

Genus *SICYGASTER* Gill.

Corpus alepidotum, antice subcylindricum, inde versus caudam lente attenuatum.

Caput oblongum depressum, altiore latius, antice rotundatum. Oculi in parte subanteriori positi. Os mediocre, horizontaliter fissum.

Dentes in maxilla utraque serie regulare unica dispositi; dentes circa maxillæ superioris partem anteriorem approximata, apicibus lateraliter dilatatis, tricuspidatis, cuspa mediana majore, subrotundata; dentes laterales pauciores, remotiores, simplices, subcylindrici et paulo recurvati. Dentes maxillæ inferioris partis anterioris subcylindrici recurvatique, remoti. Dentes labiales tenuissimi adsunt.

Pinnæ dorsales duæ, prima radii valde flexibilibus; pinna caudalis margine rotundata; pinnae ventrales postice bene conjunctæ, antice funiculo musculari spinas connectente et membranæ marginem formante præditæ.

Hoc genus a *Sicydio* Val., valde differt corpore omnino alepidoto, dentibus trilobatis crassis in maxillæ superioris parte anteriore et dentibus maxillæ inferioris subæqualibus.

Eo referenda est unica species.

*Sicygaster concolor* Gill.

Caput longitudinis totius partem quintam formans, altitudine sui longitudinis dimidiam superante. Maxilla superior circiter dentibus tricuspidatis sexdecim et latere utroque circiter dentibus simplicibus quatuor vel quinque armata; maxilla inferior circiter dentibus simplicibus remotis decem prædita.

D vi, 11; A 10; C +15+; P 15 V i, 5 +5 i.

Color subpurpureus; pinnæ analis et ventrales submargaritaceæ, analis purpureo marginata.

Habitat cum *Sicydio Stimpsoni* in aquæ dulcis rivulis saxi adhærens.

In specimine unico in collectione, labium inferior dentes graciles paucos habet.

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 Monograph of the Genus *LABROSOMUS* Sw.

BY THEO. GILL.

In the genus *Clinus* as proposed by Cuvier, and even as revised by Valenciennes, there are dissimilar types which yet remain to be named and elevated to the rank of genera. Among the species of this group, described by the latter naturalist in the eleventh volume of the "Histoire Naturelle des Poissons," there are several species which are distinguished by the presence of superciliary tentacles, and of a transverse pectiniform series of filaments on the nape. Those fishes provided with such appendages, have at the same time a much less inequality between the spinous and soft portions of the dorsal than the typical *Clini*, and the teeth in the outer row are much stronger. They would therefore be correctly referred to a genus which is quite distinct from *Clinus*. For this genus, the name *Labrosomus*, first proposed by Swainson, must be adopted, but the characters given by that author to it are not the proper generic ones, and the greater number of the species referred to it are not congeneric with its type.

The name of *Labrosomus* (or *Labrisomus*) was first published in 1839, in the second volume of the "Natural History of Fishes, Amphibians and Reptiles." At the seventy-fifth page of that volume, Swainson has divided the Cuvieran genus *Clinus* into five genera: *Clinus*, of which the *Clinus acuminatus* Cuv., is taken as the type; *Labrisomus* with *Clinus pectinifer* Val., as type; *Tripterygion* Risso, *Clinitrachus* Reese, which is typified by *Blennius*

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variabilis of *Rafinesque*, and *Blennophis*,\* of which the *Clinus anguillaris* Val., is the only true species. Of these genera, *Clinus* Sw., and *Clinitrachus* Sw., are distinguished by false or illusive characters, and cannot be regarded as distinct. The others are valid, but their characters require revision.

The only claim to distinction of the genus *Labrosomus* given by Swainson, are founded on the strong, conic and pointed row of front teeth, behind which are villiform ones; a thicker body than in *Clinus*, and the "dorsal fin distinctly emarginate towards the caudal." The genus resting on these characters alone is composed of very incongruous elements. To it are referred, at page 277 of the second volume, the following species, all of which are described as species of *Clinus* by Valenciennes: *Labrosomus gobio*, *L. pectinifer*, *L. capillatus*, *L. Delalandii*, *L. linearis*, *L. variolosus*, *L. Peruvianus*, *L. microcirrhis*, *L. ? geniguttatus*, *L. elegans*, *L. ? littoreus* and *L. latipinnis*.

Of these species, not more than three can, with propriety, be regarded as congeners, if the *Labrosomus pectinifer* is taken as the type. These are *Labrosomus pectinifer*, *L. capillatus* and perhaps *L. Delalandii*. The latter is more probably the representative of a distinct genus.

That genus is distinguished from *Labrosomus* by the smaller mouth, the presence of only two rays to the ventral fins, and perhaps by the undulating margin of the spinous portion of the dorsal fin. It may be named *Malacoctenus*, in illusion to the pectiniform row of filaments. This genus is the nearest ally of *Labrosomus*. All the others are very distinct.

*Labrisomus gobio* Sw., is the type of quite a distinct genus, whose characters consist of a broad, depressed head, with a very short muzzle, large approximated eyes, superciliary and nasal tentacles, two ventral rays and a comparatively short spinous dorsal. The genus may be called *Gobioclinus*. The only species *Gobioclinus gobio* is found in the West Indies, and has but eighteen dorsal spines.

*Labrisomus linearis* Sw., is synonymous with *Clinus brachycephalus* Val. This also is the type of a distinct genus distinguished by its abbreviated and blenniform head, the profile being very convex; by the villiform teeth, the absence of superciliary tentacles, the spinous portion of the dorsal long, and the presence of only two rays to the ventral fins. The name of *Blennioclinus* is conferred on it; for the species, the specific name of Valenciennes must be retained.

*Labrisomus variolosus* is distinguished by a large thick head, with lateral eyes, short superciliary tentacles and a small nuchal one. The mouth is large; the teeth of the jaws in an outer row strong and conical, behind which are villiform ones; those of the vomer and palate villiform and in three patches, one on the vomer and one on each palatine bone. The spinous portion of the dorsal is long, and the ventrals have each three rays. The species thus characterized is the type of a new genus which may be named *Anchenionchus*.

*Labrisomus microcirrhis*, *L. elegans* and *L. Peruvianus* are nearly related to *Anchenionchus*, and are from the same zoological province.

*Labrosomus ? geniguttatus* is distinguished from *Anchenionchus* by the more approximated eyes, and by the disposition of the vomero-palatine teeth, as well as the small size of the anterior row of maxillary teeth. The dorsal is moderately long, and each of the ventrals have three rays. The mouth is comparatively small, and there are superciliary, nasal and nuchal tentacles. For this species, the generic name of *Calliclinus* is proposed.

\* Valenciennes has since given the name of *Blennophis* to a very distinct genus from that to which Swainson applied the names. As Swainson's genus is a natural one, another name must be substituted for that of Valenciennes—*Ophioblennius* is therefore proposed.

*Labrisomus ? littoreus* may possibly belong to the genus *Acanthoclinus* of Jenyns, but it is only known from a drawing and description.

*Labrisomus latipinnis* is related to *Blennioclinus*, but is distinguished from the species of that genus by the presence of superciliary tentacles. The generic name of *Ophthalmolophus* may be retained for it.

If the above views of the limits of the *Labrosomus* are correct, only two of the species assigned by Swainson to the genus truly belong to it. Of the remaining species, nearly each one belongs to a genus distinct from the others. The affinities and characters of the genera above indicated will be more fully exposed at another time.

About three years after the publication of the work of Swainson, the same species that served as the type of the genus of that naturalist, was described by Dr. Dekay, in the ichthyological part of his "Zoology of New York, or the New York Fauna," as the representative of a new genus of Percoids, under the name of *Lepisoma*. That the genus *Lepisoma* is identical with the *Labrisomus* of Swainson, no one can entertain a doubt after a perusal of the generic and specific description of Dekay.

Dr. Dekay has given the characters of his genus *Lepisoma*, as follows :

"Body and fins scaly. Fleishy filaments along the basal line of the head and on the orbits. A single dorsal fin. Branchial rays six. Teeth in the jaws vomer and palatines. Ventrals before the pectorals."

Dekay in his remarks, states "that it is with much hesitation that he places this genus at the end of the jugular section of this family (Percidæ). In its general aspect, it might readily be referred to the families Scienidæ or Labridæ; but the presence of vomerine and palatine teeth excludes it from them."

The amiable naturalist was much mistaken in regard to the affinities of the genus, as must be perceptible from his descriptions. Even in his brief generic diagnosis, the ichthyologist is surprised by the peculiarity described by the second sentence; "*fleshy filaments along the base of the head and on the orbits.*" This character is so peculiar, so much at variance with the compact character, if I may so express myself, of the head in the family of Percoids, that it might well cause the naturalist to doubt if a fish with such appendages can really belong to the family of Percoids. On a careful examination of the specific description, the characters are found to disagree more and more with the natural ones of the family to which Dekay has referred it.

The scales are described as being "moderate, rounded, finely striate on their free surfaces, with a smooth membranous margin." The head is "corrugated and destitute of scales. Along the basal line of the head, on each side, are nine or ten fleshy processes, ending in bifid or trifid filaments," &c. "Another fleshy process arises from beneath the upper margin of the orbit, which subdivides into six or eight smaller processes," &c. The anterior nostril has a "fleshy valve, through which is pierced the nasal aperture; its posterior border elongated and terminating in six or eight filaments." The opercle and preopercle are rounded and smooth on their margins."

All of the attributes of the species underlined in the foregoing abstract are more or less at variance with the characters of Percoid fishes, even as the family was accepted by Dr. Dekay; the doubt of the reader is still more increased when he finds it stated that the "*branchial membrane (is) large, extending loosely around the throat, with six rays, and that the ventrals arise near the inferior fold of the branchial membrane, and are composed of two long articulated rays and a short rudimentary one on each side.*"

This condition of the branchial membrane, this number of ventral rays are so different from the characters of the true Percoids, that one can have no hesitation in denying a fish with such attributes a place in the family. As in all those as well as in minor details, it agrees with *Labrosomus*, it is unhesitatingly referred to that genus.

The genus *Lepisoma* has been adopted by the following authors, but it is necessary to add, entirely on the authority of Dr. Dekay.

Troschel has translated into German the characters of the genus for the "Archiv für Naturgeschichte" of 1844, page 233. He has questioned the presence of three ventral rays.

Dr. Storer, in his "Synopsis of the Fishes of North America," has adopted it without qualification.

Sir John Richardson, in the article "Ichthyology" of the last edition of the "Encyclopædia Britannica," at page 277 of the twelfth volume, has taken the characters of the genus from the "Archiv," and on account of the presence of six branchiostegal rays, places it, together with *Boleosoma* and *Pileoma*, at the end of his family of *Theraponidae*, but adds that he "cannot, without more data, fix their proper place in the system."

No notice has been taken of the genus *Labrosomus*, except in a reference of *Lepisoma cirrhosum* Dekay to it, in a recent number of the Proceedings of the Academy of Natural Sciences. That this is entitled to distinction appears to be evident, and its characters are now given.

LABROSOMUS Sw., emend.

*Synonymy.*

*Labrisomus* Sw., Nat. Hist., Fishes, Amphibians and Reptiles, vol. ii. pp. 75, 182, 277, 1839.

*Lepisoma* Dekay, Zoology of New York, Fishes, p. 11, 1842.

*Blennius* sp. auct.

*Clinus* sp. auct.

Body oblong, highest at the pectoral fins, thence attenuated towards the caudal. Scales moderate, covering the body and encroaching upon the vertical fins. Head compressed, naked, declining from the nape with a slight curve. Eyes large, separated by a narrow interval. Superciliary tentacles multifold, and one or two transverse rows of filaments across the nape. Nostrils approximated; the anterior ones with a tufted barbel on the posterior border. Teeth in the anterior row stout, recurved, conic and pointed, behind which is a band of villiform teeth. Vomerine and palatine teeth stout and conic, generally in a single row. Dorsal fin commencing near the nape; the spinous portion long, and with from sixteen to eighteen rays, slowly decreasing in height to the soft portion; the latter oblong, with its rays subequal and higher than the spinous portions. Caudal fin moderate, truncate or rounded, and disconnected from the dorsal and anal fins. Ventral fins jugular, closely approximated, each composed of three rays.

1. *Labrosomus pectinifer* Sw.

*Synonymy.*

*Clinus pectinifer* Val., Hist. Nat. des Poissons, vol. xi. p. 374, 1836.

*Labrisomus pectinifer* Sw., Nat. Hist., Fishes, Amphibians and Reptiles, vol. ii, p. 277, 1839.

*Lepisoma cirrhosum* Dekay, Zoology of New York, Fishes, p. 41, pl. 30, fig. 94, 1842.

*Lepisoma cirrhosum* Storer, Synopsis of Fishes of North America, p. 49, ib. in Memoirs American Academy, 1856.

*Clinus pectinifer* Müll. and Troschel con Schomburgh Annals and Magazine Nat. Hist., 2d ser. vol. ii, p. 16; ib. in Schomburgh's Barbados.

*Clinus pectinifer* Castlenau, Animaux nouveaux ou rares recueilles &c., dans l'Amerique du sud. Poissons, p. 26, 1855.

*Labrosomus pectinifer* Gill, Proc. Acad. Nat. Sci. Phila., 1860, p. 21.

There can scarcely remain a doubt of the identity of the *Lepisoma cirrhosum* of Dr. Dekay with the *Labrosomus pectinifer*. The only difference between the description of Dekay and that of Valenciennes, is respecting the 1860.]

orbital and nuchal filaments. The orbital filaments are stated by Dr. Dekay to "subdivide into six or eight smaller processes, each of which terminate in several slender filaments, not thicker than the finest thread;" Valenciennes describes them as divided to their base in ten or twelve slender filaments. Dr. Dekay informs us that the nuchal filaments are nine or ten on each side, each bifid or trifid; Valenciennes describes them as being arranged in two pectiniform rows, each row consisting of thirty or more.

Another variation of *Lepisoma cirrhosum* from *Labrosomus pectinifer* is concerning the vomero-palatine dentition; Dekay mentions that "in the upper jaw, in front, is a series of equal, conical, slightly recurved teeth, somewhat longer than those below, smaller on the sides; behind the outer row, in front, is a patch of minute crowded teeth. Similar teeth in bands on the vomer and palates. On the anterior part of the vomer is a very large solitary tooth." This description of the vomerine and palatine teeth is ambiguous, and may be variously interpreted. If by it is meant that the vomero-palatine teeth are in several rows, or in a villiform band, it widely disagrees with the *Labrosomus pectinifer*. In the latter species there is but one row of stout conic teeth, like those of the outer row of the upper jaw, with "a very large solitary tooth on the anterior part of the vomer." A figure is given of the dentition of the *Lepisoma cirrhosum*, but very little reliance can be placed on it. The vomerine and palatine teeth are certainly represented as pluriserial, but there is no "very large solitary tooth" represented on the vomer. A doubt may therefore arise respecting the propriety of referring *Lepisoma cirrhosum* to *Labrosomus pectinifer*. Considering, however, that the description of the former, in all respects except those above mentioned, agrees with the latter; that the number of rays is almost exactly similar; that in each, a larger tooth is at the front of the vomer, and that the description and figure of the dentition of *Lepisoma cirrhosum* do not agree with each other; it appears almost certain that the two belong to the same species, and that error has entered into the description and illustration of the species as well as in the allocation of the genus.

The *Labrosomus pectinifer* is widely distributed through the Caribbean Sea, and is found at the Islands of Barbados, Trinidad, St. Thomas, Jamaica, Cuba, as well as at the Bahama Islands and on the coast of Florida.

The specimens from which Valenciennes described the species were obtained at Brazil and at Bahia. A specimen from Brazil does not specifically differ from West Indian ones.

Valenciennes even observes that it is one of the small number of species that cross the Atlantic ocean. A specimen is stated by him to have been obtained by Adanson among the rocks of the Island of Gorea, in January, 1750.

## 2. *Labrosomus fasciatus* Gill.

*Clinus fasciatus* Castelnau, Animaux nouveaux ou rares recueilles, &c., dans l'Amerique du sud. Poissons, p. 23, pl. xii. fig. 2, 1855.

This species is very closely related to the *Labrosomus pectinifer* Sw., and it was at first believed that it was probably only a variety. My friend, J. C. Brevoort, Esq., has since sent me an outline of the figure of Castelnau and a copy of his description, and I am now disposed to regard it as a true species.

The *Labrosomus pectinifer* is sometimes found with four dark brown vertical bars, between which are smaller and more obscure ones, interrupted at the middle. Such appears to have been the variety mentioned by Drs. Müller and Troschel in their list of the Fishes collected by Sir Robert Schomburgk at the island of Barbados, and published in the "Annals and Magazine of Natural History" and the History of Barbados. This variety, in every other respect, resembles typical individuals of the species, and has, like them, the rays of the caudal and pectoral fins covered with five or six rows of spots.

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In the normal variety of the *Labrosomus pectinifer*, the bands, although present, are faint and confused.

The *Labrosomus fasciatus*, from the figure and description of Castlenau, appears to differ from the *L. pectinifer* or its variety, by the absence of the intermediate, interrupted and fainter bands, and of the rows of spots on the caudal, by the red color of the abdomen and opercula, and of the ventral, pectoral and caudal fins, as well as of the broad marginal band of the soft portion of the dorsal fin. The following is the description given by Castlenau :

“Ressemble pour la forme au *pectinifer*, et a une tache semblable à l'opercule. Le corps est d'un brun clair avec quatre, larges bandes transversales d'un brun très obscur ; l'opercule, la gorge, la partie inférieure de la tête et la moitié antérieure des dessous du corps sont d'un beau rouge vif ; les nageoires anale et ventrale sont de cette même couleur.

“De Rio Janeiro.”

### 3. *Labrosomus capillatus* Sw.

#### *Synonymy.*

*Clinus capillatus* Val., Hist. Nat. des Poissons, vol. xi. p. 377.

*Labrisomus capillatus* Sw., Nat. Hist. Fishes, Amphibians and Reptiles, vol. ii. p. 277.

*Clinus capillatus* Müll. and Trosch., con Schomburgh, Annals and Mag. of Nat. Hist. 2d ser. vol. ii. p. 16 ; ib. in Schomburgh's Barbados.

The *Labrosomus capillatus* is recorded as an inhabitant of the same coasts as the *L. pectinifer*. It is very nearly allied to the latter, but differs from it by the immaculate pectoral fins, and the spot on the operculum is bordered with white.

### 4. *Labrosomus Xanti* Gill.

This species in form and proportions is very nearly allied to *Labrosomus pectinifer*.

It attains a length of about six inches. Of the length, the head, from the front row of teeth to the margin of the operculum forms a fourth part, and the caudal fin about a seventh. The greatest height is rather less than the head's length. The dorsal outline from the nape to the posterior third of the dorsal fin is nearly straight and scarcely convex, and thence gradually declines in a slight curve to the end of the fin, when the height of the caudal peduncle is scarcely more than a fourth of the length of the head.

The profile from the eyes to the snout slopes more gradually than in *Labrosomus pectinifer*, and the suborbital is less broad.

The dorsal commences behind the vertical of the preopercle, and the spines regularly increase in height towards the middle of the spinous portion, and thence slightly decrease towards the soft portion, which is almost twice as high as the last spine.

The pectoral fins are produced at its middle rays, and their length is equal to nearly a fifth of that of the body. The articulated rays of all the fins are simple and unbranched as in its congener.

D xviii. + 13 ; A iii. 18 ; C 7 + 7 ; P 14 ; V 3.

The color of the body is brown, crossed by about ten darker bands. The head is dotted with blackish, and from the posterior and inferior borders of the eye, two bands proceed obliquely to the margin of the preopercle. The opercle is darker than the preopercle, but there is no black spot. The dorsal has the basal portion of the membrane between the first and third spines blackish ; the rest of the membrane is tinged with purple, but immaculate. The basal half of the fin is covered with scales as in *Labrosomus pectinifer*. The anal fin is crossed by six oblique purplish bands. The caudal, pectorals and ventrals are immaculate.

1860.]

This species is very nearly allied to the West Indian *Labrosomus pectinifer* and *L. capillatus* Sw., but differs from them in color and some minor details of form. The median tooth of the front of the vomer, which is so large in the *Labrosomus pectinifer*, is of the same size as the others in the *Labrosomus xanti*.

Old and young specimens were obtained by Mr. J. Xantus under rocks on Cerro Blanco. They are numbered 2334, 2335 and 2478 in the collection of the Smithsonian Institution.

I have dedicated this species to Mr. Xantus as a slight testimony to his worth and abilities: while engaged in his duties on the coast survey, and with many obstacles to contend against, on account of the present condition of affairs in Mexico, he has obtained a collection of terrestrial and marine animals, which is rich in new forms, and all the species of which are in the highest state of preservation.

#### 5. *Labrosomus Herminieri* Gill.

##### *Synonymy.*

*Blennius Herminieri* Lesueur, Journ. Acad. Nat. Sci. Pa., vol. iv. p. 361, 1825.

*Clinus Herminieri* Val., Hist. Nat. des Poissons, vol. xi. p.

This species appears to be nearly related to the other species of the genus, but is distinguished by the presence of only sixteen spines in the dorsal fin, and by a different pattern of coloration. The dorsal fin anteriorly has an elongate black spot. "The cheeks and head are rufous brown, vermicular with little blackish lines, which form an irregular kind of close net work."

The radial formula is as follows:

D 16, 11; A 20; P 16; V 3; C 14.

Specimens were taken at the West Indian Island of St. Bartholomews, in cavities of madreporic rocks, in the month of June, 1816, by C. A. Lesueur. It has not since been re-discovered.

#### Monograph of the Genus *LABRAX*, of Cuvier.

BY THEO. GILL.

There is found, in the Mediterranean sea, a fish which has, from the earliest times, attracted the attention of the inhabitants of the neighboring coasts from the abundance in which it is found and the size to which it attains. By the Ancients, as at the present day, it was much esteemed as an article of food, and was called by the Greeks *Λαβραξ* and by the Romans, *Lupus*. Of this fish, Cuvier has said that its appearance and almost all the details of its form recall to mind the *perch*, and that a just idea would be given of it by describing it as a "large, elongated and silvery perch."

From the *Perches*, however, it differs in several characters, which induced Cuvier to separate it generically, and for the name of the genus, he adopted the Greek designation of the species. The characters by which Cuvier distinguished it from the *Perches* were the presence of teeth on the tongue and of two spines to the operculum. It differs also from the true *Perches* in the armature of some of its bones, and by the shorter spinous dorsal fin, whose rays, in the European and allied American species, do not exceed the number of nine.

Though Cuvier was the first to properly distinguish the genus, its type had been long previously placed by Klein as the first of two species which he placed in a group, for which he used the same name of *Labrax*.

In the second and third volumes of the great "Histoire Naturelle des Poissons," Cuvier and Valenciennes have referred to the genus *Labrax* seven species, six of which are described in the former volume.

Of these, the *Labrax lupus* is the type of the genus, and is distinguished by

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