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Chalicotheriidae from the middle Miocene hominoid locality of Çandır (Turkey).

Denis GERAADS * & Gerçek SARAÇ **

*CNRS - UPR 2147 - 44 rue de l'Amiral Mouchez - 75014 PARIS, France

dgeraads@ivry.cnrs.fr

** MTA Genel Müdürlügü, Jeoloji Etüdleri Dairesi - 06520 ANKARA, Turkey

Abstract.- A single, rare species of Chalicotheriidae is present at Çandır. It is slightly different from the well-known *Chalicotherium grande* of Neudorf, but the material is too fragmentary to permit a reliable determination of the taxonomic significance of the differences.

Key-words.- Middle Miocene, Turkey, Mammalia, Perissodactyla, Chalicotheriidae

Introduction

The Chalicotheriidae, a strange family of Perissodactyls with highly modified limbs and clawed hoofs, are represented in the Middle Miocene of Europe and Asia by their two subfamilies, Schizotheriinae and Chalicotheriinae. Only the latter is present at Çandır, represented by only 8 fossils. The material is housed in the MTA Museum and DTCF, Ankara.

Materials and Methods

Systematic description

Genus indet. cf *Chalicotherium* KAUP, 1833

Chalicotherids are not common animals, and their postcranial skeleton has seldom been described in detail, with the major exception of ZAPFE's monograph (1979) on *Chalicotherium grande* from Neudorf Spalte. We will therefore mainly compare our material with his descriptions.

Besides 1986-110, a fragment of lower molar with no diagnostic feature, and a third metacarpal, all remains are phalanges that appear to be from the manus.

The unnumbered McIII is almost complete except for a part of the proximal epiphysis. It completely differs from the Schizotheriinae (SCHAUB 1943, fig.18, in *Ancylotherium*) by the dorsal concavity of the diaphysis, the rounded shape of its cross section, and the sharp inclination of the proximal epiphysis in anterior view. It seems to be somewhat crushed and precise measurements are impossible. Nevertheless, it is clear that, although its length (198 mm) is close to that of *C.grande* from Neudorf (168-213 mm, mean 191 mm: ZAPFE 1979: 152), it was certainly more massive (A-P diameter of proximal end 61, instead of 44-57 at Neudorf).

AÇHÜ-2433 is a first phalanx missing part of the proximal end. It is nearly symmetric and thus probably belongs to the third digit. It is larger (length = 100, distal width = 37.8) than that of *C. grande*. In contrast to *Ancylotherium*, the proximal articular facet faces almost dorsally, possibly even more so than in the *C.grande* from Neudorf (ZAPFE 1979, fig.94). The outline of the distal articulation in lateral view is more regularly curved (which means that it was more fully functional) than in *C. grande*, and the distal end is also not so deep as in this species (ratio dorso-palmar thickness / overall length = 40, instead of 43-49 at Neudorf).

There are three second phalanges, all certainly too long and narrow to belong to the foot. The largest specimen, 1986-109, is larger than those from Neudorf, but narrow, and the articular surface is perfectly symmetrical: it must therefore belong to the third digit. However,

the proximal facets are better divided into a dorsal and a palmar part than at Neudorf, and more like phalanges of the second and fourth digit.

Measurements:

	Length	Prox. dorso-palmar	Prox. transverse	Dist. dorso-palmar
1986-109	65	55	35.5	57
AÇHÜ-2432	56	52.7	41.5	-
no N□	61.5	56	39.3	57.5
C.grande, Neudorf (phalanx II, 3rd digit)	51-62.5	41.5-50	28-35	46.2-53.5

AÇHÜ-2432 is much thicker and better matches the second digit, but it is even thicker than those from Neudorf. In contrast, the unnumbered specimen is only moderately thick, and strongly waisted, and better matches digit IV (ZAPFE 1979, fig.97).

The third phalanx, the most characteristic bone of Chalicotheres, is represented by two incomplete and unnumbered specimens. The best one lacks the proximal dorsal expansion, but is otherwise well preserved. It is larger than all specimens from Neudorf (height 84 compared to a maximum of 82 at Neudorf and thickness of 40 compared to the Neudorf maximum of 36), and another fragment is even thicker (max. thickness 47).

Results and Discussion

The material from Çandır mainly differs from that of Neudorf by its larger size and greater robustness. Unfortunately, the taxonomic value of these differences cannot be determined. They may not exceed the subspecific level but, on the other hand, the postcranial

anatomy of other Middle and Upper Miocene Chalicotheriinae is unknown. Until recently, this would have been regarded as of little consequence, because all of them were included in *Chalicotherium*, of which *Macrotherium* was taken as a synonym. However, according to DE BONIS & al. (1995), both genera are in fact distinct. Their *Macrotherium* is the better known, with *M. grande* from Sansan and Neudorf, and *M. macedonicum* from the Turolian of Greece. *Chalicotherium* s.str. has been reported from several late Middle Miocene (MN 7-8) and early upper Miocene (MN 9) sites, but is much less well known. Although we do not fully agree with the classification of these authors (GERAADS, SPASSOV & KOVACHEV in press), it is clear that by Çandır times, two lineages may have been present in Europe, and perhaps also in Turkey. Do the differences between the Çandır material and *C. grande* from Neudorf imply taxonomic distinction ? The answer is difficult. If it is *C. grande*, its larger size and greater robustness would suggest a more evolved variety; such a variety is known in *C. grande rhodanicum* DEPÉRET, 1892, from the late Middle Miocene of La Grive, France. Unfortunately, the phalanges referred by DEPÉRET to this species come from a different quarry than the type-material, and from his illustrations, they appear to belong to *Ancylotherium*, not to a Chalicotheriinae.

At the present time, the cranial material of middle Miocene Chalicotheriinae is too scarce to allow a satisfactory analysis of this group.

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