

**CONFIRMATION OF THE ASSOCIATION OF THE HYPERIIDEAN AMPHIPOD
GENUS *HYPERIA* (CRUSTACEA: AMPHIPODA: HYPERIIDEA: HYPERIIDAE)
WITH CTENOPHORES**

In July 1993 several specimens of ctenophore (*Beroe* sp.) were observed in Port Phillip Bay, Victoria with a crustacean associate. One animal was collected and the associate removed and identified as the hyperiidean amphipod, *Hyperia gaudichaudii* Milne Edwards, 1840.

Species of *Hyperia* have been recorded in association with ctenophores of the genus *Beroe* in the literature previously (Thurston 1977) but Laval (1980) suspects that these records may actually be of *Hyperoche*, as young *Hyperoche* may have been confused with *Hyperia*. This would seem to be a reasonable assumption as *Hyperoche* is a well known associate of medusae and ctenophores (Flores & Brusca 1975, Harbison *et al.* 1977, Laval 1980) and some genera, and even families of hyperiideans, appear to be restricted to certain host groups (Laval 1980). Martin and Kuck (1991), in recording *Hyperia medusarum* from the giant scyphozoan, *Chrysaora achlyos* (see Martin *et al.* 1997), conclude that 'it is likely that species of *Hyperia* occur only on scyphozoan and hydrozoan medusae (Pasko 1987)'.

The present observation is based on only one collected animal although others were observed in the field by one of us (K. L. G-H). It was hoped

that more material would be forthcoming but this has not occurred. Never-the-less, the association of *Hyperia* with ctenophores has now been confirmed and previous literature records of such associations should not be dismissed. *Hyperia galba* (Montague, 1815) has been recorded from *Beroe* by Stephensen (1923), Schellenberg (1942), Buchholz (1953) and Oldevig (1959) and *H. gaudichaudii* has been recorded from a large *Beroe* sp. from the Falkland Islands by Stebbing (1914).

Material examined

Host. *Beroe* sp. (SAM H912) approx. 40x25mm, from off Portsea, Port Phillip Bay, Victoria, drifting with current, 1–3m. Collected by K. L. Gowlett-Holmes, 5th July 1993. Photo index PH 0082, 3 colour slides.

Associate. *Hyperia gaudichaudii*, female 8.5mm with enlarged oostegites and eggs not yet released into brood pouch, with reddish pigment spots all over except for eyes and extremities of uropoda (SAM C5831). Photo index PC 0064 (same three slides as PH 0082).

The *Beroe* and its associate were transported alive to the South Australian Museum for observation.

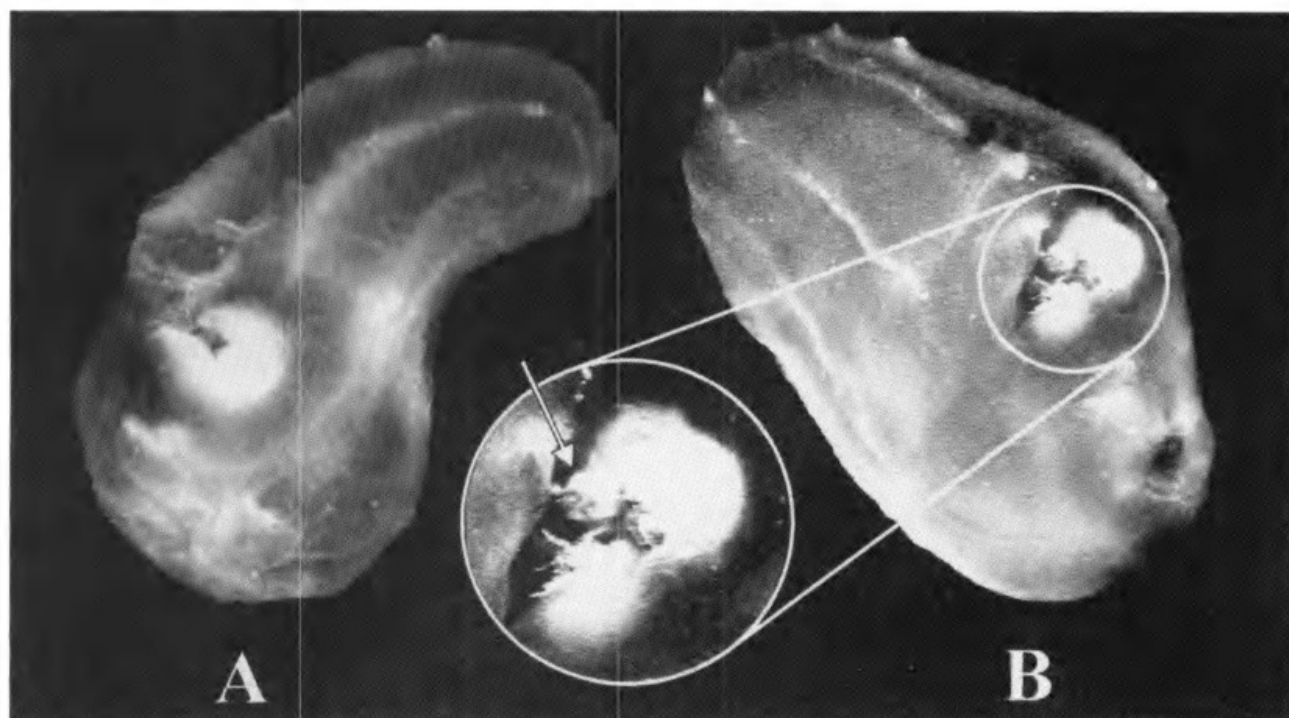


FIGURE 1. Two aspects of the *Beroe* from Port Phillip Bay showing the hyperiidean associate *Hyperia gaudichaudii*. The specimen on the right in **B** appears to be a male judging by the relatively long antennae (arrowed).

Field observations and location within host

Several *Beroe* (approx. 15) were observed in the field and at least half had hyperiidean associates. Generally two hyperiideans were observed together on each host, occupying the same cavity. When disturbed they became agitated and sometimes the smaller one or more slender specimen would flee. It is presumed that these were mating pairs and that it was the male, being 'free swimming,' that fled. When the specimen of *Beroe* being photographed was collected, one of the hyperiideans escaped. An examination of the slides taken of this animal (Fig. 1) revealed that one of the hyperiideans has relatively long antennae (Fig. 1B), confirming that it was a male that had escaped.

For the specimen collected, the female *Hyperia* was found in a small cavity along one of the comb rows (presumably created by the female) and was positioned upside down holding onto the *Beroe* tissues with pereopods 6 and 7. At the base of the cavity a flap of *Beroe* tissue separated the

amphipod from a tunnel which went all the way through to the gastrovascular cavity, indicating that the amphipod either ventured to the gastrovascular cavity to feed or intended to provide access for her future offspring. Above this cavity, on the same comb row, an old scar with cilia missing indicated possible feeding. Similarly, on the comb row either side, shallow cavities with cilia missing suggest recent feeding or burrowing activities. It is also possible that these scars were made by other hyperiideans attempting to invade the same host but their proximity to the main cavity would suggest that the damage was made by the resident associate.

The kind of burrowing observed here, resulting in the combination of a cavity, tissue flap and tunnel to the gastrovascular cavity, has not been recorded previously for any other hyperiidean-gelatinous plankton association.

Actual feeding by the female *Hyperia* was not seen.

REFERENCES

- BUCHHOLZ, H. A. 1953. Die Wirtstiere des Amphipoden *Hyperia galba* in der Kieler Bucht. *Faunistische Mitteilungen aus Norddeutschland, Kiel* 1(3): 5-6.
- FLORES, M. & BRUSCA, G. J. 1975. Observations on two species of hyperiid amphipods associated with the ctenophore *Pleurobrachia bachei*. *Bulletin Southern California Academy of Sciences* 74(1): 10-15.
- HARBISON, G. R., BIGGS, D. C. & MADIN, L. P. 1977. The associations of Amphipoda Hyperiidea with gelatinous zooplankton - II. Associations with Cnidaria, Ctenophora and Radiolaria. *Deep - Sea Research* 24: 465-488.
- LAVAL, P. 1980. Hyperiid amphipods as crustacean parasitoids associated with gelatinous zooplankton. *Oceanography and Marine Biology, an Annual Review* 18: 11-56.
- MARTIN, J. W., GERSHWIN, L., BURNETT, J. W., CARGO, D. G. & BLOOM, D. A. 1997. *Chrysaora achlyos*, a remarkable new species of scyphozoan from the Eastern Pacific. *Biological Bulletin* 193: 8-13.
- MARTIN, J. W. & KUCK, H. G. 1991. Faunal associates of an undescribed species of *Chrysaora* (Cnidaria, Scyphozoa) in the Southern California Bight, with notes on unusual occurrences of other warm water species in the area. *Bulletin Southern California Academy of Sciences* 90(3): 89-101.
- OLDEVIG, H. 1959. Arctic, Subarctic and Scandinavian amphipods in the collections of the Swedish Natural History Museum in Stockholm. *Göteborgs Kungliga Vetenskaps - och Vitterhets - Samhälles Handlingar, Series B* 8(2): 1-132.
- PASKO, D. 1987. Host specificity and behaviour of *Hyperia medusarum* and *Hyperoche mediterranea* (Amphipoda: Hyperiidea): symbionts on gelatinous zooplankton. Unpublished MS thesis, Humboldt State University, 106pp.
- SCELLENBERG, A. 1942. Krebstiere oder Crustacea. IV. Flohkrebse oder Amphipoda. *Tierwelt Deutschlands* 40: 1-252.
- STEBBING, T. R. R. 1914. Crustacea from the Falkland Islands collected by Mr. Rupert Vallentin, F.L.S. - Part II. *Proceedings of the Zoological Society of London* 24: 341-378.
- STEPHENSEN, K. 1923. Crustacea Malacostraca, V. (Amphipoda. 1.) *Danish Ingolf - Expedition* 3(8): 1-100, figs 1-22.
- THURSTON, M. H. 1977. Depth distributions of *Hyperia spinigera* Bovallius, 1889 (Crustacea: Amphipoda) and medusae in the north Atlantic Ocean, with notes on the associations between *Hyperia* and coelenterates. Pp. 499-536 in 'A voyage of discovery: George Deacon 70th anniversary volume.' (Ed. M. Angel.) Pergamon Press Ltd. : Oxford.



Zeidler, Wolfgang. 1998. "Confirmation of the association of the hyperiidean amphipod genus *Hyperia* (Crustacea: Amphipoda: Hyperiidea: Hyperiididae) with ctenophores." *Records of the South Australian Museum* 31, 117–118.

View This Item Online: <https://www.biodiversitylibrary.org/item/126052>

Permalink: <https://www.biodiversitylibrary.org/partpdf/78876>

Holding Institution

South Australian Museum

Sponsored by

Atlas of Living Australia

Copyright & Reuse

Copyright Status: Permissions to digitize granted by rights holder.

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.