A new Species of the Decapod Genus Discias Rathbun from Bermuda

By Robert Gurney

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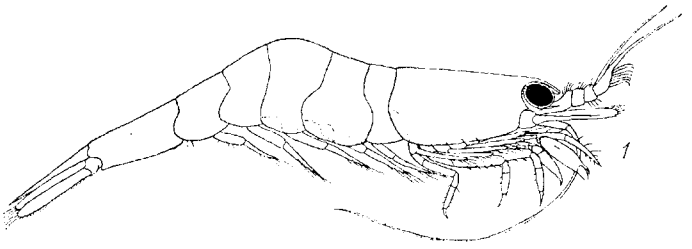
Discias atlanticus, sp. n.

Female.—Length 11 mm.

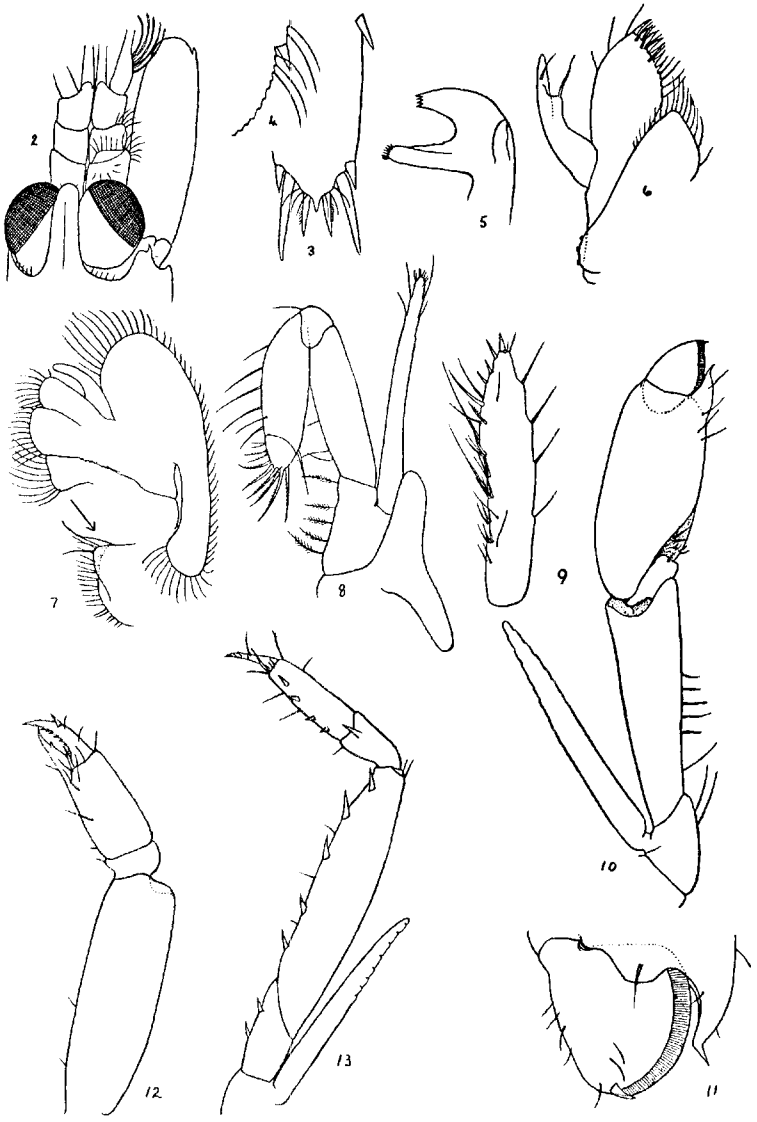
Rostrum depressed, narrow, with slight median ridge, not extending beyond eyes. Orbit with a few small hairs round the margin, and bounded below by an antennal spine; anterior ventral angle of carapace rounded. Pleura of abdominal somites 4 and 5 rounded; somite 6



Adult male.

about twice as long as somite 5, with small anal spine and no posterior lateral spines. Telson nearly four times as long as wide, with two pairs of lateral spines; apex with median point and three pairs of spines, of which the second pair is the longest.

Eyes large and globular. Peduncle of antennule much shorter than antennal scale; stylocerite pointed and



Female.

2. Dorsal view of head. 3. Part of telson. 4. Outer anglo of uropod. 5. Mandible. 6. Maxillule. 7. Maxilla. 8. Maxillipede 2. 9. Maxillipede 3, last segment. 10. Leg 1. 11. Leg 1, end of chela. 12. Leg 2. 13. Leg 3.

reaching beyond middle of basal segment ; basal segment without apical spines and with very small ventral spine, statocyst absent ; segments 2 and 3 short and stout ; flagella more than $1\frac{1}{2}$ times length of peduncle. Antennal scale three times as long as wide, with slightly convex outer margin ending in a very small spine. Flagellum reaching back, when fully reflexed, to about fourth abdominal somite.

Mandible deeply divided, the narrow molar part projecting beyond incisor part ; palp small, unsegmented. As only one mandible was examined it is possible that the palp may be abnormal. Maxillule with basal endite rather broad, pointed, with minute hairs on its outer projection or exite ; palp with two setæ. Maxilla with well developed basal endite not much recessed behind endite 2 ; endite 1 is provided with the usual fringing setæ and also a small distal flap which may represent the distal lobe of this endite, which is commonly present, if reduced, when the endite is fully developed.

Maxillipede 1 with coxal lobe more than $\frac{3}{4}$ as long as basis ; endopod apparently not segmented ; epipod very large and bilobed. Maxillipede 2 with very large bilobed epipod ; basis and ischium fused, carpus very short ; propod about $2\frac{1}{2}$ times as long as wide ; dactyl fully as long as wide, the joint with the propod slightly oblique. Maxillipede 3 with small epipod ; merus with small terminal spine as in *D. exul* ; last segment nearly twice as long as carpus and five times as long as wide, nearly parallel-sided, with transverse rows of small spines.

Leg 1 closely resembling that of *D. exul*. Ischium and merus fused, but basis distinct ; carpus a minute sclerite, not visible on inner side, where the chela fits directly into the hollowed end of the merus ; palm rather more than twice as long as wide, not narrowed proximally as it is in the other two species, and with a deep hollow in the posterior face in which is a transverse row of small spines ; dactyl a round flat plate with a small spine at distal end of outer face.

Leg 2 with ischium and merus fused ; carpus very short ; palm nearly twice as long as wide and about $1\frac{1}{2}$ times as long as dactyl ; dactyl a curved tapering claw with a series of small marginal teeth.

Legs 3–5 decreasing in length. Legs 3 and 4 with two inner spines on ischium and five on merus; carpus with one spine; propod with five spines on leg 3 and three on leg 4. Leg 5 with two spines on ischium, three on merus, one on carpus. Terminal claw in each leg simple, but with very minute spines at end.

Epipods and arthrobranchs absent.

Pleopod 1 with endopod very small, without appendix interna. Exopod of uropod about four times as long as wide; outer margin with fringe of short setæ, and ending in a single spine.

Male differing from the female only in having appendix masculina on pleopod 2.

One male and one female taken in plankton at night in the shallow waters of the Reach close to the Bermuda Biological Station on July 24 and 25, 1938. These days were three and two days before the new moon, and on these nights there was a rich plankton, including natant stage of *Panulirus*, adult *Penæopsis* sp., *Periclimenes americanus*, and *Gnathophyllum americanum*.

This species, while agreeing closely in general with the two species previously described (*D. serrifer*, Rathbun, 1902, *D. exul* Kemp, 1920), differs in a number of details. The greater length of abdominal somite 6 and the form of the telson alone suffice to distinguish it readily from both. In having the pleura of abdominal somites 5 and 6 rounded it agrees with *D. exul* and differs from *D. serrifer* as described by Miss Rathbun, but Balss (1923) has given a figure of *D. serrifer* which shows these pleura rounded.

The mouth-parts present some points of difference and interest. The proximal lobe of the maxilla is much less reduced than in *D. exul*, and the terminal segment of maxillipede 2 is not of the narrowed form seen in *D. exul* and in most Caridea, but resembles that of Hoplophoridæ and Pasiphæidæ.

The systematic position of *Discias* is obscure. Miss Rathbun recognized that it was necessary to found a new family for it, and regarded it as allied to the Atyidæ and Hoplophoridæ. Kemp pointed out that the form of mandible and maxilla is quite unlike that of these two families, and that the presence of exopods on the legs

was not sufficient to determine relationship, since these might well be reacquired in the adult by survival from the larva. He concluded that it is in the Hippolytidæ and Palæmonidæ that the nearest living allies of *Discias* are to be found.

With this conclusion I find it difficult to agree entirely. It is certainly true that the presence of exopods on the legs cannot be taken as conclusive evidence of relationship; but it must be pointed out that it is only in the Atyidæ, Pasiphæidæ, and Hoplophoridæ that an exopod is retained on leg 5 at any stage in the life-history, and it is unlikely that the adult would acquire one on this leg if it was absent in the larva. It is true that this is what actually happens in the Pasiphæid *Leptochela* (Gurney, 1936), but in this case the exopod is found in the adults of the whole group, and its suppression in the larva is the remarkable feature.

The form of the dactyl of maxillipede 2 in *D. exul* is very much more like that of the "higher" Caridea than it is in *D. atlanticus*, where it is indeed distinctly of Hoplophorid form. Apart from the presence of exopods on all legs and the form of maxillipede 2 there is nothing in the appendages to suggest a near relationship to the Hoplophoridæ or Pasiphæidæ. The superficial resemblance in general form to *Leptochela* is not supported by agreement in structure of the appendages.

The only genus which does seem to have some real affinity with *Discias* seems to be *Bresilia* Calman (1896), in which there is the same reduction of gills and almost exactly the same form of maxillipede 2. In this genus the exopods have been lost from the last three pairs of legs, and there are other differences which make it impossible to include *Discias* within the same family; but it would seem that both are aberrant genera retaining some primitive features of the Pasiphæidæ and Hoplophoridæ, and to be placed close to them in the system.

It is possible that some light may ultimately be shed upon the relationship of these genera by their larval history when it is known. The structure of legs 1 and 2 in the larva *Anisocaris dromedarius* Ortmann is almost identical with that of the adult *Discias*, and if it were not for the large size of the larva according to Ortmann's

figure it might be claimed with some certainty as belonging to this genus. This larval genus has been referred by Coutiere to the Pasiphæidæ, but at present no Pasiphæid is known with a larva of this kind. The only Pasiphæid with a normal series of larvæ known is *Leptochela*, and this larva has no resemblance to *Anisocaris*.

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