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ALKWERTATHERIUM WEBBI, A NEW ZYGOMATURINE GENUS AND SPECIES FROM THE LATE MIOCENE ALCOOTA LOCAL FAUNA, NORTHERN TERRITORY (MARSUPIALIA: DIPROTODONTIDAE).

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ABSTRACT

Alkwertatherium webbi, gen. et sp. nov., possesses characteristics structurally intermediate between the diprotodontine genus *Pyramios* and the zygomaturine genus *Plaisiodon* of the family Diprotodontidae. In its expression of a clearly differentiated and well-developed parastyle on the P^3, *Alkwertatherium* is aligned with the Subfamily Zygomaturinae. In its absence of a hypocone on the P^3 and its markedly constricted diastemal palate, *Alkwertatherium* resembles the members of the Subfamily Diprotodontinae. *Alkwertatherium* was derived from diprotodontines at a structural grade similar to that of *Pyramios*. It may have shared ancestry with the primitive zygomaturines *Plaisiodon* and *Nimbadon*. *Pyramios*, *Alkwertatherium* and *Plaisiodon* exemplify a gradual structural succession in cheek tooth and cranial morphology from the Diprotodontinae to the Zygomaturinae.

KEYWORDS: Late Miocene marsupials, Alcoota Local fauna, Diprotodontidae, zygomaturinae, zygomaturine origins, Diprotodontinae, nototheriines, *Pyramios*, *Plaisiodon*.

INTRODUCTION

Primarily a description of a new taxon, this study also attempts to address the character states of the Diprotodontidae in relation to *Alkwertatherium*, which is compared with other Cheltenhamian-Mitchellian equivalent forms in considerable detail, incorporating a brief review of the mid- to late Miocene diprotodontid genera.

At least three large genera and one smaller diprotodontid genus are present in the Alcoota Local Fauna. The molar dentitions of the three largest genera: *Pyramios alcootense* Woodburne, *Plaisiodon centralis* Woodburne and *Alkwertatherium webbi*, gen. et sp. nov., overlap in size and morphology. Isolated molars of these genera are difficult to discriminate without the associated third premolar. It is possible, judging from the size distributions, that the tables of measurements provided by Woodburne (1967a) may contain an admixture of these forms. Sampling of the Alcoota site between 1985 and 1989 indicates that *Pyramios* and *Alkwertatherium* are uncommon and therefore the inclusion of the odd molar of these species would not seriously influence the statistical definition of *Plaisiodon*.

The upper third premolars of three of the four Alcoota genera are readily distinguishable.

The P^3 of *Pyramios alcootense* is characterized in having a weakly expressed or absent parastyle, absence of a hypocone and presence of a faint posterobuccal cingulum. Its broadly trilobate occlusal profile, large, conical protocone and equally large triangular, undivided parametacone with a short, steeply descending postparametacrista are associated with diprotodontine (Diprotodontinae) diprotodontids. The large size of the P^3 relative to the molars is more in proportion with the condition in zygomaturines. In Plio- Pleistocene diprotodontines, (eg. *Euryzygoma*, *Nototherium* and *Diprotodon*) the P^3 is reduced relative to the molars.

Plaisiodon centralis permanent upper premolars are elongated, with a prominent, posteriorly curved parastyle and a long, blade-