ON A NEW CALIGID PARASITE FROM THE
INDIAN HAMMERHEAD SHARK

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LOCALITY AND HOST

THREE females of this parasite were taken from the body of a Hammerhead shark in December 1947, landed in Lawson's Bay, Waltair, South India. The parasites were found attached to the region of the body behind the pectoral fins. In the living condition they were of an yellowish brown colour. The egg sacs were slightly blackish white in colour.

DESCRIPTION OF THE FEMALE (FIGS. A & B)

Measurements

- Total length of the body (including the egg sacs) .. 13.00 mm.
- Length of the cephalothorax .. .. .. 7.5 ,,
- Greatest breadth of the cephalothorax .. .. .. 8.00 ,,
- Length of the genital segment .. .. .. 6.5 ,,.

Carapace broadly circular, slightly broader than long and of about the same length as the rest of the body; frontal plates not well defined and the demarcation between these and the carapace is very indistinct. Posterior sinuses are very large, conspicuous and extend inward up to \( \frac{1}{2} \) of the length of the carapace from the posterior end. The median lobe of the carapace is about one-third of the body width and does not bear any spines. It broadens out posteriorly and reaches the lateral lobes. There are two small oval flaps which originate from the inward margin of the carapace, at the junction of the median lobe with the lateral lobes.

The grooves bordering the areas of the carapace are complexly arranged and constitute the most important single factor in producing the beautiful ornamented pattern of the dorsal surface of the carapace. There are two sets of grooves, the lateral and the transverse; the former in graceful curves. The anterior pair of these curves form a semi-circle with the help of a groove which passes in front of the eye. Running almost across the carapace are the transverse grooves dividing the entire surface into three regions of which the last is of about equal in extent to the front two together. A pair of oblique grooves radiate from either side of the eye towards the frontal
plates. The ocular area is surrounded by indistinct lines (not shown in the figure) forming an oval space. Certain other minor grooves mark out definite quadrangular areas along the dorsal midline of the carapace. The carapace is smooth and there are no spines or setae of any kind. Bordering the lateral margins of the carapace is a continuous and an almost transparent membranous fringe.

The free thoracic segment is diamond-shaped and is broader than long. It gives dorsally two plates which have a speckled appearance and they extend backwards over the genital segment. Their base is narrow and the free end is broad and cordate. They are leaf like, semitransparent, smooth and devoid of spines.

The genital segment is narrow anteriorly where it joins the free thoracic segment, widens behind, rather abruptly to more than half the width of the carapace. It is prolonged backwards in the form of two sturdy pointed projections, heavily spinose and laterally into broad wing-like expansions, very characteristic of this form. These wings or alata are provided with a few strong spines at the posterior lateral corners. Along the posterior border of the wings are other spines which become gradually smaller.

The abdomen is small, single segmented, with two prominent lateral lobes, best seen from the dorsal side. The anus occupies the hind end of the abdomen. The anal laminae are foliaceous, bearing two or three small setae at their tips.

**APPENDAGES**

1st Antennae.—They are concealed; in each antenna the distal segment is very short, plumpy and bears a few setae.

2nd Antennae (Fig. 1).—These are large and the basal segments are quite stout; each is two segmented and there are no accessory setae or spines over it; the terminal claw is slightly curved and turns deep brown in alcohol.

1st Maxilla (Fig. 2).—Each is non-segmented and is triangular in shape; the base is very broad and the pointed angle is very nearly 90°. A circular structure is noticed in the centre of the triangular area.

2nd Maxilla (Fig. 3).—These are conical in shape; but do not end in a sharp point; spines and setae are absent, their surfaces being smooth. Mouth is in the form of a conical tube which is very much pointed. The mandibles are styliform and simple. There is no furca.

1st Maxillipedes (Fig. 4).—Each is two segmented; the segments being equal in length. The inner claw is half as long as the outer.
2nd Maxillipedes (Fig. 5).—Each is two segmented; there is a hollow depression in the beginning of the first basal segment which gives it a three-segmented appearance. The distal segment ends in a very strong claw which is bifid.

Swimming legs (Figs. 6, 7, 8).—It is noteworthy that this form has only three pairs of swimming legs. The first pair of swimming legs are weak and slender. In each leg the exopod consists of three segments (the distal two are fused) of which the distal bears an outer spine and three inner plumose setae, which extend inwards up to the tip of the endopod. The endopod is two segmented, the condition being indicated by a constriction behind the rounded tip. The distal segment also bears three plumose setae directed inwards. The second pair of swimming legs have an exopod of two segments and an endopod of three. All of them bear setae and spines.

The third pair of swimming legs are very similar to those of Gloiopotes, but the bifid spines characteristic of this genus are absent. The inner rami of third legs are very close with a conical plate in-between. A membranous fringe, delicately striated, is seen along the outer margin of the rami and the
posterior margin of the central plate. The spines and the plumose setae on the rami have the following arrangements:

1st Exopod .. 0:1:3; Endopod .. 0:3;
2nd Exopod .. 2:7; Endopod .. 1:2:6;
3rd Exopod .. 0:4; Endopod .. 1:5.

The egg strings are moderately long and uniseriate. They do not, however, project far beyond the tips of the pointed projections (P.P.) of the genital segment. An important feature of the parasite is the presence of two sinuate, styliform appendages arising close together from the midventral line of the genital segment and directed forwards. In the absence of the developmental stages of the parasite the homology of these appendages is not clear. Possibly they are the modified 5th pair of appendages.

Figs. A and B are the dorsal and ventral views of the parasite.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>a.</td>
<td>Abdomen</td>
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<td>al.</td>
<td>Anal lamina</td>
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<tr>
<td>Ant.</td>
<td>1st antenna</td>
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<tr>
<td>C.</td>
<td>Carapace</td>
</tr>
<tr>
<td>F.P.</td>
<td>Frontal plate</td>
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<tr>
<td>G.Seg.</td>
<td>Genital Segment</td>
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<tr>
<td>L. Gr.</td>
<td>Lateral groove</td>
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<td>L.L.</td>
<td>Lateral lobe</td>
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<tr>
<td>m.</td>
<td>mouth</td>
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<td>M.L.</td>
<td>Median lobe</td>
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<tr>
<td>Obl. Gr.</td>
<td>Oblique groove</td>
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<td>Ov. F.</td>
<td>Oval flaps</td>
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<tr>
<td>Pl.</td>
<td>Plate</td>
</tr>
<tr>
<td>P.P.</td>
<td>Pointed projections</td>
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<tr>
<td>P.S.</td>
<td>Posterior sinuses</td>
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<tr>
<td>Tr. M. F.</td>
<td>Transparent membranous fringe</td>
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<td>Sty. app.</td>
<td>Styliform appendages</td>
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<tr>
<td>W.P.</td>
<td>Wing-like expansion</td>
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</table>
The broad carapace made up of three anterior segments (Fused), the fourth thoracic segment being small, free and furnished in the females with a pair of dorsal plates overlapping below the genital segment are characters which place this form in the sub-family *Euryphorinae* of the *Caligidae*. Comparison with *Dissonus*, *Caligeria*, *Gloiopotes*, *Euryphorus*, *Elytrophora*, *Dysgamus* and *Alebion* of the *Euryphorinae* make it amply clear that but for a superficial resemblance to *Gloiopotes* it is not related to any of the other genera mentioned above.

It can be distinguished from *Gloiopotes* by the very broad nature of the carapace, the presence of only three pairs of swimming legs, all of them biramose, the shape of the genital segment, the presence, more particularly, of wing-like expansions of the genital segment, the occurrence of two peculiar styliform appendages arising from the midventral line of the genital segment and the single jointed abdomen. It is therefore proposed to consider this parasite as a new genus to be named *Platyporinus* on account of the broad and flattened nature of the carapace and the genital segment and the new species is designated *Platyporinus alata*, on account of the wing-like expansions of the genital segment.

**Analytical Key to the Genera of the Subfamily *Euryphorinae* (from Wilson) Incorporating the Present Genus *Novo***

1. Three thorax segments fused with the head; the fourth segment only free ........ 2
1. Only the first thoracic segment fused with the head, the others free; no dorsal plates; all the swimming legs biramose, the rami three-jointed ........ *Dissonus*, Wilson, 1906
  2. One or more pairs of legs uniramose, the others biramose ........ 3
  2. All four pairs of swimming legs biramose ........ 4
  3. First legs only uniramose, their terminal claw curved and simple, setæ on anal laminae short and non-plumose ........ *Caligeria*, Dana, 1852
  3. First and fourth legs uniramose; claws on first pair straight and three parted; setæ on anal laminae long and plumose
  4. Exopod of the fourth legs three jointed, endopod two jointed .... 5
  4. Both rami of fourth legs with the same number of joints ........ 6
  4. Fourth legs absent ........ 6
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5. Setae on fourth legs plumose; first abdomen joint larger than second and covered with a dorsal wing or with two lateral wings
   "Euryphorus," Milne Edwards, 1840

5. Setae on fourth legs non-plumose; abdomen joints about the same size, without wings
   "Elytrophora," Gerstäcker, 1853

6. Rami of fourth legs small, the two joints fused; the rami of first three pairs two jointed, without horny processes
   "Dysgamus," Steenstrup & Lutken, 1861

6. Fourth legs rudimentary, hidden; exopods of first three pairs with horny processes
   "Alebion," Kroyer, 1863

6. Fourth legs absent; exopods of the first three pairs of legs without horny processes
   "Platyporinus," Gen. Novo

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* N.B.—Have not been referred to in original.