## PODOCNEMIS SOMALIENSIS, A NEW PLEURODIRAN TURTLE FROM THE MIDDLE EOCENE OF SOMALIA

by C. A. WALKER

ABSTRACT. A new pleurodiran turtle, Podocnemis somaliensis, is described from the Middle Eocene of Somalia.

Between 1928 and 1930 the fragments of a fairly complete turtle shell were collected by W. A. Macfadyen and J. A. Hunt from the Middle Eocene of Somalia (then British Somaliland), along with numerous nautiloids. The specimen was presented to the Sedgwick Museum, Cambridge, and was then sent to the British Museum (Natural History) for repair and description, but it has remained undescribed until now.

The geology of the area concerned was dealt with in detail by Macfadyen (1933, 1952) and, to some extent, by Haas and Miller in their description of the nautiloids (1952).

Family PELOMEDUSIDAE
Subfamily PELOMEDUSINAE
Genus PODOCNEMIS Wagler 1830

Podocnemis somaliensis sp. nov.

Plate 80

Diagnosis. Nuchal large and broad; its lateral sutures not straight but rather sigmoid; notch in anterior border probably absent (or, if present, very small). Carapace almost as broad as long, widest part just behind bridge. Six neurals, behind which 6th-8th pairs of pleurals meet in mid-line. Anterior lobe of plastron wide, with blunt anterior edge; entoplastron broader than long; xiphiplastral symphysis longest.

Holotype. The unique specimen, Sedgwick Museum C 54.276: an almost complete carapace and plastron.

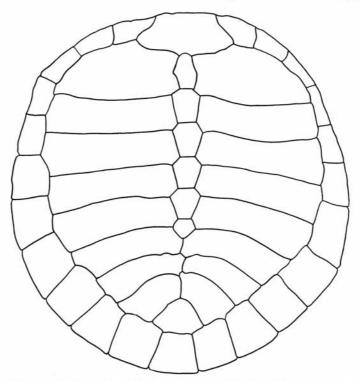
Occurrence. Lower half of the Nautilus Beds, Lower Daban Series, Middle Eocene (Lutetian); Bijo Gora River, near Las Daban (10° 22′ N., 45° 14′ E.), some 25 km. ESE. of Berbera, Somalia.

State of preservation. The shell has suffered some crushing. The outline of the carapace is distorted a little at both ends. The plastron has been damaged to a greater degree, and many of the sutures have been obscured, especially on the outer surface where plaster has been used to fill in eroded areas of bone. There are no shield furrows visible.

The nuchal lacks a portion from the leading edge backwards. All the neurals are present, but the suture between the first and second cannot be distinguished. All the pleurals, except the seventh and eighth pairs and the first right, are distorted to some extent.

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The plastron has suffered slight distortion in such a way that the sagittal suture no longer forms a straight line, its front part being bent to the right. The sutures of the entoplastron are obscured on the left side by plaster; the sagittal suture and the posterior suture of the right epiplastron have been covered by plaster on the outer surface but



TEXT-FIG. 1. *Podocnemis somaliensis* sp. nov., reconstruction of the carapace in dorsal view, Sedg. Mus. C 54.276.  $\times \frac{1}{4}$ .

remain visible in places on the visceral side. On the left side the mesoplastron is almost entirely absent and large sections of the hyoplastron and hypoplastron are also missing. The mesoplastron can be seen on the right, but there has been distortion and its inner

## EXPLANATION OF PLATE 80

Podocnemis somaliensis sp. nov., holotype, Sedgwick Museum C 54.276. Middle Eocene of Somalia.

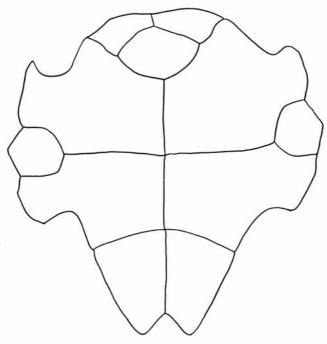
Fig. 1. Dorsal view of carapace. (Nuchal, first neural, and suprapygal are foreshortened.)

Fig. 2. Right lateral view of whole shell.
Fig. 3. Visceral view of plastron.
Fig. 4. Ventral view of plastron, with carapace in position.

Magnification <sup>1</sup>/<sub>5</sub> natural size.

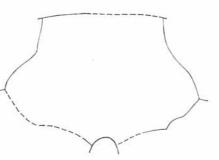
edge is imperfect. The xiphiplastra are broken off in front of the notch and their lateral margins are chipped.

Of the two sets of buttresses the right is more perfect than the left. Short stumps of the ilia are fused to the carapace and of the pubes and ischia to the plastron.



TEXT-FIG. 2. *P. somaliensis* sp. nov., reconstruction of the plastron in ventral view, Sedg. Mus. C 54.276.  $\times \frac{1}{4}$ .

Description. Carapace. The carapace is almost as wide as long, with its greatest width just behind the bridge. The nuchal is relatively large, being broader than long, and its lateral sutures are slightly sigmoid rather than straight (text-fig. 3). The first neural, which butts on to the nuchal, forms an elongated hexagon widest in the middle; neurals 2-5 are also hexagonal and almost equal in size, but the greatest width of each is near its anterior end; neural 6 is smaller, pentagonal, and wedged between pleurals 5 TEXT-FIG. 3. P. somaliensis sp. nov., dorsal view and 6. The suprapygal is roughly pentagonal



of the nuchal.  $\times \frac{1}{2}$ .

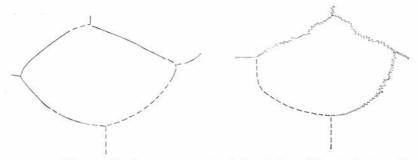
with wide angles and is considerably broader than long. The pygal, although incomplete, does not seem to be enlarged. There are 8 pairs of pleurals, the first being the largest and the others becoming successively smaller towards the suprapygal; pleural 2 is concave anteriorly, 3 is biconcave, while 4–8 are convex in front and concave behind. The axillary and inguinal buttresses are located under the first and fifth pleural plates, the axillary being the larger (as is usual in *Podocnemis*). The visceral surface is not well preserved; the iliac scars occupy a position on either side of the mid-line under the seventh and eighth pleurals. Of the 11 pairs of peripherals nos. 4–7 are connected with the bridge.

Plastron. The anterior lobe is wide with a straight anterior edge. The suture separating the two epiplastra in the mid-line is short; from its posterior end the margin of the epiplastron runs obliquely outwards and backwards, separating it from the entoplastron, and then outwards and forwards, separating it from the hyoplastron. The entoplastron appears short and wide on the outer surface, but on the inner surface its outline is different (text-figs. 4, 5). Only one mesoplastron is preserved; it is badly crushed and the sutures are difficult to see, but it is wider than long. The sutures between the hyoplastra and hypoplastra are straight, but those between the hypoplastra and xiphiplastra are slightly curved, concave towards the rear. The xiphiplastra form the longest part of the sagittal suture but are incomplete posteriorly, thus making it impossible to give any true indication as to the size and shape of the notch. The pubic and ischial scars are well represented, with the ischia probably meeting in the mid-line, although some breakage has occurred at this point.

Carapace					Plastron	
Length Maximum width				450 mm. (E) 424 mm.	Sagittal length Sagittal length of	377 mm. (E)
		Length	Maximum Width	Anterior Width	anterior lobe Sagittal length of bridge Sagittal length of	68 mm. 177 mm.
Nuchal		76-5	120	74 mm.	posterior lobe	132 mm. (E)
Neurals	1.	56.5	29.5	15 mm.	Length of epiplastral )	(18 mm. (V)
	2.	41.5	33.5	17 mm.	symphysis	19·5 mm. (O)
	3.	41.5	35-5	21.5 mm.	Length of entoplastron	62 mm.
	4.	38	35	18 mm.	Length of hyoplastral ) (98 (R	) 93 mm. (EV)
	5.	38	35	20 mm.	symphysis	94 mm. (O)
	6.	25.5	27	17 mm.	Length of hypoplastral) (94 (R	) 90 mm. (EV)
Suprapygal		48	64	-	symphysis	90 mm.
Pygal		50 (E)	34.5	65 mm. (E)	Length of xiphiplastral ) (103 (R	) 111 mm. (EV)
		Inner Outer			symphysis	106 mm. (EO)
		E0077774 (200			Length of mesoplastron	64 mm. (RO)
_ 1.7 1			length		Width immediately anterior	
Peripherals (R)	1.	27	55 mm.		to bridge	254 mm.
	2.	41	49 mm. 57-5 mm (E) 55 mm. (E) 51-5 mm. 58-5 mm.		Width immediately posterior	
	3.	44			to bridge	225 mm.
	4.	51.5			Width of entoplastron	87 mm. (V)
	5.	45.5				98 mm. (O)
	6.	47			Width of mesoplastron	68 mm. (EO)
	7.	59	73 mm. (E			
	8.	50 (E)	62 mm. (E			
	9.	48	49 mm. (E)			
	10.	38	60 mm. (E			
	11.	46	50 mm. (E)			

Comparisons. The presence of small, laterally placed mesoplastra and of only six neurals indicates that the species should be placed in the sub-family Pelomedusinae (see Zangerl 1948, pp. 48 et seq.). Reference to Podocnemis is suggested by the exact pattern of bones in the carapace (with the nuchal and 1st neural in direct contact, not separated by the 1st pair of pleurals) and by the absence of a central fontanelle between hyo- and hypoplastra.

Podocnemis somaliensis is the largest species of the genus yet discovered in Africa. Although no shield furrows are visible in this specimen, it may be differentiated from



TEXT-FIGS. 4, 5. P. somaliensis sp. nov., ventral and visceral views of the entoplastron.  $\times \frac{1}{2}$ .

other contemporary African species of the genus by the size, shape, and proportions of the nuchal, the carapace as a whole and the entoplastron. These species include only P. antiqua Andrews 1903 and P. stromeri Reinach 1903, both from the Middle Eocene of Egypt (see also Dacqué, 1912).

P. antiqua resembles the new species in the shape of the carapace, but it is much smaller and differs considerably in its anatomy. The nuchal contrasts with that of P. somaliensis in having straight lateral sutures and, behind it, a pair of foramina on either side of the 1st neural which are certainly absent in the new form. The suprapygal differs also in being much broader than long.

P. stromeri and its variety major both have oval shells, the proportions of which are like those of the Recent P. madagascariensis Grandidier but unlike those of P. somaliensis, in particular their nuchals and entoplastra are of different proportions. The xiphiplastral symphyses are not the longest in the mid-line, as they are in the Somalian species.

Remarks. It would be unwise to draw any conclusions as to the relationships of P. somaliensis with other species of Podocnemis until more material becomes available; it would be especially useful to have knowledge of its shield furrows and to compare it first hand with other African forms. However, the specimen is obviously specifically distinct and sufficiently well preserved to merit designation as the holotype of a new species.

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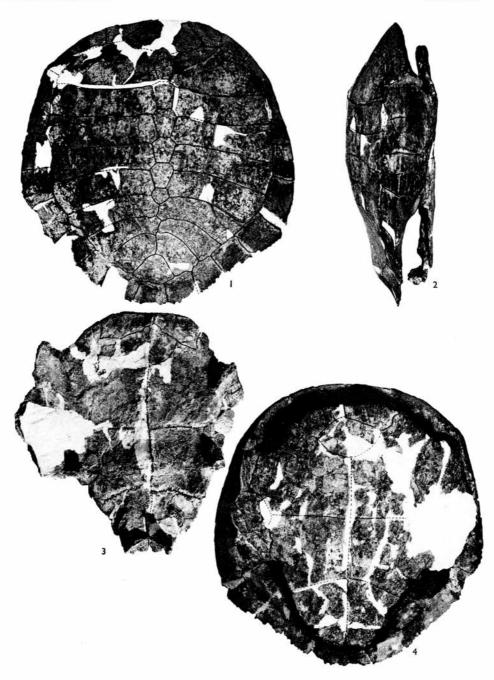
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C. A. WALKER
Department of Palaeontology,
British Museum (Natural History), London, S.W. 7

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WALKER, Eocene pleurodiran turtle