

A NEW GENUS AND TWO NEW SPECIES OF CRUSTACEANS OF THE FAMILY ALBUNEIDÆ FROM THE PACIFIC OCEAN; WITH REMARKS ON THE PROBABLE USE OF THE ANTENNULÆ IN ALBUNEA AND LEPIDOPA.

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During 1889 the U. S. Fish Commission steamer *Albatross*, engaged in explorations off the coast of California and Lower California, in the course of which a considerable amount of zoological material was obtained. Among the invertebrates transmitted to the U. S. National Museum were three specimens of an anomuran crustacean, of an undescribed genus and species, which are characterized below. I take this opportunity to describe also a new species of *Albunea*, based on a single specimen obtained by Mr. C. N. E. Eliot at Samoa. It gives me great pleasure to associate with this species the name of the collector, a well-known officer of the British diplomatic service, and an ardent student of zoology.

LOPHOMASTIX, new genus.

Eye peduncle very slender, not articulated in the middle. Antennæ without accessory joint. Flagellum of antennæ rather long, with nine joints, each about two and one-half times as long as broad; joints setose. Antennulæ much shorter than antennæ, sparsely setose, multiarticulate. The exopod of the outer maxillipeds has a slender ribbon-like second article, the distal end of which bears a long dense tuft of hair. The carpal and propodal joints of the maxillipeds are broad, the distal article is very much narrower and presents an elongated oval surface. The distal inner margin of the merus is armed with two spines.

*Type.*—*L. diomedæ*.

LOPHOMASTIX DIOMEDEÆ, new species.

The eyestalks are slender, slightly swollen at the cornea. The basal article of the antenna is broad and pectinate; the following joint is about as broad as long, while the third is very short and seems to be nearly conate with the penultimate, which is long and cylindrical; the

distal joint is cylindrical and as long as the two preceding; the flagellum is composed of nine nearly equal segments, the outer ones of which are very slightly longer.

The front is armed with three prominent teeth with pectinate edges. The rostral tooth has concave edges, running back to a point at the outside of the eyestalk, where it meets the inner edge of the lateral tooth, running nearly parallel to the median line; this makes the figure of a broad W, the outer lines of which are almost parallel. The outer margin of the lateral teeth does not cut back as far as the inner margin, but unites with the margin beyond, which ends in a deep sinus formed by the forwardly directed antero-lateral spine. The small spines which form the comb of the frontal margin are more crowded in the W; the terminal spines of the three frontal teeth are the largest. Outside of the lateral tooth the little spines are more scattered, becoming smaller near the sinus at the antero-lateral angles. Behind the

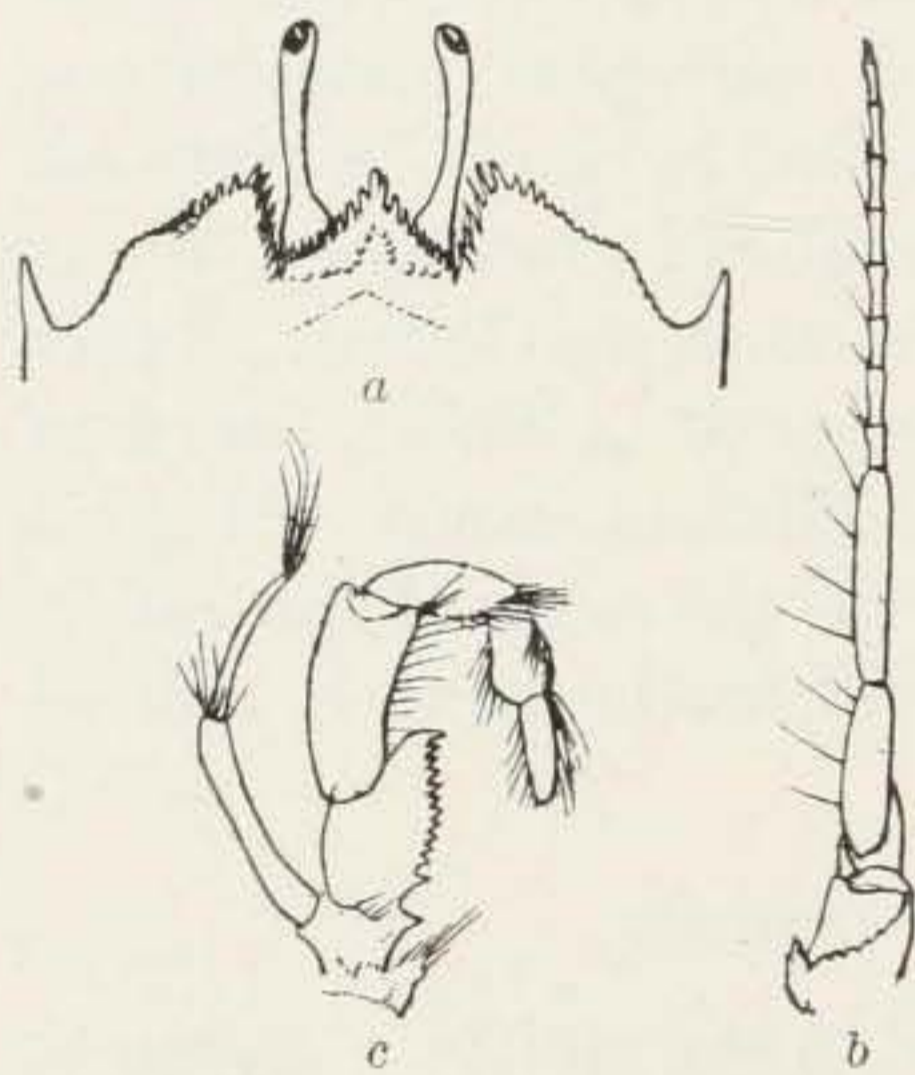


FIG. 1.—LOPHOMASTRIX DIOMEDEÆ. *a*, FRONT; *b*, ANTENNÆ; *c*, MAXILLIPED.

gastric region there is a deep bow-shaped groove, which extends nearly to a ridge which runs from the side upon the branchial nearly to the gastric region. In front of this is a transverse ridge, with a depression in front which is slightly sigmoid in shape. The outer end of this ridge ends in a sharp spine. Behind the cardiac area is another impressed line of the same shape as the one behind the gastric area, but with more pronounced curves which extends nearly to the sides.

The anterior portion of the larger specimen and the greater part of the carapace and chelipeds is well preserved. The abdomen and ambulatory feet are detached and in bad condition. Width of carapace between antero-lateral spines, 13 mm.; eyestalks, 3 mm. long; distance from the apex of the rostral tooth to the posterior line of the gastric area, 10 mm.; width of the carapace of the second specimen between points of antero-lateral teeth, 6 mm.; width of carapace of smallest specimen between points of antero-lateral teeth, 4 mm.

The surface of the gastric area is evenly and coarsely granular in front. The posterior middle part has numerous short raised lines clothed with short hair. The posterior portion of the carapace has longer lines with little depressions in front. These raised lines support a series of granules and numerous short hairs. The postero-lateral sides are armed with short, sharp, conical teeth crowded together, the points of each of which are directed forward. The hands of the anterior feet are more like those of *Albunea* and *Lepidopa* than

like *Blepharipoda*. The carpus and merus partake more of the character of *Blepharipoda*. There is a single spine on the merus at the lower outer angle; the anterior upper angle of the carpus is very much like that of *Blepharipoda*; the movable finger of the hand is more nearly vertical to the axis of the hand than in the latter genus. The outer surface of the hand has a straight ridge running from the apex of the immobile finger to the lower portion of the articulation of the carpus; from this point also a ridge runs to the articulation of the finger separating the crest of the hand by a depression. The crest is coarsely granular, while the granules of the outer surface are generally coarser and more scattered.

Three specimens were collected at Station 2913 in 26 fathoms, off Cortes Bank, California.

*Type*.—Cat. No. 28774, U.S.N.M.

**ALBUNEA ELIOTI**, new species.

The eyestalks are subovate, about one-fifth longer than broad; the cornea is situated in a little notch in the outer margin near the extremity. The cornea in connection with the stalk reminds one of the seed of some of the Legumens. Irregular depressed lines run down the stalk from the cornea, separating near the middle and converging at the base. The inner margin is set with bristles arranged in bunches; the white outline shows between the bunches, giving it a superficial appearance of an armature of small teeth. The ocular sinus has the shape of a wide open W. On each side of the sinus is a row of seven teeth; there is no variation between corresponding teeth; the one at the angle of the sinus is broad at the base; the two following teeth are smaller; the largest teeth are the fifth and sixth, while the fourth and seventh are intermediate in size.

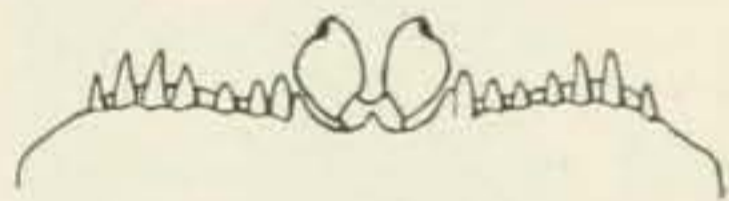


FIG. 2.—ALBUNEA ELIOTI.

The carapace is broadest between the spines of the antero-lateral angles; longitudinally, it is very little arcuate, but transversely, much more so. The transverse rugose lines are numerous and strong; they show the remains of numerous bristles.

This species is probably nearly related to *A. microps* Miers. Length of the carapace, about 16 mm.; breadth, 18 mm.; length of eyestalks, 2 mm.; breadth, 1.6 mm.

Described from a single female from Samoa which unfortunately lacks the anterior and some of the ambulatory feet. Collected by Mr. C. N. E. Eliot, for whom it is named.

*Type*.—Cat. No. 26169, U.S.N.M.

## NOTE ON THE PROBABLE USE OF THE ANTENNULÆ IN ALBUNEA AND LEPIDOPA.

The great length of the antennulæ in *Albunea* and *Lepidopa* led to a rather interesting experiment to ascertain as far as possible the special use of organs so extraordinarily developed and so different from those in other Decapod Crustacea.

In the first place it must be borne in mind that the antennulæ in *Albunea* are from two to three times the length of the carapace, while in *Lepidopa* they are often five times as long. An examination shows that the lateral motion is slight while the motion in the other direction is very free and strong, the flagellum easily changing from a direction vertical to the carapace to an opposite direction, or through an arc of more than 180 degrees. This motion is provided for by the peduncles, which are compressed, presenting an edge to the sand in one direction and a relatively broad and flattened surface in the other. The flagelli are very stiff, the outer one-third only acting as a true leash.

The experiment, if so it can be called, consisted in placing an alcoholic specimen of *Albunea* in a nearly vertical position in clean white sand, until only the cornea and the antennulæ were exposed. In this natural position the antennulæ seemed to lie upon the surface of the sand nearly perpendicular to the lower surface of the specimen. Alcohol was then added in sufficient quantity to cover the specimen, when it was noticed that the sand was held back from the mouth parts by the numerous stiff hairs, the hair along the flagelli preventing its washing in between them. These seemed to be placed there for that purpose, for, arranged in two rows at nearly right

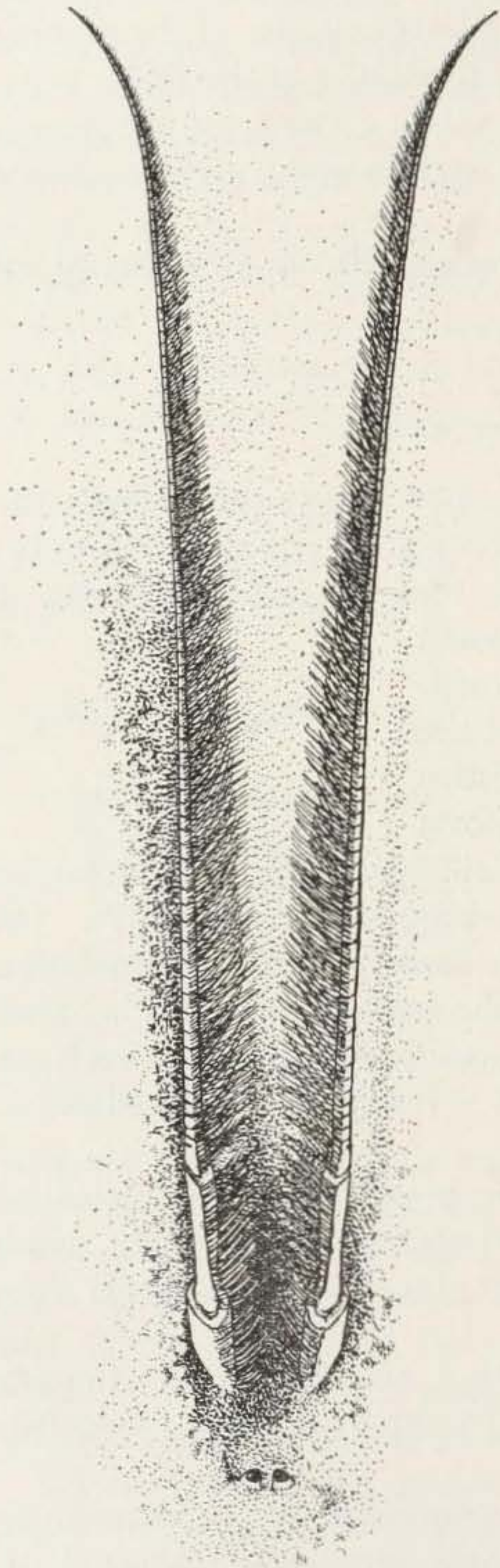


FIG. 3.—ALBUNEA GIBBESII, PARTIALLY COVERED WITH SAND. (MUCH ENLARGED.)

angles to each other, the angle so formed opposes the open angle of the other flagellum. The hairs are longer near the base, becoming short near the more flexible outer ends. The result of this arrangement is

that near the peduncles the hairs protect the passage from every side, while beyond the flagelli form the long leaders of this natural weir. It is evident that particles can be gently guided along between the leaders until within range of the mouth part or the hands. Another factor which may assist in keeping the region about the mouth parts free from sand, is the flow of water from the branchial chambers.

Placed in the sand in this position facing the beach, the antennulæ could readily guide any of the little synaptas, worms, or small crustacea washed up by the waves and brought back by the receding water, and as the wave advances it would not be at all impossible for the antennulæ to be reversed and so add to its chances by working the advancing wave. But this may not be the only way the antennulæ can be used, for if the animal backed into the sand the antennulæ would be placed together, and here again the bristles would be effective in keeping a passage between them free from sand, and synaptas, worms, etc., moving in the sand would find it easy to enter the passage while egress at the sides would be impeded by the hairs backed with sand.

ALBUNEA GIBBESII Stimpson.

*Albunea gibbesii* STIMPSON, Ann. Lyc. Nat. Hist. New York, VII, 1862, p. 78, pl. 1, fig. 6.—MIERS, Journ. Linn. Soc. Lond., XIV, 1879, p. 329.

Several specimens of this species are in the collection from Key West, Florida. One fine specimen was taken at Santa Rosa Island, off Pensacola, Florida,

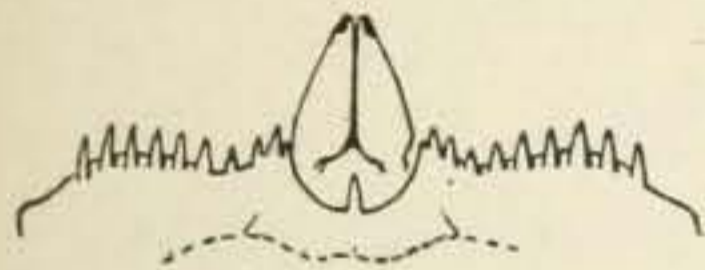


FIG. 4.—ALBUNEA GIBBESII.  
× 1½.

where it was taken in company with *A. oxyopthalma*.

The eyes can not be relied on to distinguish *gibbesii* from *oxyopthalma*. The



FIG. 5.—ALBUNEA OXYOPHTHALMA. × 2.

terminal segment of the abdomen of *A. gibbesii* is "narrow and acuminate at its extremity, forming a long, narrow projection," as described and figured by Dr. Stimpson. The dactyles of the second and third pair of feet differ in having a wider projection than in the related species.