

of New York. They are in the condition of natural casts in fine-grained sandstone, but I have quite satisfactorily identified a dorsal valve of *Stricklandinia salteri* and one of *S. davidsoni* Billings. If these two species are correctly identified, as they appear to be, their discovery in Georgia is especially interesting, because they have hitherto been found only in strata of the island of Anticosti; and also of the indication which they and their associates in the two regions named afford as to the equivalency of the Georgia, Clinton, Anticosti strata in America; and Upper Llandovery strata of Great Britain.

WASHINGTON, D. C., February 15, 1880.

DESCRIPTION OF A NEW FLOUNDER (PLEURONICHTHYS VERTICALIS), FROM THE COAST OF CALIFORNIA, WITH NOTES ON OTHER SPECIES.

By DAVID S. JORDAN and CHARLES H. GILBERT.

Pleuronichthys verticalis sp. nov.

Form broad ovate, the outlines regular; head small, somewhat constricted behind the upper eye; eyes large, but smaller than in *P. quadrituberculatus*. Interorbital ridge narrow; a small tubercle or prominence in front of the upper eye; a large one in front of upper edge of lower; another larger and sharper at interior edge of the interocular space; another at the posterior edge of the interocular spine ridge. This latter is developed into a long, sharp, triangular spine, which is nearly as long as the pupil, and is directed backwards. A prominent tubercle at the posterior lower angle of the upper eye. Upper edge of opercle somewhat uneven, but no other tubercles present.

Mouth small, as in other species; the lips thick, with lengthwise plicae.

Teeth in a broad band on the left (blind) side of each jaw; *no teeth on the right side in either jaw*. Gill-rakers very small, weak, and flexible, about ten in number. Scales essentially as in the other species, small, cycloid, imbedded, and scarcely imbricated. Lateral line nearly straight, with an accessory branch which extends to the middle of the dorsal fin.

Dorsal fin beginning on the blind side at the level of the premaxillary, there being but about four of its rays on the left side of the median line. Vertical fins less elevated than in the other species, the longest rays of the dorsal about half the length of the head. Anal fin preceded by a spine. Caudal peduncle short and deep. Caudal fin elongate, rounded behind. Pectoral short, nearly equal. Ventrals moderate, reaching anal spine.

Fin rays: D. 65; A. 45.

Color dark olive-brown, with round grayish spots, the body and fins mottled with blackish.

The type, No. ———, United States National Museum, was taken in a trawl-net outside of the Golden Gate, and was procured by us in the San Francisco market.

There are apparently three species of the genus *Pleuronichthys*, as restricted by Gill, in the waters of California.

One of these is the common species in the San Francisco markets at present, being taken in some abundance in the trawl-nets off Point Reyes and the Farallones. This species is the *Pleuronichthys cænosus* of Lockington's Memoir (Proc. U. S. Nat. Mus. 1879, 97), and, as Lockington suggests, it is probably identical with the *Pleuronectes quadrituberculatus* of Pallas. For this form we accept provisionally the name *quadrituberculatus*.

A second species occurs farther south, two specimens having been procured by us at Santa Catalina Island, and one at San Luis Obispo. This form answers better than the preceding to Girard's description of his *Pleuronichthys cænosus*, and it may for the present be identified with it. The specimen noticed by Lockington as "No. 4," "with the dorsal not continued downward nearly so far as the others," perhaps belongs to this species.

The third species is *P. verticalis*, described above.

The species may be readily separated, so far as we have observed, by the following characters:

* Dorsal fin beginning on the level of the lower lip, about ten of its anterior rays being on the left side; ocular region with four or more blunt prominences or tubercles, arranged as follows: one in front of upper eye, another at each end of the interorbital ridge, the posterior largest, but not spine-like, one behind the latter, and one or two more behind the upper eye; upper part of opercle uneven; lower jaws with a band of teeth on the right side similar to that on the left side, but narrower; fins high, D. 72, A. 46.... QUADRITUBERCULATUS.

** Dorsal fins beginning on the level of the upper lip, only four or five of its rays being on the left side of the median line.

† Posterior prominence of interocular ridge developed as a strong backward-directed spine; tubercular prominences present about the upper eye; no teeth on right side of lower jaw; fins rather low, D. 65, A. 45..... VERTICALIS.

‡ Posterior prominence of interocular ridge scarcely elevated; other ocular tubercles obsolete; teeth ?; fins high, D. 68, A. 48 CÆNOSUS.

Measurements.

| | <i>Verticalis.</i> | <i>Quadrituberculatus.</i> |
|---|--------------------|----------------------------|
| Extreme length, in inches..... | 9.20 | 11.85 |
| Length to base of caudal, in inches = 1.00..... | 7.50 = 1.00 | 9.20 = 1.00 |
| Body, greatest depth..... | .54 | .62 |
| Body, least depth of tail..... | .14 | .13 |
| Head, length..... | .24 | .23 |
| Head, diameter of orbit..... | .07 | .083 |
| Dorsal, distance from first ray to median line..... | .055 | .11 |
| Dorsal, greatest height..... | .13 | .19 |
| Anal, greatest height..... | .13 | .18 |
| Caudal, length..... | .255 | .28 |
| Pectoral, length..... | .135 | .18 |
| Ventral, length..... | .11 | .11 |

A second example of *Xystreurus liolepis*, taken at Santa Barbara, is sinistral. The species is, therefore, like *Paralichthys maculosus* and *Platichthys stellatus*, both dextral and sinistral. In the second example the small accessory scales are extremely numerous.

Two more examples of the species, noticed by us as *Platysomatichthys stomias*, have been obtained in trawl-nets from near the Farallones. This species is apparently not congeneric with *Platysomatichthys hippoglossoides*, differing in the long and slender gill-rakers and the ctenoid scales, as well as in the dentition, narrow interorbital space, and other minor details. The large teeth in both jaws, and the small teeth in the outer row in the upper jaw, are distinctly *arrow-shaped*, being abruptly widened toward the tip, thence acutely triangular.

We propose to consider this species as the type of a distinct genus, which may be termed *Atheresthes*, from the arrow-shaped teeth. It may be thus defined :

Atheresthes gen. nov.

Eyes and color on the right side. Body long and slender, closely compressed, tapering into a long and slender caudal peduncle. Mouth extremely large, oblique, the long and narrow maxillary extending beyond the eye. Both jaws with two irregular series of unequal, sharp teeth, which are anteriorly long and slender, posteriorly short. All the long teeth of both jaws, and the outer series of small teeth in the upper jaw, arrow-shaped. Some of the anterior teeth freely depressible. Interorbital space narrow. Gill-rakers long and strong, numerous. Scales comparatively large, ciliated, thin, and readily deciduous, those on the blind side similar, smooth. Lateral line without arch. Fins low and rather fragile, the dorsal beginning over the eye, its anterior rays low. Caudal lunate; no anal spine. Pectorals and ventrals small, the latter both lateral.

Type, *Platysomatichthys stomias* Jor. & Gilb.

NOTES ON SHARKS FROM THE COAST OF CALIFORNIA

By DAVID S. JORDAN and CHAS. H. GILBERT.

The following species of sharks, not hitherto recorded from the Pacific coast of the United States, have been observed by the writers during the present winter (1880):

1. *Isurus oxyrhynchus* Rafinesque. (?)

The jaws of a species of *Isurus* were obtained by us at San Pedro, the shark having been taken off Santa Catalina Island. The teeth agree essentially with those of *Isurus oxyrhynchus* (*Lamna spallanzani* of authors). *Isurus glaucus* has, however, also the same dentition, hence we are unable exactly to determine the species.