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The Occurrence of *Lepeophtheirus insignis* Wilson (Copepoda parasitica) in New Zealand Waters and Its Relationship to *L. molae* Heegaard

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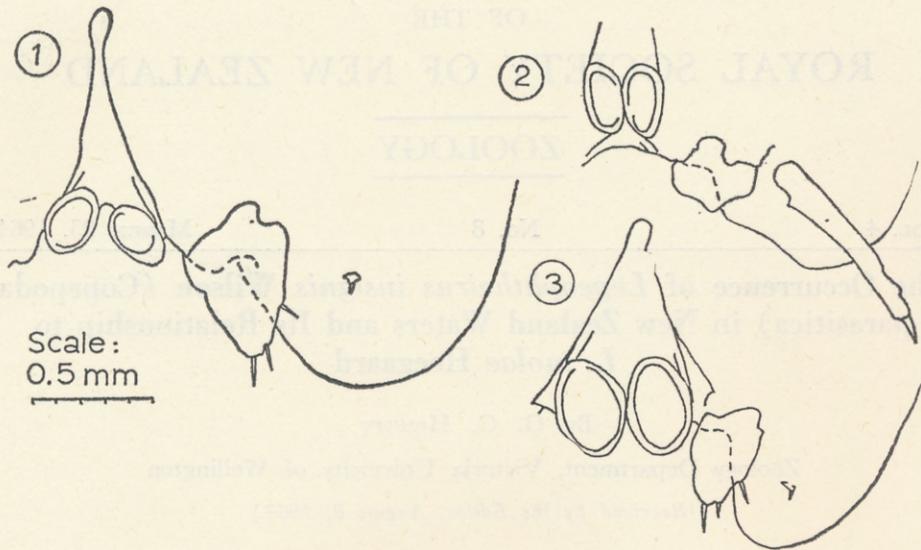
Abstract

SPECIMENS of *Lepeophtheirus* from the sunfish (*Mola mola* L.) taken in New Zealand waters are identical with cotype material of *L. insignis* Wilson. Paratype specimens of *L. molae* Heegaard from Australian waters differ from *L. insignis* only in the shorter, wider genital segment, in the much greater development of the rudimentary fifth pereiopods and in the further suppression of the rudimentary sixth pereiopods, and these two species are clearly closely related.

FOUR male and four female specimens of *Lepeophtheirus*, taken from the skin of a specimen of *Mola mola* brought ashore in a seine net off Rona Bay, Eastbourne, on 30.11.1960, were lent to the author by the Dominion Museum, Wellington. Examination showed them to be very similar to descriptions of both *L. insignis* Wilson, 1908 and *L. molae* Heegaard, 1962. In order to resolve their identity the author borrowed one male and one female cotype of *L. insignis* together with three male and three female specimens identified as such by C. B. Wilson from the United States National Museum (Cat. no. U.S. 74370) and four female paratypes of *L. molae* from the Australian Museum (Cat. no. G.5213). Unfortunately Heegaard's single male specimen could not be located.

After comparison, it was found that the females of all three lots were morphologically similar in every respect, except that in the New Zealand and North American material the sixth pereiopods are obvious, consistently flattened, carrying three setae, the fifth pereiopods are minute; the genital segment is more than half the length of the carapace and longer than wide; in the Australian material the sixth pereiopods are smaller and lack setae, but the fifth are elongated, large and obvious, while the genital segment is less than half the length of the carapace and wider than long. From the literature it appears that the specimens figured and described by Barnard (1955, p. 169, fig. 11) as *L. insignis* are similar to the Australian material.

Heegaard noted the great similarity between his material and Wilson's. Of the differences suggested by Heegaard (p. 171), the "spine on the carapace"



Posterior part of genital segment showing the fifth and sixth pereiopods, Fig. 1: in *Lepeophtheirus insignis* from New Zealand waters; Fig. 2: in *L. molae* from Australia; Fig. 3, in *L. insignis* from Southern California.

beside the posterior sinuses is a ridge caused by the dorsal bulging of that part of the median posterior area that lies lateral to this sinus and is present in all the specimens examined (some indication of this may have been intended in Wilson's figure, Pl. 70, fig. 37); the cresta on the first maxilliped is present in Wilson's material although not figured or described by him; the third pereiopod of all specimens appears to be similar; the abdomen in Wilson's material is indistinctly two segmented (although he appears to have overlooked this fact) as it is in the New Zealand material; it seems probable that this is also the case with Barnard's material which was figured by him as being one-segmented. I am unable to make a comparison of the males in the absence of Heegaard's male specimen but the New Zealand males are similar to those described by Wilson. Thus the similarity between Heegaard's material and Wilson's is greater than the latter's description would suggest.

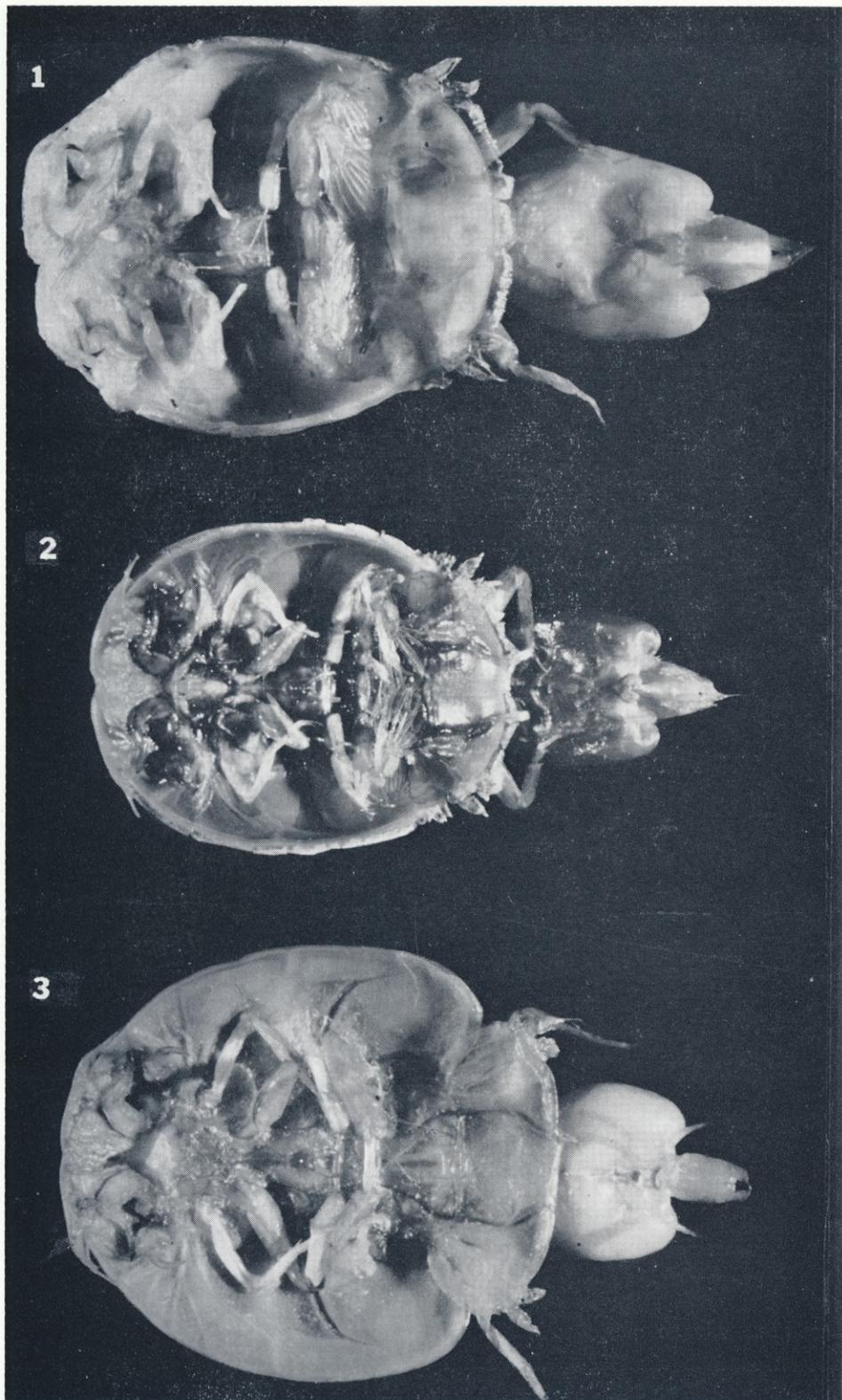
The figures of juvenile specimens by both Heegaard and Wilson suggest that the differences in the fifth and sixth pereiopods occur early in the postchalmus development, if not before, and must therefore be regarded as significant ones, as are the differences in the shape of the genital segment. However, considering the close similarity of all other structures, the species are clearly closely related. The two species may be separated as follows:

Lepeophtheirus insignis

Lepeophtheirus insignis Wilson, 1908. *Proc. U.S. nat. Mus.*, 35: 444-447, Pls. 70-71.

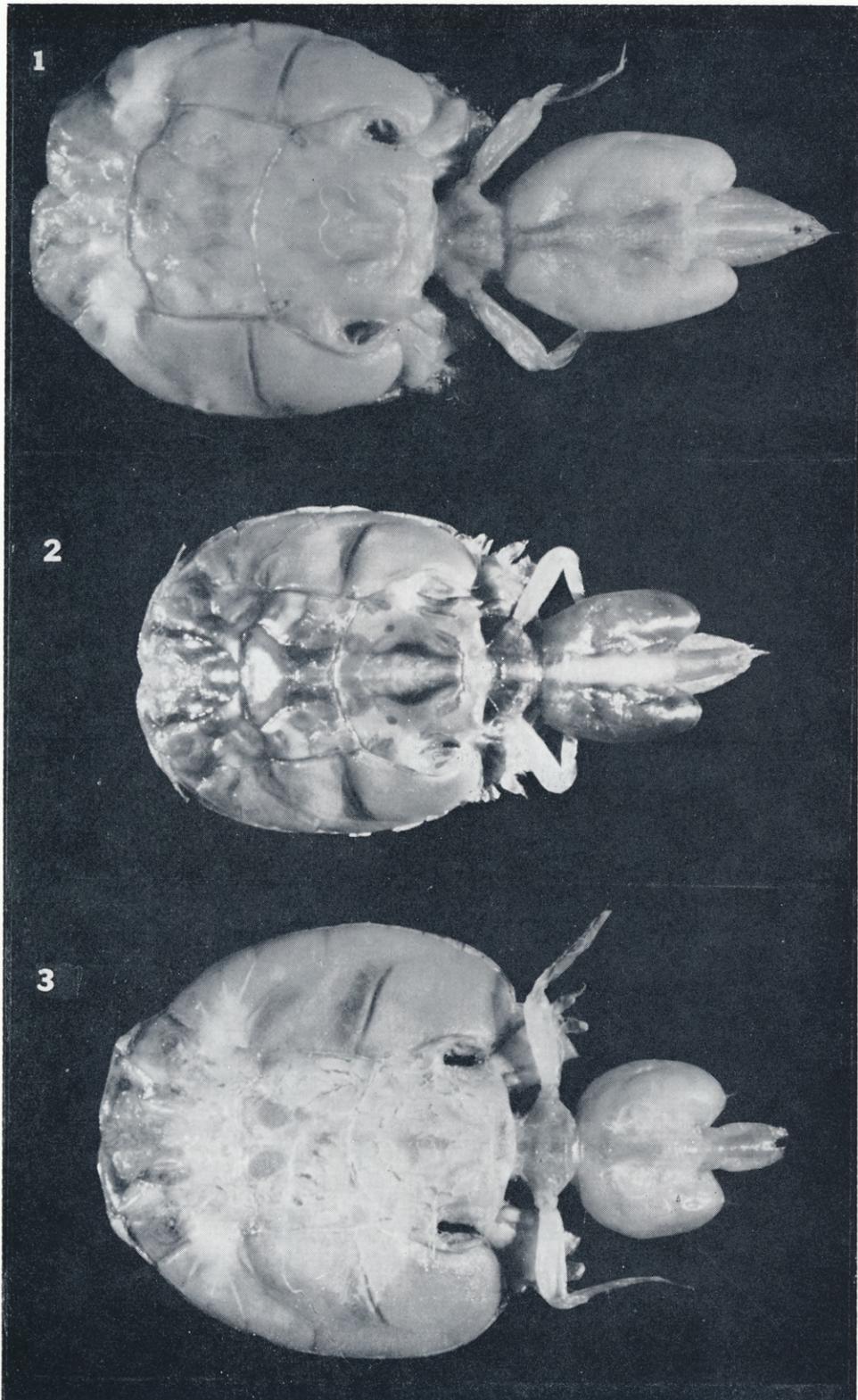
Genital segment longer than wide, two-thirds the length of the carapace; the fifth pereiopod is reduced to a small papilla bearing a single seta, the sixth pereiopod well developed, about one-seventh the length of the genital segment, subsemicircular, flattened and bearing three setae.

KNOWN DISTRIBUTION. Wellington, New Zealand and Southern California.



Ventral views of: 1—*Lepeophtheirus insignis* from New Zealand waters. Length, 13.3 mm. 2—*L. insignis* from Southern California. Length, 10.5 mm. 3—*L. molae* from Australian waters. Length, 11.7 mm.

Photographs by M. D. King.



Dorsal views of: 1—*Lepeophtheirus insignis* from New Zealand waters. Length, 13.3 mm. 2—*L. insignis* from Southern California. Length, 10.5 mm. 3—*L. molae* from Australian waters. Length, 11.7 mm.

Photographs by M. D. King

Lepeophtheirus molae

Lepeophtheirus molae Heegaard, 1962. *Rec. Aust. Mus.*, 25 (9): 169–171, figs. 124–134.

Lepeophtheirus insignis Wilson, Barnard, 1955. *Ann. S. Afr. Mus.*, 41: 251–252, figs. 11 a-c.

Genital segment clearly wider than long, three-eighths the length of the carapace; the fifth pereopod is long and styliform, about one-third the length of the genital segment and one-seventh as wide at the base as long, narrowing to half this width distally; each has a terminal spine in the present specimens but no setae; setae are, however, reported by both Barnard and Heegaard and may have been lost in the material lent to the author; two emarginations on the lateral margin of these pereopods are probably the bases for the missing setae; the sixth pereopod is one-third the length of the fifth pereopod and lacks setae, although the shape is similar to the shape of these pereopods in the other species.

KNOWN DISTRIBUTION. Port Jackson, New South Wales, and Table Bay, South Africa.

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LITERATURE CITED

- BARNARD, K. H., 1955. South African parasitic Copepoda. *Ann. S. Afr. Mus.*, 41 (5): 223–312, 33 text-figs.
- HEEGAARD, P., 1962. Parasitic Copepoda from Australian waters. *Rec. Aust. Mus.*, 25 (9): 149–223, 250 text-figs.
- WILSON, C. B., 1908. North American parasitic Copepoda: A list of those found upon fishes of the Pacific Coast, with descriptions of new genera and species. *Proc. U.S. nat. Mus.*, 35: 431–482, Pls. 66–83.

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