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Short Note
Second Jurassic marine reptile from the Antarctic Peninsula

DANIEL C.H. HIKUROA[1,2]

[1]*School of Geography, Geology and Environmental Science*
[2]*Institute of Earth Science and Engineering, University of Auckland, PO Box 92019, Auckland, New Zealand*
d.hikuroa@auckland.ac.nz

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Except for the rich record from the Neuquen Basin (e.g. Gasparini & Fernández 2006), Jurassic southern Gondwanan marine reptiles are relatively rare. A tooth discovered in the Bean Peaks, Ellsworth Land, Antarctic Peninsula (Fig. 1) represents the southernmost, and only the second record of Jurassic marine reptiles from the Antarctic Peninsula. Comprising a single, incomplete tooth, the specimen is unable to be assigned to a species, but the paucity of Gondwanan Jurassic marine reptile material means this find adds significant palaeobiogeographical information.

Stratigraphy and locality

The specimen is from the Hauberg Mountains Formation of the Latady Group (Fig. 1). A latest Bathonian–mid middle Tithonian age for the formation is inferred from ammonites and bivalves (Challinor & Hikuroa 2007). The specimen was found in a conglomerate bed on outcrop R.7514 (Fig. 1c & e), which also yielded *Malayomaorica occidentalis* Jeletzky (Hikuroa 2005). *Malayomaorica occidentalis* was previously known only from the Falkland Plateau (Jeletzky 1983), where it was assigned a late Kimmeridgian–mid middle Tithonian age by association with ammonites of the *Virgatosphinctes densistriatus-denseplicatus* group (*V. mendozanus* Zone in Argentina (Jeletzky 1983); an age assigned to the material described herein.

Systematic palaeontology

REPTILIA Laurenti, 1768;
Ichthyosauria gen. et sp. indet. Fig. 2

Material. British Antarctic Survey specimen R.7514.14.10 is a partial external mould of the lingual view of the crown of a tooth, with the tip missing. The enamel is present on part of the mould, and has partially delaminated. Morphologic description is based on a latex cast.

Description. Elongate-conical, solid tooth, oval cross-section, long axis anteroposteriorly oriented, at least 25 mm long, proximal end of crown 9 mm wide (root and possibly part of the crown missing), 5 mm wide distally; recurved, concave lingually and posteriorly. Inner enamel surface bears numerous closely spaced, faint longitudinal striae. Tooth from either lower left or upper right jaw.

Remarks

The size, shape, and radial striae of the specimen are consistent with a tooth deriving from a marine reptile. X-ray diffraction analysis of the specimen confirms it as calcium fluoride phosphate, the principal component of tooth enamel. Four groups of Jurassic marine reptiles are known; plesiosaurs, crocodylians, turtles and ichthyosaurs; the latter were the dominant marine reptile at that time. Plesiosaur diversity and abundance also peaked in the Jurassic, but along with crocodylians and turtles, they comprised a much smaller proportion of marine reptile numbers. All four groups are known from Early–Late Jurassic strata of South America (e.g. Shultz *et al.* 2003, Gasparini & Fernández 2006), with ichthyosaur remains previously reported from the Antarctic Peninsula (Whitham & Doyle 1989). Although they were quite distinct osteologically, there were some remarkable similarities in tooth morphologies among these groups (Massare 1987), and except for the turtles, all have teeth broadly similar to the new specimen. Massare (1987) recognized eight distinct tooth forms in the ichthyosaurs, plesiosaurs, marine crocodiles and mosasaurs that transcend taxonomic boundaries for the most part. The tooth could be placed in either of forms 1, 3, 4, or 5, which collectively comprise ichthyosaurs, plesiosauroids, pliosauroids and crocodilians (Masare 1987). Teeth of Jurassic ichthyosaurs exhibit a variety of dental morphologies, even in the jaws of the same specimen (Bardet 1990). They fall into two groups: 1. Small, slender, straight and cylindrical, or 2. Robust, conical, fairly curved, with a swollen broad root and an elliptical cutting crown, with or without striations (Bardet 1990). The new specimen fits well the description for the robust type, although as the tip is not preserved, presence of an elliptical cutting crown cannot be confirmed. Based on its form, by the relative abundance of ichthyosaurs in the Jurassic, and the known presence of ichthyosaurs on the eastern side of the Antarctic Peninsula in the Jurassic, the tooth is most likely ichthyosaurian, but the recurved, elongate shape of the tooth, the faint longitudinal striae and oval cross-section is also found in pliosaurs and plesiosaurs.

This specimen represents only the second record of marine reptiles inhabiting the Jurassic seas around the Antarctic Peninsula, and supports the suggestion that reptiles were

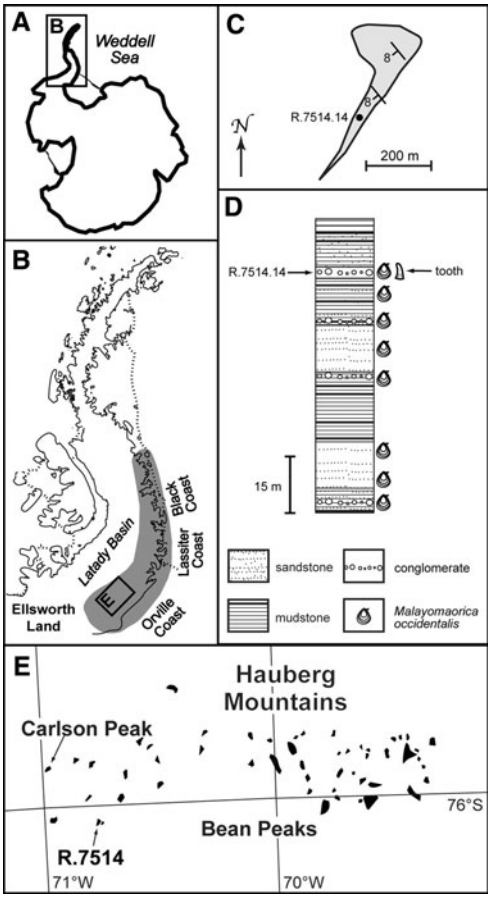

Fig. 1. Locality map showing **a**. Antarctica, **b**. Latady Basin, **c**. location of specimen at BAS locality R.7514.14, Bean Peaks, **d**. lithological log from the locality showing the sample location and the *Malayomaorica occidentalis* bearing horizons, and **e**. outcrop pattern of the Bean Peaks area.

present along the entire South American/Antarctic Pacific margin during the Late Jurassic (Shultz *et al.* 2003). Further, the presence of marine reptiles in the Bay of Antarctica (see Challinor & Hikuroa 2007) compounds the role of the Trans-Erythraean Seaway (Arkell 1956, the South Africa/Rocas Verdes seaway of Shultz *et al.* 2003) as a conduit for migration. Similar evidence of this marine connection is seen in the belemnite faunas (Challinor & Hikuroa 2007), crinoids (Eagle & Hikuroa 2003) and gastropods (Hikuroa & Kaim 2007).

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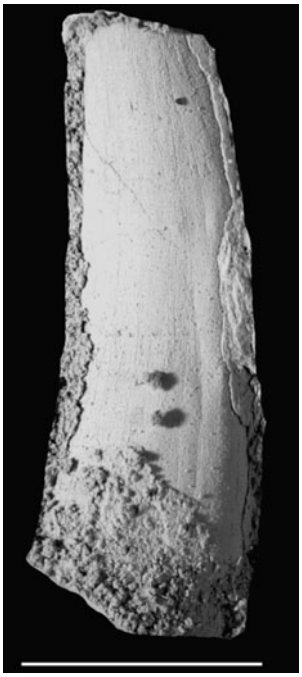

Fig. 2. Latex cast of Ichthyosauria tooth, coated with aluminium chloride sublimate. Scale bar is 1 cm.

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