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ON  
*Oudenodon (Aulacocephalus) pithecops*  
FROM CAPE COLONY.

BY  
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ON *OUDENODON* (*AULACOCEPHALUS*) *PITHECOPS* FROM THE *DICYNODON*  
BEDS OF EAST LONDON, CAPE COLONY.

By H. G. SEELEY, F.R.S., Professor of Geology, King's College, London.

THE genus *Oudenodon* of A. G. Bain, 1856, was adopted by Sir Richard Owen, and defined as comprising Anomodont reptiles of the type of *Dicynodon*, but absolutely toothless. Still, they were referred to a family Cryptodontia, under the belief that the teeth were immature, and had their development arrested, so that they never descended to the alveolar margin. A transition might easily be made from the caniniform production upward of the alveolar border seen in *Oudenodon* to the small teeth in *Dicynodon dubius* and *D. recurvidens*, which are in contrast to the great lateral ridges formed by the roots of the teeth in most species of the genus. The species *strigiceps* was referred first to *Dicynodon* and then to *Oudenodon*. Owen described eight species, which differ from each other in the elongation of the head, in the form of the preorbital region and its prolongation in front of the nares, in the forms of the orbits of the eyes, and the anterior nares, and in the median postorbital region being either a sharp ridge or a more or less flattened concave channel. These characters might have been used to define genera.

The species fall, more or less easily, into two groups, and this is also true for *Dicynodon*. The same characters differentiate the short-nosed from the long-nosed species of both types, suggesting that the genera based on presence or absence of teeth in this case are artificial. Thus, the short-nosed *Oudenodons* are almost indistinguishable except as species from the short-nosed *Dicynodons*; and the long-nosed *Oudenodons* similarly approximate in skull-shape to the long-nosed forms of *Dicynodon*.

I therefore propose to divide *Oudenodon* into two subgenera.

The short-nosed types, with a wide flattened concave region between the temporal vacuities, the parietal foramen in its middle length, and orbits more or less circular and directed forward and upward, are represented by the species *O. Baini*, *O. raniceps*, and *O. megalops*. They may be indicated by the name *AULACOCEPHALUS*.

The prognathous species have the orbits more lateral, the parietal foramen just behind the orbits, and a sharp median ridge between the temporal vacuities which may extend along their length or be limited to a part of it. This group is represented by the species *O. magnus*, *O. prognathus*, *O. brevirostris*, and *O. Greyi*, and may be indicated by the name *RHACHIOCEPHALUS*.

In the same way I would divide *Dicynodon* into two subgenera.

The short-nosed species have a broad concave parietal interspace between the outwardly inclined faces of the postfrontal bones, which make the inner borders of the temporal vacuities. The parietal foramen is in the middle of this area. The nares are scarcely seen when the skull is viewed from above, and owing to the shortening of the snout the orbits are directed forward. The species include *D. Baini*, *D. tigriiceps*, and presumably *D. testudiceps*, and may be defined by the name *AULACEPHALODON*.

The prognathous type, with a median crest between the temporal vacuities, includes the species *D. lacerticeps*, *D. leoniceps*, *D. pardiceps*, and *D. feliceps*. They are grouped under the name RHACHICEPHALODON. I have no doubt that one-half of *Oudenodon* with the concave parietal region should be closely associated with the similarly characterized half of *Dicynodon*, and that the half of *Oudenodon* with a parietal ridge should be associated with the *Dicynodonts* which have the same character. Yet owing to the absence and presence of teeth in the two groups there may be some convenience in keeping the types distinct. In tabular form these species may stand thus:—

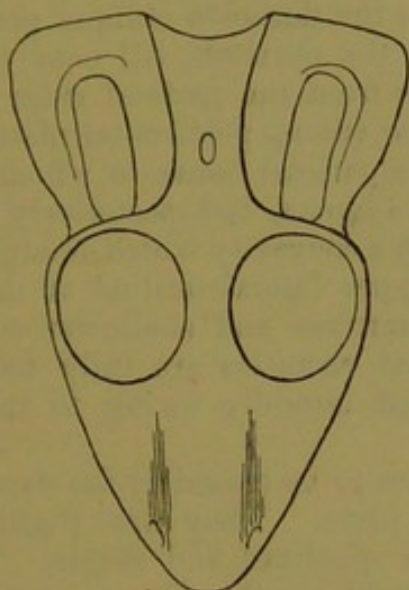
OUDENODON.	
<i>Aulacocephalus.</i> Baini. raniceps. megalops. ? strigiceps.	<i>Rhachiocephalus.</i> magnus. prognathus. brevirostris. Greyi.
DICYNODON.	
<i>Aulacephalodon.</i> Baini. tigriceps. testudiceps.	<i>Rhachicephalodon.</i> lacerticeps. leoniceps. pardiceps. feliceps.

Almost all these specimens were obtained from the Graaff Reinet district and the Fort Beaufort district, at the time when Cape Colony was expanding to the east, and Mr. A. G. Bain was engaged in making military roads. The *Aulacephalodon tigriceps* is from the Gonzia River, Kaffraria; and *Aulacocephalus raniceps* from East London. As the strike of the beds is the same from Graaff Reinet to East London, ESE., it is probable that these fossils occur upon a definite geological horizon, above the zone of *Pareiasaurus* and *Tapinocephalus*, and below the zone of *Ptychognathus* (*Lystrosaurus*), near the bottom of the Middle Karroo, in what have been termed the Beaufort Beds.

Many years ago Mr. McKay, of East London, sent to this country a small collection of fossils from the black slaty rocks of the East London district. Professor Huxley in 1868 selected one of these as the type of the genus *Pristerodon*, described in the GEOLOGICAL MAGAZINE for that year, Vol. V, p. 201, Pl. XII.

The collection also included a small *Oudenodon* now catalogued in the British Museum (Natural History) under the number R. 1819, which is distinct from all described species and may be referred to as *Aulacocephalus pithecopis*. It is somewhat crushed, and is remarkable for its small size, being only three inches long. It is distinguished by the very large size of its nearly circular orbits, which are placed in the middle length of the head, have a diameter of  $\frac{8}{17}$  inch, and approximate closely to each other, so that the frontal interspace between them is narrower than the concave parietal area, which is its hinder prolongation. The species is defined from *O. magnus* by the concave parietal region; from that species and

*O. prognathus* by wanting the anterior angle to the eye. It is separated from *O. Greyi* by the same characters, as well as by wanting the large anterior nares of that species, and by having the temporal vacuities elongated from front to back. It has a relatively longer nose than *O. megalops*, has not the eyes so far forward as in *O. Baini* or *O. brevirostris*; and the skull is much narrower than in the East London species *O. raniceps* and differs in its proportions, being of thin and delicate build, while *O. raniceps* has the bones relatively strong.



*Oudenodon (Aulacocephalus) pithecops*, Seeley, sp. nov.

From the Dicynodont Beds of East London, Cape Colony. Restored from [R. 1819].  
Preserved in the Brit. Mus. Nat. Hist.  $\frac{1}{3}$  less than natural size.

The skull is depressed, about twice as wide as high, and measured transversely in front of the orbits, it is half as wide as long. The preorbital region forms nearly an equilateral triangle, conical, rounded from above downward and from side to side. Towards the extremity of the snout, on each side there is a longitudinal depression, extending from the orbits forward to the nares. Those openings were small, and at present are obscured with matrix.

The orbits almost suggest the eyes of a lemur in their large circular form; their chief direction is upward and outward. The interspace which divides them is about one-third the diameter of an orbit. The maxillary border extends back as far as the front of the orbit, below which it is notched out and gives place to the malar bar, which contracts a little behind the orbit from above. In side view it is prolonged back parallel to the alveolar margin, uniting in the usual way with the squamosal, and with the vertical bar of the postfrontal bone which descends behind the orbit. The external squamosal element of the zygoma is inclined obliquely outward, and as it extends backward becomes deeper by ascending. Its upper edge is on a level with the base of the orbit in the malar portion at the back of the orbit, but the concave upper outline of the zygoma is on a level with the middle of the orbit, where the arch terminates posteriorly. It is there inclined inward at an angle

of  $45^{\circ}$ , making the outer hinder angle of the head, which is its widest part.

The upper surface of the skull suggests a sort of cruciform pattern owing to transverse extension outward of the narrow bars of the postfrontal bones which margin the back of the orbits. The parietal region is concave from side to side, margined in length by sharp curved ridges which approximate towards each other in advance of the middle length. In that narrowest part of the parietal the ovate parietal foramen is situate. In those curved lateral ridges run the sutures, which separate the flattened oblique posterior plates of the postfrontal bones from the parietals, till near the squamosal, when the postfrontal descends from the parietal ridge upon the squamosal in the usual way. These oblong postfrontal plates make right angles with the margins of the parietal bones to which they are external; they face towards the zygoma, and posteriorly the postfrontal and zygomatic areas unite in a concavity which emarginates the squamosal bone, and forms the upper lateral outline of the back of the head, on each side of the narrower and shallower concave parietal area between. The temporal vacuities are fully half as long again as wide, and well exposed laterally owing to the low level of the zygoma.

The brain-case appears to be closed by the usual bones which form the vertical occipital plate. They are slightly displaced. The supra-occipital bone is quadrate and single. The interparietal is above it. There is no evidence that the exoccipital bones form the occipital condyle in the way affirmed for *Oudenodon raniceps*, but the exoccipital bones are large. There is no descending quadrate pedicle, but the quadrate bone is short; and the articulation for the mandible appears to be above the level of the occipital condyle, though that structure is not clearly shown.

Seen from the side the superior contour of the head is gently arched from front to back.

It will thus be evident that this species is distinct, and in some details of the articulation for the lower jaw shows characters which are exceptional in the group to which it belongs, though all the short-nosed species have the skull depressed behind and wide from side to side.