

Out of forty-five species and varieties thirty-nine are common to the Aleutian chain and three of the remainder may probably turn up there in the future. Twenty-nine are common to Kamchatka, and six more are likely to reach that peninsula. Twenty-seven are Arctic species, all of which are common to the Aleutians, and, with one or two possible exceptions, to Kamchatka also. Seventeen species are common to North Japan, and fourteen to California, while only two are, for the time, taken as peculiar.

These figures show that the fauna of the Commander Islands, as far as known, is intimately related to the general Arctic fauna, and especially to the Aleutian fauna, somewhat less so to the Kamchatka fauna, but presents in itself nothing distinctive. While the faunal aspect of the mollusca is boreal, there is a number greater than might be expected of species common to Japan and California, of which the two Pholads are the most noteworthy, as they have not yet been indicated from the Aleutian Islands, though it seems hardly possible if found living at the one locality that they can be absent from the other.

The collection, though small, is valuable as closing a gap in our knowledge of the geographical distribution of the mollusca of the North Pacific, and the slight but still interesting confirmatory zoölogical evidence which it adds to the hydrographic determinations which have shown that the main current of the sea between Kamchatka and the Aleutian chain is a cold set of Arctic water southward, and that no perceptible warm northward tropical stream or branch of the Kuro Siwo can be traced zoölogically or hydrographically in this direction.

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#### NOTE ON THE STERNOPTYCHIDÆ.

By THEODORE GILL.

(See plate II, fig. 7.)

The genus *Sternoptyx* was established in 1781 by Hermann for a remarkable type of fishes which was taken for one of his families by A. Duméril, the first to recognize families in Ichthyology. The family was accepted or named over by several later naturalists. Dr. Günther, nevertheless, did not recognize any of his predecessors when he likewise proposed the name *Sternoptychidæ*, and simply referred to the synonymy of the family "Scopelini, part, Müll., Berl. Abhandl., 1844, p. 184." An important article on the family by Handyside has also been universally overlooked, even by Bleeker in his communications on the Fishes of Celebes,\* and by Dr. Günther the family is attributed to "pelagic or deep-sea fishes from the Mediterranean and Atlantic." An examination of specimens of the two typical genera *Sternoptyx* and *Argyropelcus* renders it evident that the type is of unusual interest, and hence I am led to make the present preliminary communication.

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\* The new species *S. celebes* was described.

The family should be limited to the genera *Sternoptyx* and *Argyropelecus*, constituting the subfamily *Sternoptychina* of Günther. The *Chauliodontina* form a neighboring family, and the *Cocciina* are but distantly related. The *Sternoptychidæ*, thus restricted, exhibit a number of peculiarities and noteworthy characteristics. The most striking, in some respects, is the mode of articulation of the scapular arches. These are connected with and impinge on the occiput behind and on each other, and are otherwise free from the cranium. Mr. J. A. Ryder, to whom I communicated this observation, informed me that he had noticed the same peculiarity in *Cyclothone*. This near relation and possible congener of *Gonostoma*, and apparently member of the family *Chauliodontidæ*, is thus shown to be allied to the *Sternoptychidæ*. The peculiarity in question seems to entitle the fishes exhibiting it to be isolated from the others, and the name *Iniomi*\* may be used for the group.

By Dr. Günther, and various others following him, the *Sternoptychidæ* are said to have "a rudimentary spinous dorsal fin." This statement is the result of a misapprehension or misinterpretation of morphological facts. There is nothing like a true "rudimentary spinous dorsal fin." To call the projection of a neural spine or the result of "several neural spines being prolonged beyond the muscles" a *fin* is to exhibit or convey a gross misconception of the morphology of fishes.

## STERNOPTYCHIDÆ.

### FAMILY SYNONYMS.

- =*Sternoptyges*, *Duméril*, Zoologie Analytique, p. 150, 1806.
- =*Sternottidi*, *Rafinesque*, Caratteri di alc. nuovi gen. e n. sp. d'Animali, etc., di Sicilia, 53 ord., 1810.
- <*Pomanchia*, *Rafinesque*, Analyse de la Nature, 25 fam., 1815.
- =*Sternoptixinae*, *Handyside*, Edinburgh New Phil. Journ., v. 27, p. 326, 1839.
- =*Sternoptygoidei*, *Bleeker*, Enum. Sp. Piscium Archipel. Indico, p. xxxii, 1859.
- <*Sternoptychidæ*, *Günther*, Cat. Fishes in Brit. Mus., v. 5, p. 383, 1864.
- =*Sternoptychidæ*, *Gill*, Arrangement Fam. of Fishes, p. 15, 1872.
- =*Argyropeleci*, *Fitzinger*, Sitzungsber. k. Akad. der Wissensch. (Wien), v. 67, 1 Abth., p. 33, 1873.
- <*Sternoptychidæ*, *Jordan and Gilbert*, Syn. Fishes, N. Am., p. 283, 1882.

### SUBFAMILY SYNONYMS.

- <*Sternoptygia*, *Rafinesque*, Analyse de la Nature, l. s. fam. of 25 fam., 1815.
- =*Sternoptygini*, *Bonaparte*, Fauna Italica, Pesci, fols. 119, 121, 1840.
- =*Sternoptygini*, *Bonaparte*, Consp. Syst. Ichthyologiæ, 1850.
- =*Sternoptychina*, *Günther*, Cat. Fishes in Brit. Mus., v. 5, p. 384, 1864.
- Salmonoides* gen., *Cuvier*.
- Salmonides* gen., *Latreille*.
- Salmonidæ* *Salmoninæ* gen., *Swainson* (ii, 291).
- Scopelidæ* s. fam., *Bonaparte*.
- Scopelidæ* gen., *Adams*.
- Scopelini* gen., *Müller*.
- Characines* gen. dub., *Duméril*.

*Iniomes* with a compressed ventradiform† body, carinated contour,

\* *Ἰνίον* (gen. *ἰνίου*), nape and ὤμος, shoulder.

† Ventradiform, a form projecting in the ventral or preanal region.

deeply and obliquely cleft or subvertical mouth, whose upper margin is constituted by the supra-maxillaries as well as inter-maxillaries, branchiostegal arch near and parallel with lower jaw, scapular arch with an inferior projection, and with one or more of the neural spines abnormally developed and projecting above the back in advance of the dorsal fin.

The two genera of the family are so distinct that their relations in a general system may be expressed with apparent propriety under special subfamily names.

#### STERNOPTYCHINÆ.

Sternoptychids with the abdominal outline nearly continuous in a sigmoid curve, a single produced spike-like neural spine in front of the dorsal fin, and about five branchiostegal rays.

The skeleton of *Sternoptyx diaphanus* is represented on plate II, fig. 7.

#### ARGYROPELECINÆ.

Sternoptychids with the abdominal outline abruptly contracted in advance of the anal fin, several produced neural spines constituting a serriform ridge in advance of the dorsal fin, and about nine branchiostegal rays.

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### THE OSTEOLOGICAL CHARACTERISTICS OF THE LUTJANINÆ.

By THEODORE GILL.

The subfamily Lutjaninæ contains a number of fishes, representing in the American waters seven genera, which manifest considerable diversity in structural characteristics, but which nevertheless have many features in common. The group appears, on the whole, to be homogeneous, although it may be advisable hereafter to dissever its constituents into two subfamilies. All are, however, distinguished from the typical Sparidæ by the absence of distinct tubercles from the cranium for articulation with the epipharyngeal bones, the development of enlarged apophyses for articulation with the palatine and preorbital bones, and the atrophy of parapophyses of the anterior vertebræ. The parapophyses may be said to be absolutely wanting to the anterior four vertebræ and but faintly developed on the fifth and sixth, or even seventh, while the ribs are inserted in sockets or pits in the bodies of all six, creeping higher and higher upwards as they approach the cranium, and fitting into pits at the bases of the neuropophyses of the second and first (and, it may be, the third) vertebræ. Such are the characters common even to the extremes, and the differences between them are slight and only of degree. Further, all the genera have the form and articulations of the maxillary bones characteristic of the Pristipomids, Serranids and related types, and unlike those of the Sparids.