

https://dspace.org/

A new procolophonid (Parareptilia) from the Lystrosaurus Assemblage Zone, Beaufort Group, South Africa

Gow, Chris E

2000
Bernard Price Institute for Palaeontological Research
http://hdl.handle.net/10539/16424

Downloaded from a DSpace repository. https://dspace.org/

Palaeont. afr., **36**, 21-23 (2000)

A NEW PROCOLOPHONID (PARAREPTILIA) FROM THE *LYSTROSAURUS* ASSEMBLAGE ZONE, BEAUFORT GROUP, SOUTH AFRICA.

by

C.E.Gow

Bernard Price Institute for Palaeontological Research, University of the Witwatersrand, Johannesburg, Private Bag 3, Wits, 2050, South Africa.

ABSTRACT

This paper describes the skull of a new genus and species of procolophonid from the *Lystrosaurus* Assemblage Zone. It is strikingly different from its contemporaries, *Procolophon trigoniceps* and *Owenetta rubidgei*, but has a mosaic of characters of each.

KEYWORDS: procolophonid, Triassic, parareptile

INTRODUCTION

The fauna of the Beaufort Group is well documented, yet new, and increasingly, rare forms continue to crop up to stimulate further field work. The present specimen is a new procolophonid that displays a mosaic of the characters seen in other procolophonids and whose autapomorphies are restricted to the dentition and palate. It is possible that a specimen previously referred to *Procolophon trigoniceps* (Gow 1977) may belong to the same or a similar taxon as it is also small and has a large number of marginal teeth, though it is poorly preserved.

MATERIAL

The specimen, number GHG 228 in the collections of the Council for Geosciences, Pretoria, was collected by Dr Gideon Groenewald on the farm Brakfontein 333, in the Katberg Formation, *Lystrosaurus* Assemblage Zone. It is a small skull, 30mm long, lacking the braincase but little distorted, consisting of well preserved white bone in a hard matrix which consists of large rounded quartzitic grains in a fine green cement, this when it breaks sometimes follows the outlines of the grainy inclusions and as these are large relative to the bony structures 3-dimensional preparation is hazardous.

SYSTEMATIC PALAEONTOLOGY

Reptilia Laurenti, 1768

Parareptilia Olson, 1947

Family Procolophonidae Lydekker, 1890

Genus and species. *Coletta seca*, gen. et sp. nov.

Etymology: The genus name is a combination derived from *Procolophon* and *Owenetta* and coinsidently also the name of a friend, Colette. The species name is Latin for various short stabbing weapons, and refers to the relatively enormous vomerine fangs which are the only teeth on the palate.

Diagnosis: Small procolophonid (skull length 30 mm), snout more pointed than in *Owenetta*, nasals and frontals meet between the prefrontals, jugal slender and without lateral flange, postfrontals small, palatines and pterygoids lack teeth, vomers large and each bears four relatively enormous pointed cylindrical fangs. Marginal dentition relatively larger than in *Owenetta* and smaller than in *Procolophon*, teeth little differentiated decreasing in length very slightly from front to back. Teeth conical, pointed, and not hooked as is the case in *Owenetta.* Tooth count 16 over 15 - more than in *Procolophon trigoniceps* and fewer than in *Owenetta rubidgei*.

Laurin and Reisz (1995) list seven cranial autapomorphies of Procolophonidae; these are, using their numbers, 1. Narial shelf present; this is a curious description of the prominent depression behind the external naris involving both nasal and maxilla: it is present in this specimen. 8. Prefrontal medial process present; this character lies so deep within the orbit that to expose it would only be justified if the diagnosis was in doubt. 11. Anterior process of jugal extending to anterior orbital rim: present in this specimen. 33. Ventral margin of postorbital region of skull emarginated: present in this specimen. 37. Orbit enlarged posteriorly: present. 57. Paroccipital process sutured to supratemporal: cannot be determined. 61. Unossified region between basioccipital and basisphenoid: present, and in fact the basioccipital has been lost, as often happens in *Procolophon* as well.

Holotype: GHG 228, Skull and lower jaw. In the collections of the Council for Geosciences, Preotoria.

Geological Horison: *Lystrosaurus* Assemblage Zone, Katberg Formation, Beaufort Group.

DESCRIPTION (Figure 1)

The premaxillae are held between the nasals dorsally and have a small area of contact with the maxillae laterally. The region where they meet the vomers is still encased in matrix. Each premaxilla bears four teeth. A septomaxilla is present. The maxillae rise steeply behind the nares (but not to the same marked extent as in *Owenetta)*, where they are dished or depressed as is

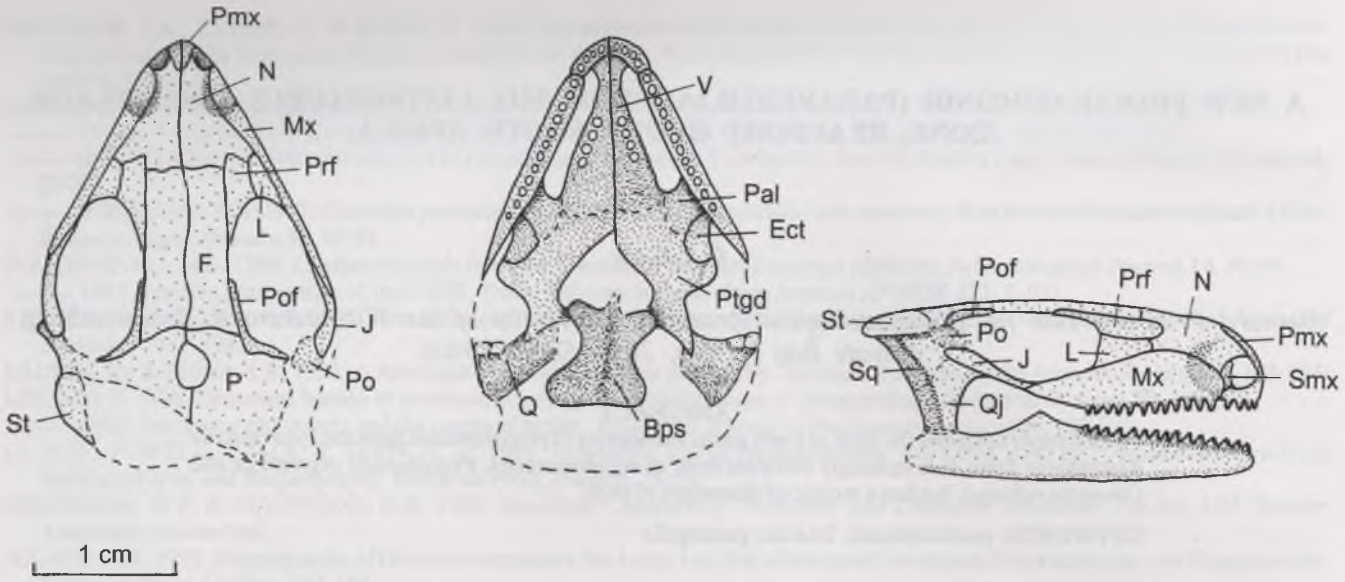


Figure 1. *Colletta seca* gen. et sp. nov. Skull in dorsal, ventral and left lateral views.

typical of procolophonids. They extend back half way along the ventral margin of the orbits. They contact the nasals and lacrimals dorsally and are braced internally by the palatines, ectopterygoids, and jugal. Each maxilla bears 12 pointed, conical acrodont teeth, which decrease very slightly in crown height from front to back. The nasals have a broad contact with the frontals. Lacrimal prefrontal and frontal are typically procolophonid. The postfrontal is very narrow in dorsal aspect as it is in *Procolophon*. In *Owenetta* the postfrontal makes an extensive contribution to the skull table. The parietals are damaged, but enclose a large, anteriorly situated pineal opening. The very slender jugal extensively overlaps the maxilla, extending to the front of the orbit (only seen in dorsal view). Posteriorly the jugal sutures with postorbital, quadratojugal and squamosal (this region is distorted on the left side and damaged on the right). The supratemporals are mostly lost, but were clearly large. Squamosal and quadratojugal are exposed laterally as in *Owenetta*. On the palatal surface the vomers are broad as in *Owenetta* and each bear a longitudinal row of four robust conical fangs, which are the only palatal teeth. The pterygoids surround a large vacuity and have weakly developed flanges. The basiparasphenoid is almost as broad as long, and the basal articulations were freely movable. Most of the occiput is badly damaged or missing as is the braincase. One nearly complete lower jaw is present but its sutures are indistinct.

DISCUSSION

This new procolophonid skull has a suite of characters that are plesiomorphic for procolophonids, but has a uniquely derived palate. The configuration of the bones of the skull roof is primitive as in *Procolophon* (Carroll and Lindsay 1985). *Owenetta* is peculiar in that the prefrontals of some specimens meet in the midline (Reisz and Laurin 1991). The jugal is even more slender than in *Owenetta* whereas in *Procolophon* it is uniquely derived.

In 1977 I described and figured a small partial skull as a juvenile *Procolophon trigoniceps* (Gow 1977 Text Figure 6). That specimen, BP/1/1187, is about the same size, and also has an unmodified jugal and the same number of teeth, but the teeth have labiolingually broadened crowns with raised points at each side. The possibility thus exists that yet another taxon of small procolophonid is present in the *Lystrosaurus* Assemblage Zone.

ABBREVIATIONS

BPS	basiparasphenoid
Ect	ectopterygoid
F	frontal
J	jugal
Mx	maxilla
N	nasal
P	parietal
Pal	palatine
Pmx	premaxilla
Po	postorbital
Pof	postfrontal
Prf	prefrontal
Ptgd	pterygoid
Q	quadrate
Qj	quadratojugal
Smx	septomaxilla
Sq	squamosal
St	supratemporal

REFERENCES

CARROLL, R. L. & LINDSAY, W. 1985. Cranial anatomy of the primitive reptile *Procolophon*. *Canadian Journal of Earth Sciences* **22**(11), 1571-1587.

GOW, C. E. 1977. Tooth function and succession in the Triassic reptile *Procolophon trigoniceps*. *Palaeontology* **20** (3), 695-704.

LAURIN, M. & REISZ, R. 1995. A reevaluation of early amniote phylogeny. *Zoological Journal of the Linnean Society* **113,** 165-223.

REISZ, R. & LAURIN, M. 1991. *Owenetta* and the origin of turtles. *Nature* **349,** 324-326.