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2003
Bernard Price Institute for Palaeontological Research
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Short Communication

A taxonomic note concerning a dicynodont (Synapsida: Anomodontia) from the Middle Triassic of East Africa

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Received 26 May 2003. Accepted 20 November 2003

The complicated histories of the Indian dicynodont *Rechnisaurus* and the East African dicynodont *Kannemeyeria cristarhynchus* has led to the incorrect use of the name *'cristarhynchus'* for the latter taxon. This paper therefore proposes a new species name and diagnosis.

Keywords: Triassic, therapsid, *Kannemeyeria.*

INTRODUCTION

Dicynodonts were a diverse clade of herbivorous, non-mammalian therapsids ('mammal-like reptiles'), which flourished during the Permian and Triassic periods. Dicynodont fossils have been recorded from every continent and an enormous number of genera and species have been named, many of which are ill-diagnosed or based on poorly preserved material (King 1988). Not surprisingly, the taxonomy and phylogenetic interrelationships of dicynodonts remains contentious (e.g. Angielczyk 2001; Hancox *et al.* 2000).

During the course of a redescription of the well-known African dicynodont *Kannemeyeria simocephalus* (Renaut 2000), the first author encountered an incongruity in the taxonomy of two other dicynodont species, *Rechnisaurus cristarhynchus* and *Kannemeyeria cristarhynchus,* which we outline in this note.

Institutional abbreviations used in the text are as follows: BP, Bernard Price Institute for Palaeontological Research, Johannesburg; ISI, Indian Statistical Institute, Calcutta; R, Geological Survey of Namibia, Windhoek.

TAXONOMY

Roy-Chowdhury (1970) described the partial skull (ISI R37) of a large dicynodont from the Middle Triassic Yerrapalli Formation of India, which he assigned to a new genus and species, *Rechnisaurus cristarhynchus.* Later in the same year, Crozier (1970) published a brief description of two dicynodonts from the 'lower fossiliferous horizon' of the Middle Triassic N'tawere Formation of Zambia, referring one of these specimens, BP/1/3638, to *Rechnisaurus cristarhynchus* Roy-Chowdhury. Keyser (1974) accepted this taxonomic referral with some reservation.

In their seminal review of Triassic dicynodont systematics, Keyser & Cruickshank (1979) re-examined BP/1/3638 from Zambia, as well as R313, a specimen from the Middle Triassic Omingonde Formation of Namibia which had previously been referred to *Kannemeyeria simocephalus* by Keyser (1973). Keyser & Cruickshank (1979) recognized that BP/1/3638 and R313 were in fact congeneric with *Kannemeyeria,* but a different species from *Kannemeyeria simocephalus.* Consequently, Keyser & Cruickshank (1979), accepting that BP/1/3638 was conspecific with the Indian *Rechnisaurus cristarhynchus* Roy-Chowdhury, argued that *Rechnisaurus* was a junior synonym of *Kannemeyeria.* This recognized the new combination *Kannemeyeria cristarhynchus* (Roy-Chowdhury) for the Indian and Zambian dicynodonts. Note, however, that this synonymy was based entirely on an analysis of the characters present in the African specimens that had been referred to *Rechnisaurus cristarhynchus,* rather than on the holotype described by Roy-Chowdhury (1970).

The synonomy of *Rechnisaurus* with *Kannemeyeria* was implicitly accepted by Cooper (1980), Cox & Li (1983) and Cruickshank (1986). However, Bandyopadhyay (1985) showed that the holotype of *Rechnisaurus cristarhynchus* was clearly morphologically distinct from the African *Kannemeyeria simocephalus,* and that there were no grounds for synonymy. Although much of her argument (Bandyopadhyay 1985, 1989) was based on snout morphology, a feature that Renaut (2000) has shown to be unreliable, she did also draw attention to a number of characters that can be used to distinguish between *Rechnisaurus* and *Kannemeyeria.* Distinguishing characters of *Rechnisaurus* include the large ventrally projecting caniniform process, the flattened palatal surface of the secondary palate, a larger lacrimal than in *Kannemeyeria* that precludes prefrontal maxilla contact, the probable presence of an ectopterygoid and (in referred specimens) the massive forward extension of the zygomatic process of the squamosal. Thus, in her review of the Dicynodontia, King (1988: 110), following Bandyopadhyay (1985), states: 'It is clear then, that the genus *Rechnisaurus* should stand, with its one original species, *R. cristarhynchus*'. Inexplicably, King (1988) retained the name *Kannemeyeria crista-*

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rhynchus Roy-Chowdhury for the Zambian (BP/1/3638) and Namibian (R313) dicynodonts, while maintaining the Indian *Rechnisaurus cristarhynchus* Roy-Chowdhury as a separate taxon.

This taxonomy was subsequently accepted by Bandyopadhyay (1989) and continues to be in use (e.g. Lucas 1998; Renaut & Hancox 2001). Clearly, however, the use of the name *'cristarhynchus'* as applied to the Zambian and Namibian specimens of *Kannemeyeria* violates Article 49 of the International Code of Zoological Nomenclature (ICZN 2000), which states the following (relevant names included by us in square brackets): 'A previously established species-group name [*Rechnisaurus cristarhynchus* Roy-Chowdhury] wrongly used to denote a species-group taxon because of misidentification [*Kannemeyeria cristarhynchus* (BP/1/3638, R313)] cannot be used for that taxon [*Kannemeyeria*] even if it and the taxon to which the name correctly applies [*Rechnisaurus*] are in, or are later assigned to, different genera'.

No other names have been applied to the Zambian and Namibian dicynodonts referred to *Kannemeyeria 'cristarhynchus'*. Accordingly, we propose a new species name here, along with a new diagnosis of BP/1/3638 (Renaut 2000), which we designate as the holotype. A full redescription of BP/1/3638 and R313 will be the subject of a forthcoming publication.

***Kannemeyeria lophorhinus* sp. nov.**

Rechnisaurus cristarhynchus (Roy-Chowdhury) Crozier 1970
Kannemeyeria simocephalus (Weithofer) Keyser 1973
Kannemeyeria cristarhynchus (Roy-Chowdhury) Keyser & Cruickshank 1979

Holotype. BP/1/3638, a partial skull and complete mandible (Crozier 1970; Renaut 2000).

Type locality and horizon. Locality 16, approximately one kilometre north of Sitwe in the Upper Luangwa Valley, Zambia; 'lower fossiliferous horizon' of the N'tawere Formation, Middle Triassic (Kitching 1963).

Etymology. A combination of *lophos* Greek for 'crested', and *rhinos* Greek for 'snout,' referring to the well-developed median dorsal mid-nasal ridge that extends from the premaxilla onto the frontal.

Diagnosis. Distinguished from *Kannemeyeria simocephalus* by the following characters: skull more robust; total skull width equals total skull length; greater lateral and ventral development of caniniform process; snout deeper and wider; well-developed median dorsal ridge flanked by marked grooves; larger preparietal; zygomatic arches bowed slightly laterally; short, stubby parietal extensions of frontal onto parietal crest; broader intertemporal region; shorter temporal fenestrae; shorter secondary palate; pterygoid complex same length as, or longer than, secondary palate; reduced pterygoid process of maxilla; larger ventral median palatal ridge; wider median, ventral parabasisphenoid sulcus; lacks pterygoid fossa; squamosal forms planar occiput; wide basioccipital notch, with tubera extending ventrolaterally; large, expanded quadratojugal foramen; lateral dentary shelf of mandible developed into marked ledge; posterior edge of reflected lamina nearly contacts ventral surface of retroarticular process.

Referred specimen. R313, a near-complete skull, from the northern slope of Mount Etjo on the farm Etjo Nord, Otjiwarongo District, Namibia; Omingonde Formation, Middle Triassic (Keyser 1973).

We thank the Geological Survey of Namibia, Windhoek, for allowing us to examine R313. We extend our gratitude to Drs Sean Modesto and Michael Maisch for the constructive criticism of on earlier version of the manuscript. The National Research Foundation and University Research Committee of the University of the Witwatersrand are thanked for financial support.

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