# SYNOPSES OF NORTH-AMERICAN INVERTEBRATES.

# X. THE OXYRHYNCHOUS AND OXYSTOMATOUS CRABS OF NORTH AMERICA.

## MARY J. RATHBUN.

The Oxyrhyncha include the large family of Maiidæ, or "spider crabs," so called on account of their slender legs. The body is usually narrow in front, sometimes suborbicular, but always with a beak or rostrum, as in the common "spiders" (Libinia) of the Atlantic coast. The Maiidæ are all provided with numbers of hairs, either hook-shaped or straight, varying in form and arrangement in the different genera and species. In order to conceal themselves from enemies these crabs cover their backs with algæ and sedentary animals, as sponges, tunicates, and bryozoans, which are held fast by the hairs and live and grow until their host is unrecognizable. This is notably so in *Oregonia gracilis*. Some species, as those of Collodes, are covered with slimy adherent mud.

The Parthenopidæ, the second and smaller division of the Oxyrhyncha, are easily distinguished by their broad, triangular carapace, very long, usually trigonal chelipeds, and short, delicate walking legs. They often resemble fragments of stone with sharp angles, or with eroded or nodular surfaces.

The Oxystomata comprise several families widely different in their general appearance. Of the Calappidæ the best known are the species of Calappa, "box crabs," or "shamefaced crabs," from the chelipeds which are large and of unusual shape, with cockscomb-like crests on the upper margin of the hands, and which in flexion are pressed tightly against the inferior surface of the carapace like a shield. This arrangement is said to protect from attack any morsels of food they may be devouring.

The Calappa lives usually on sandy shores, into which it is in the habit of burrowing.

Of the Matutidæ, which are sparsely represented in North America, the species of Hepatus are large and strikingly colored. They differ from Calappa in the smaller claws and in the narrower posterior portion of the shell. Hepatus epheliticus is known on the Gulf coast as "Dolly Varden."

The Leucosiidæ are generally distinguished by their globular carapace, long claws, and comparatively small walking feet. The largest and most conspicuous North-American species are the *Persephona punctata*, or "speckled spider," of the Atlantic and Gulf coasts, and *Randallia ornata* of the Pacific coast.

The Dorippidæ are marked by the reduction of the last two pairs of feet, which are raised on the dorsal surface of the carapace. The first two pairs of walking legs are long, enabling the crab to run fast.

In the key which follows, the same terms are used to indicate distribution as in No. VII of these synopses; and, as in that number, many of the definitions have been taken from the works of Drs. Stebbing and Alcock.

#### TRIBE OXYRHYNCHA, OR MAIOIDEA.

Carapace narrowed anteriorly and rostrate, with the hepatic regions small, the branchial large. Epistome generally large. Buccal frame quadrate, with anterior margin straight. Nine pairs of branchiæ, with the efferent channels opening at the sides of the endostome. The afferent channels open behind the pterygostomian regions, in front of the bases of the chelipeds. First antennæ longitudinally folded. Third maxillipeds with the fifth joint articulated at the apex or at the front inner angle of the fourth. The genital organs of the male are inserted at the bases of the last pair of trunk legs.

# KEY TO THE FAMILIES OF THE TRIBE OXYRHYNCHA.

- A. Basal joint of antennæ well developed. Chelipeds not a great deal longer than the other legs. . . . . . . . MAIIDÆ Leach
- A'. Basal joint of antennæ very small, and imbedded between the front and the floor of the orbit. Chelipeds a great deal longer and more massive than the other legs

PARTHENOPIDÆ Milne-Edwards, White

KEY TO THE GENERA OF THE FAMILY MAIDE

Key to the Genera of the Family Maiidæ.	
A. Basal joint of antennæ extremely slender throughout its length and usually long. Eyes without orbits and not concealed. B. Carapace elongate, narrowed in front. External maxillipeds somewhat pediform, with the palp large and coarse, and the merus often narrower than the ischium. Basal joint of antennæ usually subcylindrical.	
C. Rostrum extremely long. Dactyli of ambulatory legs longer than the propodi.	
D. Carapace smooth, even above. Antennæ concealed beneath the rostrum Stenorynchus D'. Carapace uneven above. Antennæ long, flagellum ex-	
posed Metoporhaphis  C. Rostrum short. Dactyli of ambulatory legs shorter than the	
propodi Podochela	
B'. Carapace usually subtriangular. External maxillipeds with the merus at least as broad as the ischium, and the palp small.	
Basal joint of antennæ flattened or concave ventrally.	
<ul><li>C. Rostrum simple, or with two short spines or lobes.</li><li>D. No postocular spine or tooth.</li></ul>	
E. Chelipeds not much elongated, palms inflated. Ros-	
trum emarginate	
D'. A postocular spine or tooth.	
E. Eyes long and slender Arachnopsis $E'$ . Eyes not long and slender.	
F. Inner crest of basal antennal joint very promi-	
nent and projecting downward at right angles	
to the outer crest.	
<ul><li>G. Postocular tooth pointing forward.</li><li>H. Postocular tooth fitting close to the</li></ul>	
eye Dasygyius	
H'. Postocular tooth not fitting close to	
the eye Inachoides	
G'. Postocular tooth pointing outward Collodes	
F'. Inner crest of basal antennal joint, when present,	
not projecting downward at right angles to the outer crest.	
G. Rostrum simple Anasimus	
G'. Rostrum bifid.	
H. Spine of basal antennal joint not	
advanced to the line of the front.	

A'.

	Hepatic region approximating the
	eye, its anterior margin transverse
	Batrachonotus
H'. Sp	oine of basal antennal joint advanced
	to the line of the front or nearly so.
	Hepatic region distant from the
	eye, its anterior margin oblique
	•
C. Destern services define	Euprognatha
	long spines Oregonia
	ly slender, often very broad. Eyes
with orbits, or capable of concea	
	ate-triangular. Eyes without true
orbits; eyestalks very short	, either concealed beneath a supra-
ocular spine or sunk in the s	sides of a huge beak-like rostrum.
C. Antennæ concealed beneat	th the rostrum.
D. Rostrum formed of tw	
	Sphenocarcinus
D'. Rostrum not formed of	of two long contiguous horns.
	Mocosoa
	Epialtus
C'. Antennæ not concealed be	
	of carapace wing-like. Carapace
	o Mimulus
	large lobes or teeth on each side.
	te Pugettia
	usually either extensively produced
outward or, often, with one	e or two distal spines. Eyes with
orbits.	
C. Orbits with a large, blur	nt, cupped postocular process into
which the eye is retract	ile, but is not completely concealed.
Eyestalks short.	
D. No preocular spine.	
E. Meral joints of a	mbulatory legs flattened.
	early as broad as long; surface
uneven .	
	nuch longer than broad; surface
	Pelia
	mbulatory legs subcylindrical
E. Meral joints of a	Hyas
D'. A preocular spine.	11 y 4.5
• •	armed with anines Nibilia
	armed with spines Nibilia
	not armed with spines.
	of antenna deeply concave; second
	joints flattened, with thin, broad,
lateral ex	pansions Scyra

Libinia

Joy
F'. Basal joint of antenna not deeply concave; second and third joints not broadly expanded.  G. Rostral horns long and slender. Chorilia  G'. Rostral horns not long and slender.  H. Basal antennal joint narrowing distally Rhodia  H'. Basal antennal joint not narrowing distally Loxorhynchus  C'. Orbits complete, often tubular, completely concealing the
retracted eye.
D. Meral joints of ambulatory legs with very broad laminate
expansions
D'. Meral joints of ambulatory legs without laminate ex-
pansions.
E. Fingers spoon-shaped at tips.
F. Carapace suboblong or suboval. Orbits directed forward. First movable joint of antennæ broadly expanded. Legs unarmed Pitho
F. Carapace subtriangular. Orbits directed obliquely forward. First movable joint of antennæ not broadly expanded. Legs spinous Mithrax
E'. Fingers acute at tips.
F. Orbits tubular, directed outward. Carapace subtriangular or oblong.
G. Carapace with lateral spines
Stenocionops
G'. Carapace without lateral spines
Macrocœloma
F'. Orbits not tubular, directed obliquely forward.  Carapace orbicular.
G. Basal joint of antennæ with two spines on the inferior margin of the orbit
Cœlocerus
G'. Basal joint of antennæ without spines on
the inferior margin of the orbit

# THE SPECIES OF MAIIDÆ.

Genus Stenorynchus Lamarck . S. sagittarius (Fabricius), M(CH)SGGenus Metoporhaphis Stimpson . . . M. calcarata (Say), M(CH)SGGenus Podochela Stimpson.

- A. Rostrum acute or spiniform.
  - B. Rostrum long-pointed, terminating in a slender spine

P. gracilipes Stimpson, M(CH)SG

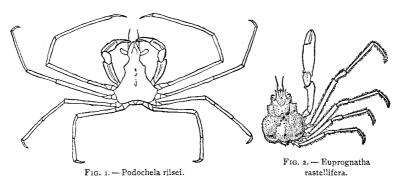
- B'. Rostrum short-pointed, not terminating in a spine.
  - C. A large postorbital tooth near the eye

P. lamelligera (Stimpson), G

C'. A small postorbital tubercle, remote from the eye

P. hemphillii (Lockington), D

- A'. Rostrum not acute, but rounded.
  - B. Pterygostomian region with a laminate crest. Basal antennal joint with lateral crests laminate P. riisei Stimpson, M(CH)G
  - B'. Pterygostomian region with a tubercle. Basal antennal joint with lateral crests smooth and rounded P. hypoglypha (Stimpson), G



Genus Æpinus Rathbun . . A. septemspinosus (A. Milne-Edwards), G

Genus Inachoides Milne-Edwards Lucas . I. magdalenensis Rathbun, D Genus Collodes Stimpson.

#### Key to Species.

A. Carapace with median spines

C. depressus A. Milne-Edwards, M(CH)SG

- A'. Carapace without median spines.
  - B. Interantennular spine advanced as far as the rostrum

C. leptocheles Rathbun, G

B'. Interantennular spine not advanced as far as the rostrum

C. robustus Smith, M

Genus Anasimus A. Milne-Edwards.

A. Ambulatory legs more than twice the length of the carapace

A. latus Rathbun, SG

A'. Ambulatory legs less than twice the length of the carapace

A. rostratus Rathbun, D

S. corrosus A. Milne-Edwards, M(CH)

# Key to Species.

A. First tooth of the antero-lateral margin large and prominent.

B. No postocular tooth . . E. bituberculatus Milne-Edwards, D

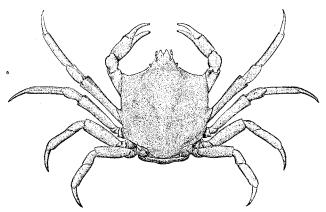


Fig. 3. - Epialtus productus.

B'. A postocular tooth . . . . . . E. productus Randall, APD

A'. First tooth of the antero-lateral margin small, not prominent

E. nuttallii Randall, D

Genus Mimulus Stimpson . . . . . . M. foliatus Stimpson, APD Genus Pugettia Dana.

# Key to Species.

A. Postorbital projection a triangular tooth.

B. Hepatic expansion very broad . . . P. gracilis Dana, APD 1

B'. Hepatic expansion narrow, transverse . . P. richii Dana, AD

<sup>1</sup> San Luis Obispo, California (Lockington).

A'. Postorbital projection an obtuse lobe . . . P. dalli Rathbun, D Genus Chionœcetes Krøver.

# · Key to Species.

A. Carapace tuberculous; branchial regions flattened

C. opilio (O. Fabricius), NA

A'. Carapace spinous; branchial regions dilated

C. tanneri Rathbun, 1 APD

Genus Pelia Bell.

# Key to Species.

A. Hands in male with margins tapering to the fingers, which have their edges meeting throughout . . P. pacifica A. Milne-Edwards, D

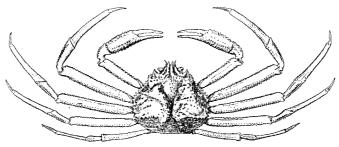


Fig. 4. - Chionœcetes tanneri,

A'. Hands in male with margins subparallel; fingers gaping at base P. mutica (Gibbes), MSG Genus Hyas Leach.

# Key to Species.

- A. Carapace subtriangular; hepatic region not dilated laterally. Basal antennal joint subtriangular . . . . H. araneus (Linnæus), N
- A'. Carapace lyrate; hepatic region dilated laterally. Basal antennal joint with sides nearly parallel.
  - B. Posterior angle of hepatic projection rounded. Basal antennal joint without a large tubercle at the antero-external angle

H. coarctatus Leach, NMA

B'. Posterior angle of hepatic projection subacute. Basal antennal joint with a large tubercle at the antero-external angle

H. lyratus Dana, AP

Genus Nibilia A. Milne-Edwards

N. erinacea A. Milne-Edwards, M(CH)G. . . . . . S. acutifrons Dana, APD

Genus Scyra Dana Genus Chorilia Dana . . . . . . . . . . C. longipes Dana, APD

<sup>&</sup>lt;sup>1</sup> Only in exceptional cases has this species been found above the 100-fathom line.

# Key to Species.

A. Hepatic region with two large spines . . . L. grandis Stimpson, PD A'. Hepatic region with one large spine . . L. crispatus Stimpson, D Genus Hemus A. Milne-Edwards . H. cristulipes A. Milne-Edwards, G Genus Pitho Bell.

# Key to Species.

A. Carapace smooth, pubescent . . . P. anisodon (von Martens), G

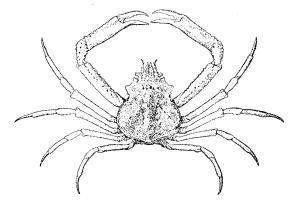


Fig. 5. — Hyas lyratus.

# Key to Species.

- A. Carapace with dorsal sulci on the branchial regions

  M. forceps (A. Milne-Edwards), M(CH)S
- A'. Carapace without dorsal sulci on the branchial regions.
  - B. Divisions of rostrum tuberculiform.
    - C. Tubercles of the carapace faintly indicated

M. hispidus (Herbst), S

C'. Tubercles of the carapace well marked

M. pleuracanthus Stimpson, M(CH)SG

<sup>1</sup> M. denticulatus Bell, M. tuberculatus Stimpson, and Teleophrys cristulipes Stimpson are recorded from California by Miers, but this is very likely an error, as Miers used "California" and "Lower California" interchangeably.

B'. Divisions of rostrum long and sharp M. acuticornis Stimpson, G Genus Stenocionops Leach.

# Key to Species.

A. Carapace with strong median spines

S. spinosissimus (Saussure), M(CH)

A'. Carapace without strong median spines.

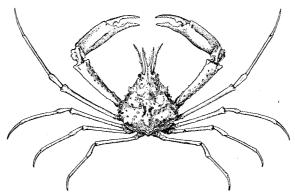


Fig. 6. - Chorilia longipes.

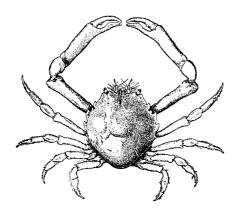


Fig. 7. - Pitho anisodon.

B'. Carapace tuberculous S. furcatus cælatus (A. Milne-Edwards), G Genus Macrocæloma Miers.

# Key to Species.

A. Carapace with dorsal spines besides the epibranchial and posterior spines.

B. Rostrum strongly deflexed M. septemspinosum (Stimpson), SG

B. Rostrum almost horizontal . . M. camptocerum (Stimpson), G
A'. Carapace without dorsal spines except the epibranchial and posterior spines . . . . . . M. trispinosum (Latreille), M(CH)G
Genus Cœlocerus A. Milne-Edwards . . . . C. grandis Rathbun, G
Gerus Lipinia Leach.

### Key to Species.

- A. Carapace with lateral margin evenly rounded behind the rostrum.
  - B. Median spines six . . . . L. dubia Milne-Edwards, MSG
    B. Median spines nine . . . L. emarginata Leach, NMSG
- A'. Carapace distended at the hepatic regions L. spinimana Rathbun, G

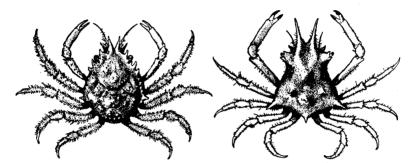


Fig. 8. - Mithrax acuticornis.

Fig. 9. - Macrocœloma camptocerum.

KEY TO THE GENERA OF THE FAMILY PARTHENOPIDE.

- A. Carapace not laterally expanded.
  - B. Carapace tuberculate.
    - C. Carapace triangular, convex. Pterygostomian and subhepatic regions not deeply excavated to form passages to the efferent branchial apertures . . . . . . . . . . . . Lambrus
- B'. Carapace smooth . . . . . . . . . . . . . . . . Solenolambrus A'. Carapace more or less expanded to form a vault in which the ambulatory legs are concealed.
  - B. Carapace greatly expanded, both laterally and posteriorly

Cryptopodia

B'. Carapace expanded laterally, but not posteriorly. Heterocrypta

THE SPECIES OF PARTHENOPIDE.1

Genus Lambrus Leach.

# Key to Species.

- A. Carapace subtriangular, with lateral angles.
  - B. Protuberances of the carapace spiniform, subacute

L. pourtalesii Stimpson, MS

B'. Protuberances of the carapace tuberculiform, broadly rounded at . . . . . L. fraterculus Stimpson, M(CH)G

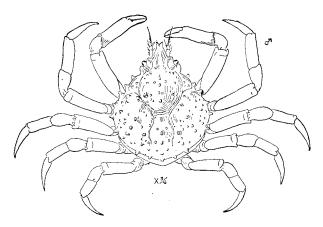


Fig. 10. - Libinia emarginata.

A'. Carapace posteriorly rounded, without lateral angles

L. agonus Stimpson, G

Genus Platylambrus Stimpson . P. serratus (Milne-Edwards), M(CH)G Genus Solenolambrus Stimpson.

# Key to Species.

A. Gastric and cardiac regions with angular ridges

S. decemspinosus Rathbun, G

A'. Gastric and cardiac regions without angular ridges

S. tenellus Stimpson, G

Genus Cryptopodia Milne-Edwards.

1 California is given by Owen as the type locality of Leiolambrus punctatissimus. As it has not since been recorded north of Lower California, which was known as "California" in 1839, it is inferred that the species does not occur in the United States.

- A'. Posterior margin of carapace sinuous. Cardiac region protuberant

C. occidentalis Dana, PD

Genus Heterocrypta Stimpson . . . . H. granulata (Gibbes), SGM

#### TRIBE OXYSTOMATA OR LEUCOSOIDEA.

Carapace with the antero-lateral margins arcuate or orbiculate; sometimes subglobose or more or less oblong, with subparallel margins. Epistome much reduced. Buccal frame more or less triangular, produced and narrowed forward, with the margins anteriorly convergent. Six to nine

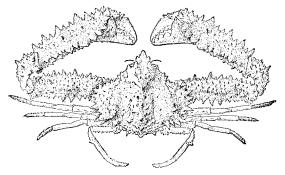


Fig. 11. - Lambrus pourtalesii.

pairs of branchiæ. Efferent channels opening at the middle of the endostome, which is produced forwards. The afferent channels open either behind the pterygostomian regions and in front of the chelipeds, or at the antero-lateral angles of the palate. First antennæ folded longitudinally or obliquely. The genital organs of the male are exserted, either from the bases of the fifth pair of legs, or from the surface of the sternal plastron.

KEY TO THE FAMILIES OF THE TRIBE OXYSTOMATA.

- A. Legs normal in size and position.
  - B. Maxillipeds not closing the buccal cavern; their palp always exposed . . . Calappidæ Milne-Edwards, de Haan, White
  - B'. Maxillipeds closing the buccal cavern; the palp hidden.
    - C. Afferent branchial openings in front of the bases of the chelipeds. . . . . . . . . . . . . MATUTIDÆ M'Leay
    - C'. Afferent branchial openings on either side of the endostome Leucosida Leach

A'. Last two pairs of legs much reduced in size, and having a peculiar position in the dorsal plane of the body

DORIPPIDÆ Milne-Edwards, White

#### KEY TO THE GENERA OF THE FAMILY CALAPPIDÆ.

- A. Antero-lateral margin continuous with the postero-lateral.
  - B. Carapace broadest in its posterior half . . . . . . . Calappa B'. Carapace broadest in its anterior half . . . . . . Acanthocarpus

#### THE SPECIES OF CALAPPIDÆ.

Genus Calappa Fabricius.

## Key to Species.

- A. Teeth of the posterior margin of the carapace broad and shallow

  C. flammea (Herbst), MSG
- A'. Median pair of teeth of the posterior margin long and slender C. sulcata Rathbun, M(CH)G

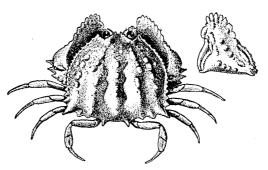


Fig. 12. - Calappa sulcata.

Genus Acanthocarpus Stimpson . . . . . A. alexandri Stimpson, MG Genus Platymera Milne-Edwards . P. gaudichaudii Milne-Edwards, PD

#### KEY TO THE GENERA OF THE FAMILY MATUTIDÆ.

#### THE SPECIES OF MATUTIDÆ.

Genus Hepatus Latreille.

## Key to Species.

- A. Carapace marked with large patches of color, margined by darker lines. Length of penultimate segment of abdomen of male two-thirds its proximal width . . . H. epheliticus (Linnæus), MSG

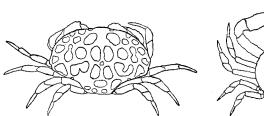
#### KEY TO THE GENERA OF THE FAMILY LEUCOSIDÆ.

- A. Merus of external maxillipeds more than half the length of the ischium measured along the inner border. Fingers stout, gradually narrowing from base to tip.
  - B. Little or no space between the edge of the floor of the orbit and the free edge of the buccal cavern.

    - C. Intestinal region with a long spine. Merus of external maxillipeds much shorter than the ischium measured along the inner border . . . . . . . . . . . . . . . . . . Persephona
  - $\mathcal{B}'$ . A considerable space between the edge of the lower wall of the orbit and the free edge of the buccal cavern.
    - C. Carapace almost circular and globular . . . . Randallia
    - C'. Carapace polygonal; surface very uneven . . . Lithadia
- A'. Merus of external maxillipeds half or less than half the length of the ischium measured along the inner border. Fingers slender, almost of the same diameter from base to near tip.
  - B. Fingers moving in a vertical plane. Pterygostomian channels projecting considerably beyond the orbits . . . Iliacantha
  - B'. Fingers moving in a horizontal plane. Pterygostomian channels not projecting beyond the orbits . . . . . Myropsis

#### THE SPECIES OF LEUCOSIIDÆ.

- A. A narrow bridge between two cavities connects the cardiac and branchial regions . . . . . L. pontifera Stimpson, M(CH)
- A'. No bridge connects the cardiac and branchial regions.



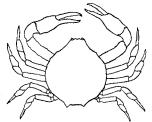


Fig. 13. - Hepatus epheliticus.

Fig. 14. - Randallia ornata.

- B. A transverse ridge between the large branchial protuberance and the lateral margin . . . L. cariosa Stimpson, M(CH)G
- B'. A small circular protuberance between the large branchial protuberance and the lateral margin . L. cadaverosa Stimpson, G
  Genus Iliacantha Stimpson . . . I. subglobosa Stimpson, M(CH)G
  Genus Myropsis Stimpson . . . M. quinquespinosa Stimpson, G

# KEY TO THE GENERA OF THE FAMILY DORIPPIDE.

- ${\cal A}'$ . The external maxillipeds cover the buccal cavern . . Cyclodorippe

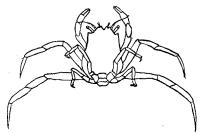


Fig. 15. - Ethusa mascarone.

## THE SPECIES OF DORIPPIDÆ.

Genus Ethusa Roux.

## Key to Species.

- A. Eyestalks long, extending laterally beyond the postorbital spine

  E. mascarone americana (A. Milne-Edwards), M(CH)G
- A'. Eyestalks short, directed forward.

- B. Dactyli of second and third pairs of legs broad, flattened E. microphthalma Smith, M
- $B^\prime$ . Dactyli of second and third pairs of legs slender, not flattened  $E.\ tenuipes$  Rathbun, G Genus Cyclodorippe A. Milne-Edwards.

A. Carapace convex. No hepatic tooth C. nitida A. Milne-Edwards,  $^1D$ 

A'. Carapace flattened. A hepatic tooth . . . C. plana (sp. nov.), G

#### BIBLIOGRAPHY.

The following citations are additional to those given in Synopsis No. VII.

- '34 MILNE-EDWARDS, H. Histoire naturelle des crustacés. Vol. i, chap. iii, pp. 266-362, and Atlas.
- '37 MILNE-EDWARDS, H. Histoire naturelle des crustacés. Vol. ii, pp. 96-162, and Atlas.
- '38 Krøyer, Henrik. Conspectus Crustaceorum Grænlandiæ. *Naturhistorisk Tidsskrift*. Series 1, vol. ii, pp. 249–261.
- '39 RANDALL, J. W. Catalogue of the Crustacea Brought by Thomas Nuttall and J. K. Townsend from the West Coast of North America and the Sandwich Islands, etc. *Journ. Acad. Nat. Sci. Philadel-phia.* Vol. viii, pp. 106-147.
- '44 DE KAY, JAMES E. Zoölogy of New York, or the New York Fauna. Pt. vi, Crustacea.
- '52 Dana, James D. Crustacea of the United States Exploring Expedition. Vol. i, pp. 75-142, 389-398, and Atlas.
- '56 GIBBES, L. R. Monograph of the Genus Cryptopodia. *Proc. Elliott Soc. Nat. Hist.* Pp. 32-38. June 11, 1856.
- '70 STREETS, T. HALE. Notice of some Crustacea of the Genus Libinia, with descriptions of four new species. *Proc. Acad. Nat. Sci. Philadelphia.* Vol. xxii, pp. 104-107.
- '71 STIMPSON, W. Preliminary Report on the Crustacea Dredged in the Gulf Stream in the Straits of Florida, by L. F. de Pourtalès, Assist. U. S. Coast Survey. Pt. i, Brachyura. Bull. Mus. Comp. Zoöl. Vol. ii, pp. 109–160.
- 71 STIMPSON, WILLIAM. Notes on North American Crustacea in the Museum of the Smithsonian Institution. III. Ann. Lyc. Nat. Hist. New York. Vol. x, pp. 92-136.
  - <sup>1</sup> Type, No. 14,256, U. S. Nat. Mus., southern California; W. II. Dall.

- '77 LOCKINGTON, W. N. Remarks on the Crustacea of the Pacific Coast, with descriptions of some new species. Proc. Cal. Acad. Sci. Vol. vii, pp. 28-36. Feb. 7, 1876.
- 77 LOCKINGTON, W. N. Remarks on the Crustacea of the Pacific Coast of North America, including a catalogue of the species in the museum of the California Academy of Sciences, San Francisco. *Proc. Cal. Acad. Sci.* Vol. vii, pp. 63 bis-78. July 17, 1876.
- '79 MIERS, E. J. On the Classification of the Maioid Crustacea or Oxyrhyncha, with a synopsis of the families, subfamilies, and genera. *Journ. Linn. Soc. London.* Vol. xiv, pp. 634–673, Pls. XII, XIII.
- '83 SMITH, SIDNEY I. Preliminary Report on the Brachyura and Anomura Dredged in Deep Water off the South Coast of New England by the United States Fish Commission in 1880, 1881, and 1882.

  Proc. U. S. Nat. Mus. Vol. vi, pp. 1-57, Pls. I-VI.
- '92 RATHBUN, MARY J. Catalogue of the Crabs of the Family Periceridæ in the U. S. National Museum. *Proc. U. S. Nat. Mus.* Vol. xv, No. 901, pp. 231-277, Pls. XXVIII-XL.
- '93 RATHBUN, MARY J. Catalogue of the Crabs of the Family Maiidæ in the U. S. National Museum. *Proc. U. S. Nat. Mus.* Vol. xvi, No. 927, pp. 63-103, Pls. III-VIII.
- '93 RATHBUN, MARY J. Descriptions of New Genera and Species of Crabs from the West Coast of North America and the Sandwich Islands. *Proc. U. S. Nat. Mus.* Vol. xvi, No. 933, pp. 223–260.
- '94 RATHBUN, MARY J. Notes on the Crabs of the Family Inachidæ in the U. S. National Museum. *Proc. U. S. Nat. Mus.* Vol. xvii, No. 984, pp. 43-75.
- '97 RATHBUN, MARY J. Synopsis of the American Species of Ethusa, with description of a new species. *Proc. Biol. Soc. Washington.* Vol. xi, pp. 109-112.
- '98 CALMAN, W. T. On a Collection of Crustacea from Puget Sound.

  Ann. New York Acad. Sci. Vol. xi, No. 13, pp. 259-284.