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## THE IDENTITY OF *HAPALOPODA INVESTIGATOR* FILHOL, 1885 (DECAPODA, PENAEIDAE) AND OTHER SHRIMPS COLLECTED BY THE 1880-1883 "TRAVAILLEUR" AND "TALISMAN" EXPEDITIONS

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In 1880, 1881, and 1882 the French research vessel "Travailleur" explored the deep waters of the Bay of Biscay (1880, 1881, 1882), off the Portuguese coast (1881, 1882), the Mediterranean (1881) and the eastern Atlantic from the Bay of Biscay as far south as the Canary Islands (1882). In 1883 the "Travailleur" was replaced by the larger "Talisman", which ship explored the eastern Atlantic between the Bay of Biscay and the Cape Verde Islands, visiting also the Azores, and going as far west as  $31^{\circ}34'N$   $41^{\circ}15'W$  (of Greenwich =  $43^{\circ}35'W$  of Paris; the longitudes of the "Travailleur" and "Talisman" stations were always given relative to Paris). A select company of French zoologists was on board the "Talisman" on her (June-August) 1883 cruise. Among these zoologists were Alphonse Milne Edwards (the leader of the expedition), Edmond Perrier, the marquis Alexandre Guillaume Léopold de Folin and Henri Filhol. The collections made during the expeditions, and especially those by the "Talisman", proved very valuable and formed the subject of numerous important publications. The study of the Crustacea was entrusted to A. Milne Edwards, who in collaboration with E. L. Bouvier published the final report on the Decapoda Brachyura and Anomura in 1900 (A. Milne Edwards & Bouvier, 1900). Apart from the Sergestidae, which were dealt with by Hansen (1927), no account of the Decapoda Macrura of the expeditions as a whole has ever been published, although scattered notes dealt with some of the material; so Bouvier (1908), when reporting upon the Penaeidae of the expeditions of Prince Albert I of Monaco, occasionally referred to specimens collected by the "Talisman".

Several of the zoologists, who had taken part in the expeditions, published popular accounts of their experiences, using published and unpublished information. The first of such accounts were those by Henri Filhol, professor of science at the University of Toulouse. In the popular journal "La Nature" (1884-1885) he wrote two papers in various installments, viz., "Explorations sous-marines. Voyage du "Talisman" " (1884) and "La vie au fond des mers" (1885). Under the same title as his second article, Filhol published in December 1885 a popular book in which he used much of the information given in his previous two articles. Both the articles and the book are most readable and well illustrated. In them Filhol mentioned and figured numerous species and often used for them manuscript names that at that time had not been published, these names evidently being placed at his disposal by his colleagues who studied the collections. As several of these names were used by Filhol with enough data to make them available, Filhol, clearly unintentionally, became their author, and such names date from the moment that they were published by Filhol. However, Filhol's popular publications and the names that he introduced in them were ignored in scientific literature: most authors overlooked these names or treated them as not having been validly published. Only rather recently the status of some of Filhol's names has been recognized and several of them have now been adopted.

In the popular literature on the deep sea, however, the picture is quite different. In the end of last century many popular books dealing with the deep sea borrowed from Filhol's account, or from the data of the "Talisman" expedition, and the names introduced by Filhol were frequently used. After 1900, when more and more new information on the deep sea became available, many popular authors based themselves on this new information and the data provided by the "Travailleur" and "Talisman" received less and less attention, and Filhol's names almost entirely disappeared there also.

An excellent example of this situation is provided by one of Filhol's neglected names, viz., *Hapalopoda investigator*, a new generic and specific name that he gave to the Penaeid shrimp that at present is best known as *Benthonectes filipes* S. I. Smith. In none of the scientific papers dealing with Penaeidae the names *Hapalopoda* and *H. investigator* have ever been mentioned, not even in synonymy. The generic name *Hapalopoda* is not listed in nomenclators like Neave's Nomenclator Zoologicus. Although the two names have been entirely overlooked by scientists, they appeared in at least 6 popular books and articles published since 1885. The following synonymy shows the nomenclatural history of *Benthonectes filipes* up to 1905. The later synonymy is extensively given by Crosnier (1978: 24).

**Benthonectes filipes** S. I. Smith, 1885

"*Benthescymnus Bartleti* (Smith)?" - A. Milne Edwards, 1883, Recueil Figures Crust. nouv. peu connus, pl. [42].

*Benthonectes filipes* S. I. Smith, 1885 (26 January), Proc. U.S. Nat. Mus., 7: 509.

*Hapalopoda investigator* Filhol, 1885 (12 September), La Nature, 13(2): 229, fig. 2.

*Hapalopoda investigator* - Filhol, 1885a (1 December), Vie au fond des mers: 163, 164, fig. 52.

*Hapalopoda investigator* - Perrier, 1886, Explor. sous-mar.: 327, fig. 238.

*Benthonectes filipes* - S. I. Smith, 1886, Rep. U.S. Fish Comm., 13: 692, 701, pl. 18 fig. 1, pl. 19 fig. 1.

*Hapalopoda investigator* - Marshall, 1888, Tiefsee und ihr Leben: 271, 273, fig. 91.

*Hapalopoda investigator* - Pelseneer, 1890, Explor. zool. mers profondes: 47, fig. 11.

*Hapalopoda investigator* - Dollo, 1891, Vie au sein des mers: 255, 256, 287 (*Hapalopoda*), fig. 41.

*Hapalopoda investigator* - Keller, 1895, Leben des Meeres: 372.

*Hapalopoda investigator* - Joubin, 1905, Bull. Mus. océanogr. Monaco, 45: 24, fig. 17.

It is interesting that all but two of the above 11 references are illustrated, while of the 8 references published since 1905 4 were illustrated.

The species was first made known to the scientific public by A. Milne Edwards (1883) who in his peculiar "Receuil de figures de Crustacés nouveaux ou peu connus" figured on the 42nd plate a specimen from "Exp. du Travailleur 31 Juillet 1882. Dragage N°40. Profondeur 1900 mètres" (= "Travailleur" 1882, sta. 67, 33°9'N 9°38'W (of Greenwich, = 11°58'W of Paris), depth 1900 m, bottom mud, 31 July 1882, dredge haul 40). The specimen was identified by A. Milne Edwards as "*Benthescymnus* [sic] *Bartleti* [sic] Smith?". *Benthescymnus bartletti* was described by S. I. Smith the year before (Smith, 1882: 82, pl. 14 figs. 1-7) and is a different species. A. Milne Edwards' figure is very good; apart from the above cited legend, no text is provided.

S. I. Smith (1885: 509) gave an excellent, unillustrated description of both his new genus *Benthonectes* and its only species *B. filipes*. The part of the Proceedings of the U.S. National Museum in which the description was published was issued on 26 January 1885. Each sheet of these Proceedings, namely, is accurately dated; pp. 497-512, containing the description of *Benthonectes filipes* is dated on p. 497 as follows: "Vol. VII, No. 32. Washington, D.C. Jan. 26, 1885". Originally the date was printed as Jan. 19, but the number 19 is obliterated and replaced by 26. Smith remarked that his new species is "apparently very closely allied to that figured by A. Milne-Edwards as "*Benthescymnus Bartletti* (Smith)?" and probably specifically identical with it".

Eight months later, Filhol, in the issue of 12 September 1885 of the journal "La Nature" (vol. 13 pt. 2 no. 641), on p. 229 gave an illustration (fig. 2)

of the present species with the legend "Crevette prise à 1900 mètres de profondeur, à bord du *Talisman*. *Hapalopoda investigator*. A. M.-Edw. (anciennement *Benthesisymus Bartleti* A. M.-Edw.)". The accompanying text was the following: "Le rôle des antennes comme organes d'exploration est tellement important qu'on voit chez des crustacés de grands fonds certaines parties du corps être détournées de leurs fonctions et revêtir la forme de ces organes. Un des exemples, les plus remarquables qu'on puisse citer à ce sujet, est celui présenté par une sorte de crevette que nous avons pêchée, à bord du *Talisman*, par 1900 mètres de profondeur. Le *Hapalopoda investigator* (fig. 2) est un crustacé d'un rouge carminé, dont les antennes ont une fois et demie la longueur du corps. Les pattes vont progressivement en augmentant de grandeur de la première, la plus antérieure, à la dernière. Leurs trois premières paires portent à leur extrémité une petite main didactyle, alors que les deux autres paires, dont la longueur est presque double de celle de la paire qui les précède, se terminent par une série de petits articles, placés bout à bout, rappelant par leur forme et leur disposition les articles composant le flagellum des antennes".

Filhol's description and figure of this characteristic species are such, that there cannot be the slightest doubt about the identity of *Hapalopoda investigator* with *Benthonectes filipes*. It is interesting that in the original description of either species a reference is made to A. Milne Edwards's (1883) figure of "*Benthesicymnus Bartleti* Smith?". In his book "La vie au fond des mers" (which according to an announcement on the reverse of the half-title was published 1 December 1885), Filhol used the same figure of *Hapalopoda investigator* as in his earlier publication and repeated the earlier description. The figure is said to be "Grandeur naturelle"; and the reference to A. Milne Edwards' (1883) misidentification is now given in the text: "L'*Hapalopoda investigator* (A. M.-Edw.), décrit primitivement sous le nom de *Benthesicymnus Bartleti*...".

E. Perrier, like Filhol one of the participants of the "Talisman" expedition, also produced a popular book on the deep sea. His "Les explorations sous-marines" was published in 1886. In it he provided a new figure of *Hapalopoda investigator*, different from either the one published by A. Milne Edwards (1883) or that of Filhol (1885, 1885a). His legend to the figure is as follows: "Hapalopoda investigator, A. Milne Edwards, Crustacé voisin des Pénéés, vivant à 1900 mètres de profondeur et ayant ses deux dernières paires de pattes transformées en organes de tact.—Grandeur naturelle". In the text only the shape of the last pereopods, and the presence of strong pleopods is mentioned for the species. The figure shows the characteristic features of the species.

The next author to deal with *Hapalopoda investigator* is Marshall (1888: 271, 273, fig. 91), who copied Filhol's figure, and also in the text gave no new details. Pelseneer (1890: 47, fig. 11), Dollo (1891: 255, 256, fig. 41) and Joubin (1905: 24, fig. 17) all reproduced Perrier's figure of *Hapalopoda*; Pelseneer remarked in a foot-note that the figure "a été obligeamment faite à mon intention par mon ami Jules Bonnier". All these authors, as well as Keller (1895: 372), who did not provide a figure, commented on the characters of the long last legs, but added nothing new and evidently based themselves entirely on Filhol's or Perrier's accounts.

The fact that the name *Benthonectes filipes* was published 8 months before that of *Hapalopoda investigator*, makes it the valid name for the species and the discovery of the identity of *Hapalopoda investigator* thus fortunately has no serious nomenclatural consequences as it disappears into the synonymy of the senior name.

As far as I can make out only two specimens of *Benthonectes filipes* were collected by the "Travailleur" and "Talisman"; both were cited by Crosnier (1978: 26, footnote 1). The one taken by the "Travailleur" in 1882 at its station 67 (depth 1900 m) is a male with a total length of 83 mm and a carapace length of 20.5 mm; it is the largest known specimen of the species. It is this specimen that was figured by A. Milne Edwards (1883) and by all subsequent authors using the name *Hapalopoda investigator* for the species. Filhol and Crosnier were mistaken when citing it as being taken by the "Talisman". Only the second specimen cited by Crosnier was collected by the "Talisman", namely at Sta. 32 (depth 1590 m, bottom greasy mud) on 17 June 1883 at 32°34'N 9°49'W (of Greenwich, = 12°9'W of Paris; the latter position is the one given in the official "Talisman" station lists). This same "Talisman" specimen was described and figured by Tirmizi (1960: 333, figs. 24-35).

In all descriptions of *Hapalopoda investigator* only the "Travailleur" specimen is specifically mentioned and figured, and it probably is the holotype of the species. In the event, however, that also the "Talisman" specimen was at Filhol's disposal when describing his *Hapalopoda investigator*, both would be syntypes. To definitely link the name *Hapalopoda investigator* to the "Travailleur" specimen, I select the latter as lectotype of Filhol's species.

Apart from *Hapalopoda investigator*, Filhol (1884, 1885, 1885a) introduced the following available names for Decapoda Macrura collected by the "Travailleur" and "Talisman" expeditions (listed in chronological order):

**Acanthephyra pellucida** Filhol, 1884

*Acanthephyra pellucida* Filhol, 1884 (23 February): 199; 1884 (8 March): 234 (*Acanthephyra p.*); 1885a (1 December): 144 (*Acanthephyra p.*), 162 (*Acanthephyra p.*).

As Crosnier & Forest (1973: 92, figs. 26c, 27c) have made clear *Acanthephyra pellucida* Filhol, 1884, is identical with *A. affinis* Faxon, 1896, and should be known as *Systellaspis pellucida* (Filhol, 1884). They evidently overlooked Filhol's (1884: 199, 234) earlier mentions of the species, but this changes very little in the picture. Filhol (1884: 199), although mentioning the species very briefly, gave enough details to make the name available: "Sur une nouvelle espèce d'Acanthephyra (*Acanthephyra pellucida*, Alph. M. Edw.) il existe des bandes phosphorescentes sur les pattes". On p. 234 Filhol made a similar statement, but did not add anything new.

To the synonymy provided by Crosnier & Forest the following records of *Acanthephyra pellucida* can be added. There is no certainty, however, that the synonymy then is complete. Several records of the species might still be hidden in the popular literature, but of course those are usually of minor importance.

*Acanthephyra pellucida* - Anonymous, 1884 (April 3), Nature, London, 29: 533 (*Acanthephyra p.*); Gadeau de Kerville, 1890, Animaux et végétaux lumineux: 89, 90; Gadeau de Kerville, 1893, Leuchtende Tiere und Pflanzen: 68, 69; Hansen, 1903, Proc. Zool. Soc. London, 1903: 76; Harvey, 1952, Bioluminescence: 346.

The anonymous article in Nature vol. 29 (published 3 April 1884) is a translated abstract of Filhol's (1884) remarks on Crustacea and only mentioned the fact that in "*Acanthephyra pellucida* (A. M. Edw.), the feet are adorned with phosphorescent bands". Gadeau de Kerville (1890, 1893) copied Perrier's (1886) description of the arrangement of the luminous bands and spots in the species. Hansen (1903: 76) cited Gadeau de Kerville's account of *Acanthephyra pellucida* in the German translation, but was unable to decide the identity of the species, which he found different from *Sergestes challengerii* Hansen and from Euphausiacea. Harvey (1952: 346) cited the luminescence of the species, which he indicated as "*Acanthephyra pellucida* (*Oplophorus grimaldii*)", evidently intimating the synonymy of the two species.

Although Filhol (1884) is the author of *Acanthephyra pellucida*, Perrier's (1886) account of the species is much more elaborate. But only Crosnier & Forest (1973), after examination of the type material could definitely identify Filhol's species.

**Glyphus marsupialis** Filhol, 1884

*Glyphus marsupialis* Filhol, 1884 (8 March): 231; 1884 (19 April): 328; 1885a: 140, pl. 1.

This species was overlooked in scientific literature until 1955, when it

was brought to light. Until 1968 it was only known from the "Talisman" material. Since that time many more specimens have been found and an excellent account of it was published by Crosnier & Forest (1973: 144, figs. 42, 43). To the references provided by Crosnier & Forest the following can be added, all of these concern early popular literature:

*Glyphus marsupialis* Pelseneer, 1890, Explor. zool. mers profondes: 66; Dollo, 1891, Vie au sein des mers: 288.  
*Glyphus* Hickson, 1893, Fauna Deep Sea: 237.

#### **Nematocarcinus gracilipes** Filhol, 1884

*Nematocarcinus gracilipes* Filhol, 1884 (8 March): 232, fig. 1; 1885a (1 December): 140, 143, fig. 45.

Like in the previous two species, the best account of this species is provided by Crosnier & Forest (1973: 123, figs. 34, 35). To the references cited by these authors, the following can be added:

*Nematocarcinus gracilipes* - Marshall, 1888, Tiefsee und ihr Leben: 270, 271, fig. 90; Hickson, 1893, Fauna deep sea: 135; Keller, 1895, Leben des Meeres: 372, fig. 116 (generic name on p. 372 once spelled *Nematocrinus*); Seeliger, 1901, Tierleben Tiefsee: 18; Joubin, 1905, Bull. océanogr. Monaco, 45: 23, 24, fig. 16.

#### **Penaeus lividus** Filhol, 1885

*Penaeus lividus* Filhol, 1885a, Vie au fond des mers, pl. 1.

In his book "La vie au fond des mers" Filhol published four coloured plates (pls. 1, 3, 5, and 7). These coloured plates depict deep water scenes with several animal species. As a protection, each coloured plate is covered by a sheet of thin tissue paper. On this protecting cover the number of the plate and a rectangle outlining it are printed; the names of the species shown on the plate, are printed on the cover within the outline, on the exact position of the figures; so that under the printed name the figure of the animal is visible through the thin paper cover. So on pl. 1 the name *Glyphus marsupialis* (A. M. Edw.) is printed on the cover at the spot where the figure of a red shrimp shines through. Many of the species mentioned in the text are illustrated in this way in colour. However, the coloured plates also show species, the names of which only occur on the covers and not in the text. In the Decapoda Macrura there are five such names, all are new, and as they are accompanied by a figure, all are available names. As the figures on the plates are small and usually not too detailed, it often is difficult to make out which species is meant with the new name. Later authors have usually ignored these names, and I do not know of any later usage of any of these 5 Macruran names.

The first such name is "*Penaeus lividus*" shown by Filhol on pl. 1. The name is given to a figure in the upper portion of pl. 1, showing a white shrimp with a pink rostrum and some small pink and green spots on the rest of the body. The name *lividus*, meaning bluish, or black and blue, seems most inappropriate for it. The rostrum is curved upward and shows about 5 dorsal and no ventral teeth. The figure is so crude that from it alone the identity of the species cannot be ascertained. The white colour of the specimen makes it probable that either *Funchalia* or *Parapenaeus* was meant.

Bouvier (1908), in his revision of the Penaeidae collected by the Monaco expeditions usually noted whether he had seen "Talisman" specimens of the various species. He did not mention any "Talisman" specimens under *Funchalia*, but did so under *Parapenaeus longirostris* (1908: 104, "au large du Maroc où elle fut trouvée par le Talisman"). Furthermore, when dealing with the colour of *Parapenaeus longirostris*, Bouvier (1908: 105) remarked in a footnote: "Dans l'album où mon regretté Maître et collaborateur, Alphonse Milne-Edwards, a relevé la coloration naturelle des animaux capturés par le TALISMAN, se trouve une aquarelle consacrée au Solénocère commun [= *Solenocera membranacea* (Risso)] et une autre à l'espèce qui nous occupe [= *Parapenaeus longirostris* (Lucas)]: la première donne à l'animal un ton rouge prononcé, et la seconde une coloration blanchâtre avec certaines régions restreintes teintées de rose". It is highly probable that Filhol's plates are based on this album with coloured sketches of "Talisman" animals of A. Milne Edwards.

And therefore it seems reasonable to consider the name *Penaeus lividus* Filhol, 1885, a synonym of *Parapenaeus longirostris* (Lucas, 1846). In this case *Penaeus lividus* disappears in the synonymy and cannot cause any nomenclatural harm.

### ***Palemon chlorotocus* Filhol, 1885**

*Palemon chlorotocus* Filhol, 1885 (1 December), Vie au fond des mers: pl. 1.

A second figure on Filhol's coloured pl. 1 is named "*Palemon chlorotocus* (A. M. Edw.)"; it is in about the middle of the right half of the plate, and shows a whitish shrimp with a dark red spot in the anterior part of the carapace (internal organs?), with the distal half of the abdomen and most legs pink, and with bright green eggs. There can be little doubt that this is the "Macroure inconnu du groupe des Palémoniens, qui offre de l'analogie avec les *Regulus* décrits par Dana [= *Thalassocaris* Stimpson]; mais il s'en distingue par des caractères importants" (A. Milne Edwards, 1882: 18), which the "Travailleur" collected off Morocco. In a footnote to the above

remarks A. Milne Edwards stated: "J'ai donné à cette espèce le nom de *Chlorotocus gracilipes* (de χλωροτοκός "qui pond des oeufs verts") parce que la femelle était chargée d'oeufs d'un beau vert et que ses pattes sont fort grêles".

Evidently A. Milne Edwards, when still considering the species to belong to the genus *Palaemon* planned to use the name *chlorotocus* as a specific epithet, but when he decided that the animal represented a distinct genus employed *Chlorotocus* as a generic name.

The correct name for the species is *Chlorotocus crassicornis* (Costa, 1871), both *Chlorotocus gracilipes* A. Milne Edwards, 1882, and *Palaemon chlorotocus* Filhol, 1885, being junior synonyms. It is peculiar that Filhol used A. Milne Edwards' old manuscript name and not the name that was published by A. Milne Edwards in 1882, three years before Filhol's book was issued.

### ***Pasiphodes purpureus* Filhol, 1885**

*Pasiphodes purpureus* Filhol, 1885 (1 December), Vie au fond des mers: pl. 3.

Filhol's (1885) figure of *Pasiphodes purpureus* (new genus and new species) in the upper left hand corner of his pl. 3 shows a rather indistinct shrimp of a purple colour, with a short and blunt rostrum, a distinct cervical groove, and short legs which all are of about the same length. The general impression is that of a *Gennadas* or a *Benthescymus*. It seems well possible that the specimen belongs to *Gennadas valens* (S. I. Smith, 1884). Bouvier (1908: 28, 30, 44) mentioned among the Benthescyminae only *Gennadas valens* (Smith) and *G. talismani* Bouvier as being collected by the "Talisman" and "Travailleur" expeditions. The colour of *Gennadas valens* was compared by Bouvier (1908: 48) with that of *G. elegans*, and said to be characterized by the presence of "de grandes taches pourpre foncé" on various parts of the body. *Pasiphodes purpureus*, however, is shown rather uniformly purple. There is of course also the possibility that the figure of *Pasiphodes* is based on the "aquarelle consacrée au Solénocère commun" collected by the "Talisman", which watercolor "donne à l'animal un ton rouge prononcé" (Bouvier, 1908: 105, footnote).

Although it is impossible, from the figure presented by Filhol, to identify *Pasiphodes purpureus* with certainty, it seems safest, for the time being at least, to consider it a junior synonym of *Gennadas valens*, in which case it does not cause any nomenclatural harm. The generic name *Pasiphodes* Filhol, 1885 (1 December), type species, by monotypy, *Pasiphodes purpureus* Filhol, 1885 (gender: masculine), becomes a junior synonym of the generic name *Gennadas* Bate, 1881, type species, by monotypy, *Gennadas*

*parvus* Bate, 1881 (gender: masculine). In this way both the generic name *Pasiphodes*, and the specific epithet *purpureus* fall as junior synonyms. The same would be true if *Pasiphodes purpureus* were considered a synonym of *Solenocera membranacea* (Risso, 1816).

### **Pasiphae rubroguttata** Filhol, 1885

*Pasiphae rubroguttata* Filhol, 1885 (1 December), Vie au fond des mers: pl. 5.

The figure, shown in the left upper quadrant of pl. 5, is extremely poor and gives hardly any details except for the colour. The colouration does resemble that of *Sergestes corniculum* Kröyer (s. l.) quite closely, and I do not know of any N. E. Atlantic Pasiphaeid with this colouration. According to Hansen (1927: 6) several specimens of *Sergestes corniculum* have been collected by the "Talisman".

Crosnier & Forest (1973: 309) used the name *Sergestes henseni* Ortmann, 1893, for the species from the Mediterranean and N.E. Atlantic that previously was best known as *S. corniculum* Kröyer, 1855. However, as Holthuis (1977: 41) made clear, the oldest name for the species is *Acheles arachnipodus* Cocco, 1832. Therefore the older name *Sergestes arachnipodus* (Cocco, 1832) rather than the name *Sergestes henseni* Ortmann, 1893, seems to be the valid name for the species.

It is interesting that the name *Sergestes rubroguttata* was proposed by Wood-Mason (1891: 354) for a species from the Bay of Bengal that later has been identified with *S. corniculum*; several authors have used the name *Sergestes rubroguttatus* Wood-Mason for Mediterranean representatives of *S. arachnipodus*.

It is to be hoped that a world-wide revision of the *Sergestes corniculum* group envisaged by Crosnier & Forest (1973: 309) will become reality, and will solve the now most confused situation of this group of species.

### **Acanthephyra abyssorum** Filhol, 1885

*Acanthephyra abyssorum* Filhol, 1885 (1 December), Vie au fond des mers: pl. 7.

The figure of *Acanthephyra abyssorum* in the upper right quadrant of plate 7, shows a blood red shrimp with a rather long robust rostrum and a strong posteriorly directed spine at the end of the second abdominal somite. The large rostrum and strong posterior spine show some resemblance to those of *Oplophorus*, but most species of *Oplophorus* are transparent and of a light colour, not blood red as in this figure. The red colouration resembles that of many *Acanthephyra* and *Notostomus*. Species of *Acanthephyra* having a strong spine or tooth on the second (or third) abdominal somite, often have the rostrum short (e.g. *A. brevirostris* Smith). *Acanthephyra microphthalmia*

Smith (1885, 26 January) comes closest, but there is no indication that that species was ever collected by the "Travailleur" or "Talisman" expeditions.

The definite identity of *Pasiphodes purpureus* and *Acanthephyra abyssorum* possibly can be solved by a study of the "Travailleur" and "Talisman" shrimps, and perhaps by a study of A. Milne Edwards' album with colour sketches of animals taken at these expeditions, if still extant.

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