

DESCRIPTION OF A SPECIES OF FISH (MIT-  
SUKURINA OWSTONI) FROM JAPAN,  
THE TYPE OF A DISTINCT FAMILY  
OF LAMNOID SHARKS.

BY DAVID STARR JORDAN.

PLATES XI AND XII.

SOME time since, Mr. Allen Owston, a resident of Yokohama, Japan, secured from a fisherman a specimen of a very remarkable shark, obtained in deep water near Yokohama. Mr. Owston, through Professor Kakichi Mitsukuri, presented this specimen to the University of Tokio.

In coming to the United States as a delegate to the International Fur Seal Conference of 1897, Professor Mitsukuri brought this specimen with him, and he has placed it in my hands to be identified, figured, and described.

It proves to be not only a remarkably distinct new genus of lamnoid affinities, but also the type of a distinct family.

The accompanying figures have been drawn by Mrs. Chloe Leslie Starks, under the direction of Dr. Theodore Gill, at Washington. The dissections necessary to show the singular characters were suggested by Dr. Gill, to whom the writer would express his especial obligations.

The type specimen has been returned to the Museum of the University of Tokio.

**Mitsukurina**, gen. nov.

Skeleton flexible; snout produced in a flat, flexible blade; spiracles large; teeth acicular, only the lateral ones with small basal cusps; last gill-opening above base of pectorals; fins all low, the ventral with very long base; the claspers very small; lower lobe of caudal long; no pit at root of caudal; first dorsal well advanced; second shorter and higher than anal.



**Mitsukurina owstoni**, sp. nov.

## PLATES XI AND XII.

Length of specimen, a male apparently young, 42 inches. Head (to first gill-opening)  $4\frac{2}{3}$  in length; depth about 10. Snout from eye  $1\frac{2}{3}$  in head; from front of mouth  $2\frac{1}{2}$  in head; length of blade of snout from its insertion below  $1\frac{1}{2}$  in head. Length of gill area  $2\frac{2}{3}$  in head; depth of last gill 6 in head; eye 12 in snout from eye; interorbital area  $2\frac{2}{3}$  in snout from eye; spiracle a little smaller than eye; length of one mandible  $2\frac{2}{3}$  in head; length of maxillary  $2\frac{2}{3}$  in head. Pectoral base  $1\frac{3}{4}$  in length of pectoral fin, which is  $2\frac{2}{3}$  in head. First dorsal base  $1\frac{3}{4}$  in its height, which is  $2\frac{3}{4}$  in head. Second dorsal base  $1\frac{3}{4}$  in its height, which is 3 in head. Ventral base 2 times its height, the length of the base being 3 in head. Claspers very short (perhaps immature), nearly 12 in head. Anal base  $2\frac{1}{2}$  times its height and  $2\frac{1}{2}$  in head. Caudal measured from above  $2\frac{1}{2}$  in length of body; greatest height of lower lobe nearly 3 in head.

Body elongate, compressed behind, the flesh and skeleton extremely limp, folding like a wet rag; head moderate, the snout produced in a long, flat, flexible, leaf-like blade, somewhat like that of *Polyodon spathula* but arrower, more limp and more pointed; median line of snout with a thick, rounded, median keel; the lower side of the blade free for a considerable distance backward from the upper jaw, almost to the eyes. Mouth inferior, with elongate cleft; the dentary bones broad, loosely connected, and movable, capable of being spread wide apart, but normally lying close together and nearly parallel; a notch at symphysis, the tip of the lower jaw strongly curving upward and inward at tip; a similar notch at tip of upper jaw between the rather loosely joined maxillary.

Teeth few-rowed, about  $\frac{1}{2}$  on each side; middle of each jaw without teeth in front. Teeth all needle-shaped, very slender and pointed, more or less curved backward or inward; each tooth with a two-rooted base; the large teeth in front simple, the smaller ones on sides of jaws each with two small basal cusps; second and third tooth of lower jaw longest; the second about as long as eye; first and second tooth of upper jaw similar to these but somewhat shorter; lateral teeth of both jaws progressively smaller, but all slender and sharp.

Eye small, without nictitating membrane; spiracle large; gill-openings about equal in height, the last above base of pectoral.

Skin everywhere rough, the scutes very small, granulated. No lateral line or conspicuous mucous pores; nostrils large, about as large as eye, their distance from eye twice the eye; each nostril with a small notch on lower edge and a free flap within.

Fins all thin, flexible, and papery; the broad bones somewhat exerted from the soft flesh. Pectoral short, narrow, and rounded, the flexible rays longest. First dorsal short and moderately high, not emarginate; second dorsal lower, remote from the first, the interspace being  $1\frac{1}{2}$  in head. Insertion of first dorsal above axil of pectoral; insertion of second nearly midway between ventrals and anal. Ventrals with very long base; anal much longer



than second dorsal and rather lower; no caudal keel; no pit at root of caudal; lower lobe of caudal long and rather high, with a sharp notch near its tip.

Color light reddish gray, brownish above; the fins darker brown; nuchal region a little darker; belly paler.

The genus is apparently unique among living forms, its nearest relative being apparently the genus *Carcharias* of Rafinesque, which is *Odontaspis* of Agassiz. This group contains few recent sharks, but is rich in fossil forms. Unless place can be found for it in some family of fossil species, it must stand as the type of a distinct family *Mitsukurinidae*.

I take great pleasure in associating this remarkable animal with the name of my honored friend and colleague, the distinguished Professor of Zoology in the University of Tokio, with the Hon. Shiro Fujita, joint representative of Japan in the International Conference of 1897 in the interest of the protection of the fur seals.

The specific name, in recognition of Mr. Owston's interest in his discovery, is given at the request of Professor Mitsukuri.

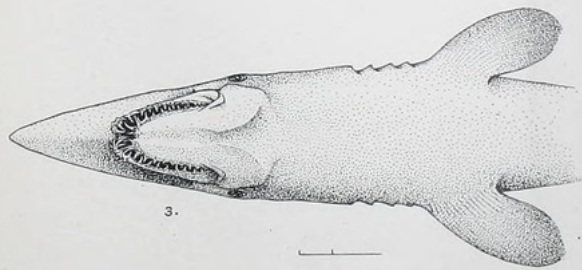
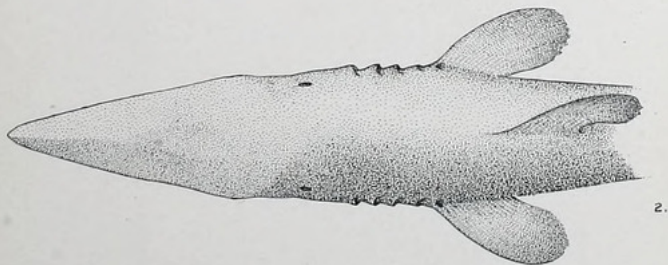
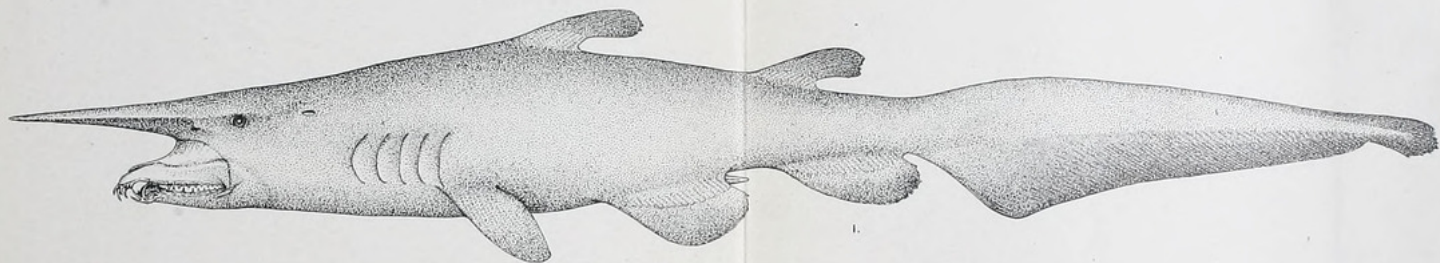
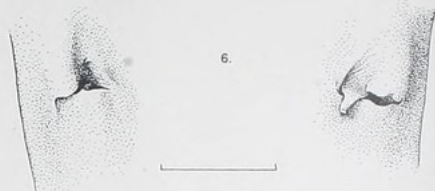
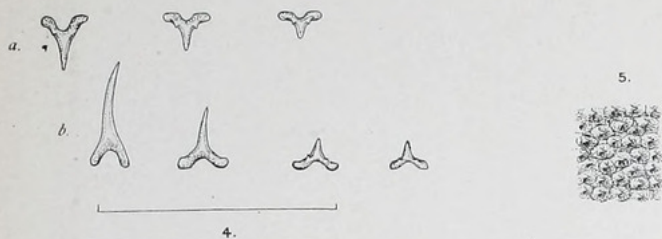
LELAND STANFORD JUNIOR UNIVERSITY,  
CALIFORNIA,

January, 1898.

## EXPLANATION OF PLATE XI.

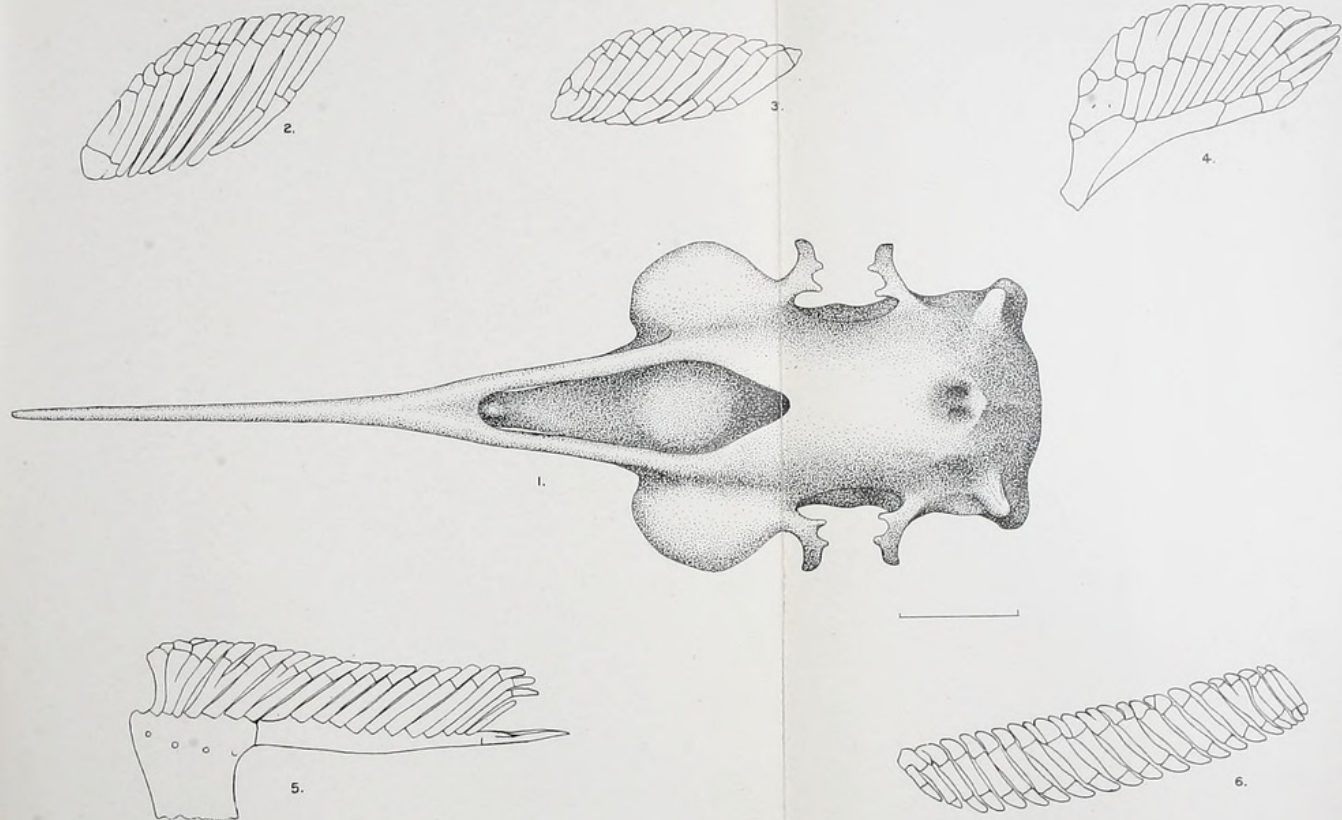
- Fig. 1. Side view of *Mitsukurina owstoni*, gen. et sp. nov.
- Fig. 2. Top view of head.
- Fig. 3. View of head from below.
- Fig. 4a. Teeth of upper jaw, 2d, 3d and 9th.
- Fig. 4b. Teeth of lower jaw, 2d, 5th, 9th and 10th.
- Fig. 5. Section of skin of side.
- Fig. 6. Nostrils.





## EXPLANATION OF PLATE XII.

- Fig. 1. Skull of *Mitsukurina owstoni*, gen. et sp. nov.
- Fig. 2. Basal bones of first dorsal.
- Fig. 3. Basal bones of second dorsal.
- Fig. 4. Basal bones of left pectoral.
- Fig. 5. Basal bones of left ventral fin.
- Fig. 6. Basal bones of anal fin.





Jordan, David Starr. 1898. "Description of a species of fish (*Mitsukurina owstoni*) from Japan, the type of a distinct family of Lamnoid Sharks." *Proceedings of the California Academy of Sciences* 1, 199–201.

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