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A LIST OF THE LANCELETS OF THE WORLD WITH
DIAGNOSES OF FIVE NEW SPECIES OF
BRANCHIOSTOMA

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I

In the present paper there are given the results of a taxonomic study of the lancelets (Amphioxii) contained in the collections of the United States National Museum, Stanford University, the Field Museum of Natural History, and the Museum of Zoology of the University of Michigan. A fine series from Bermuda has been generously placed at the writer's disposal by Professor W. J. Crozier, now of Rutgers College.

The writer has studied critically only those lancelets belonging to the genus Branchiostoma. During the course of the examination of the species of this genus he has found a number of characters to be quite as valuable in specific analysis as is the myotome formula, hitherto chiefly relied upon. The

more complete comparisons thus made possible necessitate almost doubling the number of species of Branchiostoma. Four of the five new forms described, inhabiting the Western Atlantic, have heretofore been confounded with *Branchiostoma caribaeum* or *B. lanceolatum*.

II

This survey of the lancelets has indicated that the lancelets are about as localized in their distribution as are the species of littoral teleosts. This statement may be illustrated by a geographical tabulation of the species of Branchiostoma, to which unusually wide ranges have frequently been attributed. This genus is chosen because it has been most critically studied; the species of the other genera of the lancelets are likewise of localized distribution.

Table indicating the distribution of the known species of Branchiostoma

| SPECIES | REGIONS INHABITED |
|---------------------------------|-------------------------------|
| <i>B. lanceolatum</i> Pallas | European and Indian(?) |
| <i>B. belcheri</i> Gray | Indo-asiatic |
| <i>B. caribaeum</i> Sundevall | Antillean |
| <i>B. floridae</i> Hubbs | Floridan |
| <i>B. virginiae</i> Hubbs | Carolinan |
| <i>B. bermudae</i> Hubbs | Bermudan |
| <i>B. platae</i> Hubbs | Patagonian |
| <i>B. californiense</i> Andrews | Californian and Panamaic |
| <i>B. tattersalli</i> Hubbs | Indian |
| <i>B. capense</i> Gilchrist | Cape |
| <i>B. elongatum</i> Sundevall | Chilean, Peruvian, Galapagoan |

The genus Branchiostoma is known from nearly all tropical and temperate seas; Dolicharhamphus is Indian (one species known); the unsymmetrical lancelets, Epigonichthys and Asymmetron, are chiefly Indo-australasian in distribution, but Asymmetron occurs also in the western Atlantic.

III

In the construction of the following key to the families and genera of the lancelets use has been made only of the more obviously significant and better confirmed characters recorded by various students of these primitive chordate animals. The classification expressed in this key is intended to indicate, as exactly as possible, the interrelationships of the groups.

Key to the families and genera of lancelets

- a¹. Mouth a sinistral slit devoid of oral cirri; no closed atrial chamber; gill-slits in an unpaired medioventral series; pharynx divided into an upper *pars nutritoria* and a ventral *pars respiratoria* (Amphioxidae)1. Amphioxides¹
- a². Mouth nearly median, with oral cirri; a closed atrial chamber; gill-slits paired and lateral; pharynx undivided.
 - b¹. Gonad pouches developed on both epipleura; metapleura of each side terminating just behind atriopore (Branchiostomatidae).
 - c¹. No long rostral process.....2. Branchiostoma
 - c². A long process, containing the anterior end of the notochord3. Dolichorhamphus
 - b². Gonad pouches developed only on right epipleur; right metapleur confluent with preanal fin (Epigonichthyidae).
 - d¹. No urostyloid process; oral cirri comprising a single series, united one to the other by a uniformly low intertentacular membrane4. Epigonichthys
 - d². A long urostyloid process; oral cirri comprising a lateral group united by low membranes, and a ventral group joined by a very high membrane.....5. Asymmetron

Subphylum CEPHALOCHORDA

Class LEPTOCARDII

Order AMPHIOXI

Family AMPHIOXIDIDAE Gill

Abundant evidence that the species referred to this group are merely larval forms of other lancelets, perhaps Asym-

¹The species which have been placed in this genus and family are probably larval forms of other lancelets (see following list).

metron, has been given by Gibson (1910).² As the three described species cannot, however, at present be satisfactorily placed elsewhere in the system, they may provisionally be retained in the following nominal genus.

Genus 1. *Amphioxides* Gill

Amphioxides Gill (1895); Jordan and Evermann (1903); Goldschmidt (1905; 1906).

Genotype.—*Branchiostoma pelagicum* Günther.

1. *Amphioxides pelagicus* Günther

Branchiostoma pelagicum Günther (1889); Kirkaldy (1895); (?) Cooper (1903); Tattersall (1903); Herdman (1904); Lönnberg (1905).

Amphioxides pelagicus Gill (1895); Jordan and Evermann (1903); Parker (1904); Goldschmidt (1905).

2. *Amphioxides valdiviae* Goldschmidt

Amphioxides valdiviae Goldschmidt (1905).

3. *Amphioxides sternurus* Goldschmidt

Amphioxides stenurus Goldschmidt (1905).

Family BRANCHIOSTOMATIDÆ Bonaparte

This family is here restricted to include only *Branchiostoma* and the closely related genus *Dolichorhamphus*.

Genus 2. *Branchiostoma* Costa

Branchiostoma Costa (1834) and most systematists.

Genotype.—*Branchiostoma lubricum* Costa.

Amphioxus Yarrell (1836) and morphologists in general.

Genotype.—*Limax lanceolatus* Pallas.

² References in this list are not given in full. They can be readily located with the help of Dean's Bibliography of Fishes or the Zoological Record.

Most morphological writers have retained the name *Amphioxus* either for all lancelets or for the typical genus, despite the universally accepted fact that *Amphioxus* is a strict homonym of *Branchiostoma*. Similarly, among those who have accepted the name *Branchiostoma* in the generic sense, some have persisted in using the name *Amphioxus* for the typical subgenus of *Branchiostoma*, in violation of a nomenclatural practice which is thus prescribed by the International Code: "If a genus is divided into subgenera, the name of the typical subgenus must be the same as the name of the genus." The present writer is of the opinion that the name *Amphioxus* should be adopted for the typical lancelets, and would welcome a decision of the International Commission which would render this name available.

Diagnosis of the Atlantic and eastern Pacific species are given below, as well as notes on all the species.

4. *Branchiostoma lanceolatum* Pallas

Limax lanceolatus Pallas (1776).

Branchiostoma lubricum Costa (1834, 1843).

Amphioxus lanceolatus Yarrell (1836); Lankaster (1889); Kirkaldy (1895); Lönnberg (1904), and most other authors.

Branchiostoma lanceolatum Gray (1851); Andrews (1893); Smitt (1895), etc.

(?) *Branchiostoma lanceolatum* Tattersall (1903).

All references to lancelets under the names just listed, from localities other than Europe, with the doubtful exception of that of Tattersall, obviously refer to other species.

Diagnosis:—For comparison with the diagnoses of the several Atlantic American species of *Branchiostoma* here distinguished, a brief characterization of the European lancelet is made. Ray-chambers (in material from Naples) in moderate numbers in the dorsal fin (224 to 256 in nine specimens; average 236), but in high numbers in the preanal fin (35 to 47 in

eight specimens; average 42). Highest dorsal ray-chambers, in each individual, only one to two times as high as long; dorsal fin about one-eighth as high as body. Anus located well in advance of middle of lower lobe of caudal fin; distance from atriopore to origin of lower caudal lobe exceeding the distance thence to end of tail. Pre-atrioporal length of body 2.0 to 2.6 (usually 2.3) times as great as the postatrioporal length. Myotome formula: 34 to 38+12 to 16+10 to 13=58 to 64. Gonad pouches 21 to 29 (Kirkaldy). Maximum length, 5.8 cm. (Kirkaldy).

5. *Branchiostoma belcheri* Gray

Amphioxus belcheri Gray (1847); Kirkaldy (1895).

Branchiostoma belcheri Gray (1851); Andrews (1893); Willey (1894); Herdman (1904); Lönnberg (1904); Jordan, Tanaka and Snyder (1913).

Branchiostoma, sp. Andrews (1895).

Amphioxus, sp. Nakagawa (1897).

Amphioxus belcheri japonicus Willey (1897).

Branchiostoma nakagawae Jordan and Snyder (1901).

Branchiostoma lanceolatum belcheri Tattersall (1903).

Amphioxus japonicus Lönnberg (1905).

This species has been satisfactorily distinguished from *B. lanceolatum* by Kirkaldy and by Tattersall, on the basis of differences in the form of the rostral and caudal fins. In general proportions it agrees closely with that species. The pre-atrioporal length of the body is contained 2.1 times in the postatrioporal length in the type of *B. nakagawae*.

6. *Branchiostoma caribaeum* Sundevall

Branchiostoma caribaeum Sundevall (1853), and other authors (in part).

Diagnosis.—This lancelet, which apparently is restricted in its distribution to the West Indies, may be distinguished by the following set of characters, all determined, with the exception of the myotome formula, from two small specimens from

Porto Rico. Dorsal ray-chambers, 227 to 231; preanal ray-chambers, 33 to 35. Highest dorsal ray-chambers about three times as high as long; dorsal fin about one-eighth as high as body. Anus located near middle of lower caudal lobe; distance from atriopore to origin of lower caudal lobe about equal to distance thence to end of tail. Preatrioporal length about 2.5 times the postatrioporal length. Myotome formula: 27 to 37+12 to 14+9=48 to 61 (most of the counts made by Andrews, 1893). Maximum length, 5.1 cm. (Sundevall).

7. *Branchiostoma floridae* Hubbs, new species

Branchiostoma lubricum Goode (1879).

Amphioxus Wright (1890).

Branchiostoma caribaeum Andrews (1893, in part); Evermann and Kendall (1899), and other authors (in part).

Amphioxus caribaeus Kirkaldy (1895), and other authors (in part).

Type-material:—Holotype, Cat. No. 84466, U. S. National Museum; collected at Tampa Bay, Florida, by the Steamer Fish Hawk (Sta. 7121). Paratypes from Tampa Bay (several collectors) are deposited in the U. S. National Museum, the fish collection of Stanford University, Museum of Zoology, and the Field Museum of Natural History. Other paratypes from Pensacola, Florida (collected by Benedict and Kaiser); from Cape Romans, Florida (collected by J. F. Moser); from St. Martin's Reef, Florida; from lat. 26° 20' N., long. 82° 39' W. and station 5068, both collected by the steamer Grampus, and from "Florida" (collected by Henderson and Simpson), also belong to the U. S. National Museum. Other records for the species are Port Tampa, Florida (Wright, 1890); Port Tampa and St. Martin's Reef, Florida, and "Gulf of Mexico" (Andrews, 1893); Tampa Bay and Snapper Banks, Florida (Evermann and Kendall, 1899), and East Florida (Goode, 1879).

Diagnosis:—Dorsal ray-chambers, 274 to 310 (average of

seven counts, 289); preanal fin chambers, 36 to 48 (average of four, 41). Highest dorsal ray-chambers two to four times as high as long; dorsal fin about one-eighth as high as body. Anus located near middle of lower lobe of caudal fin; distance from atriopore to origin of lower caudal lobe about equal to distance thence to tip of tail. Postanal length, 13.8 to 17.4 in total. Preatrioporal length, 2.3 to 2.7 (usually about 2.5) times the postatrioporal length. Myotome formula: 32 to 36+14 to 17+7 to 10=57 to 61 (about twenty-five Florida specimens counted by the writer and Andrews). Gonads 22 to 27 on each side, usually about 25. Maximum length, 6.1 cm.

8. *Branchiostoma virginiae* Hubbs, new species

Branchiostoma lanceolatum Andrews (1893, Chesapeake Bay specimens only).

Type-material.—Holotype, Cat. No. 84465, U. S. National Museum, from Sewall's Point, Virginia, on Chesapeake Bay. Paratypes with same data. Another specimen was collected in Chesapeake Bay in Maryland along the east shore.

Status.—The lancelet of Chesapeake Bay appears to differ from the other American species of the genus in the increased number of myotomes. In this respect it resembles the European *B. lanceolatum*, from which in turn it is distinguished by the more posterior position of the anus in reference to the lower lobe of the caudal, the relatively shorter distance between this fin lobe and the atriopore and the more numerous dorsal ray-chambers. It is more closely related to *floridae* than to *lanceolatum*. All of the lancelets from the East Coast of the United States, variously referred to *lanceolatum* or *caribaeum*, are perhaps conspecific with the Chesapeake form. It seems not improbable that *virginiae* and *floridae* will be found to intergrade.

Diagnosis.—Dorsal ray-chambers, 259 to 309 (average of

five, 279); anal ray-chambers, 36 to 40 (average of six, 38). Dorsal ray-chambers about two or three times as high as long; dorsal fin about one-eighth as high as body. Anus near middle of lower caudal lobe; origin of this lobe about midway between tip of tail and atriopore. Postanal length, 8.5 to 11.5 in total. Preatrioporal length, 2.4 to 2.7 times postatrioporal length. Myotome formula: 36 to 40+14 to 16+9 to 12=60 to 64 (in type-material); 36 to 38+13 or 14+11 to 15=61 to 64 (according to Andrews, 1893). Maximum length, 5.3 cm. (Andrews).

9. *Branchiostoma bermudae* Hubbs, new species

Branchiostoma lubricum Goode (1877).

Branchiostoma caribaeum Bristol and Carpenter (1900); Verrill (1902); Bean (1906).

Branchiostoma caribbaeum Barbour (1905); Parker (1908; and so forth).

Type-material.—Holotype, from Bermuda, Cat. No. 55145, Museum of Zoology, University of Michigan; donated by Dr. W. J. Crozier. Paratypes, all from Bermuda, were collected by Goode, Bean, Mowbray, Crozier, and Arey. They are deposited in the following institutions: United States National Museum, Museum of Zoology, Field Museum of Natural History, Philadelphia Academy of Natural Sciences, Stanford University, and the Bermuda Biological Station.

Status.—The Bermuda lancelet is well distinguished from the four other species of the North Atlantic, differing in having fewer ray-chambers in the fins, a shorter tail, and so forth. In some respects it resembles most closely the temperate South American species, *B. platae*, from which it differs, among other respects, in having about one hundred fewer dorsal ray-chambers (one of the characters heretofore overlooked in the systematic study of lancelets).

Diagnosis.—Ray-chambers relatively few: in the dorsal fin,

172 to 240 (six accurate counts; average 208); in the preanal fin, only 17 to 24 (average of eleven counts, 21). Highest dorsal ray-chambers three to five times as high as long in each individual; dorsal fin about one-sixth as deep as body. Anus located well behind middle of lower lobe of caudal fin; origin of this caudal lobe about as near tip of tail as atriopore. Pre-atrioporal length, 2.3 to 3.2 (usually about 2.7) times the post-atrioporal length. Myotome formula: 34 to 36+12 to 14+6 to 9=54 to 57 (nine specimens counted). Gonad pouches 22 to 28 (average of forty counts, 24.6). Maximum length, 5.35 cm.

10. *Branchiostoma platae* Hubbs, new species³

Branchiostoma, sp. Günther (1884).

Branchiostoma lanceolatum caribaeum Lahille (1915).

Type-material:—Holotype, Cat. No. 85498, U. S. National Museum, collected by the Steamer Albatross at Station 2765, off the mouth of Rio de la Plata, South America (lat. 36° 43' S., long. 56° 23' W.); depth, 10.5 fathoms; surface temperature, 69° F.; bottom, sand and broken shells. Eight paratypes were also secured by the Albatross: five at the type-station, and three at the adjacent station 2764: lat. 36° 42' S., long. 56° 23' W.; surface temperature, 68° F.; depth, 11.5 fathoms; bottom, sand and broken shells.

Diagnosis:—*Branchiostoma platae* is clearly distinguished from all other species of the genus by the following set of characters: Dorsal ray-chambers, 283 to 327 (average of five counts, 302); preanal ray-chambers, 22 to 28 (average of five, 26). Higher dorsal chambers four to eight times as high as long in each specimen; dorsal fin nearly one-fourth as high as body. Anus located far behind middle of lower caudal lobe; caudal fin reduced in size, the base of the upper lobe

³ Permission to describe this form has been granted by the United States Commissioner of Fisheries.

only about two-thirds base of lower lobe; origin of lower lobe as near, or almost as near, anus as atriopore. Preatrioporal length, 3.1 to 3.6 times postatrioporal length. Myotome formula: 38 to 40+14 or 15+9 to 11=62 to 65 (all eight specimens counted); preatrioporal myotomes more oblique as well as more numerous than those of related species. Gonad pouches 26-25 in one specimen; 29-27 in another. Maximum length, 5.6 cm.

11. *Branchiostoma californiense* Andrews

Branchiostoma, sp. Cooper (1868).

Branchiostoma lanceolatum Jordan and Gilbert (1881; 1883); Lockington (1882); Jordan (1885); (not of Pallas).

Branchiostoma elongatum Eigenmann and Eigenmann (1891; 1892); Eigenmann (1892); (not of Sundevall).

Branchiostoma californiense Gill, MS.; Andrews (1893); Willey (1894); Jordan and Evermann (1895); Herdman (1904); Lönnberg (1904); Fowler (1907); Starks and Morris (1907); Snyder (1913); Hilton (1918).

Amphioxus californiense Kirkaldy (1895).

As the synonymy indicates, Andrews rather than Cooper or Gill is the author of this species.

Diagnosis.—Examination of good series of specimens from Monterey Bay, California, to San Luis Gonzales Bay, Gulf of California, makes possible the construction of the following diagnosis: Dorsal ray-chambers very numerous, 312 to 374 in five specimens counted (average 337); preanal chambers, about 50. Higher dorsal chambers five to eight times as high as long in each individual; dorsal fin one-fifth to one-eighth as high as body. Anus located far behind middle of lower lobe of caudal fin; caudal fin variable in degree of expansion before anus; distance from atriopore to origin of lower caudal lobe contained 0.8 to 2.0 times in distance thence to anus. Preatrioporal length, 2.65 to 3.3 times the postatrioporal length. Myotome formula: 43 to 48+16 to 19+8 to 10=68 to 74 (counts made from twenty-two well-preserved specimens; the count given

by Andrews is too low, a fact probably to be accounted for by the poor preservation of the material examined by him; he counted: 42 to 45+13 to 16+8 or 9=64 to 69). Gonad pouches 27 to 36 (averaging 33 in twenty counts) on each side (sometimes there are one or two more on either the left or the right side than on the other). Size unusually large (lengths of mature specimens examined, 5.8 to 8.35 cm.; of immature individuals, 3.75 to 5.6 cm.). Oral hood and cirri reduced in size, and becoming smaller with age; the distance from tip of rostral fin to oral sphincter contained 13.8 to 16.3 times in total length in adults (10.5 to 14.6 times in adults of *lanceolatum*, *floridae*, *bermudae*, and *platae*); this abbreviation of the anterior end involves a reduction in the size rather than as Kirkaldy (1895) states in the number of anterior myotomes. Two of the other characters used by the same author, namely, the form of the rostral fin and the curvature of the free anterior tip of the notochord, are so altered by different methods of preservation as to be unusable.

Specimens from San Luis Gonzales Bay, Gulf of California (collected by the Albatross), are not fully typical in the form of tail and fins, but the differences may be due to the poor preservation of the Gulf specimens. They vary in length from 29 to 63 mm., those 29 to 61 mm. long being apparently immature. Myotomes in two, 44+16+10=70, and 45+16+10=71.

12. *Branchiostoma tattersalli* Hubbs, new species

Branchiostoma californiense Tattersall, 1903.

Tattersall has suggested that the lancelet of the Cape of Good Hope, as well as his specimen from Ceylon, should be referred to *B. californiense*. This view appears so extremely improbable to the writer that he proposes a new name for the Ceylon specimen referred to. Careful comparison, no doubt, will disclose abundant differences, but at present the Ceylon

form can be distinguished only by its diagnostic myotome formula:

Branchiostoma tattersalli,—40+20+12.

Branchiostoma californiense,—43 to 48+16 to 19+8 to 10.

Branchiostoma capense,—46 to 48+18 to 19+9 or 10.

13. *Branchiostoma capense* Gilchrist

Branchiostoma capense Gilchrist (1902); Herdman (1904).

14. *Branchiostoma elongatum* Sundevall

Amphioxus elongatus Sundevall (1852); Kirkaldy (1895).

Branchiostoma elongatum Sundevall (1853); Andrews (1893); Willey (1894); Steindachner (1898); Herdman (1904); Lönnberg (1905); Snodgrass and Heller (1905); Goldschmidt (1905); Porter (1909); Regan (1913).

This species is a true *Branchiostoma*, not a *Heteropleuron*, as Lönnberg has provisionally suggested. The material recorded by Snodgrass and Heller from the Galapagos Islands, and by Porter from Valparaiso Bay, Chile, has been re-examined.

Diagnosis (based solely on two mature specimens from Valparaiso Bay):—Dorsal ray-chambers numerous, but not accurately countable, and moderately high; preanal chambers about 65 to 75, much more numerous than in other species of *Branchiostoma*. Anus located slightly in advance of middle of lower caudal lobe; distance from atriopore to origin of this fin lobe contained 1.3 times in total distance behind this point. Preatrioporal length, 2.4 to 2.6 times the postatrioporal length. Myotomes very oblique; the formula, 48 to 51+18+12 or 13=79 to 81. Gonad pouches 37 (counted on only one side of one specimen). Oral hood reduced in size, as in *B. californiense*. Length, 6.25 to 6.85 cm.

Genus 3. *Dolichorhamphus* Willey

Dolichorhamphus Willey (1901).

Genotype.—*Dolichorhamphus indicus* Willey.

This genus appears to the writer worthy of recognition, as distinct from *Branchiostoma*.

15. *Dolichorhamphus indicus* Willey

Dolichorhamphus indicus Willey (1901).

Branchiostoma indicum Tattersall (1903); Herdman (1904); Lönnberg (1905).

Family Epigonichthyidae, new family name

The writer is of the opinion that the extreme asymmetry of Epigonichthys and Asymmetron demands the erection for these two genera of a family distinct from the Branchiostomatidae.

Genus 4. Epigonichthys Peters

Epigonichthys Peters (1876); Gill (1905).

Genotype.—*Epigonichthys cultellus* Peters.

Paramphioxus Heckel (1893).

Genotype.—*Branchiostoma bassanum* Günther.

Heteropleuron Kirkaldy (1895).

Genotype (by present designation).—*Heteropleuron cingalense* Kirkaldy.

Asymmetron Tattersall (1903); Herdman (1903), etc. (in part).

The frequent use of the name Heteropleuron for this genus is a wholly unwarranted violation of nomenclatural rules.

Differences described as distinguishing the species of this genus apparently should, in whole or in part, serve as generic or subgeneric criteria, when fully confirmed and better understood. The differences referred to are: the single or paired postatrioporal caecum; the single or paired preanal fin-rays; the presence or absence of preanal rays or chambers; the clavate or non-clavate anterior end of the notochord; the degree of posterior projection of the notochord; the expanded or normal form of the dorsal fin anteriorly; the separation or continuity of the dorsal and rostral fins; the presence or absence of the olfactory pit.

16. *Epigonichthys cultellus* Peters

- Epigonichthys cultellus* Peters (1876); Lönnberg (1905).
Epigonichthys pulchellus (sic) Günther (1880).
Branchiostoma cultellum Günther (1884); Andrews (1893); Willey (1894).
Heteropleuron cultellum Kirkaldy (1895).
Asymmetron cultellum Herdman (1904).

17. *Epigonichthys bassanus* Günther

- Branchiostoma bassanum* Günther (1884); Andrews (1893); Willey (1894).
Heteropleuron bassanum Kirkaldy (1895); Römer (1896).
Asymmetron bassanum Tattersall (1903); Herdman (1904); Morris and Raff (1909); Raff (1912).
Paramphioxus bassanus Lönnberg (1905).
Epigonichthys bassanus McCulloch (1919).

18. *Epigonichthys cingalensis* Kirkaldy

- Heteropleuron cingalense* Kirkaldy (1895).
Asymmetron cingalense Herdman (1904).
Paramphioxus cingalensis Lönnberg (1905).

19. *Epigonichthys maldivensis* Cooper

- Heteropleuron maldivense* Cooper (1903); Punnett (1903); Parker (1904).
Asymmetron maldivense Herdman (1904).

20. *Epigonichthys parvus* Parker

- Heteropleuron parvum* Parker (1904).

21. *Epigonichthys agassizii* Parker

- Heteropleuron agassizii* Parker (1904).

22. *Epigonichthys hectori* Benham

- Heteropleuron hectori* Benham (1901).
Asymmetron hectori Herdman (1904).
Paramphioxus? hectori Lönnberg (1905).

23. *Epigonichthys hedleyi* Haswell

- Heteropleuron hedleyi* Haswell (1908).
Epigonichthys hedleyi Ogilby (1916).

24. *Epigonichthys australis* Raff

- Asymmetron australe* Raff (1912).

Genus 5. *Asymmetron* Andrews*Asymmetron* Andrews (1893).Genotype.—*Asymmetron lucayanum* Andrews.25. *Asymmetron lucayanum* Andrews.*Asymmetron lucayanum* Andrews (1893); Kirkaldy (1895); Mark (1904); Herdman (1904; in part); Lönnberg (1905); Bean (1906), and others in general.*Branchiostoma lucayanum* Willey (1894).*Epigonichthys lucayanum* (sic) Fowler (1907).

A single specimen⁴ of an *Asymmetron*, apparently of this species, 12.5 mm. long to the caudal process, was dredged by the Steamer Albatross on December 16, 1887, off Brazil, far south of the published records for the species: Albatross station 2758: lat. 6° 59' 30" N., long. 34° 47' W.; surface temperature, 79° F.; bottom temperature, 79° F.; depth, 20 fathoms; bottom, broken shells.

Myotomes, about $45+9+12=66$.26. *Asymmetron caudatum* Willey*Asymmetron candatum* Willey (1896); Herdman (1904); Parker (1904); Lönnberg (1905).27. *Asymmetron macricaudatum* Parker*Asymmetron macricaudatum* Parker (1904).28. *Asymmetron orientale* Parker*Asymmetron lucayanum* Cooper (1903); Punnett (1903); Herdman (1904, in part).*Asymmetron orientale* Parker (1904).

⁴This record is included here by permission of the United States Commissioner of Fisheries.