

the parapterygoid crest. This crest forms the posterior wall of the conical recess for the basiptyergoid process of the basisphenoid. In front of the conical recess, the pterygoid and parasphenoid are roughened for the attachment to the epiptyergoid. Medial to the conical recess, is a postero-laterally directed recess in which lies a foramen for the internal opening of the palatine branch of the internal carotid artery.

A crushed and distorted bone, recognisable as the epiptyergoid, shows the following features: Its base is attached to the pterygoid above the conical recess for the basiptyergoid process of the basisphenoid. The ascending process of the epiptyergoid is expanded to form a buttress which probably met the cartilaginous braincase just below the skull roof.

A small piece of stapes, 2.8 cm long and about 0.9 cm wide was found sandwiched with matrix to the posterior surface of the epiptyergoid (see fig. 7).

Description of Lower Jaw of Specimen A (figs. 13 - 18)

The left lower jaw measures 70 cms internally. There is a large hamate process of the prearticular as in P. pronus, which rises 3.5 cm from the dorsal surface of the adductor fossa. The jaw ramus is highest and broadest in its posterior half, measuring 13.5 cm at the hamate process and 4.0 cm at the symphyseal tusk.

The ramus is hollow in the middle, its cavity extending almost to the median symphysis. This cavity is very small anteriorly, and was, in life, probably filled with Meckel's cartilage. The prearticular fossa named by Howie, (p. 218, 1969, fig. 7B), is not apparent in Specimen A.

Openings in the Lower Jaw:

Most anteriorly, is a postsymphysial foramen, which is situated in a depression just behind the symphysis near the dentary-splenic suture. It is thought to be the exit of the n. lingualis (Nilsson, 1944).

The anterior Meckelian foramen is located in the anterior half of the lingual portion of the postsplenic, 19 cm from the postsymphysial foramen. It possibly served as the exit for the n. mylohyoideus anterior (Nilsson, 1944).

The posterior Meckelian foramen is bordered by the postsplenic antero-ventrally, the angular postero-ventrally and the prearticular dorsally. Only the ventral limit smoothly rounded on the angular bone, remains to show the approximate size and position of this opening. According to Nilsson (1944) the n. mylohyoideus posterior passes through it.

The adductor fossa is bounded lingually by the prearticular and laterally by the surangular. It is approximately 4 cm wide at its widest point, about half-way along its length, which is possibly 19 cm. The large adductor musculature of the jaw inserted here.

The chorda tympani foramen, for the passage of the n. mandibularis internus VII (Nilsson, 1944) is situated in the surangular-prearticular suture on the medial surface, 1.5 cm below the glenoid fossa.

Bones of the Lower Jaw:

The articular is pitted - which is characteristic of cartilage bone-and forms a screw-shaped glenoid fossa for

articulation with the double condyle of the quadrate. The bone is bounded laterally, anteriorly and posteriorly by the surangular and medially by the prearticular. There are two distinct areas of the glenoid fossa: a broad transverse groove entirely formed by articular and a narrower, more median groove at an angle to and in front of the former, composed of articular and prearticular. The median groove is continued by the roughened posterior face of the hamate process of the prearticular. The broad lateral groove housed the larger lateral quadrate condyle, the narrower antero-medial sector housed the thinner elongate median quadrate condyle. The main postero-lateral condyle is delineated by the articular and surangular meeting in a prominent precondyloid process, while posteriorly, the glenoid fossa is limited by the articular meeting the surangular at an equally prominent postcondylar ridge.

The retroarticular process is composed almost entirely of surangular; a flange of the angular extends along the ventral surface for about half the length of the process to end in a sharp angle 1 cm anterior to the end of the jaw. The dorsal surface of the retroarticular process is occupied by a deep trough, said by Welles and Cosgriff (1965) to be for the ~~adductor~~^{depressor} muscles of the jaw, viz. the m. depressor mandibulae. Laterally, this trough is bounded by a high wall which slopes down rapidly from the postcondylar process, so that the trough is deep with a smoothly rounded posterior wall. The medial wall of the trough rises to a sharp spur about half-way on the medial surface of the trough. This spur, or part of it, may also have been the

origin of the depressor muscle (Howie, 1969). Medial to the dorsal trough is a hollow which curves antero-medially towards the chorda tympani foramen. Laterally, the retroarticular process is ornamented.

The prearticular probably occupied all the median edge of the adductor fossa. Posteriorly, the end of the prearticular rises to form a large prearticular (hamate) process which stands approximately 3.5 cm above the adductor fossa as in P. pronus. The hamate process is transversely thickened and is hollowed out posteriorly so that there is a trough surrounded by smooth walls dorsally, laterally and medially. The entire hamate process curves gently dorso-medially and the texture of bone of the trough suggests extensive cartilage. This surface - presumably used as an accessory articulatory surface - lies immediately anterior to the inner part of the glenoid articulation. Howie (1969), suggests that the hamate articulatory area met a roughened articulatory area of the pterygoid (see fig. 11), thus elongating the articulatory area between the lower jaw and the skull. Thus, seen in lingual view the prearticular ends posteriorly in a suture with the lingual portion of the surangular, and ventrally it has a suture with the angular. Then presumably (this area is not preserved), it formed the medial wall of the adductor fossa. From the hamate process, the prearticular slopes down gently in an antero-ventral direction. More anteriorly, the smoothly rounded dorsal surface of the angular shows that the prearticular did not extend further to form

a suture here, but left a large excavation in the medial wall of the ramus, the posterior Meckelian foramen.

The angular is high laterally and low medially. Its lateral portion is bounded dorsally by the surangular and dentary. The angular-surangular suture runs forward from the retroarticular process to a junction with the angular-dentary suture below the anterior end of the adductor fossa. The anterior end of the lateral wall of the angular tapers to a point between the dentary above and the postsplenial below. Posteriorly and laterally, the angular-surangular suture has the sulcus mandibularis running through it. The suture continues posteriorly slightly ventral to its previous course. About 1 cm short of the end of the ramus it turns sharply ventrally and does not complete the lateral surface of the retroarticular process. The prearticular forms the postero-lateral limit of the ramus. Lingually, the angular is bordered posteriorly by the retroarticular process and more anteriorly by the prearticular. About 16 cm from the posterior end of the jaw it rises from a narrow 2 cm strip to a height of 4.5 cm from where it slopes fairly sharply antero-ventrally to end in a posteriorly directed V-shaped suture with the postsplenial. The area of the angular on the slope is smoothly rounded dorsally, indicating the presence of a foramen above, the posterior Meckelian foramen.

The surangular forms the postero-dorsal lateral surface, most of the retroarticular process and the lateral and posterior sides abutting the articular. The entire lateral wall of the adductor fossa is formed by the

surangular which is underlain by the angular. Anteriorly, as in most Labyrinthodonts, it is partially covered by a wedge-shaped extension of the dentary. Lingually, the surangular has an irregular slanted suture, ventrally with the angular and dorsally with the prearticular. The external foramen for the n.chorda tympani is on the upper part of the surangular-prearticular suture.

The lateral wall of the surangular has a lateral line complex which includes the sulci mandibularis, oralis and accessorius. The sulcus mandibularis begins on the dorsal surface of the retroarticular process just behind the articulatory area, descends antero-ventrally to the lower border of the angular, where it stops just posterior to the centre of ossification of the angular. The sulcus oralis branches from the anterior side of the vertical portion of the sulcus mandibularis and runs forwards through the surangular just above its suture with the angular. It then runs along the dentary and fades out near the symphysis. Below the lateral edge of the articular fossa, the short sulcus accessorius runs almost parallel to the sulcus oralis and just above it; it does not seem to meet the sulcus mandibularis and anteriorly fades out at the dentary-surangular suture.

The coronoid series probably includes 3 bones, the precoronoid, intercoronoid and coronoid (the latter bone is not preserved). Most anteriorly, seen in medial view, the precoronoid lies between the splenial ventrally and the dentary anteriorly and dorsally. It tapers gradually to a point anteriorly, being about 3 cm at its widest point.

The intercoronoid butts on to the posterior edge of the precoronoid. It is underlain by the splenial anteriorly and the postsplenial posteriorly. The suture between the precoronoid and intercoronoid bones slopes in a postero-dorsal direction. Dorsally, the dentary overlies the intercoronoid. The coronoid would have lain immediately posterior to the intercoronoid, bordered dorsally by the dentary, ventrally by the prearticular and posteriorly forming a small portion of the antero-medial circumference of the adductor fossa.

The postsplenial and splenial are anterior to the angular on the ventral surface of the jaw ramus. They have lateral and lingual surfaces of approximately the same height. The lateral and ventral surfaces of these two bones are ornamented with large grooves, running more or less lengthwise along the ramus. The width of a typical groove is approximately 0.5 cm. The splenial-postsplenial suture slants in a postero-dorsal direction on the lingual surface and on the lateral surface this suture slopes postero-ventrally.

The splenial, seen laterally, is overlain by the dentary. It forms the lower surface of the symphysis. Lingually, it is overlain for a short distance behind the symphysis by the dentary, and posterior to this by the precoronoid. The postsymphysial foramen lies in a depression on the dentary-splenial suture, just behind the symphysis.

The postsplenial is overlain laterally and dorsally by the dentary. On the lingual surface it is bounded

dorsally by the intercoronoid and more posteriorly by the anterior extension of the prearticular. The anterior Meckelian foramen is located in the anterior half of the lingual portion of the postsplenial. Laterally, the posterior suture with the angular slopes in a postero-ventral direction while lingually, the postsplenial has a suture with the angular about half-way along the lower border of the posterior Meckelian foramen. This suture is V-shaped, with the point of the V directed posteriorly. Thus, the postsplenial forms the antero-ventral border of the posterior Meckelian foramen. Although not preserved, the prearticular would probably have formed a dorsal suture with the postsplenial a short distance in front of the posterior Meckelian foramen.

The dentary forms the dorsal surface of the ramus from the symphysis to the anterior border of the adductor fossa. Laterally, it continues from this point as a sharply pointed flange extending back over the surangular, and is underlain by the splenial, postsplenial and angular. Lingually, the dentary lies above the splenial, precoronoid, intercoronoid and probably coronoid. The symphyseal part of the dentary bears a large symphyseal tusk; the approximate area of the base is 2.5 cm by 1.0 cm. Only the oblong base of the tusk is preserved. The dentary bears the stumps of many teeth along its dorsal surface.

Teeth:

Only the stumps of the teeth, broken in various transverse and longitudinal sections are preserved. They

seem to have been more or less uniform in size and shape. From a tooth cut approximately longitudinally, half-way along the ramus, the approximate crown height is 1.7 cm and the base 0.8 cm wide. The teeth seem to become progressively slightly smaller posteriorly. Anteriorly, just behind the symphyseal tusk, teeth occur evenly spaced every 2nd or 3rd visible socket. Then four teeth occur in each successive socket. There is then a space, another tooth and following one socket a group of five consecutive teeth. Six teeth then appear in alternate sockets, following which is a consecutive group of four. A space follows and then a pair of teeth. This occurs twice followed by a space and a group of four consecutive teeth. After this a space and a couple of consecutive teeth followed by a possible space and a single tooth, brings us to the level of the anterior end of the posterior Meckelian foramen. Only faint traces of the teeth are found here, but the sequence is probably as follows: a single tooth followed by a space, four consecutive teeth, a space, four more consecutive teeth followed by a space, three teeth in alternate sockets and two consecutive teeth.

The preservation of a single whole tooth shows a normal labyrinthodont pattern, with longitudinal ridges on the crown.

DIAGNOSIS OF SPECIMEN B

Skull broad posteriorly (B:L approximately 75), but tapers anteriorly (S:L approximately 42); skull deep posteriorly (H:B approximately 17.4 - this figure was incorrectly published as 20, in Chernin and Cruickshank, 1970); external nares elongate, lateral, long axes almost parallel to skull border.

Orbits very close together, well posterior, oval, long axes almost parallel to mid-line; preorbital distance approximately 80% of total length of skull.

Pineal foramen rectangular, just posterior to hind border of orbits; otic notch semiclosed; posterior skull border concave (K:C approximately 19.3); tabular horns distinctive, expanded distally towards squamosal; frontal and jugal enter orbital margin; supratemporal excluded from otic notch; exoccipitals barely exposed on palate.

Description of skull roof of Specimen B (figs. 19 - 25)

The skull is greatly elongated in the preorbital region; the snout is rounded. As preserved, the shape of the skull is rectangular seen in dorsal view, due to the total absence of the quadratojugal and the distortion whereby the jugal is pushed medially and overlaps the maxilla.

The sculpture on the surface of the bones is that found universally in the Capitosauridae, i.e. the central region of each bone is patterned with small rectangular or pentagonal pits with smooth raised ridges. The bones showing the greatest expansion, the preorbital bones, have from this central region a radiating series of ridges.

As only one half of the skull is preserved, with great gaps, bad distortion and virtually invisible sutures, the description is based on the left half. The tip of the premaxilla is distorted so that the estimated length is 79.5 cms.

Front to rear, the elements abutting the midline are the premaxilla, nasal, frontal, parietal and postparietal.

Anteriorly the premaxilla forms the tip of the snout. Due to great distortion in this region, no premaxillary foramen is visible. The premaxilla meets the nasal in a transverse suture which enters the medial-lateral rim of the naris about one third of the distance from the front margin of the naris and then continues, following a straight line, from the lateral rim of the naris to the lateral margin of the skull. Thus, the premaxilla forms the anterior border of the naris.

The nasal is broad anteriorly and forms a sharp point posteriorly, where it is wedged between the frontal and prefrontal. Laterally the edge of the nasal first meets the maxilla in a straight suture parallel to the midline, which anteriorly issues from the posteromedial rim of the naris. The nasal then meets the lacrimal in an angled suture. This suture is continued posteriorly abutting the prefrontal at an acute angle and forming the sharp point mentioned above.

The frontals which meet the nasals at an acute angle anteriorly, form the pre- and interorbital central part of the skull roof. Laterally, the contact with the prefrontal is a straight line, parallel to the midline, which enters the orbital rim at its anteromedial margin. The frontal forms about a quarter of the inner orbital margin. Posteriorly, the margin of the frontal sutures first with the postfrontal, which borders

the medial rim of the orbit, and then with the parietal.

The parietal, which sutures anteriorly with the frontal, encloses a rectangular parietal foramen midway along its medial border. Laterally, the border of the parietal first meets the postfrontal in a slightly oblique suture and then continues in the same direction, meeting the supratemporal postero-laterally. Posteriorly, the margin of the parietal forms essentially a transverse suture with the postparietal.

The postparietal is a comparatively small bone forming the posteromedial border of the skull roof. It is slightly smaller than the parietal and is concave posteriorly. Anteriorly, it sutures transversely with the parietal. Its lateral margin is more or less parallel with the midline, sloping slightly medially at half its length. Laterally, it meets the supratemporal for about a half of the distance of the postparietal length, then it meets the tabular for the rest of the way.

On the lateral anterior margin of the skull, the maxilla tapers from its transverse suture with the premaxilla to become a narrow, marginal bone below the jugal. From the posteromedial margin of the naris, the medial border of the maxilla meets the nasal in a longitudinal suture. The maxilla then meets the lacrimal in an oblique suture.

Anteriorly the point of the lacrimal is wedged between the nasal medially and the maxilla laterally. Medially, the lacrimal meets first the nasal in an oblique suture, then changes direction where it meets the prefrontal. Thus, the lacrimal is diamond-shaped, the anterior wedge as described behind the middle of the naris, and the posterior wedge between the prefrontal and jugal. It does not enter the orbit.

The prefrontal is a long bone beginning in a wedge between the nasal and the lacrimal. It is located in front of the orbit, forming the anterior orbital border. Medially, the prefrontal forms an oblique suture with the nasal and then a longitudinal suture, parallel to the midline, with the frontal. This suture extends into the anteromedial corner of the orbit. Laterally, the border of the prefrontal begins as a wavy oblique suture with the lacrimal and then forms a longitudinal suture with the jugal which curves medially into the anterolateral corner of the orbit. This curve begins about three-quarters of the distance from the beginning of the jugal-prefrontal suture to the orbit.

The postfrontal is a relatively small bone lying behind the frontal and forming the posteromedial border of the orbit. Anteriorly, it extends from the anteromedial rim of the orbit and forms an oblique suture with the frontal. Medially, the border of the postfrontal meets the parietal in an outwardly curved suture. Posteriorly, this curve is continued as a semi-circular suture between the supratemporal and postfrontal. The lateral border of the postfrontal then forms a longitudinal suture with the postorbital before entering the orbital rim near the posterior midline of the margin of the orbit.

The postorbital forms the posterolateral border of the orbit from the suture with the postfrontal forward to that with the jugal. Anteriorly, it leaves the anterolateral rim of the orbit in a curved suture with the jugal which runs almost transversely. Laterally, the border of the postorbital forms a curved suture with the squamosal. Posteriorly, the border of the postorbital is an almost transverse suture meeting the supratemporal. Medially, the border of the postorbital meets

the postfrontal in a short, curved suture which enters the orbital rim near the midline of the posterior margin of the orbit. The tabular lies lateral to the postparietal, behind the supratemporal and has a short suture with the squamosal, which points to the centre of the otic notch. The rounded posterolateral projection of the tabular forms the posteromedial border of the otic notch. The tabular horn has a unique shape, being expanded laterally towards the squamosal so that the otic notch is semiclosed, a diagnostic feature of P. pronus (Howie, 1969).

The jugal is a large bone which enters the orbit. It forms the lateral margin of the skull behind the maxilla. Medially, it forms an oblique suture with the lacrimal and then a longitudinal suture with the prefrontal. This suture curves medially to enter the anterolateral corner of the orbit. Antero-laterally, the jugal forms an oblique suture with the maxilla and posterolaterally joins with the quadratojugal. The latter bone is not present and is therefore only included in my reconstruction to complete the picture of the skull. The posteromedial border of the jugal begins from the lateral margin of the orbit and extends laterally in an almost transverse suture with the postorbital and then turns sharply posteriorly to meet the squamosal. Thus, the jugal forms about a quarter of the lateral margin of the orbit.

The squamosal forms the back portion of the skull roof. It forms the posterior margin of the otic notch and expands posteriorly to meet the quadratojugal on its lateral margin. The anteromedial margin of the squamosal forms an oblique suture, first with the postorbital, then with the supratemporal. The

supratemporal extends a little laterally into the body of the squamosal.

The quadratojugal lies lateral to the squamosal, behind the jugal and forms the posterolateral corner of the skull.

Openings in the skull roof of Specimen B

The external naris lies in the anterior one-eighth of the skull, surrounded by the premaxilla anteriorly, the nasal posteromedially and the maxilla posterolaterally. The naris lies with its long axis almost parallel to the skull border. It is elongated and oval in shape.

Oval orbits are situated close together in the posterior quarter of the skull. The rims of the orbits are raised above the level of the skull table, so that the two orbits are separated by a shallow groove. Although only one orbit is completely preserved in the specimen, the position of the other is distinguishable. Anteriorly, the orbital rim is formed by the prefrontal; medially first by the frontal and then the postfrontal; anterolaterally first by the jugal and then posterolaterally, the postorbital. The long axis of the orbit is slightly oblique, converging anteriorly towards the midline.

Close behind the orbits on the midline, in the centre of the parietals lies the parietal foramen. It is rectangular.

The otic notch is oval in shape and the exterior meets via a narrow canal between the squamosal and tabular horn.

Lateral line system of Specimen B

As described by Moodie (1908), there are four sets of canals on the skull roof: jugal, temporal, infraorbital and

supraorbital, the last three joining at the centre of ossification of the postorbital.

The course of the canals is indistinctly marked by a series of enlarged pits and grooves.

The supraorbital canal issues from the centre of the postorbital and crosses the postfrontal and frontal. After crossing the frontal, this canal enters the prefrontal where it forms an obvious groove running down the medial side of the prefrontal. After running parallel to the medial border for about half the length of the prefrontal, it becomes lost due to the gaps in this region.

The infraorbital canal leads from the centre of the postorbital anterolaterally crossing into the jugal where it runs anteriorly becoming lost where the jugal overlies the maxilla.

Posteriorly, the temporal canal leads from the centre of the postorbital, crosses the supratemporal and then enters the tabular.

The jugal canal leads off posteriorly along the jugal bone, where the infraorbital canal changes direction.

The Occiput of Specimen B

Anterior to the dorsal and paroccipital process of the exoccipital, only the more prominent structural features are visible. The left half of the dorsal occipital region and the right half of the ventral occipital region are preserved (see fig. 25), thus the description is based on a combination of the two elements which not only are on opposite sides of the midline, but also lack visible sutures. This leads to a lack of continuation from the dorsal to the ventral elements.

Ventral surface of the occipital region

Only the basal plate of the parasphenoid is preserved together with crescent-shaped bars of the pterygoids.

The basal plate of the parasphenoid is bounded by oblique sutures to the pterygoid and posteriorly, the parasphenoid has a slanted suture with the exoccipital. The parasphenoid has a small free margin in the posterior midline between the exoccipital condyles. Ventrally, the parasphenoid plate is concave.

The crista muscularis crosses the posterior portion of the basal plate of the parasphenoid transversely, just anterior to the exoccipital-parasphenoid suture. The crista muscularis consists of two anteriorly convex ridges which join medially to form a peaked posterior projection in the midline. Between each half of the crista muscularis and the condyle of the same side, there is a shallow fossa, which is the pocket for the insertion of the rectus capitis muscle, (Watson, 1962), (Welles and Cosgriff, 1965).

The body of the pterygoid joins the parasphenoid in an oblique suture which issues from the centre of the posterior border of the interpterygoid vacuity and runs to the posterior margin of the skull just lateral to the exoccipital-parasphenoid suture. Anterolaterally, the palatine ramus of the pterygoid extends from the body of the pterygoid. The medial edge of this palatine process is the lateral border of the interpterygoid vacuity. The quadrate ramus of the pterygoid extends posterolaterally. The lateral edge of the palatine and quadrate processes of the pterygoid form the median rim of the subtemporal fenestra.

Posterior view of the occiput (see figs. 24 and 25)

The paired exoccipital condyles face slightly inwards and downwards. The foramen magnum between the exoccipitals is the centre of the occiput proper. The tabulars from the dorso-lateral corners of the occiput and the quadrate rami of the pterygoids dominate the lateral regions of the back of the skull.

Each exoccipital consists of a central condyle above which is a dorsal process and lateral to the dorsal process, a paroccipital process. Each condyle is almost round and is surrounded by a raised ridge which is believed to have supported a cartilaginous cap.

Medially, the dorsal process forms the sloping dorsolateral limit of the foramen magnum. A lateral ridge of the dorsal process of the exoccipital forms the median border of the posttemporal fossa. The paroccipital process of the exoccipital rises beneath the posttemporal fossa to meet the tabular. The posttemporal fossa is bounded ventrally and laterally by the paroccipital process. The jugular foramen which transmits nerves IX and X opens externally in a foramen postero-latero-ventral to the paroccipital process. The external opening for the hypoglossal nerve XII is near the anterolateral edge of the condylar rim (neither foramen is seen in illustrations).

Between and below the exoccipitals is the parasphenoid. Posteriorly, the free margin of the parasphenoid is raised in the midline to form the basioccipital crest and in this region forms the floor of the chamber in which the cartilaginous basioccipital is believed to have been situated.

The tabular forms the dorsolateral corner of the occiput. The dorsal part of the tabular is the tabular horn. A thick arm

of the tabular runs ventromedially to meet the exoccipital and sutures with the paroccipital process. A rugose area is present immediately below the distal end of the tabular horn. A prominent muscle ridge on the tabular runs posterolaterally along the paroccipital process. Just lateral to the exoccipital-pterygoid suture, the pterygoid curves anteriorly to form a cup-shaped region beneath the otic notch, the subtymppanic cavity.

Teeth

No teeth have been preserved, but a few uniform tooth sockets are visible on the premaxilla and maxilla.

TABLE I

Measurements of Reconstructed skull

(N.B. The reconstructed skull is used to obtain measurements due to the large degree of distortion in the material.)

SPECIMEN	A	B
	cms	cms
1. Height of postparietals above the Parasphenoid (H)	9.6	10.4
2. Breadth of skull across quadrates (B)	55.8	59.5
3. Length of skull (L)	64.4	79.5
4. Interorbital distance taken at mid-length of orbit (A)	10.4	7.0
5. Distance from tip of snout to level of anterior edge of orbit (C)	45.4	60.5
6. Distance from level of posterior limit of orbit to level of centre limit of skull (D)	12.5	11.5
7. Distance from postero-lateral corner of eye to otic notch (N)	10.4	9.5
8. Mid-line distance from centre posterior limit of skull to level of posterior limit of tabular horn (K)	5.6	3.0
9. Distance between otic notches (C)	17.5	15.5
10. Distance from mid-length of orbit to lateral edge of same side (I)	14.1	19.0
11. Distance from posterior mid-point of nare to anterior mid-point of orbit (F)	34.1	48.5
12. Distance between nares at Mid-length of same (J)	14.1	17.0
13. Distance from level of anterior limit of nares to edge of snout (M)	4.1	9.0
14. Breadth of snout 1/5th of skull length from tip (S)	25.8	33.5
15. Distance from level of posterior limit of orbit to parietal foramen taken at centre of skull (P)	2.9	1.5

TABLE I CONTINUED

SPECIMEN	A	B
	cms	cms
16. Mid-line distance from level of anterior limit of otic notch to parietal foramen (T)	5.8	6

TABLE II

Habitus Characteristics of Capitosaurus
(Chosen from Welles and Cosgriff, 1965)

SPECIMEN	A	B
	Approx.	Approx.
1. <u>Breadth of skull index: B:L x 100</u>	81	74.5
2. <u>Breadth of snout index: S:L x 100</u> As juveniles tend to have a relatively broader snout (Bystrow and Gromov, 1940); breadth of snout is only significant when comparing skulls of a similar degree of maturity.	40	42
3. <u>Height of skull index: H:L x 100</u> A division could be made at about 16 and above (deep skulls), and below 16 as shallow skulls.	17.2	17.4
4. <u>Interorbital breadth index: A:L x 100</u> The difference between the two indices is due to the excessive length of Specimen B - it must be remembered that severe distortion of this specimen in the snout area may have produced this difference	16.1	8.80
5. <u>Interotic breadth index: C:L x 100</u>	27.1	19.5
6. <u>Index of Interorbital breadth relative to Interotic breadth: A:C x 100</u>	59.4	45.1
7. <u>Orbit to otic notch: Interotic breadth index: N:C x 100</u>	59.4	61.2
8. <u>Midline distance behind orbits of parietal foramen: Interotic breadth index: T:C x 100</u>	16.5	9.6
9. <u>Midline distance in front of otic notches of parietal foramen: Interotic breadth index: T:C x 100</u>	33.1	38.7
10. <u>Posterior skull border concavity index: K:C x 100</u>	19.3	32.0

TABLE III

Comparison of Specimen A and B to type species
of Parotosaurus pronus (Howie, 1969)

CHARACTERS	TYPE SPECIES	SPECIMEN A	SPECIMEN B
Otic Notch	Semiclosed	Not known	Semiclosed
Tabular Horns	Expanded distally towards squamosal	Not known	Expanded distally towards squamosal
H:B x 100	23	17.2	17.4 (this figure was incorrectly printed as 20 in Chernin & Cruickshank, 1970)
Nares	Elongate, lateral, long axes parallel to skull border	Elongate, Lateral, long axes parallel to skull border	Elongate, lateral, long axes almost parallel to skull border
Orbits	Close together well posterior, oval, long axes parallel to midline	Close together well posterior, oval, long axes parallel to midline	Very close together posterior, oval, long axes almost parallel to midline
Pineal Foramen	Rectangular, just posterior to hind border of orbits	Shape unknown, just posterior to hind border of orbits	Rectangular, just posterior to hind border of orbits

TABLE III
continued

CHARACTERS	TYPE SPECIES	SPECIMEN A	SPECIMEN B
Skull breadth B:L index	Skull broad posteriorly 75	Skull broad posteriorly 81	Skull broad posteriorly 75
Frontal and jugal enter orbital margin	Yes	Yes	Yes
Supratemporal excluded from otic notch	Yes	Yes	Yes
Snout breadth S:L index	Skull tapers anteriorly 32	Skull tapers anteriorly 40	Skull tapers anteriorly 42
Exoccipitals barely exposed on palate	Yes	Yes	Yes
Pterygoid with facet for jaw articulation	Yes	Yes	Not known
Processus lamellosus of exoccipital present	Yes	Yes	Not known

Author Chernin Sharon

Name of thesis Capitosaurid amphibians from the upper Luangwa Valley, Zambia.

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