

PALEONTOLOGY. — *Comparison of palates in primitive therocephalians, gorgonopsians and ictidorhinids.* Note (*) of Mrs. Christiane Mendrez-Carroll, presented by Mr. Jean Piveteau[†].

The study of snouts of Pristerognathidae (Therocephalia), the Gorgonopsidae (Gorgonopsia) and the Ictidorhinidae shows that the structure of the palate of the latter is analogous *pro parte* to that of Pristerognathidae and *pro parte* to that of the Gorgonopsidae. Following D. Sigogneau and H. Barghusen, the author suggests that the ex-family of Gorgonopsia, the Ictidorhinidae, should be elevated the same rank as the Gorgonopsia and the Therocephalia. It is also suggested, following H. Barghusen, that the genus *Burnetia* should also be included in the Ictidorhinidae.

In 1972, Ch. H. Mendrez ⁽¹⁾ mentioned the presence in the most primitive therocephalians, the Pristerognathidae (*fig. A; pl., fig. A*) (*Tapinocephalus* Zone, the second to last zone of the Upper Permian of southern Africa), a rudiment of a bony secondary palate. This one presents itself in the form of a maxillary roll situated medial in relationship to the canines and making vis-à-vis, in a slightly more ventral plan, to the lateral lamina of the anterior plate of the vomer. This roll, that continues on the palatine, is interpreted as the beginning of a *crista choanalis*.

An equivalent situation is observed in the Ictidorhinidae, *Lycaenodon longiceps* ⁽²⁾ (*fig. B; pl., fig. B*) (*Cistecephalus* Zone, *s.l.*, last zone of the Upper Permian of southern Africa). Nonetheless, the bony secondary palate of *Lycaenodon* is more evolved than that of Pristerognathidae, because as much as the aspect of the vomers as that of the maxilla and the palatine, which forms a more complete floor for the choanal fossae.

In fact, in *Lycaenodon*, the vomers are fused almost all of there length except at the level of the fossae for the lower canines. Behind the fossae, the lateral laminae of the anterior plate of the vomer spreads out to present parallel borders: then this region presents a rectangular form in the genus, in contrast to the triangular form in the Pristerognathidae and the Gorgonopsidae.

Like in the Pristerognathidae, the *crista choanalis* begins on the internal face of the maxilla in front of the canine; it is elongated posteriorly on the canine boss of the maxilla (while in the Gorgonopsidae this level of the maxillary surface is uniform) and on the palatine. This crest, which is high and narrow, and more prominent than in the Pristerognathidae, is located as in the latter, in a slightly more ventral plane than the anterior plate of the vomer. Behind the orifice of the choana, the *crista choanalis* approaches the median line. The rest of the palate of *Lycaenodon* is eroded and cannot therefore provide other details.

(*) Meeting of 13 November 1974.

[†] Original citation: Mendrez-Carroll, C. 1975. Comparaison du palais chez les Thérocéphales primitifs, les Gorgonopsiens et les Ictidorhinidae. *Comptes Rendus de l'Academie des Sciences à Paris* 280:17-20. Translated by Christian A. Sidor and Michelle Drapeau, New York College of Osteopathic Medicine, January 2002.

⁽¹⁾ Ch. H. MENDREZ, *Comptes Rendus*, 274, Series D, 1972, p. 2960-2961.

⁽²⁾ Collection of the British Museum for Natural History, London No. R 5700 (locality: Biejespoort station, Victoria West District, Cape Province, South Africa).

The description above is also valid for *Burnetia mirabilis* ⁽³⁾ (*fig. C pl., fig. C*) (*Lystrosaurus* Zone, base of the Lower Triassic of southern Africa). In *Burnetia*, the palate is more complete posteriorly. We therefore can observe that the [end of pg. 17] *crista choanalis* is then continuous with the medial border of the dentigerous tuberosity of the palatine.

H. Barghusen ⁽⁴⁾ noted in the Ictidorhinidae the characters — in particular that the reflected lamina of the angular— parallels that of therocephalians. The structure of the palate in *Lycaenodon* leads to a conclusion of the same order. These characters separate the Ictidorhinidae of the Gorgonopsidae (*fig. D; pl., fig. D*). This is in favor of the separation of the two families and the elevation of the Ictidorhinidae to a rank equivalent to the Gorgonopsia and Therocephalia, an opinion expressed by H. Barghusen ⁽⁴⁾. In 1970, D. Sigogneau ⁽⁵⁾ noted the retention of a number of primitive characters in the Ictidorhinidae but considers that they are still part of the gorgonopsians. However, the same year ⁽⁶⁾, this author specified that “this group is, it is true, still very poorly known, but... it is possible that this group merits infra-ordinal status”... and that we might be constrained to “separate the Ictidorhinidae from the Gorgonopsians *s str.*, to maybe make it a South African equivalent of the Russian eotheriodonts, with a similar early split from the sphenacodont trunk, but more rapidly specialized in a divergent direction.” And, in 1972 ⁽⁷⁾ D. Sigogneau and P. Tchudinov stated that “the Ictidorhinidae seem more and more distinct from the gorgonopsians.”

The aspect of the palate of *Burnetia* seems to corroborate another opinion of H. Barghusen ⁽⁴⁾, which is that this genus, apparently aberrant and that D. Sigogneau — while she notices in this genus characters in common with the dinocephalians but mostly with the Ictidorhinidae — considers it Theriodontia *incertae sedis* ⁽⁸⁾, is an Ictidorhinidae.

It is also interesting to signal the absence of notable change in the palate of an Upper Permian Ictidorhinidae — *Cistecephalus* zone — (*Lycaenodon*) and a Lower Triassic one — *Lystrosaurus* zone — (*Burnetia*) to a period during which a number of therocephalians presented a bony palate with a maxillary-vomerine contact more or less spread out ⁽⁹⁾: *Cistecephalus* zone (*Theriognathus, Lycideops, Scaloposaurus*) and *Lystrosaurus* zone (*Regisaurus*,

EXPLANATION OF THE PLATES

Stereophotographs of the antero-lateral region of the palates in oblique view, the specimen is tilted laterally to put in evidence the internal wall of the maxilla and the palatine (Photos Colin Keats. British Museum of Natural History, London).

⁽³⁾ The same collection, No. R 5697 (locality: between Richmond and Graaff-Reinet, Cape Province, South Africa) prepared in 1975 by M. Peter J. Whybrow.

⁽⁴⁾ Personal communication, April 1974.

⁽⁵⁾ D. SIGOGNEAU, *Pal. Afr.*, 13, 1970, p. 34.

⁽⁶⁾ D. SIGOGNEAU, *Cah. Paléont.*, CNRS, 1970, p. 351.

⁽⁷⁾ D. SIGOGNEAU and P. TCHUDINOV, *Palaeovertebrata*, 5 (3), 1972, p. 106.

⁽⁸⁾ D. SIGOGNEAU, *Cah. Paléont.*, CNRS, 1970, p. 378-379.

⁽⁹⁾ Ch. H. MENDREZ, *Colloque Intern.*, CNRS, Paris, No. 218, 4-9 June 1973 (in press).

- Fig. A. — *Pristerognathus polyodon* Seeley, collection of the British Museum for Natural History, London, no. R 2581. Therocephalia-Pristerognathidae, Tapinocephalus zone ⁽¹⁰⁾. Right side.
- Fig. B. — *Lycaenodon longiceps* Broom, same collection, no. R 5700. Ictidorhinidae, *Cistecephalus* zone. Right side.
- Fig. C. — *Burnetia mirabilis* Broom, same collection, no. R5697. Ictidorhinidae, *Lystrosaurus* zone. Left side.
- Fig. D. — *Scylacognathus* [cf. D. Sigogneau ⁽¹¹⁾, *Cynariops robustus* Broom], same collection, no. R 5743, Gorgonopsia-Gorgonopsidae, *Endothiodon* zone [*Cistecephalus* zone sensu stricto cf. J.W. Kitching ⁽¹²⁾] ⁽¹³⁾. Right side.

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Transverse sections of snouts in the area of the canines

- Fig. A. — *Pristerognathus polyodon* Seeley, collection of the British Museum for Natural History, London, no. R 2581. Therocephalia-Pristerognathidae, Tapinocephalus zone ⁽¹⁰⁾. (G X 2/3).
- Fig. B. — *Lycaenodon longiceps* Broom, same collection, no. R 5700. Ictidorhinidae, *Cistecephalus* zone. (G X 1).
- Fig. C. — *Burnetia mirabilis* Broom, same collection, no. R5697. Ictidorhinidae, *Lystrosaurus* zone. (G X 1).
- Fig. D. — *Scylacognathus* [cf. D. Sigogneau ⁽¹¹⁾, *Cynariops robustus* Broom], same collection, no. R 5743, Gorgonopsia-Gorgonopsidae, *Endothiodon* zone [*Cistecephalus* zone sensu stricto cf. J.W. Kitching ⁽¹²⁾] ⁽¹³⁾. (G X 1).

Bo.c. Mx, maxillary canine boss; (c), alveolus of the canine; (c¹), alveolus of the first canine; (c1-c2), alveolus between the first and second canine; cr. ch, *crista choanalis*; cr. v.-1. Vo, ventrolateral crest of the vomer; cr. v.-m. Vo, ventromedian crest of the vomer; fo. C. i + o.ch, fossa for the lower canine and choanal orifice; Mx, maxilla; Na, nasal; Vo, vomer.

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Eriaciolacerta), and during which occurred the closing of the bony secondary palates of the cynodonts.

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⁽¹⁰⁾ Locality: Cypher Tamboerfontein, Beaufort West District, Cape Province, South Africa.

⁽¹¹⁾ D. SIGOGNEAU, *Cah. Paléont.*, CNRS, 1970, p. 131, fig. 74.

⁽¹²⁾ J.W. KITCHING, *Counc. Sc. Indust. Res., Proc. and Papers*, Pretoria, 1970, p. 309-310.

⁽¹³⁾ The same locality as ⁽²⁾.