DESCRIPTIONS OF FIVE NEW SPECIES OF FISHES SENT BY PROF. A. DUGÈS FROM THE PROVINCE OF GUANAJUATO, MEXICO.

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(With one plate.)

It is probable that the species described in this paper are from streams belonging to the Pacific slope of the Province of Guanajuato; the *Lampetra* certainly is, and it is the most southerly representative of the genus recorded. A recent examination of the types of *Goodea atripinnis* Jordan, proves the existence of villiform teeth behind the incisors, and throws *Goodea* into the synonymy of *Characodon*.

Characodon variatus, n. sp. (Pl. XX, f. 1.)

This species resembles *C. lateralis* Gthr., from which it differs chiefly in its larger number of dorsal rays, and in the more advanced position of the dorsal fin, as well as in the size of the ventral.

The types are numbered 37809.

In form the species resembles *C. lateralis* as figured in Trans. Zool. Soc., Lond., VI, 1869, pl. LXXXII, fig. 2. The head is broad and depressed; the nape moderately arched. The snout is short; the lower jaw strongly projecting; the jaws are much heavier than in *C. atripinnis* (*Goodea atripinnis* Jordan), and the villiform teeth behind the incisors are much more developed than in *C. atripinnis*. The caudal peduncle (that is, the distance from the end of the dorsal to the origin of the caudal) is nearly as long as the head, equaling one-fourth of the total length without the caudal.

There are about thirteen or fourteen bicuspid teeth in the outer series of the upper jaw and from sixteen to eighteen in the lower jaw. The band of villiform teeth behind the incisors is fully developed in both jaws. The mandible does not extend back to the anterior margin of the orbit; its length is about equal to that of the orbit. The jaws are moderately protractile. The mandible when the mouth is closed is almost vertically placed. The snout is shorter than the eye whose diameter is two-sevenths of the length of the head and about two-thirds of the width of the interorbital space. The interorbital space is as long as the opercle and one-half the length of the head without the snout.

Scales on the top of the head little enlarged. Opercle united by membrane to the shoulder girdle, beginning slightly above the upper edge of the pectoral. The insertion of the dorsal is about midway between the end of the scales and the hind margin of the orbit. The first dorsal ray is very slender, articulated, and about two-thirds as long as the second; the second is simple like the first, and is shorter than the third;

the fifth ray is the longest, its length, in the female, equaling that of the postorbital part of the head. In the male the dorsal rays are somewhat longer. The base of the dorsal is equal in length to the postorbital part of the head, and is one-half the greatest height of the body.

The anal is inserted under the seventh or eighth ray of the dorsal. Its longest ray is about two-fifths the length of the head.

The pectoral is inserted below the middle of the body, its upper edge being on a level with the lower border of the orbit; its length is contained five and a third to six times in total to base of caudal.

The ventral is inserted midway between the tip of the snout and the end of the scales.

The caudal is truncate, with the external rays slightly rounded.

The head is one-fourth of the total length, including caudal, and equals depth of body at the dorsal origin.

D. 13–14; A. 15–16; scales 15–35.

Coloration in spirits.—Olive brown above, lighter below; the opercle silvery, overlaid below with orange; the abdomen with a yellowish tinge; lips dusky; iris pale; scales of upper half of body dusky at base; lower half of body with numerous dark spots, the largest about as long as the pupil.

Characodon bilineatus, n. sp. (Pl. XX, f. 2.)

The type of this species is a single example, number 37832, measuring $1\frac{7}{10}$ inches in length. It resembles the preceding species, number 37809, but has a smaller eye and greater number of dorsal rays, larger scales and different coloration.

In form the species resembles *C. lateralis* Gthr. The head is broad and depressed, the interorbital space being nearly flat, and the nape is moderately arched. The snout is short, rather shorter than the eye, and the lower jaw is somewhat prominent. The jaws are stout, as in *C. lateralis*. The upper jaw is moderately protractile. There are about 20 bicuspid teeth in the outer series of the lower jaw, and about as many in the upper jaw. The villiform teeth behind the incisors can readily be made out. The mandible is nearly vertical when the mouth is closed; it does not nearly reach to below the eye. Its length is about equal to that of the eye, which is one-fourth as long as the head, and scarcely more than one-half the width of the interorbital space.

The scales on the top of the head are somewhat enlarged. The opercle is connected by membrane to the shoulder girdle, beginning at a point slightly above the upper edge of the pectoral.

The insertion of the dorsal is midway between the posterior margin of the eye and the end of the scales. The first dorsal ray is slender, articulated, and shorter than the second. The longest dorsal ray is about two-thirds as long as the head. The base of the dorsal is equal in length to the head without the snout, and is contained five times in the total without caudal.

The anal is inserted under the third ray of the dorsal. Its longest ray is as long as the postorbital part of the head.

The pectoral is inserted very slightly below the middle of the body, its upper edge being nearly on a level with the lower edge of the orbit. Its length is one-fifth of the total length without the caudal.

The caudal is truncate, its length contained four or four and one-half times in the standard length.

The length of the head is contained three and two-thirds times in the total without caudal, and is much less than the depth at the dorsal origin.

The length of the caudal peduncle equals that of the head. The least height of the caudal peduncle is a little more than one-half the greatest height of the body, which is rather more than one-third of the length without caudal.

The ventral reaches about to the vent; its length is nearly one-half that of the head.

D. 16; A. 16; scales 11–32.

Coloration in spirits.—Upper parts brown; lighter below, probably orange in life; the operculum silvery; a purple stripe along the middle of the body, its greatest width about equal to the length of the eye; abdomen silvery, this color extending up to the purple stripe; a purplish stripe on the edge of the caudal peduncle, from the end of the anal to the caudal. Iris, golden.

Characodon ferrugineus, n. sp. (Pl. XX, f. 3 ♂, f. 4 ♀).

The types of the present description are a male and female (No. 37810). The male is $2\frac{7}{10}$ inches long and the female 2 inches.

This species is very readily distinguished from the two preceding by its much larger eye as well as its coloration. The male is very deep bodied and much compressed in its posterior half. The interorbital space is nearly flat and the arch of the nape is very gradual. The height at the pectoral origin is as great as at the dorsal origin and equals the length of the head, which is one-third of the total, without the caudal. The snout is short, shorter than the eye, and less than one-fourth the length of the head. The lower jaw is obliquely placed and somewhat projecting; its length equals that of the eye, which is two-sevenths of the length of the head. The upper jaw is moderately protractile. The bicuspid teeth of the lower jaw are about twenty in number, and behind them is a series of well-developed villiform teeth. The teeth of the upper jaw are similar to those of the lower. The jaws are moderately stout. The mandible scarcely reaches to below the front margin of the orbit. Its length is about three-fourths that of the interorbital space, which is one-half of the length of the head without the snout. The scales on the top of the head are somewhat enlarged. The opercle is connected by membrane to the shoulder girdle, beginning at a point slightly above the upper edge of the pectoral. The insertion of the dorsal is about midway between the posterior margin of the eye and the end of the

scales. The first dorsal ray is slender, articulated, and somewhat more than one-half as long as the second, which is about three-fourths as long as the third. The longest ray of the dorsal is two-thirds as long as the head. The base of the dorsal is one-sixth as long as the total without caudal. The anal is inserted under the fifth ray of the dorsal. Several of the anterior rays of the anal are modified, being shorter than the rest and crowded together. The longest anal ray is nearly one-half as long as the head.

The pectoral is inserted considerably below the middle of the depth of the body, its upper edge being on a level with the lower margin of the orbit; its length is one-fifth of the total without the caudal.

The caudal is imperfect, and its exact shape cannot be determined.

The length of the head is contained $3\frac{1}{3}$ times in the total, without caudal, and is less than the greatest depth of the body. The length of the caudal peduncle equals that of the head without the snout; the least height of the caudal peduncle equals one-half the length of the head.

The ventral is inserted at about the middle of the total length without the caudal and it reaches to the vent; its length is about two-fifths of the length of the head.

D. 13; A. 15–16; scales 14–35.

Coloration in spirits.—The male is chestnut brown, with an indistinct dark lateral stripe made up of a series of interrupted dark blotches. Opercle silvery; abdomen yellowish.

The female is without the lateral stripe, the whole side being covered with irregular brown blotches. The opercle is silvery and the belly yellowish.

Fundulus dugèsii, n. sp. (Pl. XX, f. 5).

The types of the following description are two females (No. 37831), one of which is 60mm and the other 64mm in length. Besides these large females there are numerous additional examples of both sexes, the smallest being a male 37mm in length. The total number of examples of this species is eleven. The exact locality is not known; they were sent with other species from Guanajuato, Mexico, by Prof. A. Dugès.

This new species of *Fundulus* differs greatly from all the other species known from the vicinity in having a very short anal base. In *Fundulus labialis*, *punctatus*, *guatemalensis*, and *pachycephalus* the bases of the dorsal and anal fins are nearly equal in length, but in this species the anal base is one-half as long as the dorsal base. The species about to be described resembles *F. guatemalensis* and *F. pachycephalus* in the shape of the body. The largest example, however, has a more decided elevation at the nape than any of the others. The head is moderately broad with the interorbital space depressed and flat, and its length is nearly one-third of the total without the caudal, and is about equal to the height of the body. In the smaller of the typical specimens the nape is scarcely arched. The snout is short, shorter than the eye, and

the lower jaw projects slightly. The jaws are short and moderately stout, the upper jaw being freely protractile. The length of the upper jaw is slightly more than one-third the length of the head, and equal to the length of the mandible. The teeth are slender, conical, in a double series, of which the outer is enlarged. The mandible reaches to the vertical through the front of the eye; its position is oblique when the mouth is closed; its length is slightly more than one-third the length of the head and less than the width of the interorbital space. The eye is one-fourth as long as the head and only two-thirds of the width of the interorbital space.

The opercle is connected by membrane to the shoulder girdle, beginning at a point about in the line of the lower margin of the eye. The insertion of the dorsal is very slightly in advance of the insertion of the anal and at a distance from the front of the eye equaling about twice the length of the head. Its rays are slender and not very long, the longest being somewhat shorter than the base of the fin and less than one-half the length of the head. The base of the dorsal equals one-half the length of the head. The anal is inserted about under the third ray of the dorsal; its longest ray is one-third to two-fifths as long as the head. The anal base is very short, one-half as long as the dorsal base and very little longer than the eye.

The pectoral is inserted considerably below the middle of the body, about at the beginning of its lower third, its upper edge being below the level of the lower edge of the orbit; its length is one-half that of the head.

The caudal is slightly rounded, its middle rays being one-fifth as long as the total without the caudal. The least height of the caudal peduncle is one-half the greatest height of the body. The distance from the end of the dorsal to the origin of the middle caudal rays is slightly more than the least height of the caudal peduncle.

The ventral is situated nearly in the middle of the total length, excluding the caudal; it does not reach the vent; its length is about one-third of the head's length.

D. 15; A. 11; Scales 11–30.

Coloration in spirits.—General color light brown; the sides with five or six dusky bands, the widest somewhat greater than the length of the eye; one of these bands is placed under the anterior half of the dorsal. On the sides and head the green color is intermingled with silver. Anterior half of abdomen with a yellowish tinge. Cheeks bronze in the upper portion, silvery below. Operculum silvery.

Lampetra spadicea, n. sp. (Pl. XX, f. 6).

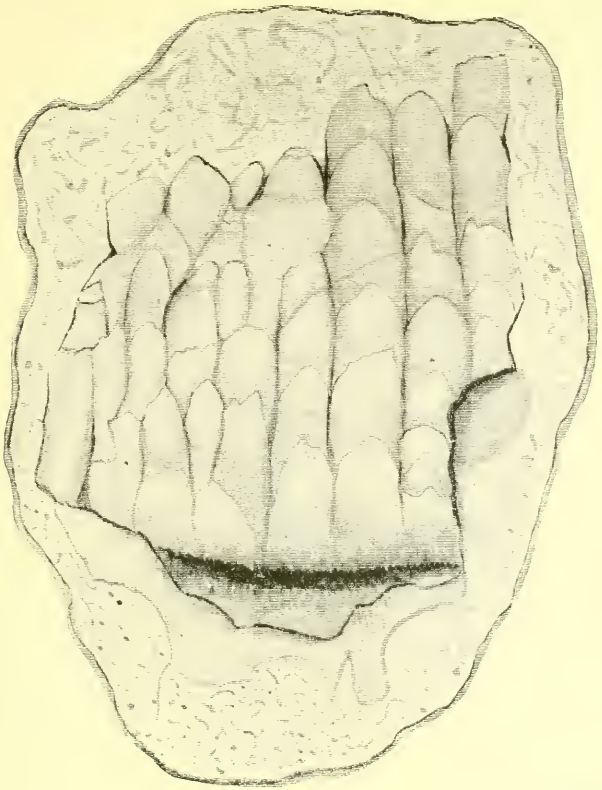
The U. S. National Museum has had in its possession for several years a larval lamprey received from Guanajuato, Mexico, and recently Prof. A. Dugès, from whom the earlier specimens came, has sent an adult example. The specimen which forms the type of this description is $7\frac{2}{5}$ inches long. Its catalogue number is 38005.

This *Lampetra* resembles *L. plumbea* Ayres, but *plumbea* has the mandibulary plate with eight cusps instead of nine; and instead of the four bicuspid lateral teeth *plumbea* has three, the median one distinctly tricuspid. In our best developed specimen of *plumbea* also, the lingual teeth are pectinate, but the number of pectinations is comparatively smaller than in the Mexican species, and the middle of the series is furnished with a conical lobe which is very greatly enlarged. This may be a character of youth.

Nostril on the top of the head and very slightly in front of the eye.

The head is somewhat longer than the chest, its length contained $7\frac{1}{3}$ times in the total. The mouth is moderately large; the lips with a conspicuous fringe of papillæ. The dorsal fin is inserted about midway of the total length. It is separated into two portions by an interspace which is one-half as long as the snout. The greatest height of the anterior portion is about equal to the length of the eye, which is about one-fourth of the length of the snout. The second dorsal is longer than the first, but very little higher, its greatest height being about one-third of the length of the snout. In its posterior portion there is a deep notch, but no separation from the portion which is continued around the tail. The eye is rather small, about one-fourth as long as the snout and slightly more than one-half of the width of the interorbital space. The maxillary tooth has large cusps which are well separated; no trace of a median cusp. The mandibular plate is curved and has nine teeth, those at the extremities being somewhat enlarged. Four lateral bicuspid teeth. Numerous small, recurved teeth around the margin of the disk, in many rows anteriorly, but reduced to two rows, well separated, posteriorly. The lingual teeth are distinctly pectinate; twenty lobes may be counted with a glass.

The general color is chestnut brown, somewhat lighter on the belly. Basal portion of the second dorsal pale; the remaining portion somewhat like the body.



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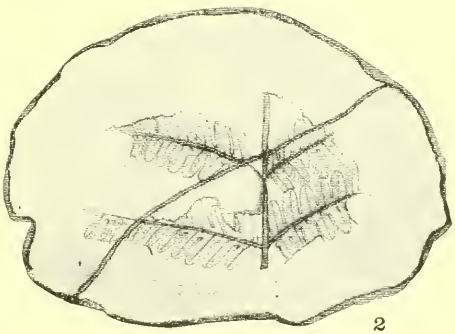

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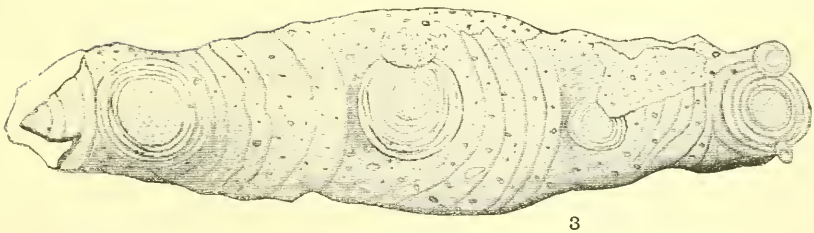

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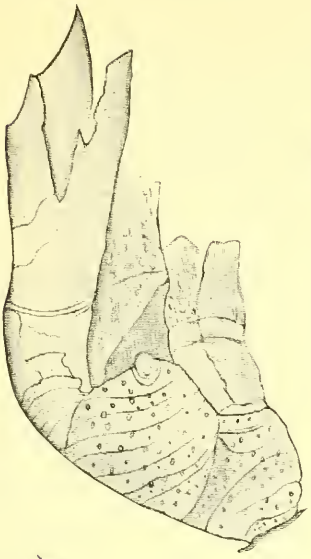
1.—*Fittonia?* spec. (p. 32).
2.—*Pecopteris Powellii*, n. sp. (p. 26).
2a.—Same, enlarged pinnule.
3.—*Caulinites Beckeri*, n. sp. (p. 36).



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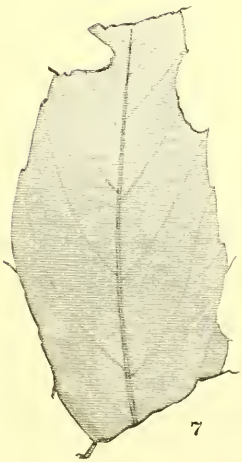

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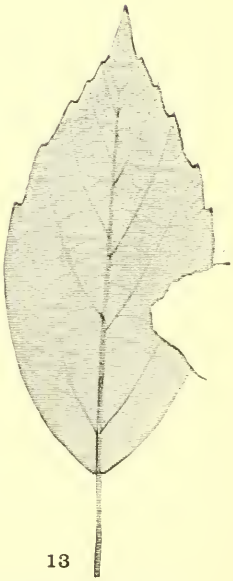
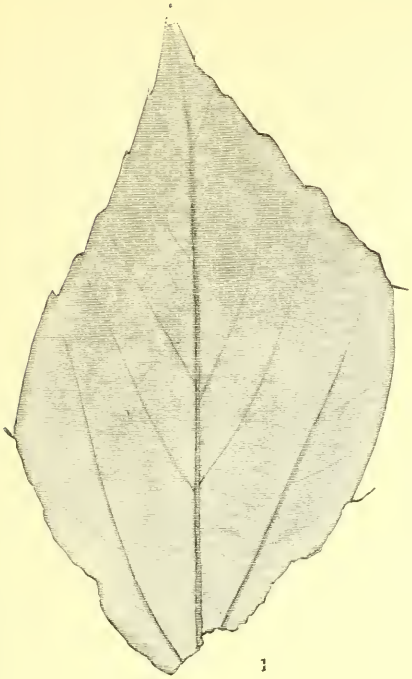
8

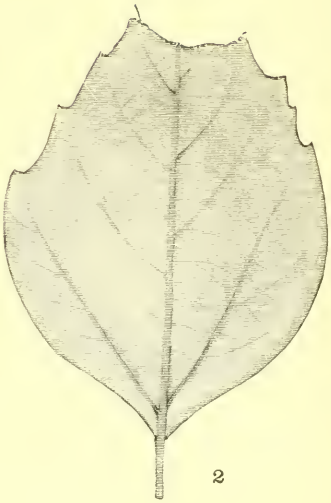
1–4.—*Caulinites Beckeri*, n. sp. (p. 36).
5, 6.—*Quercus Crossii*, n. sp. (p. 39).

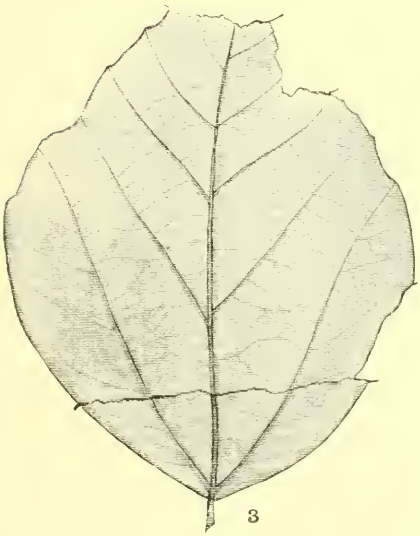
7 8.—*Quercus Gaudini* Lx. (p. 39).

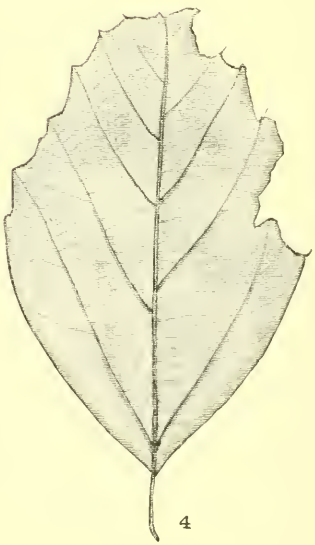


1.—*Populus denticulata* Heer. (p. 40).
2, 3.—*Andromeda lincarifolia*, n. sp. (p. 42).
4, 5.—*Vaccinium Colo·adense*, n. sp. (p 42).
6.—*Sapindus angustifolius* Lx. (p. 43).
7–10.—*Crataegus Holmesii*, n. sp. (p. 43).
11.—*Cissites microphyllus*, n. sp. (p. 44).
12, 13.—*Grewiopsis acuminata*, n. sp. (p. 44).

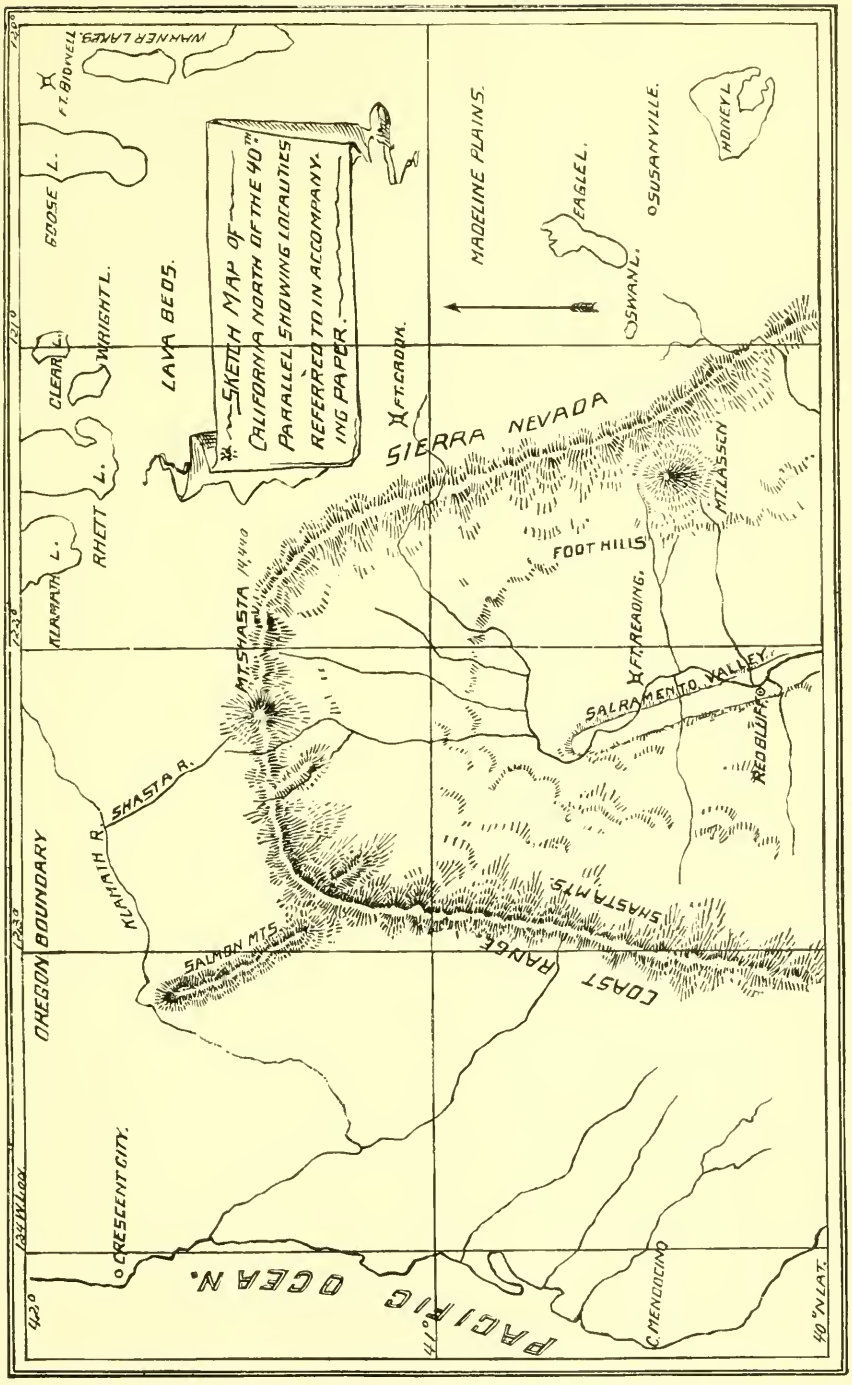


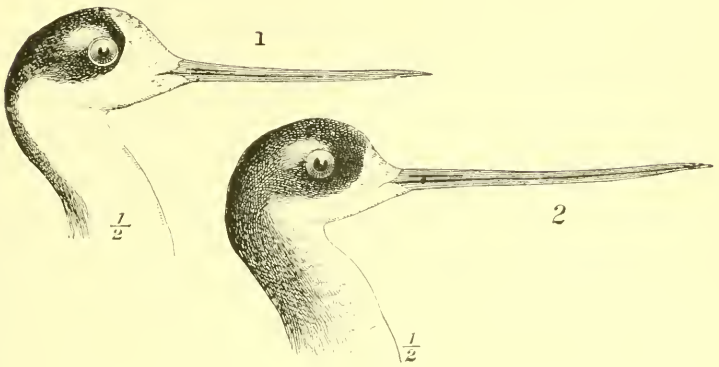


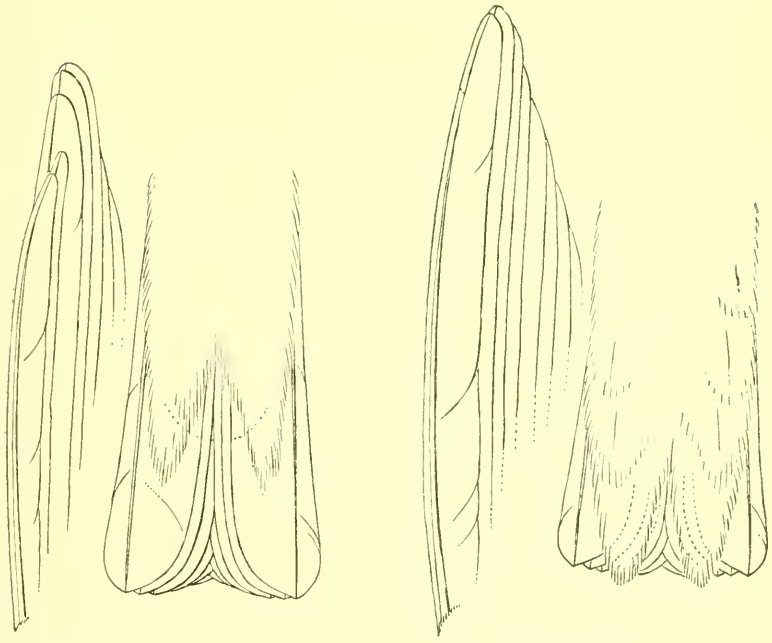




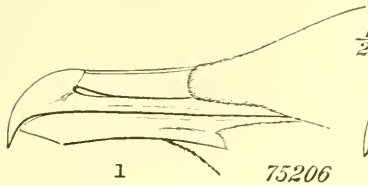
1, 2.—*Grewiopsis acuminata*, n. sp. (p. 44).
3, 4.—*Grewiopsis Walcotti*, n. sp. (p. 45).


WARNER LAKES.
T. BIDWELL
GOOSE L.
CLEAR L.
WRIGHT L.
LAVA BEDS.
RHETT L.
KLAMATH L.
SKETCH MAP OF CALIFORNIA NORTH OF THE 40TH PARALLEL SHOWING LOCALITIES REFERRED TO IN ACCOMPANYING PAPER.
FT. CROOK.
MADELINE PLAINS.
EAGLE L.
SWAN L.
SUSANVILLE.
HONEY L.
SIERRA NEVADA
MT. LASSEN
FOOT HILLS
MT. SHASTA
FT. READING.
SACRAMENTO VALLEY
RED BLUFF
SHASTA R.
KLAMATH R.
OREGON BOUNDARY
SALMON MTS.
SHASTA MTS.
COAST RANGE
CRESCENT CITY.
PACIFIC OCEAN.
MENDOCINO
124°
123°
122°
41°
40° N LAT.





1.—Head of *Himantopus mexicanus* (p. 81).
2.—Head of *Himantopus knudseni* (p. 81).
3.—Wing and tail of *Cotinga ridgwayi* (p. 1).
4.—Wing and tail of *Cotinga amabilis* (p. 1).



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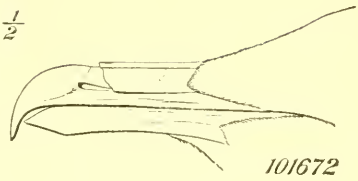

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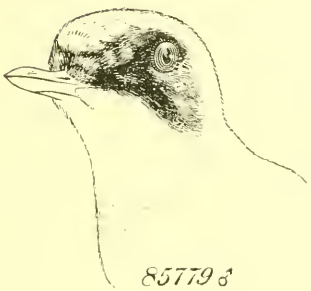

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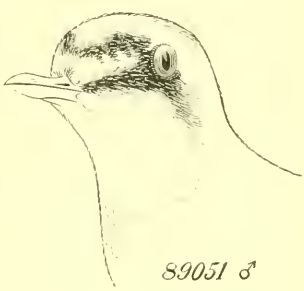

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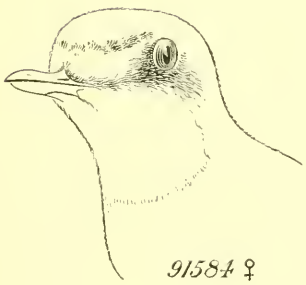

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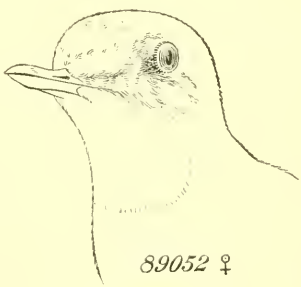

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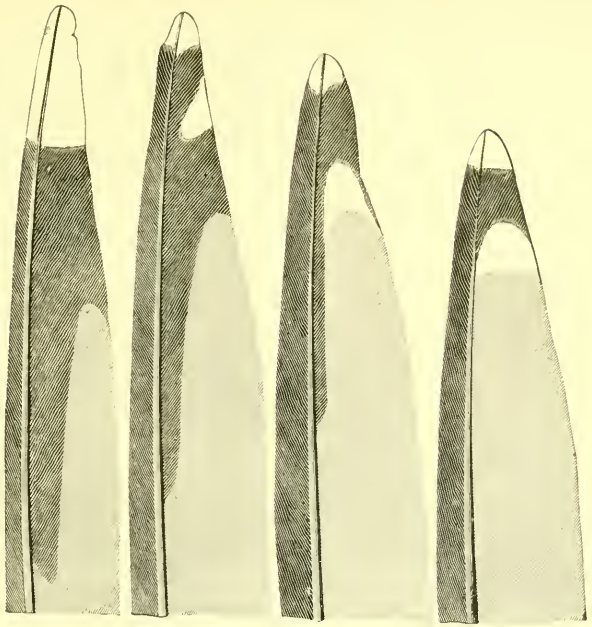
1.—Bill of *Stercorarius parasiticus*, normal condition (p. 124).
2.—Bill of *Stercorarius parasiticus*, shedding (p. 124).
3–6.—Heads of *Ægialitis mongola* (p. 127).



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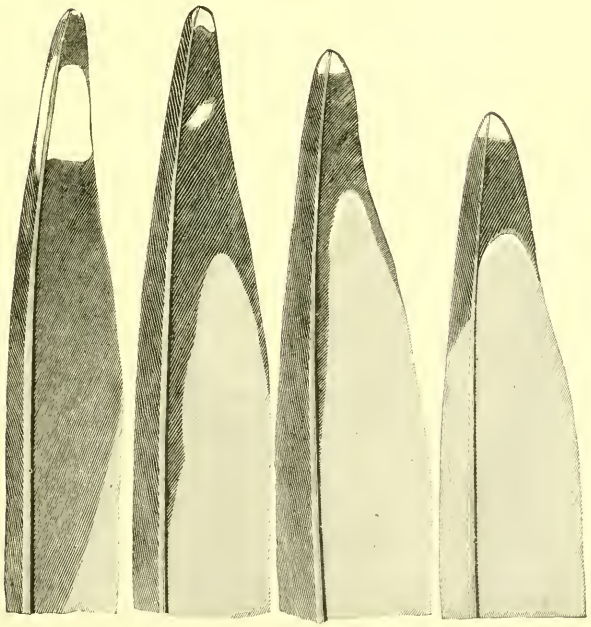
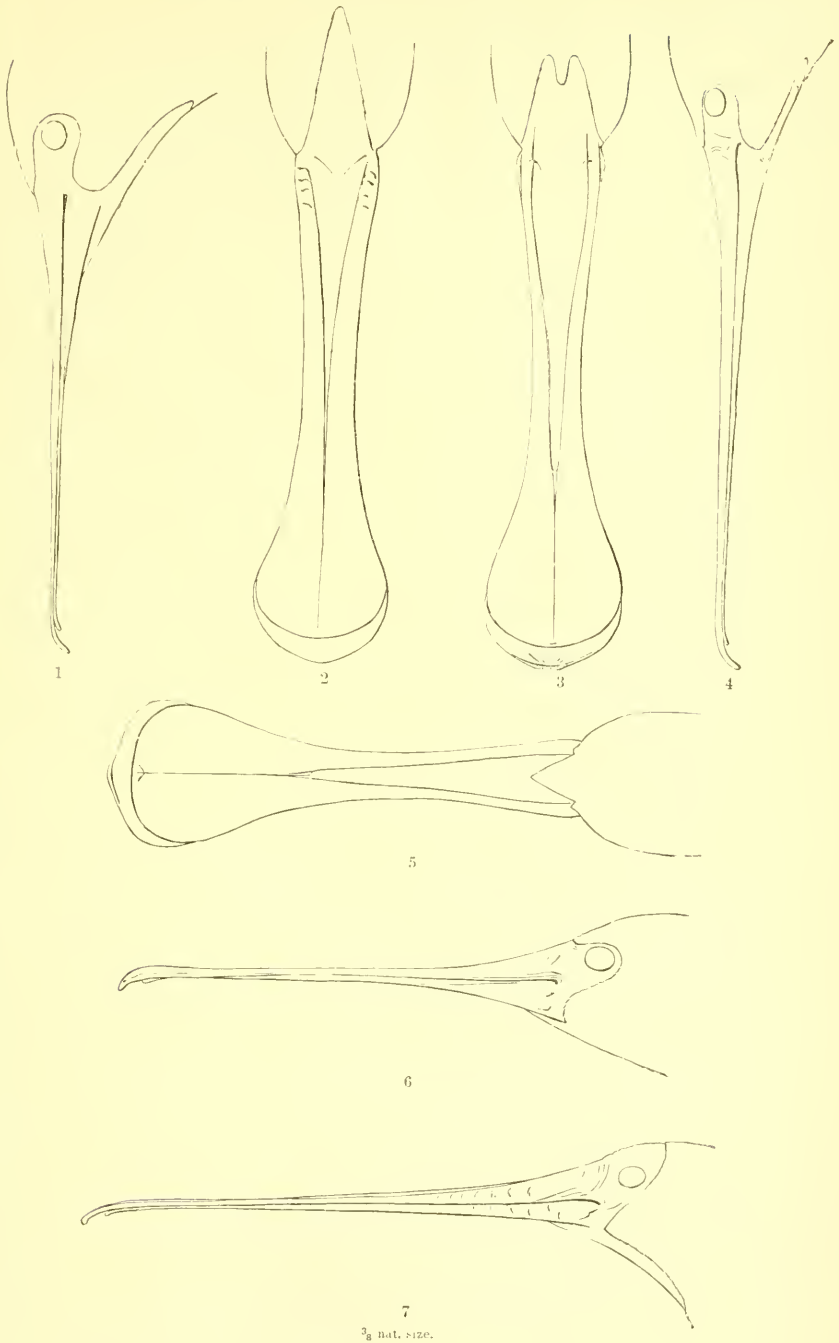


2

1.—First four primaries of *Larus schistisagus*. U. S. Nat. Mus. No. 92885; $\frac{3}{8}$ nat. size (pp. 121, 122).
2.—First four primaries of *Larus affinis*. U. S. Nat. Mus. No. 103391; $\frac{3}{8}$ nat. size (pp. 121, 122).

Thalassoœtus pelagicus (Pall.). ♂ ad. U. S. Nat. Mus. No. 92732. Petropaulski, Kamtschatka, May 24, 1883. L. Stejneger coll. (p. 141).

PLATE X.



$^3/_8$ nat. size.

1.—*Platalea leucorodia*, ♂ jun. (Am. Mus., New York). Europe.
2.—*Platalea major*, ♀ ad. (Tokio Educ. Mus.). Japan. (Sketch by P. L. Jouy.
3, 4.—*Platalea major*, jun. (U. S. Nat. Mus. No. 109456). Japan.
5, 6.—*Platalea minor*, jun. (P. L. Jouy, No. 1470). Korea.
7.—*Platalea flavipes*, ad. (U. S. Nat. Mus. No. 15360). Australia.

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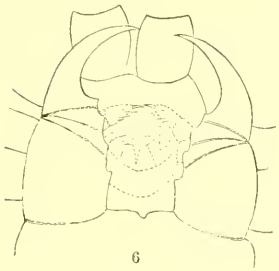

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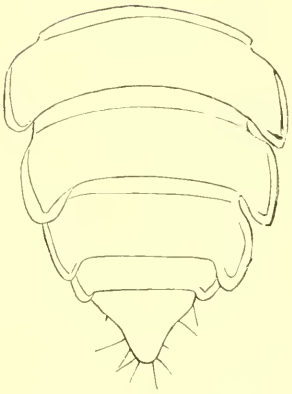

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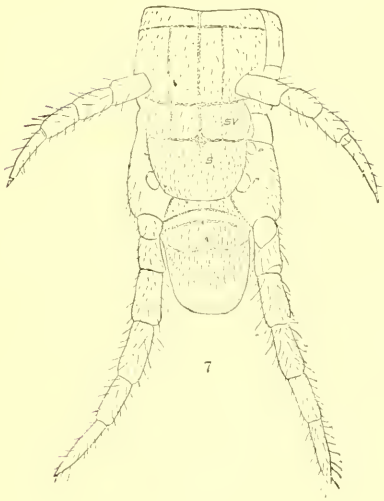
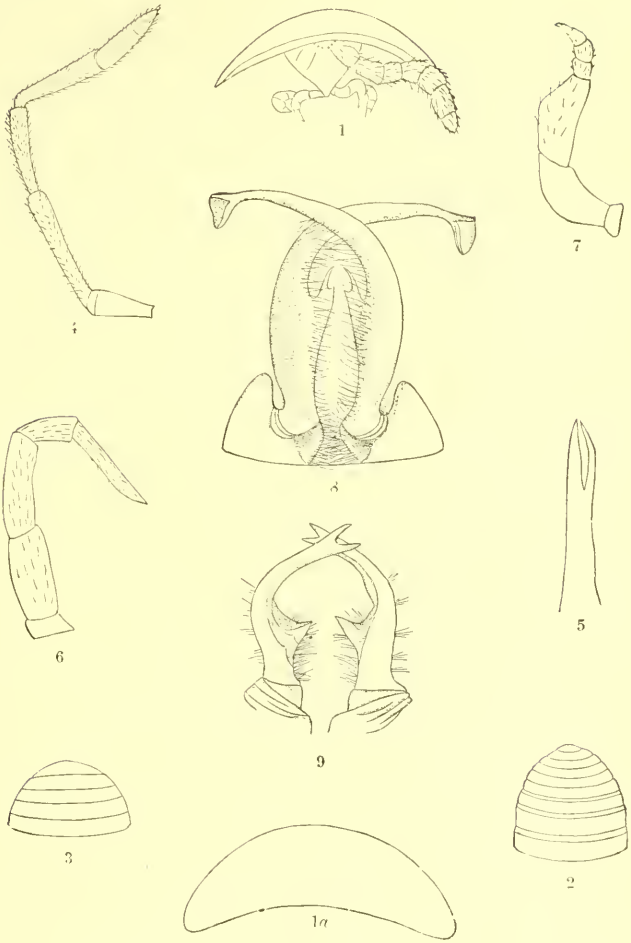


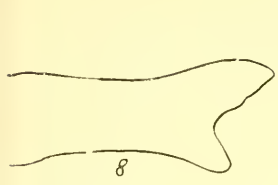
7

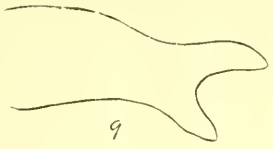
3

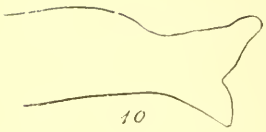
1, 2.—*Polydesmus varius:* Mesal aspect of distal joint of female genitalia; caudal aspect. (p. 323.)
3, 4, 5.—*Polydesmus bimaculatus:* Cephalic aspect of male genitalia; caudal aspect of dorsum; lateral aspect of distal end of genitalia. (p. 323.)
6, 7.—*Shendyla perforatus:* Ventral aspect of head; ventral aspect of caudal end of body: *s*, anal sterna; *sv*, anal præsterna; *p*, coxal pores. (p. 325.)

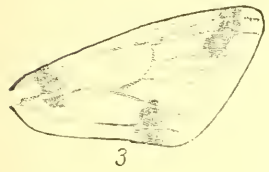


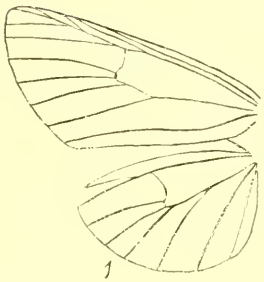
1–3.—*Hexaglena cryptocephala*: Dorsal aspect of head; transverse section of body; dorsal aspect of caudal and cephalic ends of body. (p. 328.)
4.—*Trichopetalum bollmani*: Dextral antennæ, except first joint. (p. 330.)
5–7.—*Cryptotrichus carioannulatus*: Sinistral aspect of genital appendages of male; normal leg; modified right leg of male. (p. 333.)
8.—*Polydesmus castaneus*: Caudal aspect of genital appendages. (p. 329.)
9.—*Polydesmus erythropygus*: Caudal aspect of genital appendages. (p. 329.)

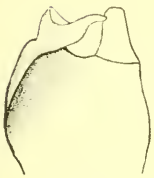


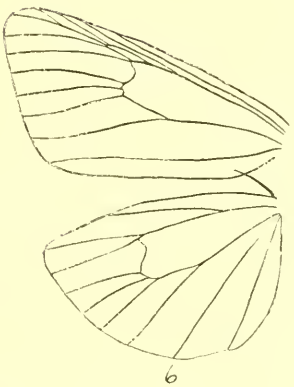


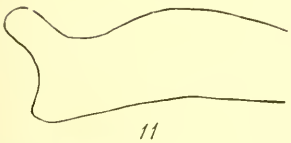


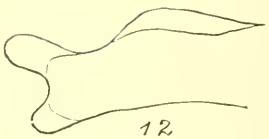






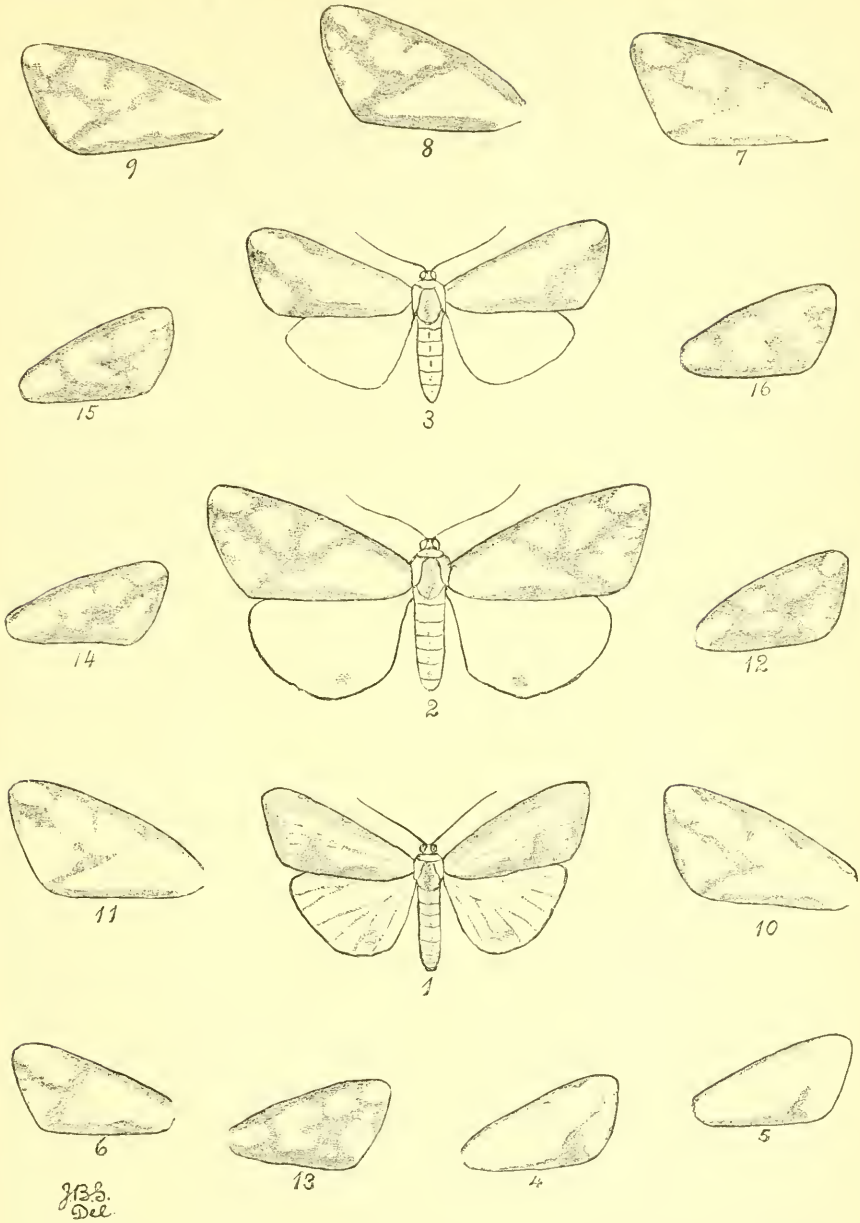






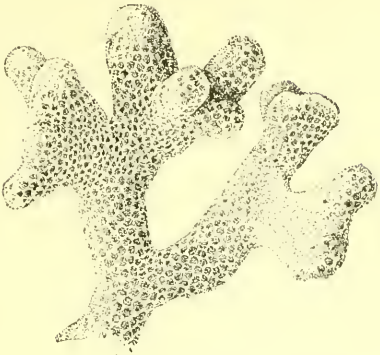
1.—Venation of *Euerythra*.
2.—Primary wing of *E. phasma*.
3.—Primary wing of *E. trimaculata*.
4.—Side piece of genitalia of ♂ *E. phasma*.
5.—Side piece of genitalia of ♂ *E. trimaculata*.
7.—Supra anal hook of *Euerythra*.
6.—Venation of *Callimorpha*.
8.—Side piece of genitalia of ♂ *C. clymene*.
9.—Side piece of genitalia of ♂ *C. contigua*.
10.—Side piece of genitalia of ♂ *C. vestalis*.
11.—Side piece of genitalia of ♂ *C. lecontei*.
12.—Side piece of genitalia of ♂ *C. militaris*.

(Description on pages 335–337, 346.)



1.—*Callimorpha interrupto-marginata.*
2.—*C clymene.* (Maculation of fully marked *suffusa* precisely identical.)
3.—*C. militaris*, fully marked.
4.—*C. militaris*, oblique band partly obsolete.
5.—*C. militaris*, oblique band reduced to a mere spur.
6.—*C. contigua.*
7.—*C. suffusa*, variety; oblique band narrow, interrupted.
8.—*C. suffusa*, second and third spots confluent.
9.—*C. suffusa*, basal, second, and third spots connected.
10.—*C. suffusa*, the entire series of subcostal spots connected.
11.—*C. suffusa*, all the spots connected.
12.—*C. lecontei*, fully marked.
13.—*C. lecontei*, the discal spots connected.
14.—*C. lecontei*, costal series and discal spots connected.
15.—*C. lecontei*, apical and submarginal spots connected.
16.—*C. lecontei*, all spots except basal connected.

(Descriptions on pages 338-353.)



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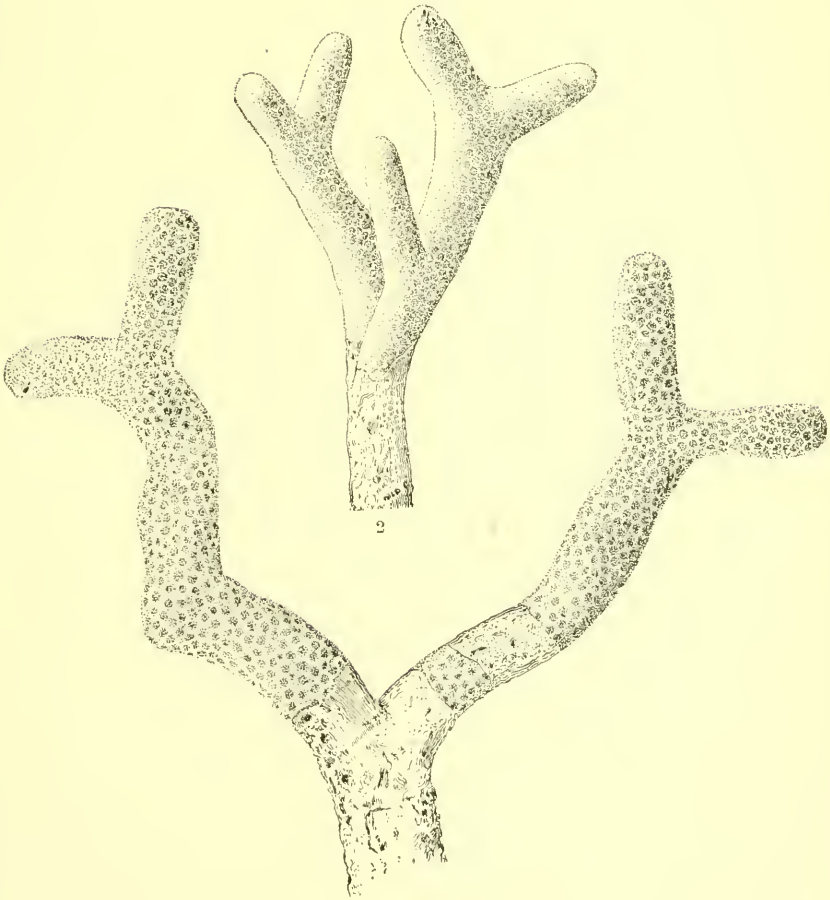
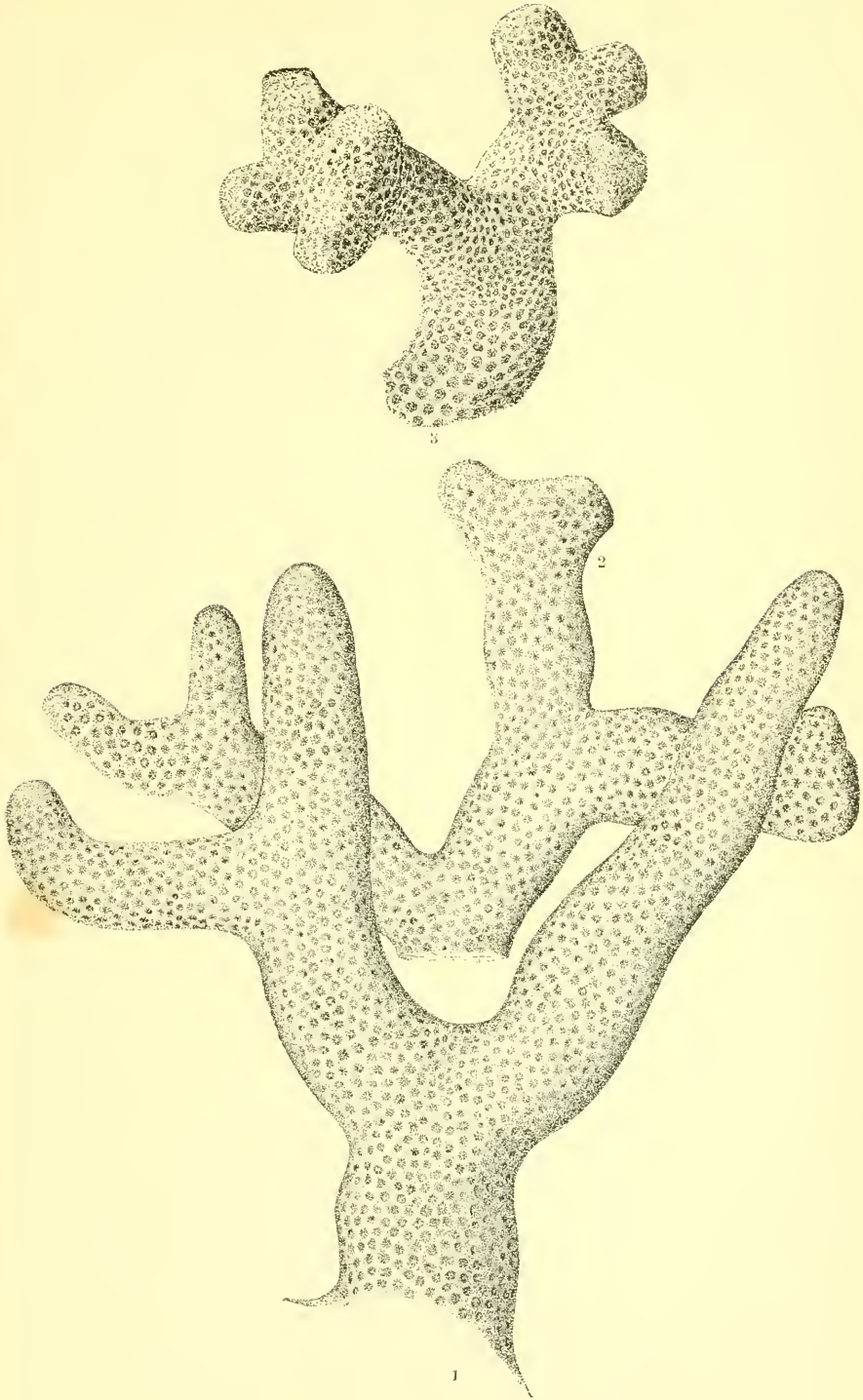


2

3

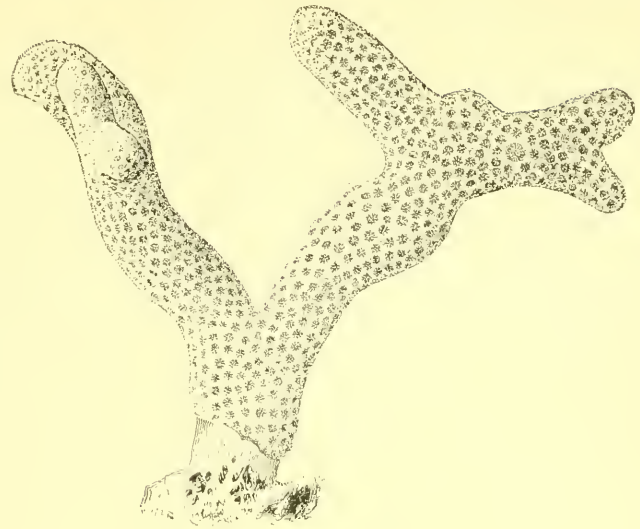
PORITES FURCATA Lam. (Pages 362, 363.)

Drawings by A. H. Baldwin.



PORITES CLAVARIA Lam. (Page 358.)

Drawings by A. H. Baldwin.

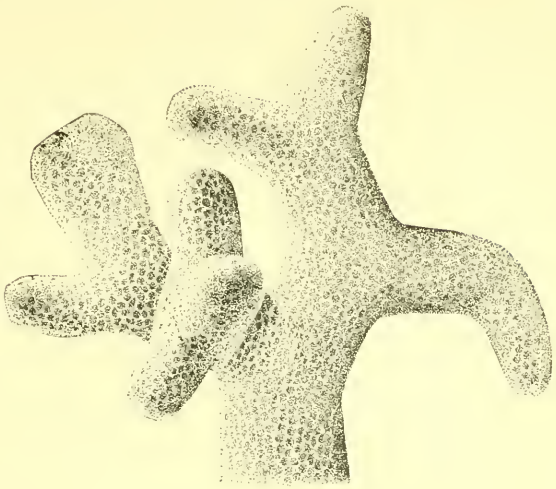


1

2

1.—PORITES FURCATA Lam. (?) (Page 363.) 2.—PORITES CLAVARIA Lam. (Page 360.)

Drawings by A. H. Baldwin.



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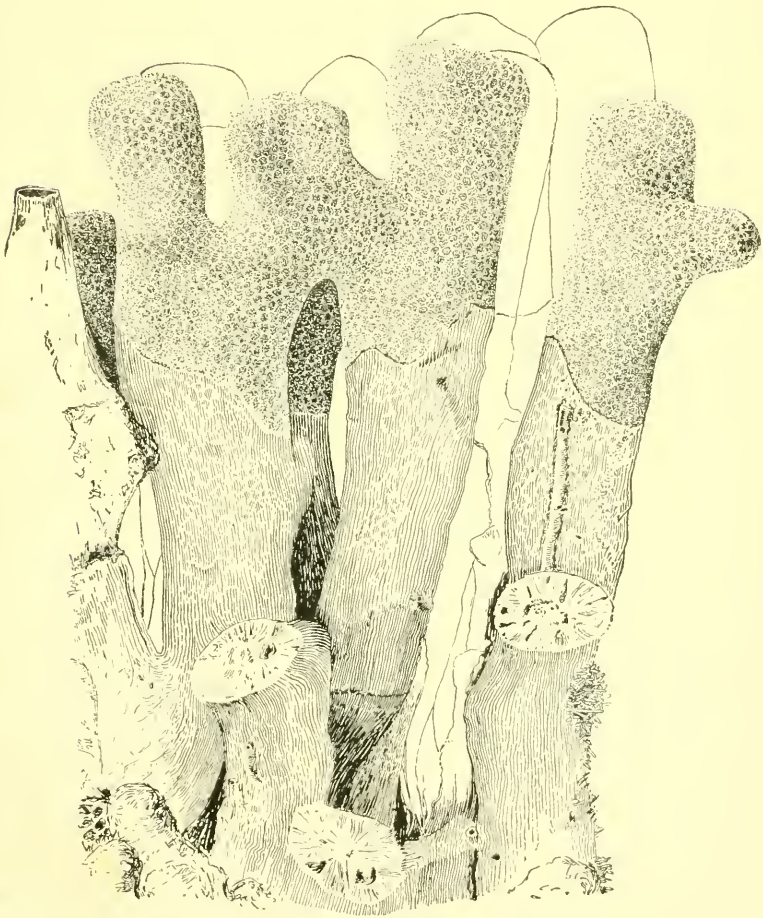
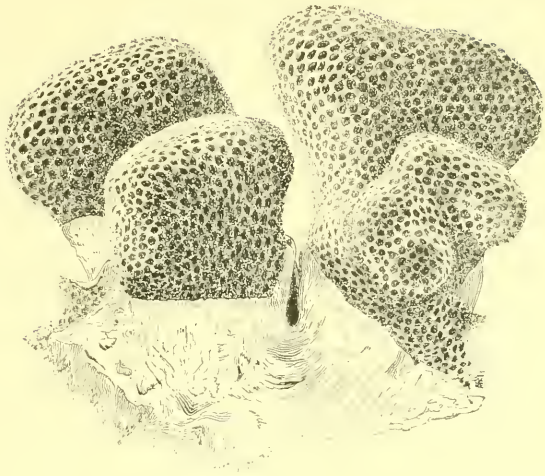


2

PORITES CLAVARIA Lam. (Pages 359, 360.)

Drawings by A. H. Baldwin.



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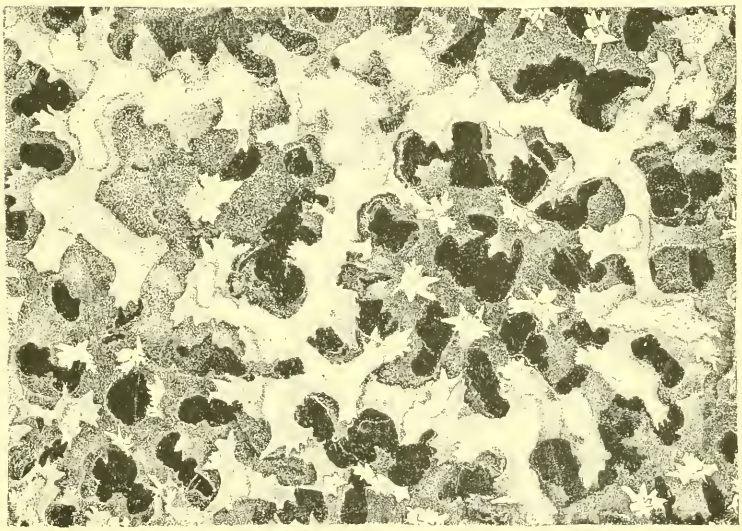
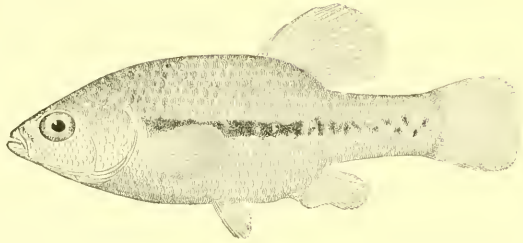


2

1.—PORITES CLAVARIA Lam. (Page 356.) 2.—PORITES BRANNERI Rath. (Page 355.)

Drawings by A. H. Baldwin.

6



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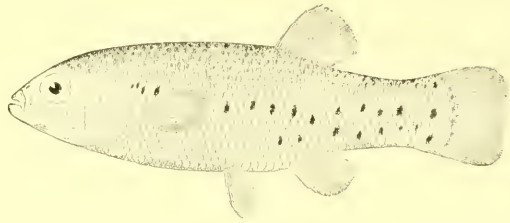

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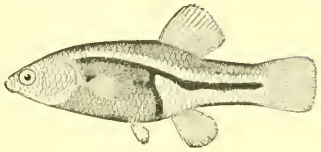

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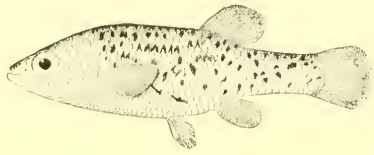

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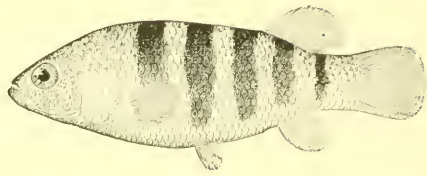
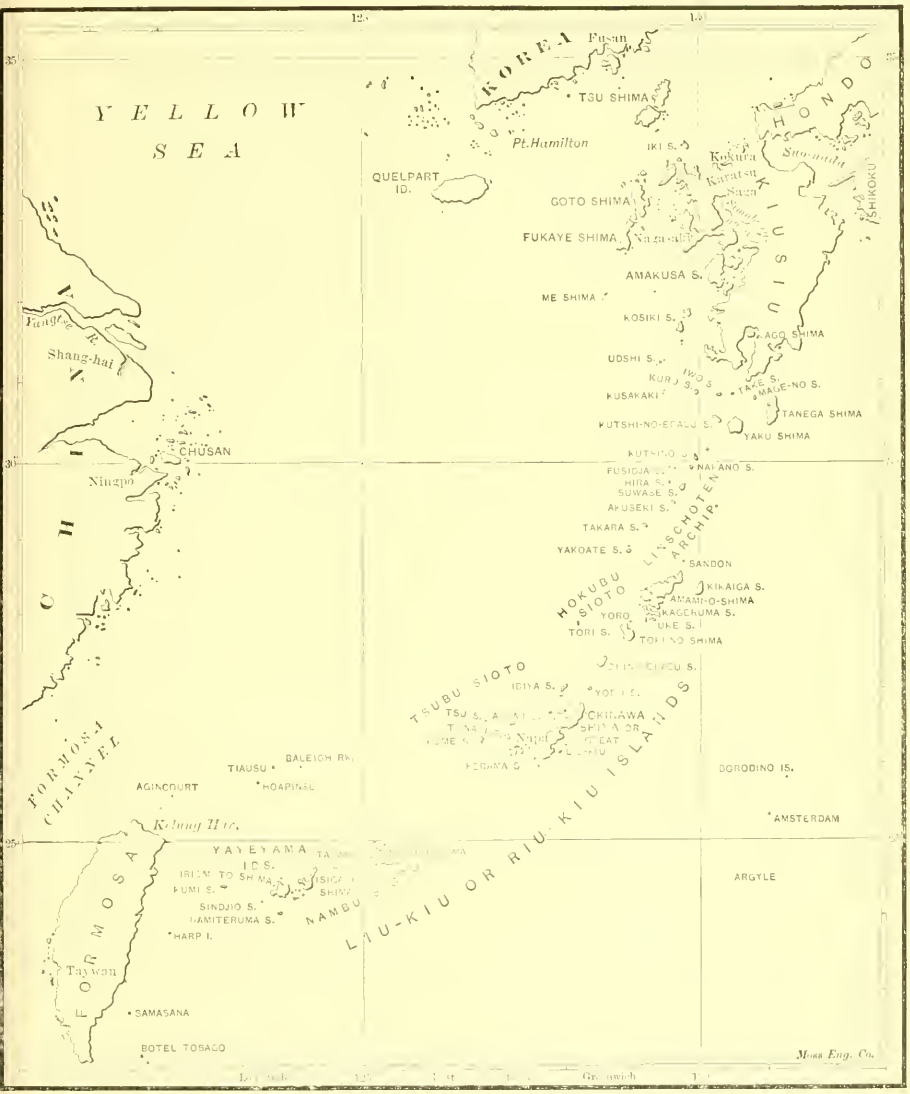


5

1.—*Characodon variatus.* (p. 370.)
2.—*Characodon bilineatus.* (p. 371.)
3.—*Characodon ferrugineus* (male). (p. 372.)

Figures all natural size.

4.—*Characodon ferrugineus* (female). (p. 372.)
5.—*Fundulus dugesi.* (p. 373.)
6.—*Lampetra spadicea.* (p. 374.)



SKETCH-MAP

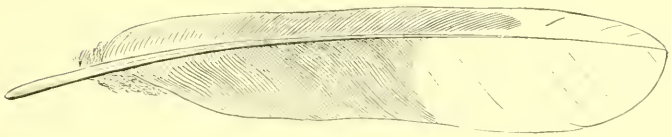
OF

THE ISLANDS BETWEEN THE MAIN ISLAND OF JAPAN AND FORMOSA

(p. 391.)

1

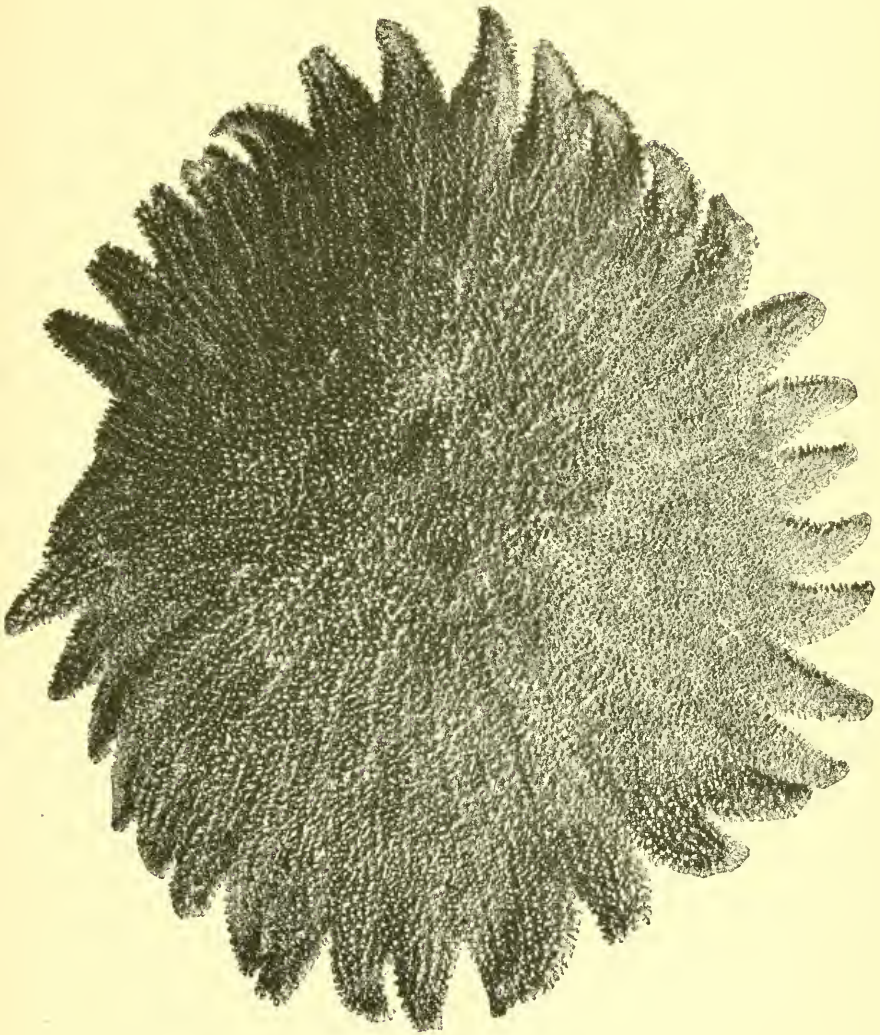
2



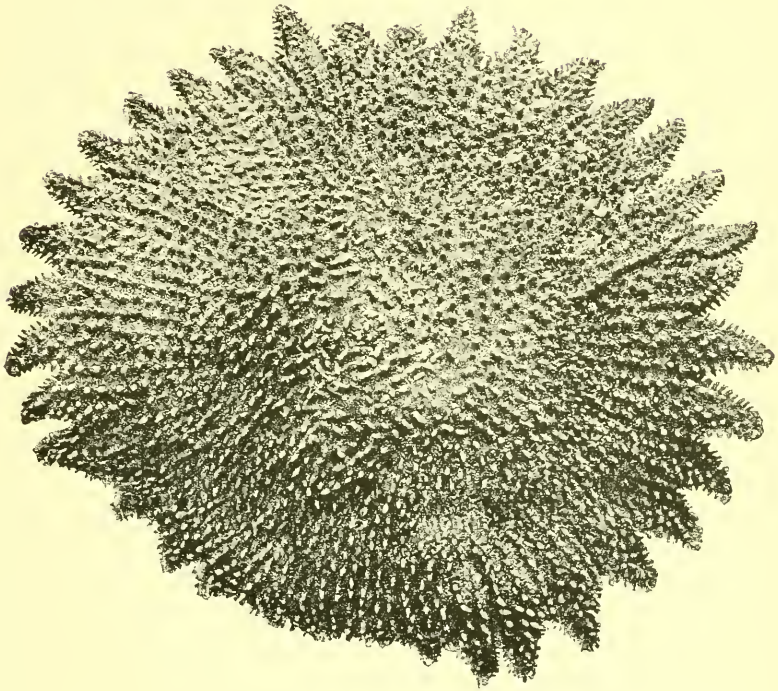
3

4

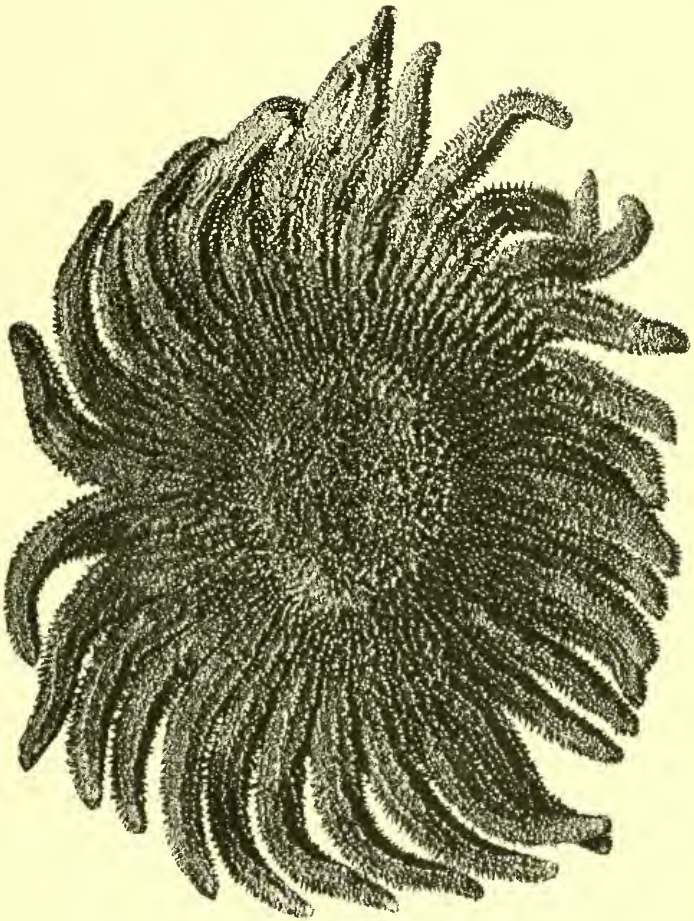
1.—First primary of *Dendronessa javanica*; $\frac{2}{3}$ natural size. (p. 397.)
2.—Third primary of *Treron*; $\frac{1}{2}$ natural size. (p. 417.)
3.—External tail-feather of *Turtur douraca torquatus*. U. S. Nat. Mus. No. 109408; $\frac{2}{3}$ natural size. (p. 427.)
4.—External tail-feather of *Turtur humilis*. U. S. Nat. Mus. No. 86118; $\frac{2}{3}$ natural size. (p. 427.)



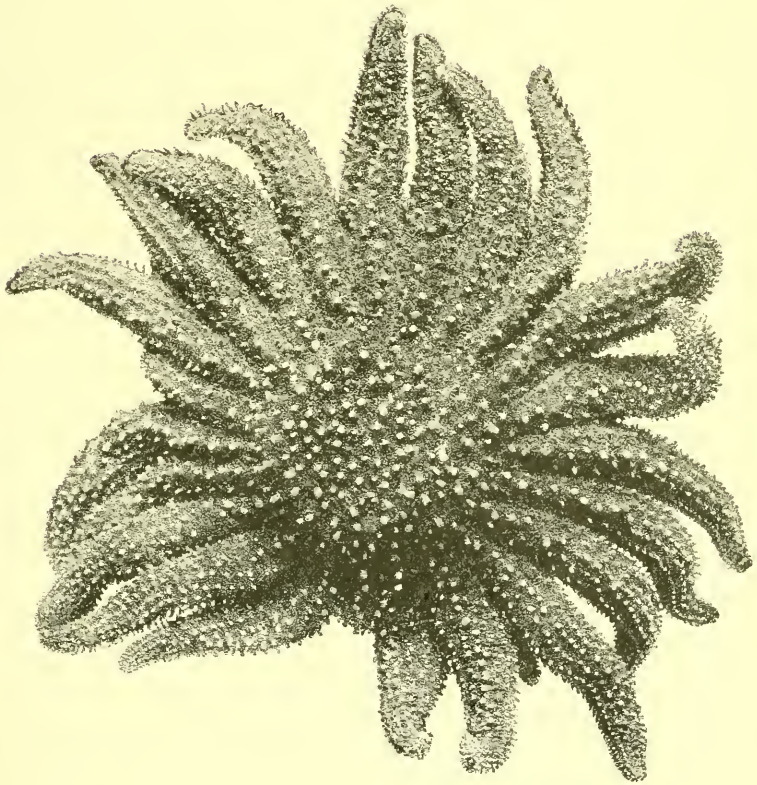
Heliaster microbrachia Xantus. Type specimen, from Cape St. Lucas, Lower California. Collected by John Xantus. Abactinal view; ⅔ natural size. (p. 441.)



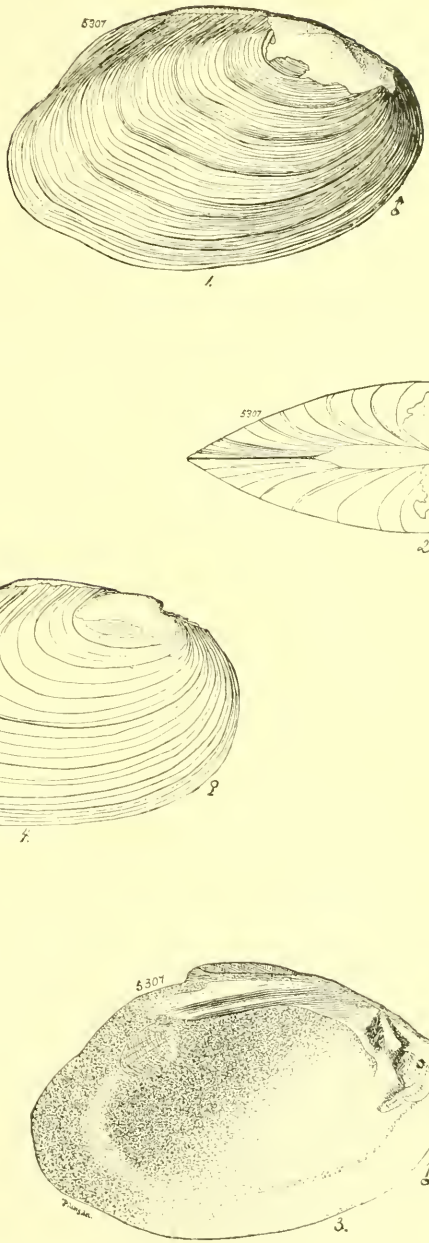
Heliaster Cumingni Gray. Chatham Island, Galapagos Islands. Collected by Dr. W. H. Jones, U. S. N., 1884. Abactinal view; $\frac{2}{3}$ natural size. (p. 443.)



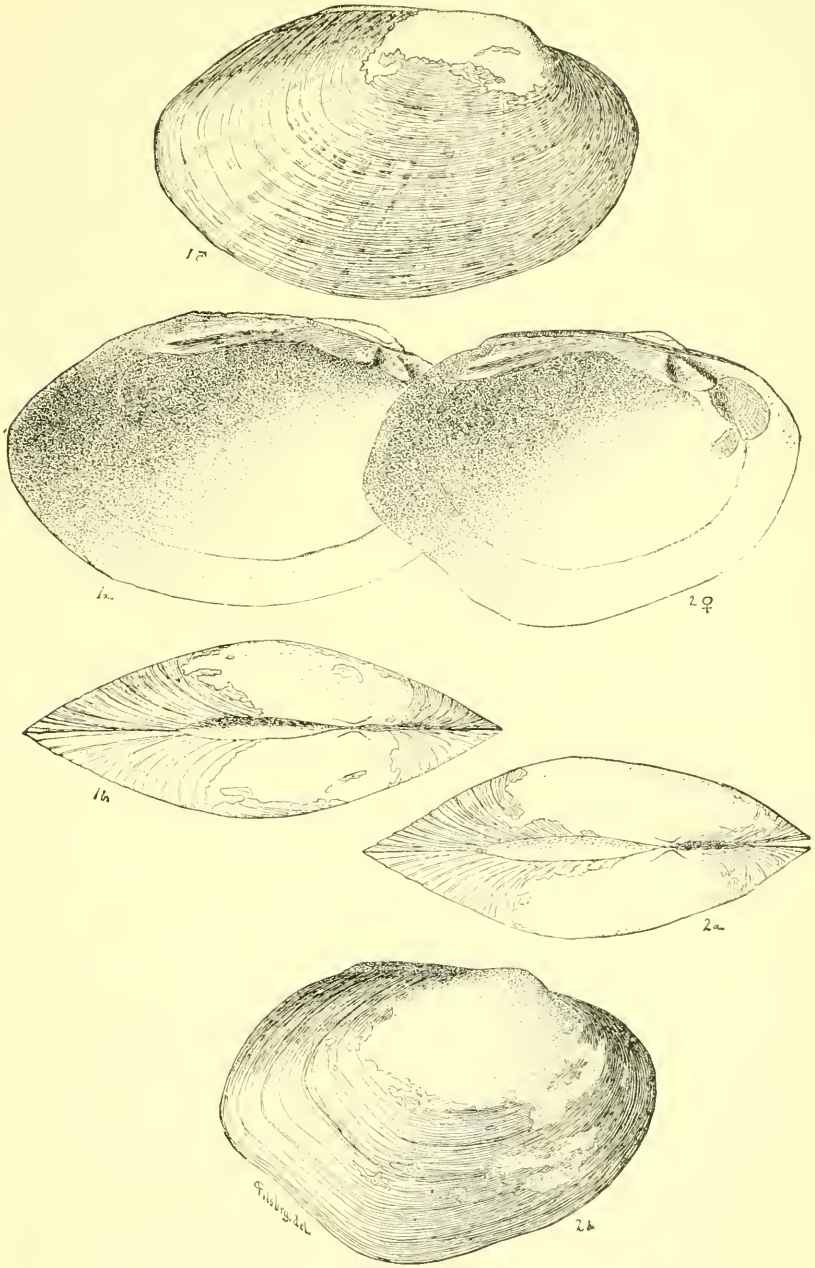
Heliaster helianthus Gray. San Lorenzo Ecuador. Collected by Dr. W. H. Jones, U. S. N., 1884. Abactinal view; $\frac{2}{3}$ natural size. (p. 446.)



Heliaster multiradiata Gray. Cape St. Lucas, Lower California. Collected by John Xantus. One of the type specimens of *H. Kubingii* Xantus. Abactinal view; ⅔ natural size. (p. 447.)

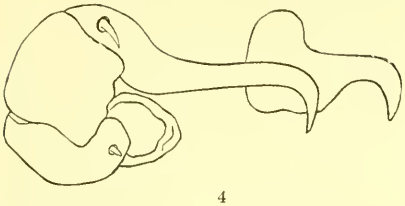


Unio ozarkensis, sp. nov. Figs. 1–3, male; 4, female. (p. 498.)



Unio brevicalus, sp. nov. Figs. 1, 1*a*, 1*b*, male; 2, 2*a*, 2*b*, female. (p. 499.)

PLATE XXIX.



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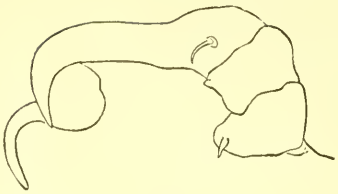

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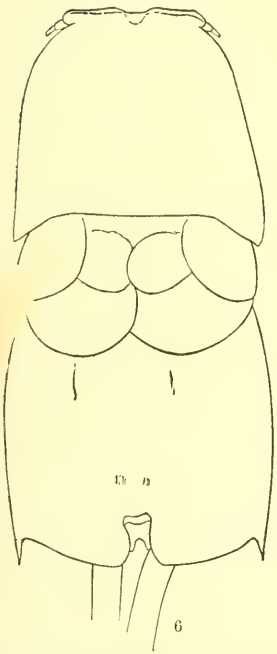

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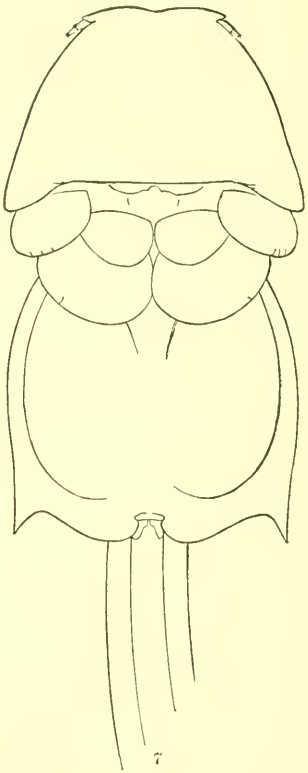


7

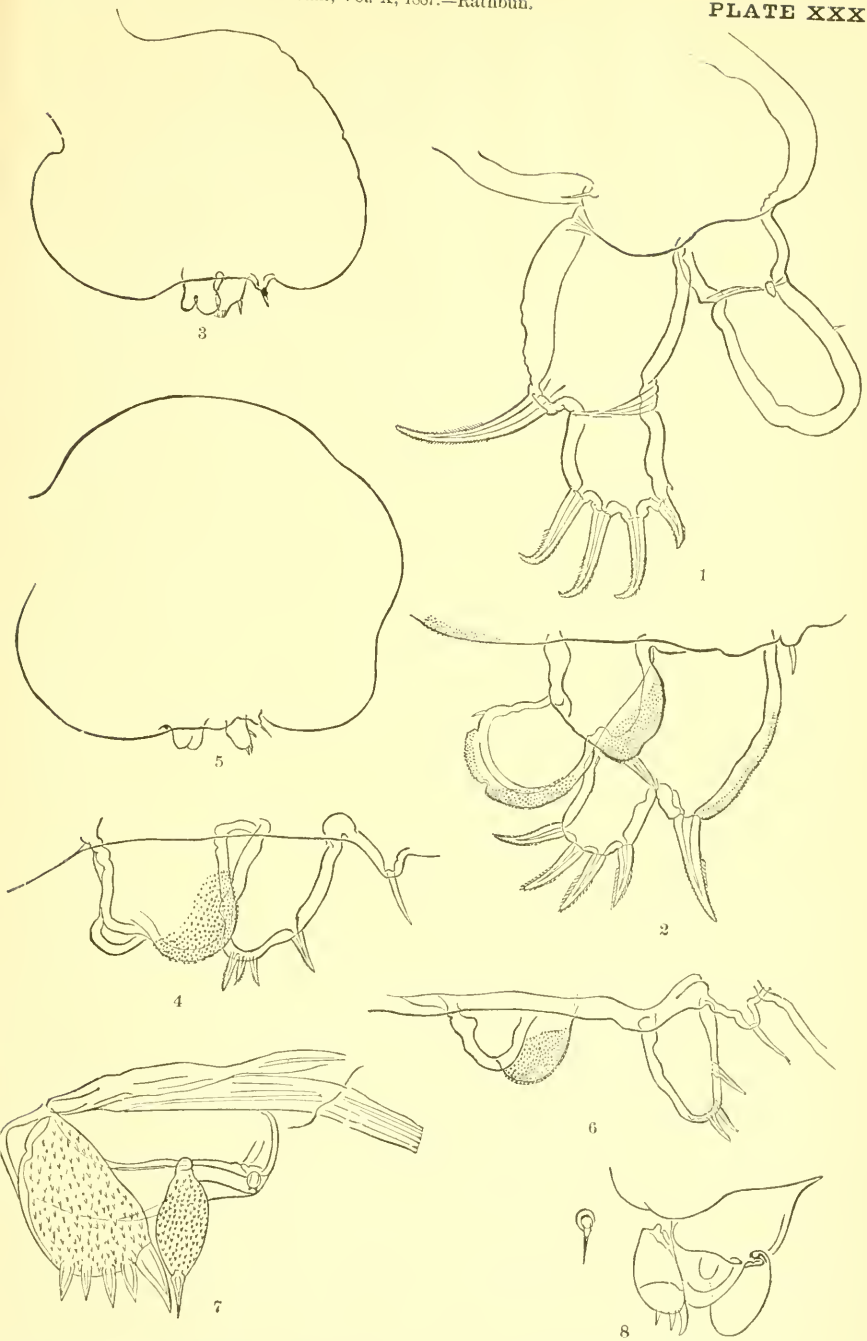
Trebius tenuifurcatus Rathbun, sp. nov., ♀. Fig. 1, dorsal view, enlarged about 11 diameters; 2, posterior antenna and accessory hook of one side, × 45 dia.; 3, furca, × 45 dia. (p. 559.)

Trebius caudatus Kröyer, ♀. Fig. 4, posterior antenna and accessory hook, × 45 dia.; 5, furca, × 45 dia. (p. 559.)

Perissopus communis Rathbun, sp. nov., ♀. Fig. 6, typical form, dorsal view, × 14 dia.; 7, var. *Stimpsoni* Rathbun, dorsal view, × 14 dia. (p. 560.)

(Figs. 6 and 7 were drawn by Mr. A. H. Baldwin; the remainder by the author.)

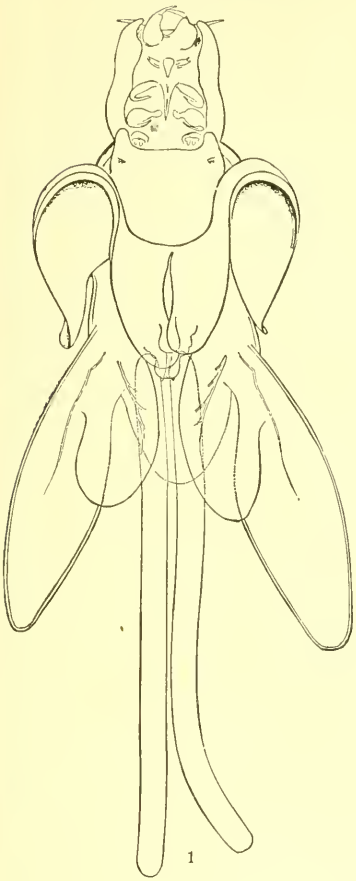
PLATE XXX.



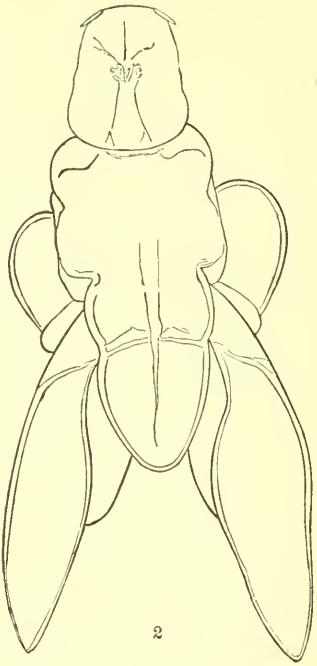
Perissopus communis, var. *Stimpsoni* Rathbun, ♀. Fig. 1, foot of first pair, × 160 diameters; 2, foot of second pair, × 160 dia.; 3, foot of third pair, × 46 dia.; 4, appendages of same, × 160 dia.; 5, foot of fourth pair, × 46 dia.; 6, appendages of same, × 160 dia. (p. 560.)

Hexanthropus Brevoortiæ Rathbun, sp. nov., ♀. Fig. 7, thoracic foot of first pair, × 195 dia.; 8, thoracic foot of second pair, × 195 dia. (p. 563.)

(From drawings by the author.)



1



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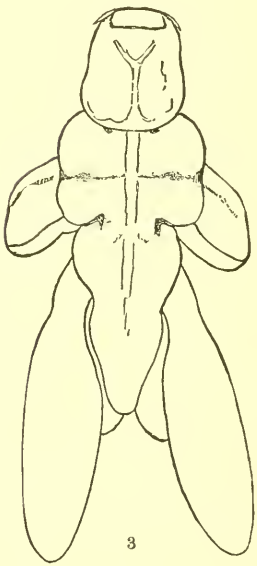

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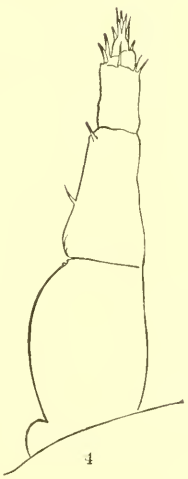

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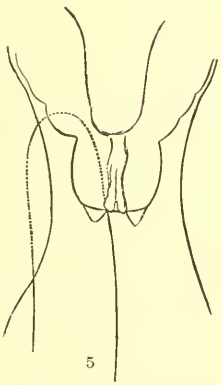
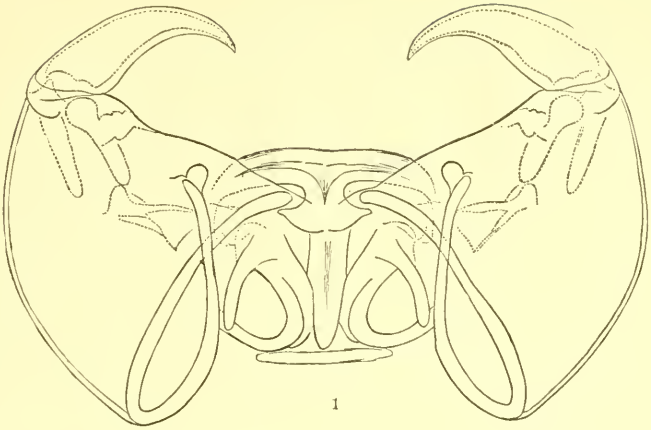
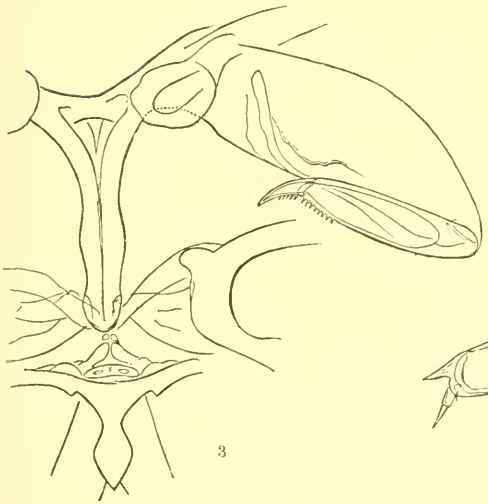


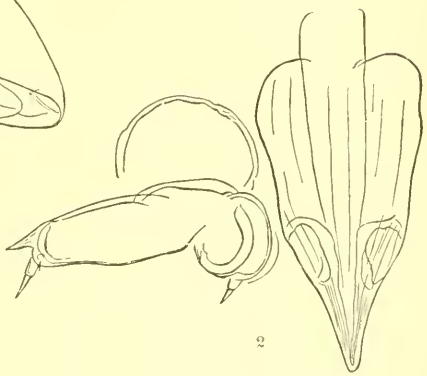
5

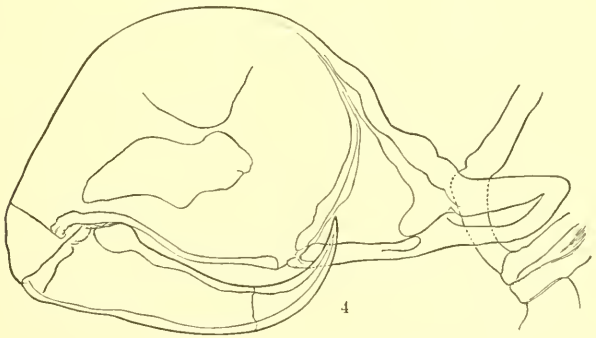
Lernanthropus Brevoortiæ Rathbun, sp. nov., ♀. Fig. 1, ventral view, from living specimen, enlarged 12 diameters; 2, dorsal view, from living specimen, × 12 dia.; 3, dorsal view, from alcoholic specimen, × about 11 dia.; 4, anterior antenna, × 130 dia.; 5, abdomen and caudal segment, enlarged. (p. 563.)

(Fig. 3 was drawn by Mr. A. H. Baldwin; the remainder by the author.)



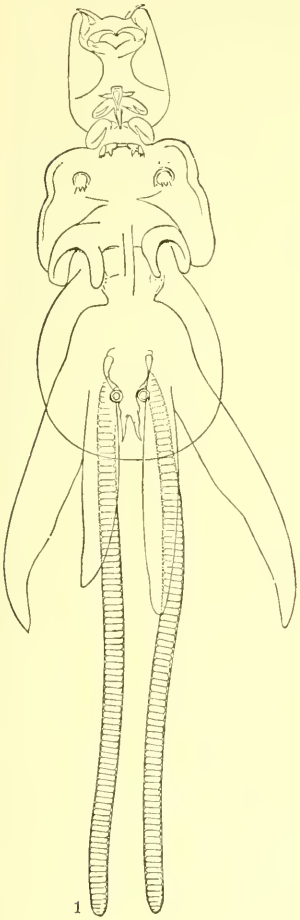


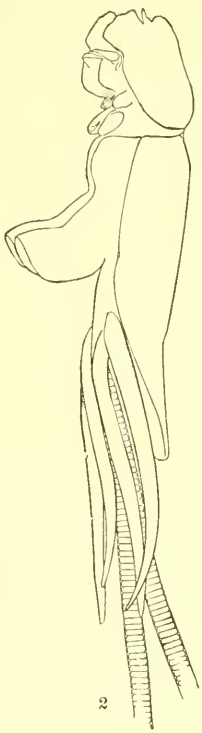


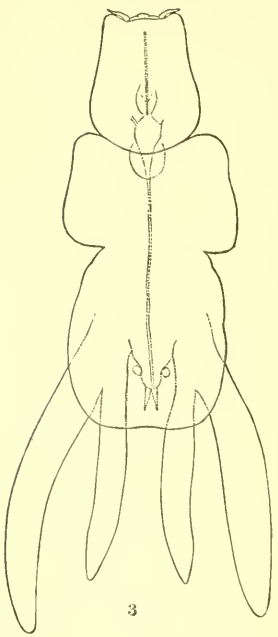


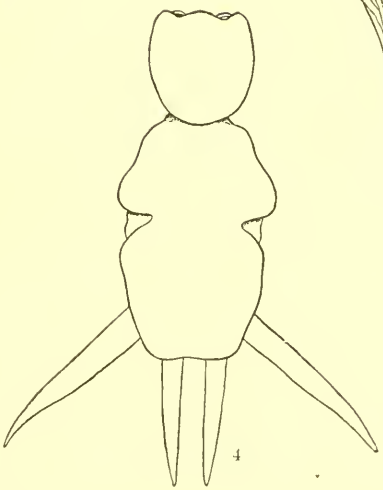
Lernanthropus Brevoortiæ Rathbun, sp. nov., ♀. Fig. 1, posterior antennæ, enlarged 83 diameters; 2, proboscis and palpus, × 173 dia.; 3, first maxilliped, and the median horny frame-work for the attachment of both pairs of maxillipeds, × 113 dia.; 4, second maxilliped, showing attachment to the median horny frame-work, × 113 dia. (p. 563.)

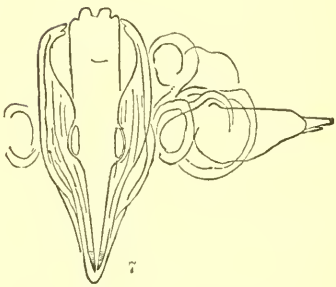
(From drawings by the author.)





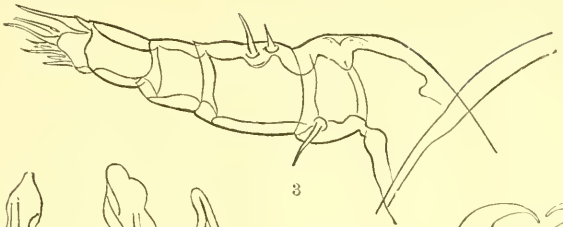


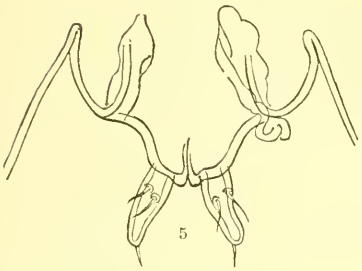


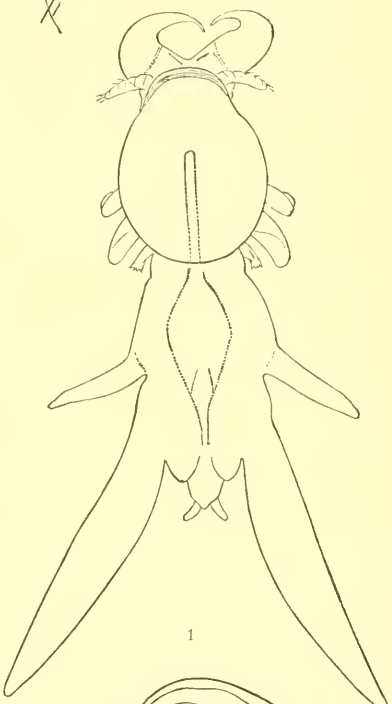


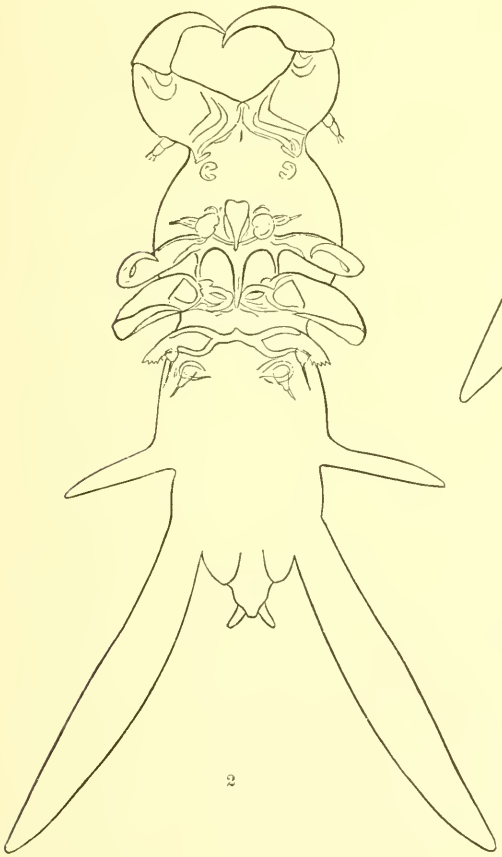
Lernanthropus Pomatomi Rathbun, sp. nov., ♀. Fig. 1, ventral view, from living specimen, enlarged 10 diameters; 2, lateral view of same specimen, × 10 dia.; 3 dorsal view, from living specimen, × 10 dia.; 4, dorsal view, from alcoholic specimen, × 12 dia.; 5, anterior antenna, × 167 dia.; 6, posterior antenna, × 120 dia.; 7, proboscis and palpus, × 183 dia. (p. 567.)

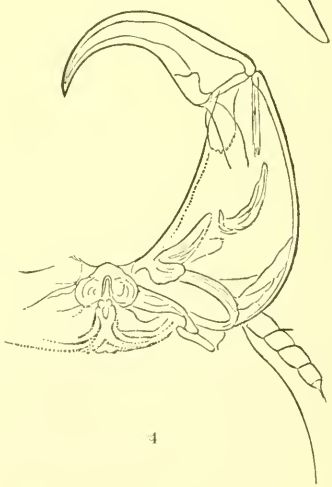
(Figs. 1 and 2 were drawn by Mr. J. H. Emerton; the remainder by the author.)





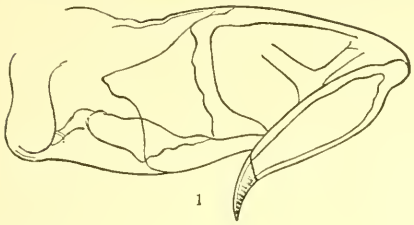


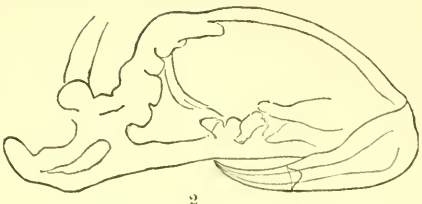


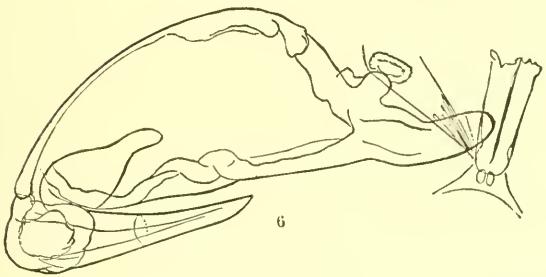


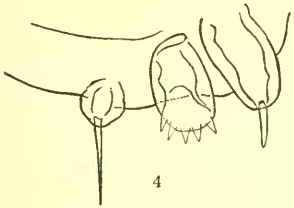
Lernanthropus Pomatomi Rathbun, sp. nov., ♂. Fig. 1, dorsal view, enlarged 28 diameters; 2, ventral view, showing the appendages, × 37 dia.; 3, anterior antenna, × 163 dia.; 4, posterior antenna. × 86 dia.; 5, showing abdomen, caudal segment, appendages, and openings, somewhat broadened by compression, and enlarged. (p. 570).

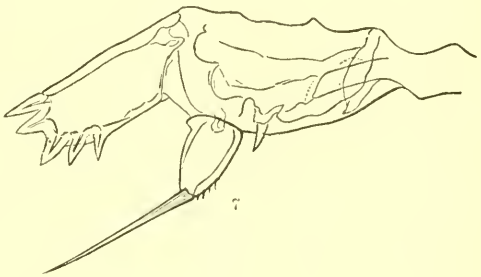
(From drawings by the author.)

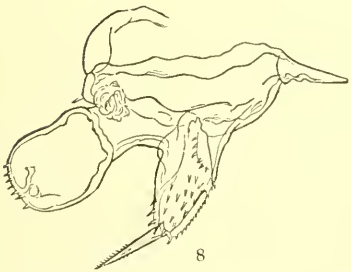


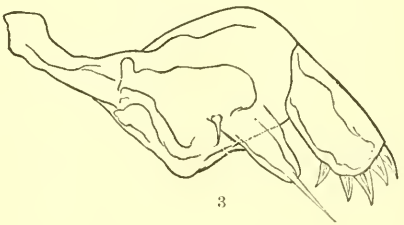








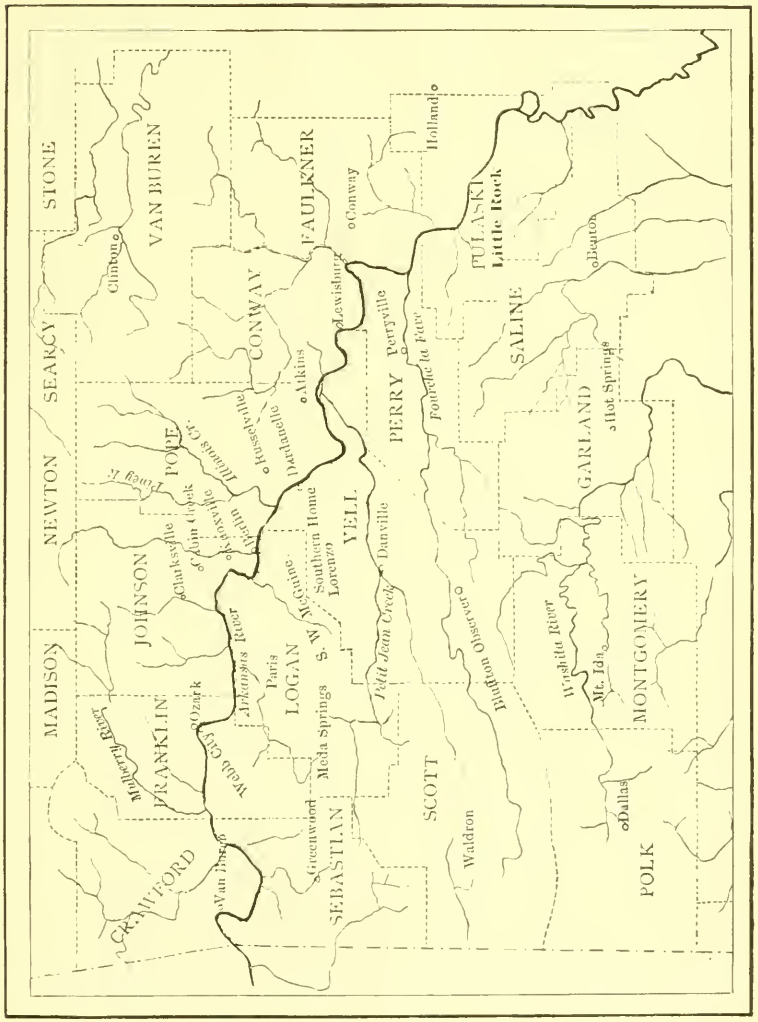




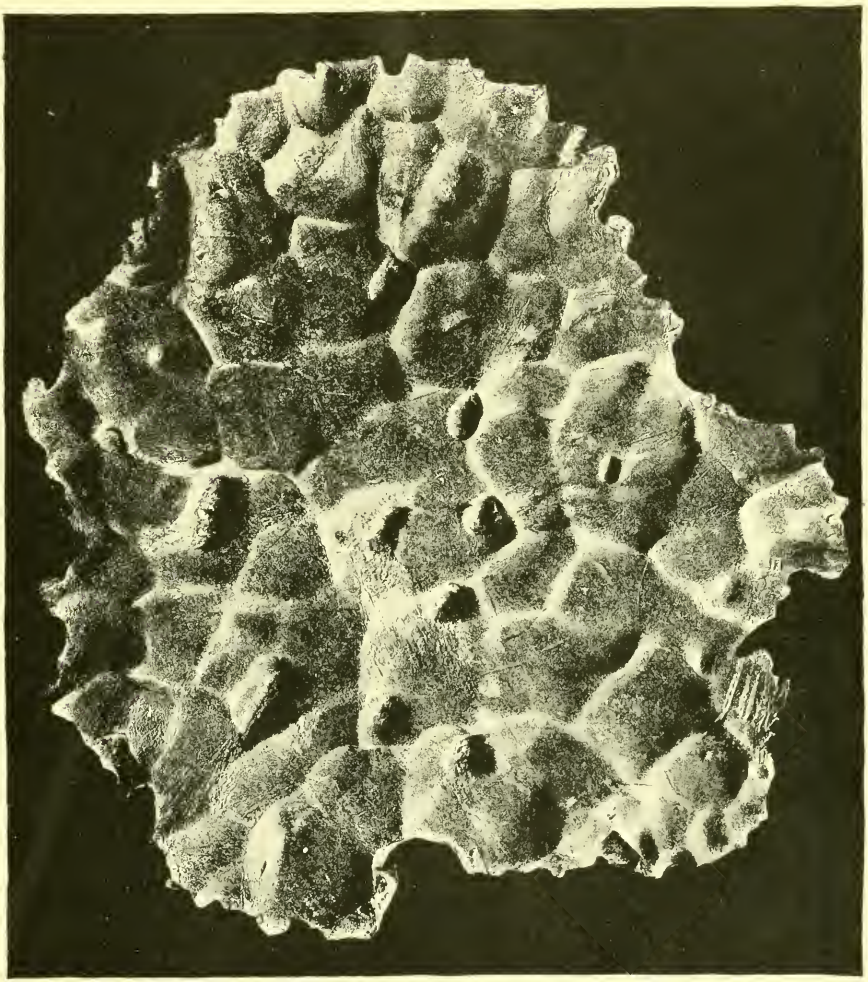
Lernanthropus Pomatomi Rathbun, sp. nov., ♀. Fig. 1, first maxilliped, enlarged 167 diameters; 2, second maxilliped, × 116 dia.; 3, thoracic foot of first pair, × 167 dia.; 4, thoracic foot of second pair, × 267 dia. (p. 567).

Lernanthropus Pomatomi Rathbun, sp. nov., ♂. Fig. 5, first maxilliped, proboscis, and palpus, × 167 dia.; 6, second maxilliped, × 167 dia.; 7, thoracic foot of first pair, × 184 dia.; 8, thoracic foot of second pair, × 184 dia. (p. 570.)

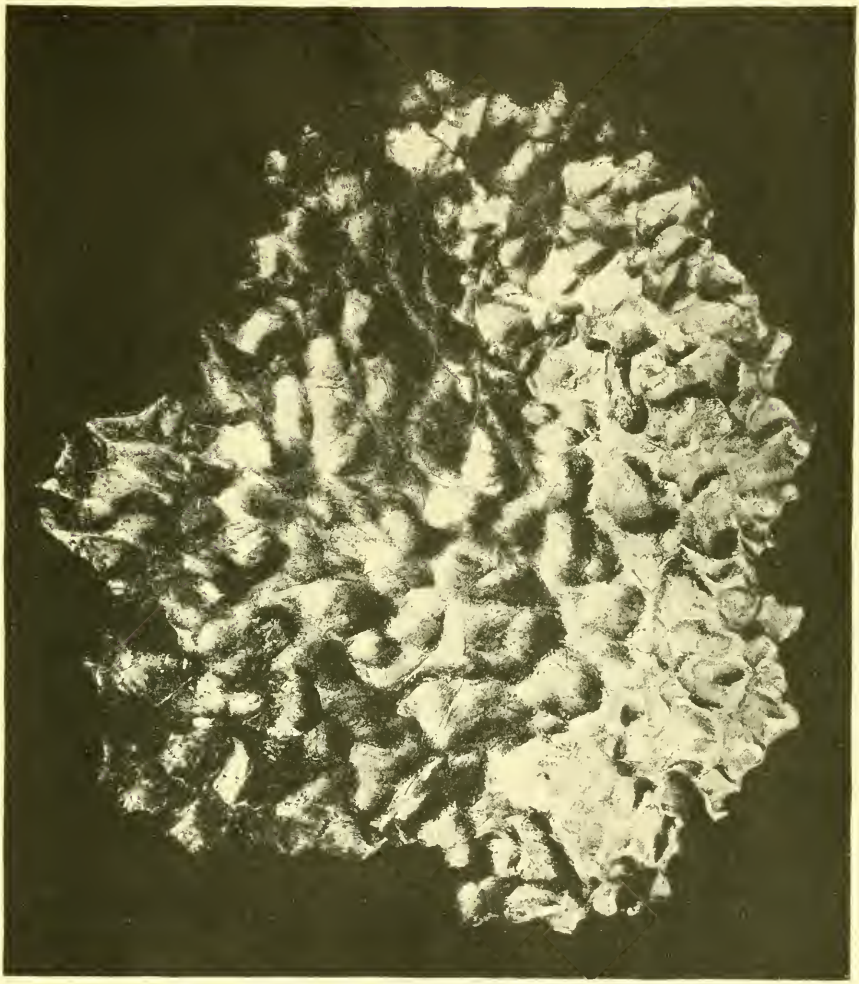
(From drawings by the author.)



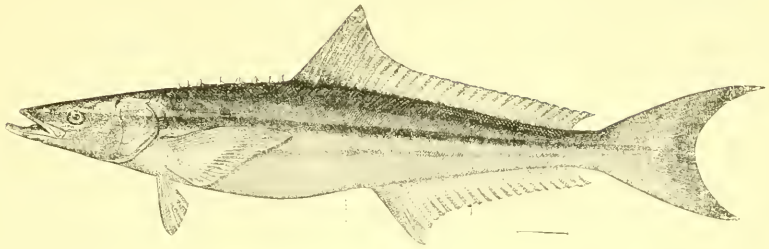
MAP OF PART OF ARKANSAS. (Page 598.)



METEORIC IRON FROM ARKANSAS, UNDER SURFACE. (Page 602.)



METEORIC IRON FROM ARKANSAS, UPPER SURFACE. (Page 602.)



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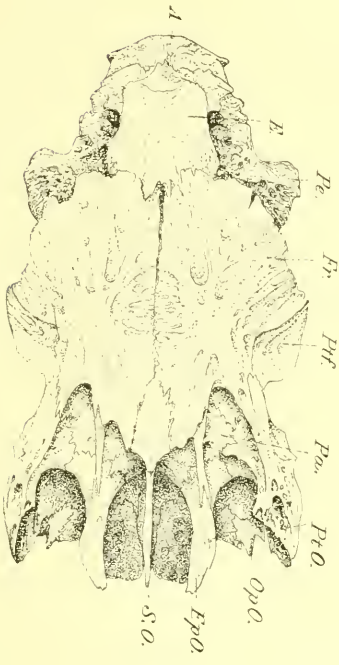

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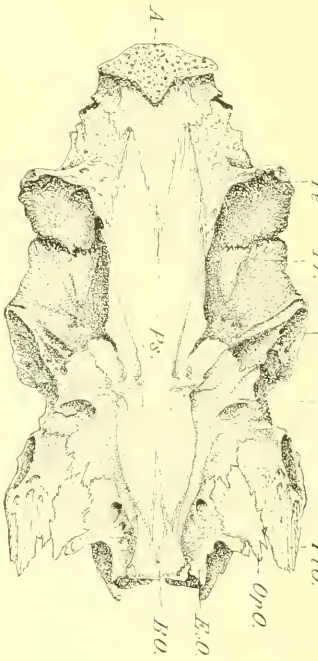

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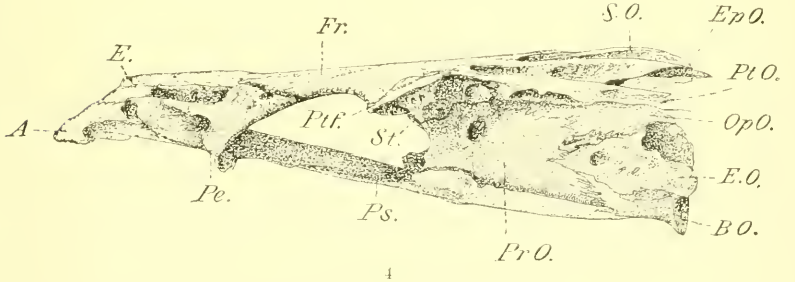

4

ELACATE CANADA. (Page 612.)

Fig. 1, fish from side; 2, skull from above; 3, skull from below; 4, skull from side.