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# First dinosaur bone from Sicily identified by histology and its palaeobiogeographical implications

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With 3 figures

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**Abstract:** An isolated fossil bone visible in cross-section in the wall of a cave near Palermo (Sicily) is described. The limestone containing the bone is late Cenomanian in age and was deposited in a backreef-lagoon environment from the Panormide carbonate platform. A histological study of the bone, which has a hollow shaft, shows a fibrolamellar structure and indicates that it belongs to a dinosaur, in all likelihood to a theropod. This is the first report of a dinosaur from Sicily. The occurrence of this bone shows that at certain times during the Cretaceous the Panormide platform was at least partly emergent and suggests that it may have formed a peninsula protruding from the northern margin of the African continent.

**Key words:** dinosaur bone, histology, Cenomanian, Sicily, palaeobiogeography, Panormide platform, centralwestern Tethys.

## 1. Introduction

The Italian dinosaur record is still relatively scanty, although a number of recent finds have increased it significantly (Dal Sasso 2003). No dinosaur remains had hitherto been reported from Sicily. Generally speaking, the record of Mesozoic reptiles from that part of Italy is poor. It includes a record of a tooth of the pliosaur *Polyptychodon interruptus* Owen from a supposedly Cretaceous deposit (Ciofalo 1878) and a mention of a possible Jurassic footprint (Mascle 1979) that must be considered as highly doubtful since it comes from a marine deposit with no evidence of emersion. The bone described in the present paper and identified as dinosaurian on the basis of its histology is thus the first well supported record of a dinosaur in Sicily. Although it cannot be identified with great precision because of its fragmentary nature, it again illustrates the potential of histological studies for the identification of incomplete specimens (see also the study by Hurum et al. 2006, on the first dinosaur from Norway), and in addition it has some interesting palaeoecological and palaeobiogeographical implications.

## 2. Location and geological setting

### 2.1. The Pizzo Muletta succession: a brief description

The dinosaur bone recorded here has been discovered in 2005 by one of us (F. P.), during field-work in the Grotta Lunga (a cave identified as SI/PA004, at 60 m a.s.l., by Mannino 1986), on the north side of Pizzo Muletta, Capaci (Palermo, north-western Sicily, UTM coordinates 33S 345211E 4226312N) (Fig. 1). The

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