

Notes on the labroids of the western coast of North America

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spite of the difference in the number of the scales, especially those between the back and lateral line.* The colors of the two species are also different, the present having a very distinct sulphur-yellow spot immediately behind the dorsal fin, and extending obliquely forwards and downwards, as in *C. puncta*. This character was inadvertently omitted in the original description.

Notes on the LABROIDS of the Western Coast of North America.

BY THEODORE GILL.

Within the short time that has elapsed since the publication of the descriptions of the Labroids of Lower California, two most important works relating wholly or in part to the Labroid alliance have been given to the world. Dr. Bleeker, after having published in the Proceedings of the Zoological Society of London,† and of those of the Royal Academy of Amsterdam,‡ an analytical conspectus of the family of Labroids, in his great work on the Fishes of the Indo-Molluccan Archipelago, has with great precision described and figured the numerous species of those seas. Dr. Günther has also issued the fourth volume of his Catalogue in which he has introduced some slight modifications in the generic arrangement formerly proposed by him, and has given diagnoses of all the determinable species.

The family of Labroids as understood by the writer has the limits assigned to it by Bleeker, the families Scaroids and Siphonognathoids being apparently valid. Günther has embraced the three under one family, and has even referred the genus *Siphonognathus* to a "group," including in addition *Odax*, *Coridodax* and *Olistherops*, considering the genera *Odax* and *Siphonognathus* "as closely and naturally allied as *Sus* and *Babirussa*." *Siphonognathus*, however, disagrees with Günther's diagnosis of the Labridæ in having no "ventral fins thoracic, with one spine and five soft rays," and instead of the "branchiostegals five or six," only four. As I both believe that a genus should have the chief characters of the family in which it is introduced—views shared with most naturalists—and believe that those characters in which *Siphonognathus* differs from the Labroids are important in this group of families, especially when joined to such a modification of form as it presents, I eliminate from the Labroids that genus formerly recognized as the type of a peculiar family by myself and shortly afterwards by Bleeker. If two such dissimilar groups have any analogies, I should say that *Siphonognathus* and *Odax* bear the same relation to each other as *Sus* and *Hippopotamus*—types of distinct families.

The generic distinctions of Dr. Bleeker seem to be in almost all cases happy, and the subfamilies Cheiliniformes, Pseudolabrifformes, Pseudodaciformes, (= *Pseudocina* Gthr.) Chelioniformes, Labrifformes, (= *Labrina* Gthr.) Odaciformes and Clepticiformes appear to be natural, although concerning the first and fifth there may be some uncertainty. The other subfamilies—Novaculæformes, Labrichthyiformes and Cossyphiformes—appear to require revision.

Dr. Günther has enunciated for the first time a most interesting and important generalization for the Labroids which may also be extended to other families. "In those genera which are composed entirely or for the greater part of tropical species, the vertebral column is composed of twenty-four or nearly twenty-four vertebræ, whilst those which are chiefly confined to the temperate seas of the northern and southern hemisphere have that number in-

* It is possible that the number of transverse rows of scales, and the longitudinal rows below the lateral line, given in my former description, may be too high, and is at least doubtful,—the scales having been mostly rubbed off, and only ascertainable through the scars left by them.

† Op. cit., 1862, pp. 408—418.

‡ Verslagen en Mededeelingen der Koninklijke Akademie von Wetenschappen, Amsterdam, vol. xiii. pp. 94—109.

creased in the abdominal and caudal portions." This generalization as applicable to the representatives of Acanthopterygian families generally, can be considered in connection with the predominance of the true Malacopterygian fishes in northern waters—fishes in which the increase in the number of vertebræ is a normal feature.

In the following list, no revised descriptions of the species are offered, as all have been since admitted. The object is chiefly to sustain the generic nomenclature formerly proposed. From this must be excepted the genera *Oxycheilinus* and *Crassilabrus* Swainson, which were based on false characters, the figures of the types having been defective. It is possible that those types are generically distinct, but their true characters require to be yet given. The name *Malacocentrus* must be also suppressed, Dr. Bleeker having slightly previously given to the same genus the name *Novaculichthys*. The distribution of the genera among subfamilies is admitted with much hesitation.

Subfamily CHÆROPINÆ (Gthr.)

Genus HARPE (Lacépède) Gill.

This genus was originally founded by Lacépède for the reception of the species since generally known as the *Cossyphus bodianus* C. V.; it was characterized by the dentition,—allusion being made to the presence of the enlarged teeth at the front of the jaws as well as behind, and the intervening small teeth erroneously described as compressed and triangular,—and by the falciform production of the dorsal, anal and ventral fins, as well as the extension of the outer rays of the caudal. To it was also erroneously attributed a compressed and triangular barbel on each side near the commissure of the lips, a mistake probably due to some defect in the drawing which afforded Lacépède his knowledge of the genus. It was only known through a design of the naturalist Plumier. As the genus and species are recognizable from the description of Lacépède, the name should have been retained for that group of which his species is the type, even if Cuvier's subsequent name *Cossyphus* had not been pre-occupied.

The genus *Cossyphus* as finally limited by Bleeker and Günther is scarcely natural as such, five according to the author's views being embraced in it. Günther, in his revised list, has admitted seventeen species, besides two as doubtful; these may be distributed among the genera, indicated in the analytical table given below.

The genus *Harpe* contains five known species,—*H. rufus* (= *Cossyphus bodianus* C. V.); *H. pulchellus* (C. p. Poey); *H. eclancheri* (G. ex Val.) and the two species of Lower California.

- | | |
|--|----------------|
| I. Posterior canine tooth developed. Scales 1. 1. 30—34
(—36). | |
| α. Dorsal and anal fins never produced into falciform lobes (old world). | |
| 1. Limbs of preoperculum scaly; head oblong, snout produced in front..... | Lepidaplois.* |
| 2. Limbs of preoperculum scaly; head high, snout decurved from forehead, and rather abbreviated..... | Euhypsocara.† |
| 3. Limbs of preoperculum naked; snout convex.... | Gymnopropoma.‡ |
| β. Dorsal and anal fins produced into very long falciform lobes in adult, (new world)..... | Harpe. |
| II. Posterior canine teeth obsolete. Scales of lateral line about 39..... | Achærodon.§ |

* Type, *Cossyphus axillaris* C. V.
† *Cossyphus bilunulatus* C. V.

‡ *Cossyphus anthioides* Gthr.
§ *Cossyphus Gouldii* Rich.

HARPE DIPLŒTÆNIA Gill.

Harpe diplotænia Gill, Proc. Acad. Nat. Sci. Phila., 1863, p. 140.
 Cossyphus diplotænia Gthr., Cat. iv. 110.

Hab.—Cape St. Lucas.

HARPE PECTORALIS Gill.

Harpe pectoralis Gill, Proc. Acad. Nat. Sci. Phila., 1863, p. 141.
 Cossyphus pectoralis Gthr., Cat. iv. p. 110.

Hab.—Cape St. Lucas.

Subfamily JULIDINÆ (Gthr.)*

Genus JULIS (Cuv.) Günther.

JULIS LUCASANA Gill.

Julis lucasana Gill, Proc. Acad. Nat. Sci. Phila., 1862, p. 142.

" " Günther, Cat. iv. p. 184.

Hab.—Cape St. Lucas.

Genus CHÆROJULIS Gill.

* CHÆROJULIS SEMICINCTUS Gill.

Synonymy.

Julis semicinctus Ayres, Proc. California Academy of Natural Sciences, pt. ii.
 p. 32.

Chærojulis sp. ? Gill, Proc. Academy of Natural Sciences of Philada., 1862.

PlatyGLOSSUS semicinctus Günther, Catalogue of the Fishes in the British
 Museum, vol. iv. p. 161.

Hab.—Lower California.

In implying that it was possible that Dr. Ayres might have committed an error in giving the number of dorsal spines of this species, I have done him injustice, since he assures me that he has found that number; although the dentition has not been noticed as to the presence of the angular tooth of the upper jaw, it is doubtless present, and the species probably belong to *Chærojulis*. The species is unknown to me through specimens.

Subfamily XYRICHTHYINÆ Gill.

This subfamily should, perhaps, be limited so as to retain only those types which have the lateral line interrupted. It would then embrace the following genera:

I. Scales rather large, thirty or less along lateral line.

A. Head with the upper edge trenchant.

a. Dorsal spine nine, the first two remote from the others,
 on or close behind the occiput and forming a more
 or less distinct portion.

1. Cheeks with small scales..... Novacula.

2. Cheeks naked†..... Iniistius.

β. Dorsal spines nine, all connected in a fin whose
 origin is nearly above the bases of the pectorals.

Cheek naked..... Xyrichthys.

B. Head above blunt.

1. Dorsal spines connected..... Novaculichthys.

2. First two dorsal spines more or less detached..... Dimalacocentrus.

II. Scales small (lateral line with about 80). Head blunt

on its upper edge..... Cymolutes.

* The *Julis modestus* Grd. of Upper California is the type of a new genus, which may be named *Oxyjulis*. Girard was correct in giving nine dorsal spines; in the one formerly noticed by me and which I caused to be figured, there were, however, only eight.

† Occasionally there are a few scales around the orbit.

The limits of those genera, it may not be unnecessary to remark, were intended to include the same species referred to Bleeker's genera, founded on the same types. XIRICHTHYS embracing *X. novacula*, Cuv., *X. argentimaculata* Steind., (Nov.) *Javanica* Blkr., *X. cyanifrons* C. V., *X. martinicensis* C. V., *X. uniocellata* C. V., *X. lineata* C. V. and *X. mundiceps* Gill. INIISTIUS includes only the *I. pavo*, *I. (Nov.) tetrazona* ex Blkr., *I. mundicorpus* Gill, *I. (Xir.) dea* ex T. S. and *I. (Nov.) aneitensis* ex Gthr. To NOVACULA are referrible the *N. pentadactyla*, *N. punctulata*, *N. Twistii*, *N. melanopus* and *N. spilonotus*, and probably *N. bimaculata* ex Rüpp. The genus *Iniistius* would not include the *Novaculichthys callosoma* of Bleeker, but at the same time I would not have included it in *Novaculichthys* as it differs not only in the notch between its two produced anterior rays and the third, but also in the still more anterior insertion of the ventral fins; it may be called *Dimalacocentrus callosoma*.

Genus XYRICHTHYS Cuvier, 1815.

Novacula Bleeker, 1862, (nec C. V.) Cuv. R. A. ii. p. 265, 1817.

The genus "*Xyrichthys*" was especially established upon the *Coryphæna novacula* of Linnæus, by Cuvier, in his Memoir on the Fishes of the Mediterranean.* The name must consequently be retained for the genus of which that is the type.

XYRICHTHYS MUNDICEPS Gill.

Xirichthys mundiceps Gill, Proc. Acad. Nat. Sci. Phila., 1862, p. 143.

Novacula mundiceps Günther, Cat. iv. p. 172.

Hab.—Cape St. Lucas.

Genus INIISTIUS Gill.

Xirichthys Bleeker (nec Cuv. 1815.)

The genus was first recognized by Dr. Bleeker, as now limited, slightly before it was named by the present author, but that gentleman has given to it a name which was originally applied to an allied genus for which it should apparently be retained.

INIISTIUS MUNDICORPUS Gill.

Iniistius mundicorpus Gill, Proc. Acad. Nat. Sci. Phila., 1862, p. 145.

Novacula mundicorpus Gthr., Cat. iv. p. 176.

Hab.—Cape St. Lucas.

Synopsis of the family of LEPTUROIDS, and Description of a remarkable new generic type.

BY THEODORE GILL.

My valued correspondent, M. Felipe Poey, of the University of Havana, in a recent transmission of specimens of natural history to the Smithsonian Institution, forwarded a most interesting fish belonging to the family of Lepturoids, and evidently most closely related to the genus *Lepidopus*. That gentleman, in a previous letter, had drawn my attention to it, and desired me to describe it. This request, so much in accordance with my own inclinations, is now responded to, and, at the same time, in order to illustrate its affinities and differential characters, the diagnoses of the previously known genera of *Lepturinae* and *Lepidopodinae* are submitted.

Family LEPTUROIDÆ Gill.

Synonymy.

Trichiurini Rafinesque, Indice d'Ittiologia Siciliana, p. 37, 1810.

* Memoires du Mus. d'Hist. Nat., i. pp. 324, 329, 1815.