

A New Genus and Species of Carnivorous Dinosaur from the Lower Cretaceous Kwanmon Group, Northern Kyushu

Yoshihiko OKAZAKI

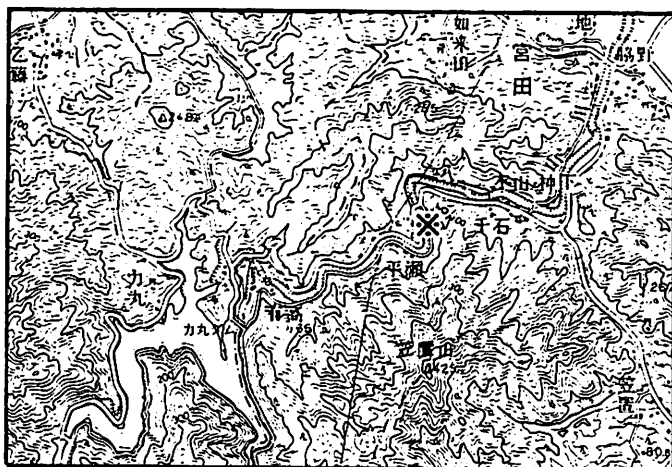
Kitakyushu Museum of Natural History, Kitakyushu, 805, Japan

(Received November 10, 1991)

Abstract A large tooth of a carnivorous dinosaur is reported as the first record from the Lower Cretaceous Kwanmon Group, northern Kyushu, Japan. The characters of the tooth, such as fine serration, rugose longitudinal surface ornamentation and compressed shape, are significant, and a new genus and species, *Wakinosaurus satoi* is proposed. The genus is allocated to the Family Megalosauridae tentatively.

Introduction

On February 9 1990, Masahiro SATO, Kitakyushu Natural History Society, found a incomplete large tooth from a rock at Sengokukyo, Miyata-machi, Fukuoka Prefecture. The tooth has been cleaned up by the Kitakyushu Museum of Natural History. Its fine serration along the cutting edge and the triangular shape indicate that it belongs to a carnivorous dinosaur. In these ten years, several occurrences of Japanese dinosaurs became to be known from Iwate, Fukushima, Gunma, Ishikawa,



text-figure 1

Locality of the Holotype of *Wakinosaurus satoi*
国土地理院発行の 50,000分の 1 地形図「直方」を使用.

Gifu, Fukui and Kumamoto Prefectures. Although there had been many expectations of dinosaur fossil from the Cretaceous Kwanmon Group, there were no reptilian remains except a few occurrences of turtles and crocodiles until the present report.

The author expresses his sincere thanks to Mr. Masahiro SATO for he kindly offered specimens to study, and Mr. Naoki KIKUCHI, Kitakyushu Natural History Society, who found reptilian fossils from the Sengokukyo area; Also, Dr. Yoshikazu HASEGAWA, Yokohama National University, Dr. DONG Zhi-Ming, Institute of Vertebrate Palaeontology and Palaeoanthropology, Peking, and the persons of the Kitakyushu Museum of Natural History, for their suggestions and encouragements during the study. Dr. Terufumi OHNO kindly helped to obtain older reports.

Systematic description

Family Megalosauridae HUXLEY, 1869

Wakinosaurus satoi, n. gen. et n. sp.

Holotype; an incomplete tooth. KMNH VP 000,016

Locality; from a rock of river floor at Sengokukyo, Miyata-machi, Kurate Gun, Fukuoka Prefecture Japan. (130°38'29"E, 33°41'45"N)

Horizon; Sengoku Formation, Wakino Subgroup, Kwanmon Group. Neocomian (Early Cretaceous).

Discovery; by Mr. Masahiro SATO, on February 9, 1990.

Occurrence; The specimen is collected from a rock, bluish or pale greenish gray, medium-grained sandstone to coarse shale with black mud patches. The rock includes abundant freshwater gastropod fossils, *Brotiopsis* spp. and many turtle carapace fragments, *Adocus* sp. (OKAZAKI, 1990a).

Description;

A tooth lacking about half of its apex: Lingual and buccal sides flattened, with many longitudinal striations. Striations irregular in their length, strength and interval, and ordinally intercalated but sometimes divaricated. Surface also with undulation. Basal zone with fewer striations.

Anterior cutting edge with fine serrations, more than 100 serrations being observed throughout the edge of about 45 mm. Only about 5 mm of posterior cutting edge preserved with 12 serrations. Serrations being only near cutting edge, not sculptured on surface deeply.

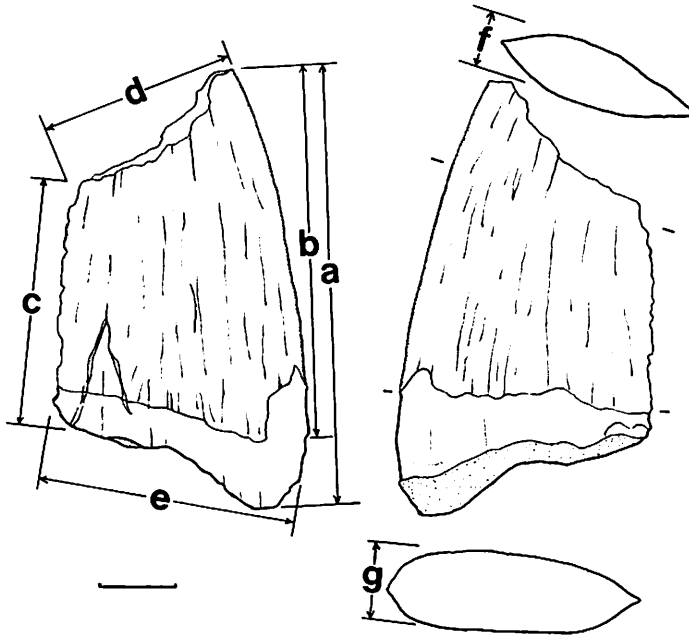
Measurement

a; height as preserved	57.4
b; crown height	50.0

c;	height of posterior margin	31, c.a.,
d;	width of broken end	27, c.a.
e;	width of base	32.8
f;	thickness at middle	8.5
g;	thickness at base	10.4

Discussion

The present specimen is apparently a tooth of a large carnivorous dinosaur. The significant features of the specimen are as follows: (1) Large, compressed blade-like shape of the crown. (2) Longitudinal striations on surface. (3) Fine serration of both cutting edges. These characters are seen only separately in several species. Most similar tooth, being reported is *Prodeinodon kwangshiensis* HOU, YEH et ZHAO from the Early Cretaceous of Kwangshi, China. The crown of the Chinese specimen is compressed, and the anterior edge bends obviously backward, but posterior edge is somewhat straight (Hou, et al., 1975) as seen in the *Wakinosaurus satoi*. But the surface of crown is smooth and sculpture of the serration is deeper in the Chinese



text-figure 2

Sketch of the Holotype of *Wakinosaurus satoi*

Buccal (left) and lingual (right) side and two sections.

Positions of the section are indicated by short lines. Scale 1 cm.

specimen, and serration of the anterior edge is seen only in its upper one third so far as illustrated.

The genus *Prodeinodon* is based on the *Prodeinodon mongoliensis* OSBORN from Early Cretaceous of Mongolia. The holotype of *P. mongoliensis* is an incomplete tooth with characteristics as follows (OSBORN, 1924): Crown with flattened sides, rounded anterior border, compressed posterior border terminating in a serrated ridge. The holotype has no serration in its anterior edge. In the paratype of *P. mongoliensis*, serration of the anterior edge observed only in its one third near top. In the OSBORN's description, "flattened sides" means quadrate shape of the tooth section, and does not mean depressed thickness of the crown, as seen in the figured section. Therefore, the *Wakinosaurus satoi* and *P. kwangshiensis* are quite different from *P. mongoliensis*. It is possible that *P. kwangshiensis* belongs to the genus *Wakinosaurus*, but it must be discussed in future. The holotype of *Wakinosaurus satoi* occurred in a rock derived from the Sengoku Formation, which is distributed around the fossil locality. The sediment facies and fossils of the rock correspond to those of exposures around there.

Reference

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Plate 1

Explanation of Plate 1

Wakinosaurus satoi, n. gen. et n. sp.

Holotype: KMNH VP 000,016.

Figs. 1a and 1b: Buccal(1a) and lingual(1b) view. natural size.

Fig. 2 Close-up of the anterior cutting edge at the middle part.

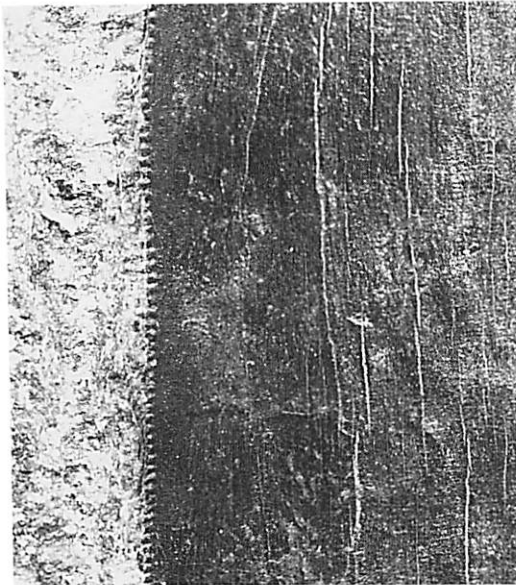
Scale indicates 1 mm.



1a



1b



2

2