

XIII.—THE FAUNA OF BRACKISH PONDS AT PORT CANNING, LOWER BENGAL

PART IX.—A NEW SPECIES OF AMPHIPODA.

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In the year 1904 Professor Coutière defined a new genus of Amphipoda, with description and figures of the typical species, *Grandidierella mahafalensis*. The specimens described had been collected two or three years earlier by Mons. G. Grandidier in Madagascar. They came from the Lake Tsimanampetsotsa in a previously unexplored region of the Mahafaly country. The lake in question is a long lagoon-like depression between latitude 24° and $24^{\circ}30'$ S. and in longitude 44° E., about six miles from the west coast, and no longer possessing communication with the sea. Its salinity, varying with the rainfall, is greater than that of the sea during the dry season, and its fauna appears to be very poor (Coutière, *loc. cit. infra*).

Professor Coutière expressed an expectation that marine examples of his singular new species would be forthcoming on the west coast of Madagascar. This discovery has apparently not yet been made, but what has actually happened is perhaps of even greater interest. For the species about to be described, from brackish ponds in Lower Bengal, displays the very closest relationship to the one so recently found in a salt lake of Madagascar. Their differences may be considered to prove that the two species have been for a long time isolated one from the other. Yet, whatever the interval in chronology, the vast intervening space of ocean has left unobliterated and in fact unobscured the evidence of a common ancestry.

That the two species have become clearly distinct will presently be shown by characters of the antennæ, upper lip, mandibles, and gnathopods. Mons. Coutière has, in an interesting manner, compared his genus and species with *Dryopoides*, Stebbing; *Unciola*, Say.; *Chevreuxius grandimanus*, Bouvier; and *Camacho bathyplous*, Stebbing. The last-named species, reported in the "Challenger" dredgings to have come from a depth of 1,100 fathoms, has since been dredged off South Africa in 47 fathoms.

Fam. COROPHIIDÆ.

1906. *Corophiidae*, Stebbing, *Das Tierreich*, "Amphipoda Gammaridea," Lieferung 21, pp. 662, 739.

In the key to the genera of this family supplied under the foregoing reference, M. Coutière's genus, with which we are

here concerned, will stand near to *Unciola*, Say. It is, however, more closely allied to *Chevreuxius*, Bonnier, being at the same time sharply distinguished from that genus by the character of the second uropods, which are here biramous, not as in M. Bonnier's genus uniramous.

Gen. GRANDIDIERELLA, Coutière.

1904. *Grandidierella*, Coutière, *Bulletin de la Soc. philomathique*, ser. 9, vol. vi, p. 173.

1906. *Grandidierella*, Stebbing, *Das Tierreich*, "Amphipoda," p. 739.

The genus is defined by M. Coutière as follows:—

Body little compressed; side-plates narrow. First antennæ with the first and second joints of the peduncle elongate, the third joint short. Accessory flagellum one-jointed, very small. Second antennæ at most equal to the preceding, fourth and fifth joints of the peduncle elongate. Mandibular palp with second joint slightly longer than first, and third than second; mandibular process narrow; cutting edge dentate. Lower lip with processes of the external lobes long and conical. First maxillæ with inner plate almost obsolete, without trace of setæ; outer plate with eleven spines. Second maxillæ having the inner plate furnished with two fringes of setæ. Maxillipeds having a series of spines on the outer plate, the finger short, unguiculate. First and second gnathopods subchelate, dissimilar; the first more robust than the second, with marked sexual dimorphism affecting both size and shape. Third, fourth and fifth peræopods with second joint expanded. The fifth peræopod almost twice as long as the third. Third uropods one-branched; peduncle a little widened on the inner side, shorter than the ramus. Telson emarginate, broader than long.

The species now to be added to the genus falls excellently under the original definition. The sister species, as often happens, are much less sharply separated in the female than in the male sex; but in both sexes they show a very clear distinction.

Accessory flagellum of first antennæ nearly as long as first joint of primary : wrist in first gnathopod of male more than twice as long as broad *G. mahafalensis*, Coutière.

Accessory flagellum of first antennæ not nearly as long as first joint of primary : wrist in first gnathopod of male not nearly twice as long as broad. *G. bonnieri*, sp. nov.

Grandidierella bonnieri, sp. nov.

(Plate vi.)

In preserved specimens the body is moderately compressed, except when the marsupium of the female is much distended with eggs. The lateral lobes of the head are rounded, carrying

the dark rounded eyes, the space between these being occupied by a large patch of dark colouring. The outlines of an undissected specimen are exceedingly difficult to make out in consequence of the numerous irregular patches of colour over the whole surface. None of the side-plates of the peræon are deep; those of the first two segments are somewhat squared with rounded corners, those of the two following are shallowly trilobed; and this appears to be the case with the sixth pair. The postero-lateral corners of the third pleon segment are rounded with a minutely produced point. The next three segments are each shorter than the third, decreasing in succession.

The first antennæ have the first joint rather stout, armed below with a spaced row of spines, two single and three in a group; the second joint is as long as the first, but much narrower; the third is less than a third part as long as the second; the flagellum is longer than the peduncle, with fifteen unequal joints in a male and eighteen in a female specimen. The accessory flagellum is microscopically small, but carrying one or two setules. This appendage is described as very small in the type species, but it is relatively so much smaller in the present that it affords a good specific character.

The second antennæ are stouter, but in both sexes shorter than the first. The first three joints are short, the next two long, subequal, longer than the first two joints of the first antennæ. The flagellum is rather shorter than the last joint of the peduncle, seemingly five-jointed in the male and four-jointed in the female, with several slightly curved spines, and perhaps a microscopical joint not included in the above enumeration. In M. Coutière's species the flagellum of the first antennæ in the male has 19—20 joints and is shorter than the peduncle, and is 16-jointed in the female; in the second antennæ of the male the flagellum is a little over half the length of the last peduncular joint, but is itself 9-jointed, a minute apical joint being included.

The upper lip in the present species has its margin evenly convex, not slightly emarginate as figured and described for *G. mahajalensis*.

The mandibles agree very nearly with M. Coutière's figures and description, except that the spine-row has only six spines on the left and five on the right mandible in the Indian species, instead of the dozen which are attributed to each mandible in the species from Madagascar. As usual, the accessory plate is more slender and less strongly dentate on the right than on the left mandible. In the generic definition M. Coutière speaks of the mandibular process as narrow, but it is not clear what part of the appendage is intended by this expression. Schiödte originally applied the expression not to the mandible itself, but to the conical prolongations of the outer lobes of the lower lip, to which M. Coutière refers in describing that organ.

The first maxillæ appear to have the inner plate here rather more distinct than in the type species, but without setæ. The

maxillipeds differ scarcely at all from those of the type species, except in having fewer spines round the apical and inner margin of the outer plates.

The most striking difference between the two species is afforded by the great first gnathopods of the male, the fifth joint or wrist in the earlier species being two and a half times longer than broad and having a narrow obtuse process on the palmar border, which is wanting to the much shorter wrist of the Indian form. Here the massive fifth joint is less than once and a half as long as broad. The hand is not long enough to reach beyond the wrist's palmar tooth, as it does in the other species, but it is distally broad enough to supply something more of a palm than that species displays. Its finger well overlaps the palmar tooth of the wrist, but to a considerably less extent than in the Madagascar form.

In the female the first gnathopod is not complexly subchelate as in the male, but simply subchelate. The hand is shorter than the wrist, with the palm rounded, a little oblique, finely denticulate, defined by a palmar spine, which is overlapped by the point of the finger. In both sexes the inner margin of the finger has some small denticles.

The second gnathopod of the male has the narrow, distally truncate, hand only a little shorter and narrower than the wrist, instead of being considerably smaller in both dimensions as in *G. mahafalensis*. The hind border of the wrist is strongly fringed with long spines. The apex of the finger reaches a little beyond the small palm. In the female the apex of the finger only reaches the end of the palm, otherwise their limbs are nearly alike in the two sexes. The branchial vesicle is narrow, with a constriction near the base, giving it a two-jointed appearance. The marsupial plate of the female is very extensive, and is fringed with setæ nearly all round.

The first and second peræopods are alike, apparently differing from the Madagascar species in the stouter form of the fifth joint, which is little longer than broad. The glandular contents of these limbs indicate that the animal is a tube-builder, and the upward or backward position of the finger in the third peræopods seems adapted for movement in such a dwelling. The third peræopods are very much shorter than either of the following pairs, of which the fifth pair is the longer. The hind margin of the second joint in this pair is fringed with long setæ, but by no means so densely as represented in the type species.

The pleopods have two coupling hooks, each with three pairs of reverted teeth, on the inner margin of the peduncle, the opposite margin being fringed with plumose setæ. The first joint of the inner ramus carries three cleft spines. This ramus is decidedly longer than the outer one, although each appears to have about the same number of joints,—twelve to thirteen.

The first uropods are the longest, the peduncle longer than the subequal rami, all strongly spined. In the second pair the peduncle is about equal to the rami; in the third it is much shorter than the

single ramus, which carries several slender spines. In one of the male specimens this ramus has a curious inward curved termination, which appears to be abnormal, but was found alike on each side of the telson. The telson is short, broad and thick; the under distal margin rounded, the upper excavate, with a projecting point at each corner, within which are some little prominent spines.

Length of the male about 4 mm., that of the female 5 mm.

Locality.—

Brackish pools, Port Canning, Lower Bengal, from which the specimens were obtained by Dr. Nelson Annandale.

The specific name is given out of respect to M. Jules Bonnier, whose services to carcinology are in high repute.