Type Level

Lower "Vindobonian".

Diagnosis

A large species of *Taucanamo* in which the P⁴ has wide anterior and posterior cingula, making it as long as it is wide; ps oriented at a slight angle to the tooth row; M³ more quadrate than in *T. sansaniense* and *T. pygmaeum* due to expansion of the posterolabial cusp; talonal cusp centrally placed; deep facial fossa above P²M³.

Description

The type specimen, AKİ 3/4 (Fig. 5), consists of a large portion of the snout lacking the premaxillae, and broken off behind the third molars. The only teeth preserved are the left canine and P¹ and the right P¹, P³M³, the palate being broken obliquely from the right M³ to the roots of left P². Above the cheektooth row there is a sharp and prominent bony ridge which probably served as a muscular insertion for the buccinator. It is similar to though better developed than the homologous structure in *T. sansaniense*. There is a deep facial fossa above P²-M³ on both sides of the snout, the purpose of which is obscure. A similar structure is present in *T. sansaniense*, but it is less

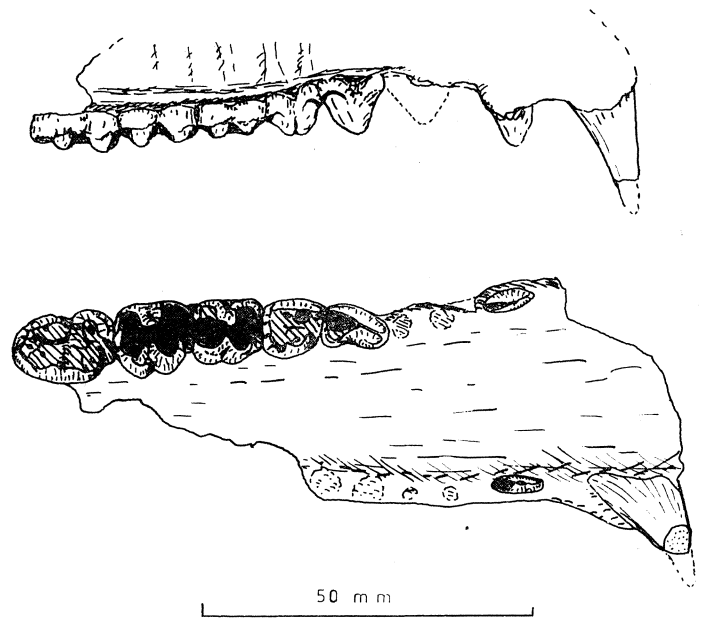


Figure 5: *Taucanamo inönüensis*, sp. nov. Palate with right P², P²-M³, left C -P¹, AKİ/3-4, holotype. İnönü, Ankara.

Şekil 5: *Taucanamo inönüensis*, sp. nov. Damaktaki sag P², P² - M³ ve sol C - P¹, AKİ 3/4, holotip. İnönü, Ankara.

developed and much shallower. The root of the zygomatic emerges from the facial surface of the maxilla on a level with M².

Dentition

The upper canine is a permanently growing tooth which is oriented at about 20° from vertical in mesial view. The wear facet for the lower canine is vertical and results in considerable attrition of the two teeth. Two isolated canines in the collection from the same locality (PI. 2, Fig. 6) show that the roots are slightly bilaterally compressed and that there is a posterior groove. There are lightly developed labial and lingual grooves as well, which probably indicate that the ancestral condition from which this tooth developed was a two-rooted form. The enamel is very thin, and in the holotype is preserved only at the tip and in AKİ 3/433. With further eruption and wear the enamel is worn away altogether. There is a swelling in the facial surface of the maxilla in which the canine root is housed.

There is a short gap between C and pi, the latter tooth being a two-rooted sectorial blade with sharp anterior crest. The distal edge is heavily worn by contact with its lower counterpart. A gap separates P¹ and P², which however, is not preserved in this specimen. It did have two roots.

There is no gap between P² and P³, the latter being a more molarized version of P¹. It has two roots but the distal one is incipiently bifurcate with 8-shaped section. On the internal portion of the root sits a disto-lingual accessory cusplet, while the principal cusp lies over the anterior and disto-labial roots. There is a sharp anterior ridge but the rear edge is worn by contact with P⁴. P³ is

not oriented straight in the jaw as it is in *T. sansaniense*, and the anterior root is closer to the palate than in the Sansan species (Fig. 5). There is a light labial cingulum and a stronger distal one.

P⁴ is a three-rooted tooth, the lingual roots being partially fused to the anterior one on the labial side. There are two labial cusps closely applied to each other, and a single lingual one. The distal cusp of the labial pair is smaller than the mesial one. There are prominent anterior and posterior cingular platforms, much better developed than in *sansaniense*. They are connected to the labial cusp pair by sharp crests. The labial enamel is wrinkled and there is a light labial cingulum.

M¹ is a four rooted tooth with sub-equal bunodont cusps. The lingual cusps are slightly offset distally from their labial partners so that oblique cusp pairs are formed. The lingual pair of roots are fused together as they are in *T. sansaniense*. The roots of P⁴ and all the molars are fused for some distance rootward of the crown/root cervix. The enamel is thin on the cheek teeth and they soon wear to featureless stumps. The fusion of the roots would appear to be a way of overcoming excessive molar and premolar wear, and of increasing the effective life of the tooth. A similar feature is developed in *T. sansaniense* and *T. pygmaeum*, perhaps not so strongly, but the same is not true of *Pecaridioerus* Colbert. Worn molars of *Taucanamo* superficially resemble those of *Oryeteropus*, but they do not of course possess the tubules of that genus.

M² is a larger version of M¹. The antero-lingual and postero-lingual cusps possess crests which run towards the middle of the median valley which has only the lightest trace of a median accessory cusp. This loss or absence of the median accessory cusp immediately serves to separate all doliochoere molars from those of suids. There are anterior and posterior accessory cusps but the former are veyr weakly developed in *T. inönüensis*, although they are stronger in *sansaniense*. There are anterior and posterior cingula as well as a light labial one. In addition the upper molars possess zygodont crests which immediately separate them from those of suids. Zygodont crests are also present in *Schizochoceras*. They run from the tips of the antero-labial cusp down the distal edge of the cusp into the median valley. In *T. inönüensis* there are lingual enamel folds which run from the lingual notch towards the antero-lingual cusp tip. These are absent in *T. sansaniense*.

M³ in *T. inönüensis* is much more quadrate than its counterpart in *sansaniense*, because the disto-labial cusp is large as the antero-labial one. In *sansaniense* it is smaller so that the rear end of the tooth is narrower than the front. The talon of M₃ is rather simple, being little more than an expanded distal cingulum, slightly beaded, and a posterior accessory cusp. It is placed more saggittally in *T. inönüensis* compared with *sansaniense* where it is close to the lingual side of the tooth. Molar enamel in M³ is between 0.5 and 0.75 mm thick.

There are a few isolated molars in the collection from inönü but they are so worn that all enamel features have been obliterated. Their importance lies in the fact that the

great depth of root fusion can be determined. The roots in the five specimens are fused to a depth of 6, 8, 7.8, 6.7 and 5.5 mm. Similar measurements on P⁴ show a fusion to a depth of 3.5 mm. This depth is of the same order of magnitude as the original crown height of the teeth, so the importance of this feature cannot be overlooked.

Discussion

Taucanamo inönüensis is a larger species than either *T. sansaniense* or *T. pygmaeum* (Table 3). It is also consi-

	Taucanamo inönüensis		T. sansaniense after Thenius (1956)	
C1 AKI 3/433	15	9.3		
C1 AKI 3/584	14.2	9.7		
C1 AKI 3/4	13	7		
P1 "	6	3.5		
P2 "	6	—	1	b
P3 "	10.5	7.0	8.8	5.3
P3 AKI 3/582	10.8	7.0		
P4 AKI 3/4	9.0	9.0	7.1	7.4
P4 AKI 3/586	9.0	8.7		
M1 AKI 3/4	10.5	9.5	8.8	8.8
M2 "	11.6	11.0	10.0	9.3
M3 "	14.8	10.3	11.7	10.0

Table 3: Comparison of measurements of *Taucanamo inönüensis* with *T. Sansaniense*.

Çizelge 3: *T. inönüensis*'in ölçülerinin *T. sansaniense* ile karşılaştırılması.

derably larger than *Pecarichoerus* from the Siwaliks from which it differs in several important details, not the least of which is that *Pecarichoeras* has thicker enamel. It also differs from an unnamed genus from Spain (Golpe, 1975) in its superior size and thinner enamel.

Although *T. inönüensis* is the largest species recorded in the genus, it is considerably smaller than *Schizochocerus* and an unnamed species from Çandır.

Genus nov. cf *Taucanamo* Simpson 1945
Species nov.

Type Locality
Çandır/Ankara, Turkey.

Type Level
Upper 'Vindobonian'.

Diagnosis

A genus and species midway in size between *Taucanamo* and *Schizochocerus*, with relatively thick molar enamel, and with only partially fused below the crown/root cervix. Molars more hypsodont and sub-lophodont.

Material

Left power canine, P₄, 1/2 M₁, M₂, fragment M₃, right M₃ and ? I³, probably all from a single individual (Table 4).

	l	b
Canine	9.8	7.0
P ₄	11.5	6.5
M ₁	—	7.8
M ₂	11.5	10.6
M ₃	20.4	11.5

Table 4: Dental measurements of *Taucanamo* sp from Çandır.
Çizelge 4: Çandır cf *Taucanamo* sp.'sinin diğ ölçüleri.

Description

The lower canine is sharply triangular in section having a labial edge 9.8 mm long, a lingual edge 7.1 mm and a distal edge 7 mm long. The labial and lingual surfaces are covered in enamel, while the distal face is either enamel free or covered in very thin enamel which soon abrades away with wear. Judging from the wear facet for the upper canine the lower one was vertical in the jaw, the roots passing under the premolar row. The labial and lingual surfaces are longitudinally ribbed, and possess transverse growth lines (Fig. 6).

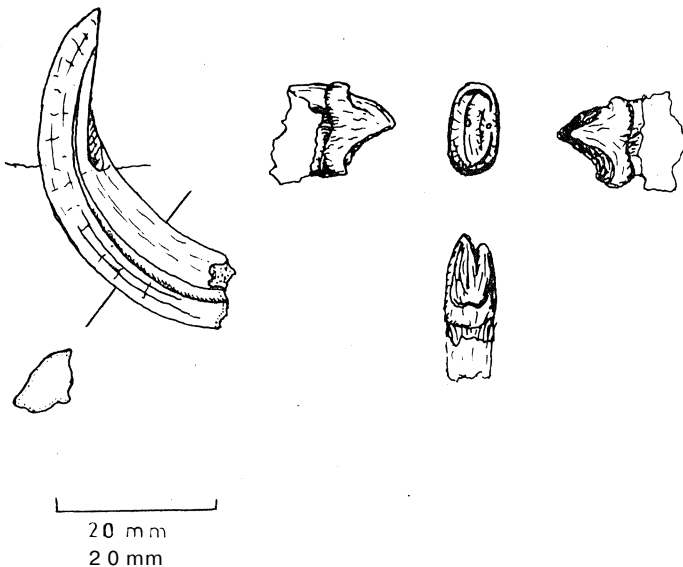


Figure 6: Genus indet. cf. *Taucanamo*, left Lower canine, P₄. Çandır/Ankara. AÇH/1337-1850.

Şekil 6: Genus indet. cf. *Taucanamo*, sol alt köpek dişi ve P₄. Çandır/Ankara. AÇH/1337-1350.

P₄ is a two-rooted tooth with a principal cusp and a closely applied though large lingual cusp ("innenhugel" of Stehlin, 1899-1900). There are anterior and posterior cingula leading a little way onto the labial and lingual walls. There is a prominent ridge running distally from the tip of the principal cusp towards the distal cingulum. The mandible is very slim below P₄, being slightly wider than

P₄ itself. In suids the mandible is very much more robust.

M₁ is fragmentary, but in the preserved portion looks like a smaller and narrower version of M₂.

M₂ is well preserved (Fig. 7). It has four main cusps with a posterior accessory cusp. In addition there is a crest leading from the hypocone into the median valley. There is a smaller anterior crest leading from the anterior cingulum towards the tip of the antero-labial cusp. The ends of the median valley are free from basal pillars in this individual.

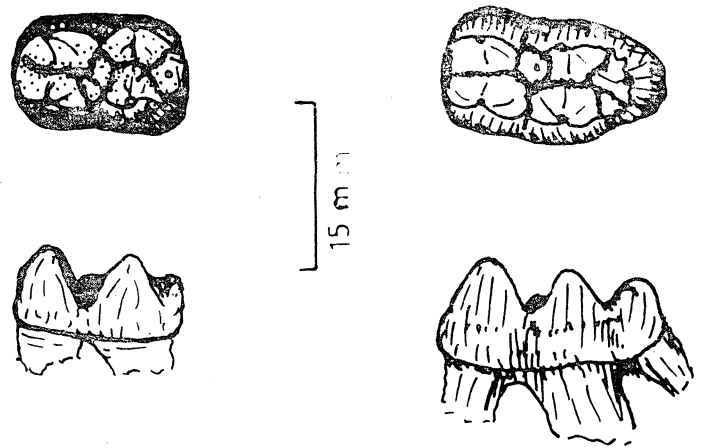


Figure 7: Genus indet. cf. *Taucanamo*, left M₂, right M₃. Çandır/Ankara. AÇH/1338-39.
Figure 7: Genus indet. cf. *Taucanamo*, left M₂, right M₃. Çandır/Ankara. AÇH/1338-39.
Şekil 7. Genus indet. cf. *Taucanamo*, sol Ms, sağ M3. Çandır/Ankara. AÇH/1338-39.

M₃ (Fig. 7) is like M₂ except that it possesses a large posterior accessory cusp forming the talonid which is composed of a bifurcate accessory cusp as in some individuals of *Shizoochoerus*. This bifurcation is variable, but in *ScMzoochoerus*, most individuals possess it. The cingulum bordering the talonid is beaded and the enamel wrinkled. The main cusps have very lightly developed grooves, analogous to the "furehen" in suid molars (Hunermann, 1968) but these would soon wear away during chewing.

Although there is partial fusion of the roots in this species, it is not so well developed as in *T. inönüensis*. The distal roots of M₃ are however fused throughout their length, similar to the condition in *Pecarichoerus orientalis*, Colbert (1935).

The molar enamel thickness in this species from Çandır is greater than in other species of *Taucanamo*, but it is not possible to measure it without damaging the specimens. The main cusps on the molars are also more hypsodont than those of *Taucanamo*, and in this respect are closer to *Schizoochoerus*.

Discussion

Although this species is clearly distinct from all other known Eurasian peccaries, it is based on rather too fragmentary material and it is too poorly known to be able

to indicate its precise affinities and it is therefore considered better to wait for the recovery of new material before erecting a new genus or species. In some ways it forms an intermediate between *Taucanamo* and *Schizochoeerus* possessing as it does more lophodont and higher crowned teeth with slightly thicker molar enamel, as well as not so deeply fused roots. It is also intermediate in size, and probably also in time.

Genus *Schizochoeerus* Crusafont and Lavocat 1954
Species *S. vallesensis* Crusafont and Lavocat 1954

Diagnosis

Tayassuidae of large size in which the molars are lophodont, upper incisors vertically emplaced in the pre-maxillae and of circular to oval section. Large deep canine flanges for lower canines. Great posterior extension of the palate to the rear of M^3 . (cf *Listriodon*). $I^3?_2$ C^1_1 P^4 M^3 .

Material

Ozansoy (1965) has already described material of this species under the name *Schizochoeerus aramfoourgi*. A newly recognised Mi of *S. vallesensis* from La Tarumba, the type locality (possibly from the same individual as the type) is not greatly different in size from M^1 of the Turkish material.

	l	b
M^1 La Tarumba	18.1	14.4
M^1 Yassiören	19	16.5

It is therefore very probable that the Turkish material described by Ozansoy (1965), and the Spanish material are conspecific, a conclusion already suggested by Nikolov and Thenius (1967). Ozansoy's material, now housed in the Musée d'Histoire Naturelle, Paris is a well preserved palate with left and right P^3 - M^3 from Yassiören, Sinap. The specimen has been fully described by Pickford (in prep) and features of special note are the zygodont crests in the upper molars, the greatly reduced postero-labial cusp of P^4 , the lophodonty of P^4 - M^3 closely resembling the lophodonty of *Listriodon*, the labial and lingual molar cingula and reduced anterior accessory cusp.

Species *Schizochoeerus* cf. *gandakasensis* (Pickford, 1976)

Diagnosis

A small species of *Schizochoeerus* about 2/3 the size of *S. vallesensis*. Molar enamel apparently thinner than in *vallesensis*.

Material

Almost complete snout lacking only the right Ii and Mi , from Sinap, 555 km NW of Ankara, now in the MTA, Ankara (Museum No. 1953).

Description

The snout (Figs. 8-11) belongs to an adult individual with well worn molars. It is considerably older ontogenetically, than any other specimen of *Schizochoeerus*, other

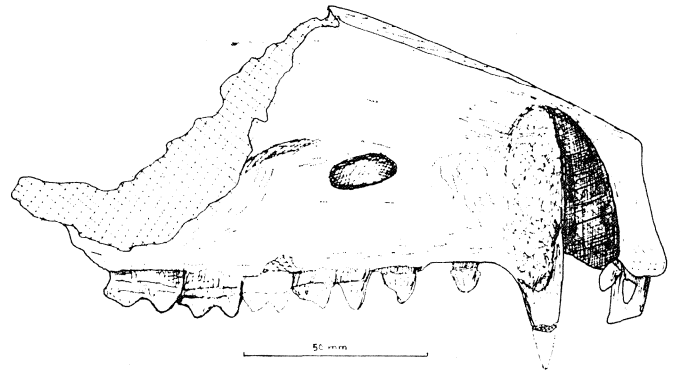


Figure 8: *Schizochoeerus* cf. *gandakasensis* (Pickford), snout, lateral view. Sinap/Ankara. Mus. No: 1953.

Şekil 8: *Schizochoeerus* cf. *gandakasensis* (Pickford), Burnun dıştan görünüşü. Sinap/Ankara.

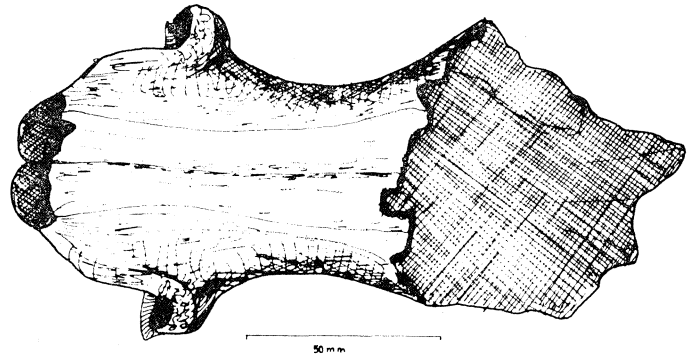


Figure 9: *Schizochoeerus* cf. *gandakasensis* (Pickford), snout, dorsal view. Sinap/Ankara.

Şekil 9: *Schizochoeerus* cf. *gandakasensis* (Pickford), Burnun sırttan görünüşü. Sinap/Ankara.

than the holotype of *S. gandakasensis* from the Potwar Plateau, Pakistan. It is the worn condition of the teeth which presumably prevented its correct identification until now, as the typical lophodonty by which *Schizochoeerus* is identified, has been removed by heavy wear. The specimen is considerably smaller than *S. vallesensis* but is the correct magnitude to belong to *gandakasensis* as occlusion of the palate and mandible suggest. In addition, an isolated upper Mi of *S. gandakasensis* from ootwar, is the same size as that of the palate. It may be that the Sinap specimen belongs to a species different from the Pakistan one, but it is not possible to indicate it with the available material.

The palate is the most complete specimen of *Schizochoeerus* known to date, and its value lies in the determination of the morphology of the anterior dentition, hitherto unknown.

The nasal passages are wide and rounded (Fig. 10), quite in contrast to the shape in *Sus* where the snout is almost square in section. There are enormous canine flanges with a deep recess or niche for the reception of the lower canines when the jaw is closed (Fig. 8-10). The top of the flange reaches almost to the top surface of the

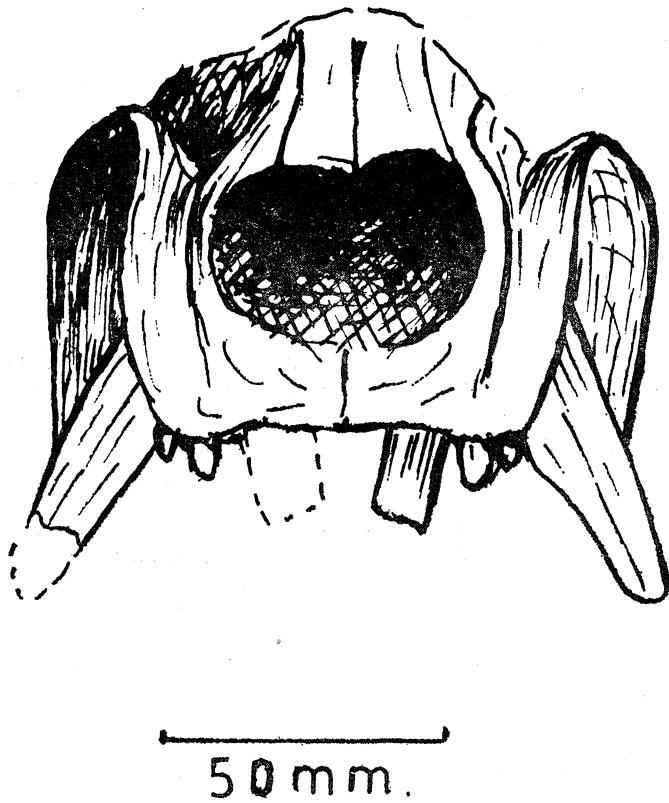


Figure 10: *Schizochocerus cf. gandakasensis* (Pickford), snout, anterior view. Sinap/Ankara.

Şekil 10: *Schizochocerus cf. gandakasensis* (Pickford) Burnun önden görünüşü. Sinap/Ankara.

nasals. The anterior nares are slightly retires and the premaxillae are shorter than they are in the suids. The incisors are implanted steeply in the premaxilla, and even point slightly to the rear. In suids they are procumbent. The premaxillae do not meet interproximally and there are gaps between all the incisors and the upper canine.

There is a large infraorbital foramen above $P^{3,4}$. The maxillary root of the zygomatic process begins above M^2 . There is a prominent buccinator ridge as in *Taucanamo* but there is no marked facial fossa as in *Taucanamo*. The palate is grooved and ridged (Fig. 11) so that it has quite

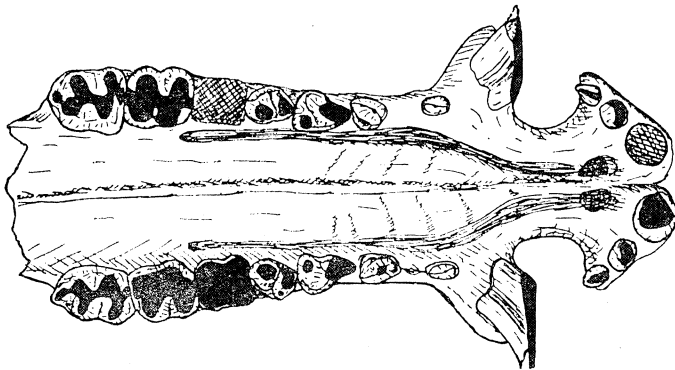


Figure 11: *Schizochocerus cf. gandakasensis* (Pickford), snout, palatal view. Sinap/Ankara.

Şekil 11: *Schizochocerus cf. gandakasensis* ((Pickford), Burnun damaktan görünüşü. Sinap /Ankara.

a rugose surface. The palatal grooves run close to pre-molars and molars, emerging from the palatine foramina at the front of M^2 ; at the level of P^1 , they swing saggittally past the canine niches before entering the incisive foramina. The hard palate extends considerably to the rear of M^3 as in *S. vallesensis*. The toothrows are subparallel, but the canines are outside the tooth line and diverge at an angle of 22.5° from the vertical, as in most other peccaries.

Dentition

I^1 is a cylindrical peg, without enamel in this specimen due to heavy wear, This tooth looks remarkably like I^1 of the hippopotamus. In fact, the entire anterior tooth battery closely recalls that of the hippo.

I^2 is slightly smaller than I^1 and is lightly laterally compressed although its root is circular. There is a ridge running down the distal edge of the crown, but anteriorly the morphology has been removed during wear.

I^3 is the smallest incisor, and is positioned on the anterior edge of the canine niche and points into it at an angle. A wear facet on its distal edge indicates contact with the lower canine during chewing. The crown is laterally compressed, but the root is of circular section.

The upper canines are large permanently growing teeth, not unlike those of *Taucanamo*. Their shape and orientation serve immediately to distinguish *Schizochocerus* as a peccary, and not as a suid, the family in which it has been classified until recently (Pickford, 1976). The tooth is sub-oval in section, with a marked distal groove. There are two prominent wear facets anteriorly, one of which is vertical and scored by vertical striae, the other of which is lingually placed and which has striae running parallel to the long axis of the tooth. There are gaps between the canine, P^1 , P^2 .

P^1 is a two-rooted, slightly sectorial blade formed of a principal cusp with anterior and posterior ridges leading rootward onto small anterior and posterior cingula. There is also a weak lingual cingulum.

P^2 is a triangular tooth, with two roots, the distal one of which is incipiently bifurcate. In other words the tooth is slightly molarised. There is an inflated main cusp with anterior and posterior ridges leading from the tip onto a cingulum which almost completely surrounds the tooth. There is a cusplet on the disto-lingual corner of the tooth which imparts a triangular occlusal outline to it. A prominent wear facet is developed on the distal surface of the tooth.

P^3 is a larger version of P^2 . In this individual however, there has been aberrant wear so that the front 1/4 of the tooth is worn away to gingival level. The distolingual cusp is large and is bordered lingually by a cingulum.

P^4 is a three cusped tooth, broader than it is long. In this individual P^4 on both sides is rotated pathologically through about 60° so that the mesial edge of the tooth is subparallel to the toothrow and points towards the palate. (The authors have seen hyracoid molars rotated in a similar manner. It has yet to be satisfactorily explained why the pathological rotation of teeth is often the same in both

jaws). There are two prominent mesial cusps in *S. cf. gandakasensis*, the two being subequal in size, forming an anterior loph. The disto-labial cusp is small and closely applied to the distal edge of the antero-labial cusp. There are anterior and posterior cingula and a distal accessory cusplet in the saggital line of the tooth. Wear facets are developed on the anterior cusps only in this specimen, but this is undoubtedly due to the peculiar rotation of the teeth.

M^1 is worn to a featureless stump, surrounded by thin enamel. This tooth looks rather like worn examples of molars of *Taucanano*.

M^2 is also deeply worn, but some occlusal enamel is present in the labial end of the median valley. One can just determine anterior and distal cingula and the zygodont crest running from the antero-labial cusp into the buccal notch. There is a light cingulum buccally.

M^3 is also heavily worn, the main features of the cusps being obliterated. However, the anterior and posterior cingula are visible as is the distal beaded cingulum and talon which is formed of a bifurcate cusp as in *Taucanano*. The talon is closely attached to the disto-lingual cusp.

	1	b	diastemata	
I^1	10.5	9.7	I^1-I^1	8.5
I^2	7	6	I^1-I^2	3.5
I^3	5.6	4.6	I^2-I^3	3
C	20	15.5	I^3-C	15
P^1	8	4.6	$C-P^1$	10
P^2	9.5	8.6	P^1-P^2	9
P^3	12	10.7	Palatal width at C	41
P^4	9.8	11.5	" " "	P^2 32
M^1	14	12.3	" " "	P^4 31
M^2	16.5	14.5	" " "	M^3 34
M^3	20.4	15.5	Snout width at C	87
P^1-M^3 length	113 mm.		" " "	P^2 55

Table 5: Dental measurements of *Schizochocerus cf. gandakasei*.

Çizelge 5: *Schizochocerus cf. gandakasei*'in diş ölçüleri.

Discussion

The importance of this new material from Sinap lies not only in the new information to be gained about the genus but also in the palaeodistribution of the species. If the palate is really the same species as that from the Potwar Plateau, which we have no reason to doubt, then it would appear that the species was widespread, even though it appears to have been rare. From the Potwar

area we have five specimens, from Haritalyangar in India there are three and from Turkey, one.

Schizochocerus appears to be an indicator of Vallesian time although Hunermann (1975) identified the genus at Paşalar, supposedly an early Vindobonian locality in Turkey. All other specimens have been found in strata which contain *Hipparion*.

Acknowledgements

The authors thank staff at the MTA, Ankara for permission to study the fossils and for logistic help during the research. The senior author thanks Professor D. Pilbeam for assistance. Thanks are also extended to the British Institute in Ankara for their considerable assistance.

Yazının geliş tarihi : 1.11.1977
Düzeltilmiş yazının geliş tarihi : 19.1.1979
Yayıma verildiği tarih : 25.1.1979

LIST OF REFERENCES :

- Colbert, E.H., 1935, Siwalik mammals in the American Museum of natural History: Trans. Am. phil. Soc, 26: i-x, 1-401.
- Crusafont-Pairo, M., and Lovocat» R., 1954, *Schizochocerus*, un nuevo genero de suidos del Pontiene inferior (Vallesense) des Vallesense) des Valles-Penedes: Not. y comm. de Inst. geol. Min. Espana, 36, 3-12.
- Golpe, J.M., 1975, Un nuevo tayasuido en el Vindoboniense terminal de Castell de Barbera (Cuenca del Valles): Boln. inf. Diputacion Provincial de Barcelona, VII (2), 39-43.
- Hunermann, K.A., 1968, Die Suidae (Mammalia, Artiodactyla) aus den Dinotheriensanden (Unterpliozan = Pont) Rheinhessens (Sudwestdeutschland): Schweiz. Pal. Abh. Mem. Suisses. Pal., 86, 1-96;
- Hunermann, K.A., 1975, Die Suidae aus den Turkischen Neogen; in Sickenburg et al: Geol. Jb., B15, 153-156.
- Leinders, J. 1975, Sur les affinites des listriodontes bunodontes de l'Europe et de l'Afrique: Bull. Mus. Nat. Hist, nat, 341, 197-204.
- Lydekker, R., 1877, Notices of new and rare mammals from the Siwaliks: Rec. geol. Surv. India, 10, 76-83.
- Nafiz, H., and Malik, A., 1973, Vertebres fossiles de Küçükçekmece: Publ. inst. geol. Univ. Istanbul, 8, 1-119.
- Nikolov, I., and Thenius, E., 1967, *Schizochocerus* (Suidae, Mammalia) aus dem Pliozan von Bulgarien: Ann. Naturhist. Mus. Wien, 71, 329-340.
- Ozansoy, F., 1951, Preliminary report on a Pontian Mammal Fauna from Mufla: Bull. geol. Soc. Turkey, 3, 147-152.
- Ozansoy, F., 1965, Etudes des gisements continentaux et des mammiferes du Cenozoique de Turquie: Mem. Soc. geol. France, ns 44(1), Mem. 102, 1-92.
- Pickford, M. 1976, A new species of *Taucanano* (Tayassuidae, Mammalia) from the Siwaliks of the Potwar Plateau, Pakistan: Pakistan J. Zool., 8(1), 13-20.
- Pilgrim, G.E., 1925, Presidential address to the Geological section of the 12th Indian Science Congress: Proc. 12th Indian Sci. Congr., 200-218.

- Pilgrim, G.E., 1926, The fossil Suidae of India: Mém. geol. Surv. India, Palaeont. indica, ns 8(4), 1-65.
- Schmidt-Kittler, N., 1971, Die obermiozane Fossilagerstätte Sandelzhausen, 3. Suidae (Artiodactyla, Mammalia): Mitt. Bayer. Staatssamml. Palaeont. hist. geol., 11, 129-170.
- Şenyürek, M., 1952, A study of the Pontian fauna of Gökdere (Elmadag) southeast of Ankara: Belleten DTCE, 16(64), 449-493.
- Stehlin, H.G., 1899-1900, Geschichte des Suiden Gebisses: Abh. Schweiz. palaeont., 26, 1-527.
- Thenius, E., 1956, Die Suiden und Tayassuiden des Steierischen Tertiars, Beiträge zur Kenntnis der Säugetiere der Steiermark: 8. Sitz. ber. Akad. Wiss. Wien, 165, 337-382.
- Tschachtli, B., 1942, Fossile Säugetiere aus der Gegend von Küçük-yozgat, Ostlich Ankara: Maden Tetkik ve Arama Enst. Derg., 2(27), 322-324.
- Wilkinson, A., 1976, The lower Miocene Suidae of Africa: Foss. vertebr. Africa, 4, 173-282.

PLATE I.

- Figure 1: Left and right P's of two varieties of *Listriodon splendens*. Çandır, Turkey. AÇH/1334-35.
 Figure 2: Female mandible, *Listriodon splendens*, occlusal view (arrows point to wear facets). Çandır, Turkey. (Scale: 50 mm) AÇH/1333.
 Figure 3: Female mandible, *Listriodon splendens*, lateral view. Çandır, Turkey, (scale: 50 mm). AÇH/1333.
 Figure 4: Male mandible, *Listriodon splendens*, occlusal view. Çandır, Turkey. AÇH/1331.
 Figure 5: Male mandible and premaxilla in occlusion, lateral view. Çandır, Turkey. AÇH/1331-32.
 Figure 6: Male upper canines, *Listriodon splendens*, Çandır, Turkey. AÇH/40-316.
 Figure 7: Male lower canines, *Listriodon splendens*. Çandır, Turkey. AÇH/317-20.
 Figure 8: Male lower canine, mesial apex to show unusual damage caused by occlusion with I₃. Çandır. AÇH/319.
 Figure 9: Symphysis of mandible with left I₁₋₃, right I₁₋₂ *Listriodon cf. lockharti*. İnönü, AKI 3/7 occlusal view.

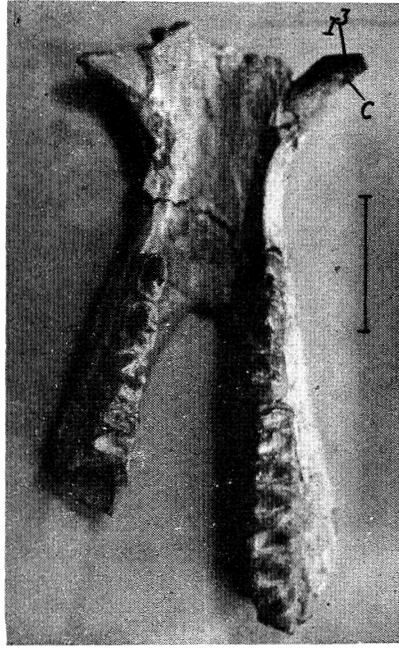
(Scale:

LEVHA I.

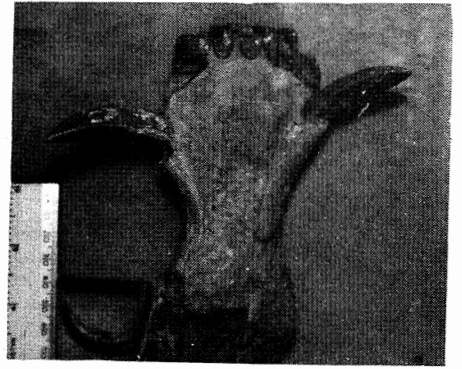
- Şekil 1: *Listriodon splendens*'in iki varyetesinin sağ ve sol I¹'leri. Çandır, Türkiye, AÇH/1334-35.
 Şekil 2: Dişi *Listriodon splendens*, altçenesinin üstten görünüşü (oklar aşınma yüzeylerini gösteriyor). Çandır, Türkiye. (ölçek: 50 mm) AÇH/1333.
 Şekil 3: Dişi *Listriodon splendens*, altçenesinin dıştan görünüşü. Çandır, Türkiye, (ölçek: 50 mm) AÇH/1333.
 Şekil 4: Erkek *Listriodon splendens*, alt çenesinin üstten görünüşü. Çandır, Türkiye. AÇH/1331.
 Şekil 5: Erkek bireyin önüst ve alt çenesinin üstüste dıştan görünüşü. Çandır, Türkiye. AÇH/1331-32.
 Şekil 6: Erkek *Listriodon splendens*'in üst köpek dişleri. Çandır, Türkiye. AÇH/40-316.
 Şekil 7: Erkek *Listriodon splendens*'in alt köpek dişleri. Çandır, Türkiye. AÇH/317-20.
 Şekil 8: Erkek bireyin alt köpek dişinin orta ucu I³ tarafından etkilenmesiyle aşırı derecede bozulmuştur. Çandır. AÇH/319.
 Şekil 9: *Listriodon cf. lockharti* alt çenesinin simfiz bölgesindeki sol I₁₋₃, sağ I₁₋₂'ler. İnönü, AKI 3/7 üstten görünüş.



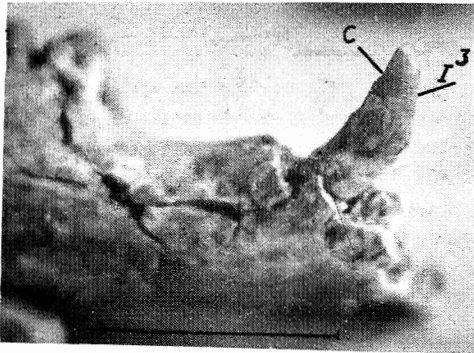
1



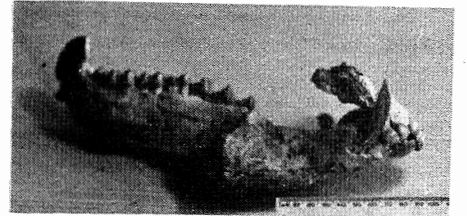
2



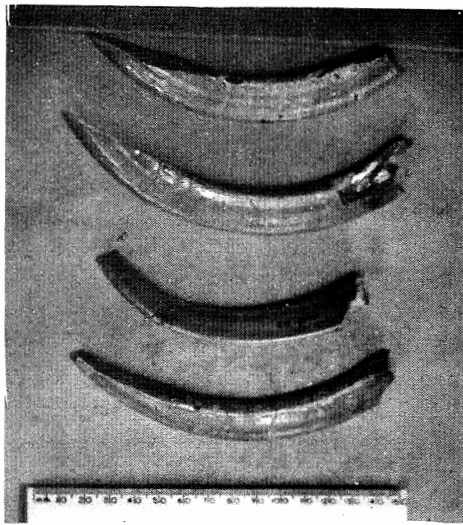
4



3



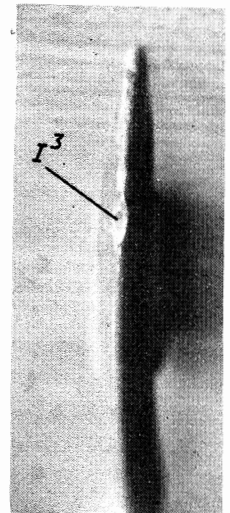
5



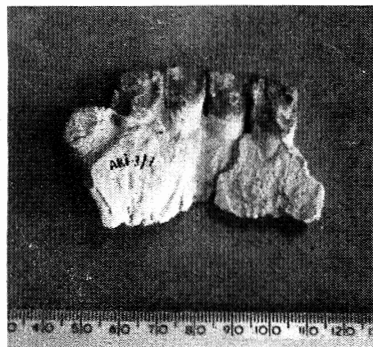
7



6



8



9

PLATE III.

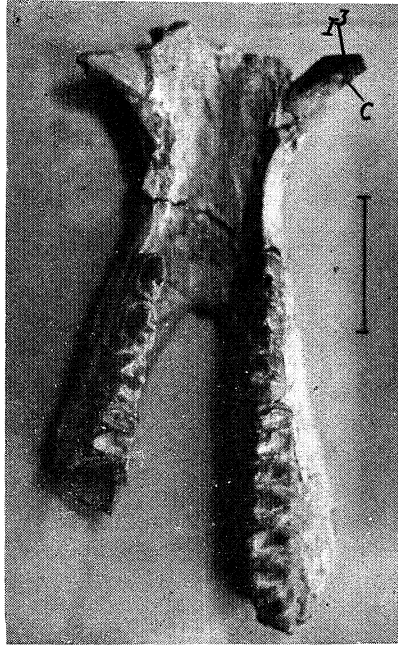
- Figure 1: cf. *Taucanamo* sp. ?I³, Çandır, Turkey. AÇH/1336.
Figure 2: cf. *Taucanamo* sp. left lower canine, lingual view, Çandır. AÇH/1337.
Figure 2: cf. *Taucanamo* sp. left lower canine, labial view, Çandır. AÇH/1337.
Figure 4: cf. *Taucanamo* sp. left M₂, occlusal view, stereo Çandır. AÇH/1338.
Figure 5: cf. *Taucanamo* sp. right M₃, occlusal view, stereo, Çandır. AÇH/1339.
Figure 6: *Schizochœrus* cf. *gandakasensis* (Eickford), right late'ral view of snout, stereo. Sinap, Turkey.
Figure 7: *Schizochœrus* cf. *gandakasensis* (Rickford), palatal view of snout, stereo. Sinap, Turkey. Mus. No. 1953.

LEVHA III.

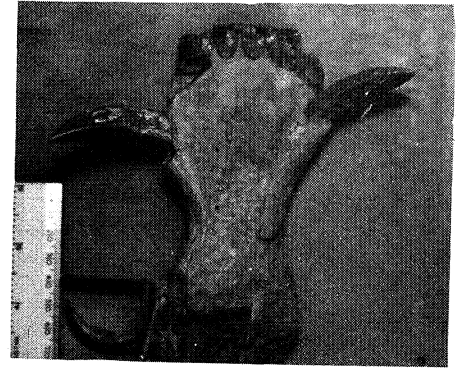
- Şekil 1: cf. *Taucanamo* sp. ?I³ Çandır, Türkiye. AÇH/1336.
Şekil 2: cf. *Taucanamo* sp. Sol alt köpek dişinin lingualden görünüşü. Çandır. AÇH/1337.
Şekil 3: cf. *Taucanamo* sp. Sol alt köpek dişinin dıştan görünüşü. Çandır, AÇH/1337.
Şekil 4: cf. *Taucanamo* sp. Sol M₂ nin üstten görünüşü, stereo. Çandır. AÇH/1338.
Şekil 5: cf. *Taucanamo* sp. Sağ M₃'ün üstten görünüşü, stereo. Çandır. AÇH/1339.
Şekil 6: *Schizochœrus* cf. *gandakasensis* (Pickford), burnun sağ dıştan görünüşü, stereo. Sinap, Türkiye.
Şekil 7: *Schizochœrus* cf. *gandakasensis* (Pickford), burnun damaktan görünüşü, stereo. Sinap, Türkiye.



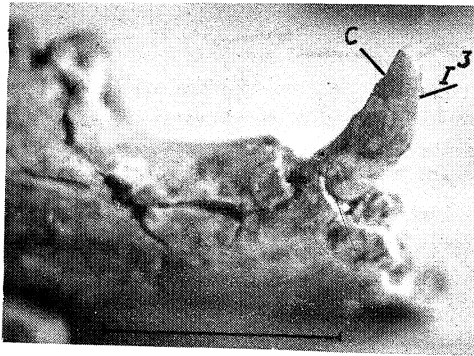
1



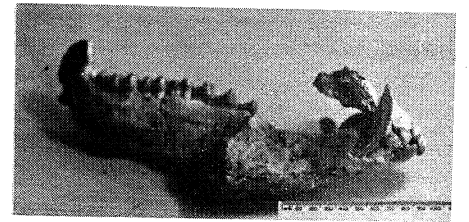
2



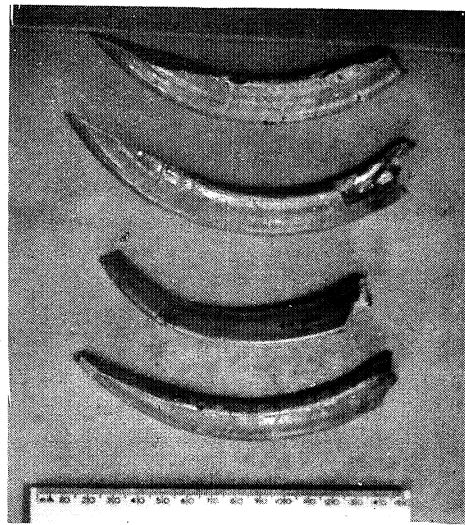
4



3



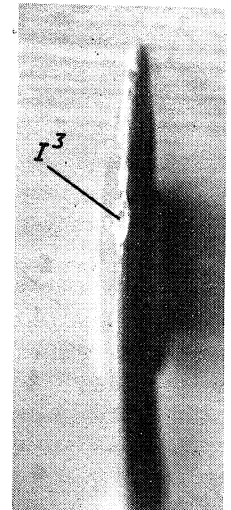
5



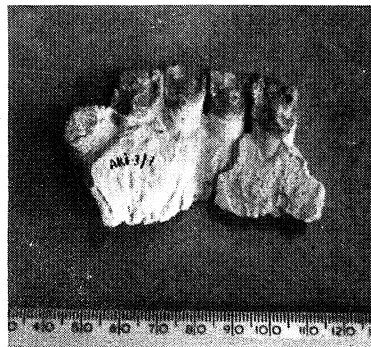
7



6



8



9

PLATE II.

- Figure 1: *Listriodon cf. lockharti*, lateral view of snout, İnönü, Turkey. AKİ/3-780.
Figure 2: *Listriodon cf. lockharti*, dorsal view of snout, İnönü, Turkey.
Figure 3: *Listriodon cf. lockharti*, palatal view of snout, İnönü, Turkey.
Figure 4: *Korynochoerus cf. palaeochoerus*, palatal view (stereo) Muğla, Turkey.* MYS/732.
Figure 5: *Taucanamo inönüensis* sp. nov. snout, lateral view. (Stereo). Holotype, İnönü, Turkey. AKt 3/4.
Figure 6: *Taucanamo inönüensis* sp. nov. upper canines (stereo). İnönü, Turkey. AKt/453-584.
Figure 7: *Taucanamo inönüensis* sp. nov. left t, P^s, P* (stereo). İnönü, Turkey. AKİ/3-582, AKI/5-586.

LEVHA II.

- Sekil 1: *Listriodon cf. lockharti*, burnun dıştan görünüşü, İnönü, Türkiye. AKİ/3-780.
Sekil 2: *Listriodon cf. lockharti*, burnun dorsal'den görünüşü, İnönü, Türkiye.
Şekil 3: *Listriodon cf. lockharti*, burnun damaktan görünüşü, İnönü, Türkiye.
Sekil 4: *Korynochoerus cf. palaeochoerus*, damaktan görünüşü, (stereo) Muğla, Türkiye^ MYS/732.
Sekil 5: *Taucanamo inönüensis* sp. nov. Burnun dıştan görünüşü, (stereo). Holotip. İnönü, Türkiye. AKI/3/4.
Sekil 6: *Taucanamo inönüensis* sp. nov. Üst köpek dişleri (stereo). İnönü, Türkiye. AKI/453-584.
Sekil 7: *Taucanamo inönüensis* sp. nov. Sol F*, P* (stereo), İnönü, Türkiye. AKİ/3-582, AKI/3-586.