© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

The Schizopoda collected by the Maia and Puritan in the Mediterranean.

By

Walter M. Tattersall, M. Sc.

With plate 7.

Through the kindness of Dr. Anton Dohrn, Director of the Zoological Station at Naples, I have been afforded an opportunity of examining the rich material of Schizopoda collected by the Maia and Puritan during cruises in the Mediterranean in 1901 and 1902.

The collections are of special interest, as being the first of an extensive nature, which have been made, of the offshore and bathypelagic fauna of the Mediterranean and a perusal of Dr. Lo Bianco's reports shows that they have revealed the presence of an extremely rich and populous pelagic life in that sea.

Practically the entire material of the Schizopoda was sent to me, as a comparison of the tables I give below of the species collected by each expedition, with Dr. Lo Bianco's lists, will show. In the tables I indicate only the material I have actually examined.

In some few cases I have ventured to differ from the interpretations which Dr. Lo Bianco has placed on some of the species. I give below a list of those species, placing in parallel columns the names under which they appear in Dr. Lo Bianco's lists and the names by which I believe they should be recorded.

Thysanopoda obtusifrons. *Thysanopoda microphthalma.*	*T. aequalis* Hansen.
Erythrops goësii.	*E. elegans* G. O. Sars.
Parerythrops obesa.	*P. lobiancoi* sp. nov.
Brutomysis vogtii.	*Euchaetomera tenuis* G. O. Sars.
Euchaetomera tenuis.	*E. tenuis* G. O. Sars. *Euchaetomeropsis merolepis* (Illig).
Pseudomma affine.	*P. calloplura* Holt & Tatt.
Siriella clausii.	*S. norvegica*? G. O. Sars.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

The following species were found in the material but are not recorded by Dr. Lo Bianco.

Euphausia brevis Hansen.	(*E. pellucida*, pars, Lo Bianco.)
Nyctiphanes couchii (Bell).	(*N. norvegica*, pars, Lo Bianco.)
Thysanoëssa sp.?	
Nematoscelis megalops G. O. Sars.	Recorded by Dr. Lo Bianco as *Nematoscelis* sp.
Nematoscelis microps G. O. Sars.	
Paramblyops rostrata Holt & Tatt.	
Pseudomma kruppi sp. nov.	
Leptomysis sp.?	
Calyptomma puritani gen. et sp. nov.	
Mysidetes farrani Holt & Tatt.	
Mysidella typica G. O. Sars.	

Recent corrections of nomenclature cause the species recorded by Dr. Lo Bianco as *Euphausia pellucida*, *Stylocheiron mastigophorum*, *S. chelifer* and *Eucopia australis* to be now known as *E. mülleri*, *S. suhmi*, *S. abbreviatum* and *E. unguiculata*, respectively.

The following three species are described as new, *Parerythrops lobiancoi*, *Pseudomma kruppi* and *Calyptomma puritani*. The last one is made the type of a new genus and I have also instituted a new genus *Euchaetomeropsis*, to receive *Euchaetomera merolepis* Illig, in accordance wich a suggestion made by Holt & Tattersall (1906 p. 26) in writing of this species, at the time undescribed.

As a result of his examination of the present material, Dr. Lo Bianco was able to announce the following eleven species as new to the Mediterranean fauna:

Euphausia gibba.
Thysanopoda obtusifrons.
Thysanopoda microphthalma.
Nyctiphanes norvegica.
Eucopia australis.
Erythrops goësii.
Parerythrops obesa.
Pseudomma affine.
Euchaetomera tenuis.
Brutomysis vogtii.
Boreomysis arctica.

©Biblioteca Nacional de Ciencias y Tecnología - Cuba

All but 5 species on this list: *Euphausia gibba*, *Nyctiphanes norvegica*, *Eucopia australis*, *Euchaetomera tenuis*, *Boreomysis arctica*, must in my opinion be deleted from the Mediterranean list in accordance with the suggestions given above.

Holt & Tattersall (1906) from specimens from this collection kindly forwarded at the time by Dr. Lo Bianco were able to add *Nyctiphanes couchii* and *Pseudomma calloplura* to the Mediterranean fauna, while the following 11 species are now recorded from the Mediterranean for the first time:

Euphausia brevis.
Thysanopoda aequalis.
Thysanoëssa sp.?
Parerythrops lobiancoi.
Euchaetomeropsis merolepis.
Paramblyops rostrata.
Pseudomma kruppi.
Calyptomma puritani.
Mysidetes farrani.
Siriella norvegica?
Mysidella typica.

This list, together with the alterations suggested above, gives a total of 17 species out of 30 contained in the material, which the Maia and Puritan first made known from the Mediterranean. When we consider the small area explored by these boats and the comparatively few hauls taken actually on the bottom, it would seem that there is much remaining to be done in the elucidation of the Mediterranean fauna.

An examination of the list of species here recorded, shows, as might have been expected, that there is a considerable resemblance between the pelagic fauna of the Mediterranean and that of the Eastern Atlantic. All the pelagic Euphausians noted below as well as *Eucopia unguiculata* and *Euchaetomera tenuis* among the pelagic Mysidaceans are widely distributed in the Eastern part of the Atlantic Ocean from the waters off the British Islands as far south as the Azores. Of the remaining two pelagic forms, *Arachnomysis leuckarti* is at present only known from the Mediterranean, while *Euchaetomeropsis merolepis* has so far only been found in the Indian ocean, outside that sea.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

Of the 13 bottom haunting forms in this material, no fewer than 10 are found in the seas to the west of the British Isles, 7 of them extending as far north as Norway.

Special interest attaches to the records of *Pseudomma calloplura*, *Paramblyops rostrata* and *Mysidetes farrani,* since these species have only been recently described, from specimens captured off the West Coast of Ireland. The 3 species which are peculiar to the Mediterranean, are the new ones, *Parerythrops lobiancoi* replacing the northern *P. obesa*, *Pseudomma kruppi* a species very closely allied to some of the northern members of that genus and *Calyptomma puritani*, a species with no very near relative among described forms. I append two tables showing the distribution of the various species in the several hauls of the Maia and Puritan, followed by a table showing the known distribution of the species in the seas of the globe.

The term "first thoracic limb" in the following notes is applied to the appendage formerly known as the maxillipedes and the remaining thoracic appendages are noted by their corresponding numbers only.

Table 1.

The Schizopoda of the Maia 1901.

	Number of haul	38	39	40	41	42	43	49	50	53	54	55	56	57	
	Euphausiidae														
1.	*Euphausia mülleri*	—	37	14	16	—	86	2	169	3	2	29	8	—	1.
2.	„ *brevis*	—		—	29	—		4		2	5			—	2.
3.	„ *gibba*	—	98	—	8	—	14	15	49	13	4	49	11	—	3.
4.	*Meganyctiphanes norvegica*	—	2	—	—	—	2	1	1	—	—	—	—	—	4.
5.	*Thysanopoda aequalis* . . .	—	—	2	1	—	170	31	30	22	12	18	—	—	5.
6.	*Thysanoëssa*, sp.?	—	—	—	—	—	—	—	1	—	—	—	—	—	6.
7.	*Nematoscelis megalops* . . .	2	3	1	1	1	140	10	50	5	2	22	—	—	7.
8.	„ *microps* . . .	—	1	—	1	—		14	43	14	5	18	1	7	8.
9.	*Stylocheiron suhmi*	2	2	—	—	—	1	1	—	2	1	7	2	1	9.
10.	„ *abbreviatum* .	—	—	—	—	—	4	—	2	3	—	4	—	—	10.
11.	Larvae, species indeterminate	15	4	—	few	—	few	15	few	few	few	mod	—	—	11.
	Lophogastridae														
12.	*Lophogaster typicus*	—	—	—	—	—	1	—	—	—	—	—	—	—	12.
	Mysidae														
13.	*Euchaetomera tenuis* . . .	—	—	—	—	—	1	—	—	—	—	—	—	—	13.
14.	*Arachnomysis leuckarti* . .	—	—	—	—	—	1	—	—	—	—	—	—	1	14.
15.	*Haplostylus normani* . . .	—	—	—	—	—	2	—	—	—	—	—	—	—	15.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

Reference Number	45	46	47	49	50	51	52	53	54	55	56	57	58	60	61	Reference Number
	1000	2000	2000	600	600	600	600	600	600	900	1000	1000	2600	1200	1200	
	1200	2000	1900	50	100	200	300	400	500	600	1000	2000	2500	1100	1200	
1.	a	61	—	—	2	—	21	21	a	a	39	3	1	—	1	1.
2.			—	—	—	—		—	—		—	—	4	—	1	2.
3.	10	58	—	—	—	—	—	7	6	9	12	3	49	2	35	3.
4.	—	8	—	—	—	—	—	—	—	—	2	—	1	—	—	4.
5.	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	5.
6.	4	60	10	—	—	—	—	—	2	6	30	1	21	—	10	6.
7.	3	7	1	—	1	—	—	2	3	7	4	1	29	—	19	7.
8.	8	31	6	—	2	—	—	1	—	1	4	—	23	—	6	8.
9.	3	6	—	—	2	7	12	3	4	5	—	1	3	—	3	9.
10.	—	15	—	—	15	3	7	—	1	—	1	—	4	—	1	10.
11.	—	a	—	a	a	m	m	m	—	—	—	m	a	—	a	11.
12.	—	2	3	—	—	—	—	—	—	—	1	2	5	—	—	12.
13.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.
14.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.
15.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15.
16.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.
17.	—	3 ♂, ♀, ♂ j	—	—	—	—	—	—	—	—	—	—	1 ♀ j	—	—	17.
18.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	18.
19.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	19.
20.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.
21.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.
22.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22.
23.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.
24.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.
25.	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	25.
26.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.
27.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.
28.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.
29.	—	—	—	—	—	—	—	—	—	—	—	35	—	—	—	29.
30.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

Table 2. The Schizopoda of the Puritan. 1902.

f = few. m = moderate. a = abundant. ♀ = adult female. ♂ = adult male. ♀j = immature female. ♂j = immature male.

Reference Number	Number of haul	3	4	5	6	7	8	9	10	12	13	15	16	17	18	10	20	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	41	42	43	44	45	46	47	49	50	51	52	53	54	55	56	57	58	60	61	Reference Number
	Depth in metres	100	100	1000	1200	1000	120	130	900	1150	1150	1100	1100	1100	950	1200	1200	900	900	900	200	1100	1150	1150	100	1200	1100	900	1000	900	1100	1000	1100	1100	1100	1900	1900	1900	1000	1000	2000	2000	600	600	600	600	600	600	900	1000	1000	2600	1200	1200	
	Depth of net	40	100	900	1200	250	350	350	800	1000	1000	1000	1000	1700	1700	500	1100	900	900	1700	450	2000	1200	1200	250	2400	1300	1000	1100	1000	1000	1000	1200	1200	2300	2000	2000	2000	2000	1200	2000	1900	50	100	200	300	400	500	000	1000	2000	2500	1100	1200	
	Euphausiidae																																																						
1.	*Euphausia mülleri*	—	1	1	—	—	—	—	—	12	12	—	40	1	15	—	3	2	—	—	—	—	29	3	—	16	37	21	10	5	45	14	a	f	1	2	2	—	1	a	61	—	—	2	—	21	21	a	a	39	3	1	—	1	1.
2.	„ *brevis*	—	—	2	—	—	—	—	1	—	—	—	—	—		4	—	1	—	—	—	—			—	11	28	—	—	2		3	—		—	2	—	5	1		—	—	—	—		—	—		—	—	4	—	1	2.
3.	„ *gibba*	—	—	5	—	—	—	—	—	1	1	—	14	—	7	—	3	—	—	—	1	—	7	—	—	3	5	2	3	1	6	4	19	f	—	—	—	—	1	10	58	—	—	—	—	—	7	6	9	12	3	49	2	35	3.
4.	*Meganyctiphanes norvegica*	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	9	—	—	—	14	—	—	1	—	1	1	—	—	—	—	—	3	—	8	—	—	—	—	—	—	—	—	2	—	1	—	—	4.
5.	*Nyctiphanes couchii*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	5.
6.	*Thysanopoda aequalis*	—	1	2	2	—	4	—	3	8	13	—	29	—	7	2	5	2	—	3	—	—	37	21	—	10	18	—	4	2	26	14	31	f	1	2	—	1	2	4	60	10	—	—	—	—	—	2	6	30	1	21	—	10	6.
7.	*Nematoscelis megalops*	—	—	—	—	5	—	—	—	1	2	—	4	—	—	—	2	—	—	—	—	2	9	3	—	1	16	—	3	4	7	1	4	—	1	6	—	8	—	3	7	1	—	1	—	—	2	3	7	4	1	29	—	19	7.
8.	„ *microps*	—	—	1	1	—	—	—	—	—	2	1	2	—	—	1	—	—	—	—	—	—	10	—	—	—	9	3	2	1	10	6	33	6	—	—	—	—	—	8	31	6	—	2	—	—	1	—	1	4	—	23	—	6	8.
9.	*Stylocheiron suhmi*	—	—	—	—	7	—	—	—	—	—	—	16	—	—	7	—	—	4	—	—	—	—	—	—	2	6	—	—	3	—	—	—	—	1	—	—	—	2	3	6	—	—	2	7	12	3	4	5	—	1	3	—	3	9.
10.	„ *abbreviatum*	—	3	—	1	13	1	3	—	—	—	—	—	—	—	3	—	—	5	—	—	—	—	—	—	1	4	—	—	—	—	—	3	2	—	2	—	—	3	—	15	—	—	15	3	7	—	1	—	1	—	4	—	1	10.
11.	Larvae sp. indeterm	f	f	—	a	f	a	f	f	—	—	f	a	—	f	a	—	—	a	—	f	—	a	—	a	a	a	a	—	a	—	—	—	—	—	a	—	f.	m	—	a	—	a	a	m	m	m	—	—	—	m	a	—	a	11.
	Eucopiidae																																																						
12.	*Eucopia unguiculata*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	1	—	—	—	—	—	—	—	15	3	4	2	—	2	3	—	—	—	—	—	—	—	1	2	5	—	—	12.
	Lophogastridae																																																						
13.	*Lophogaster typicus*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.
	Mysidae																																																						
14.	*Erythrops elegans*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.
15.	*Parerythrops lobiancoi*	—	—	—	—	—	—	—	—	—	—	—	—	15	6	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	22	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15.
16.	*Euchaetomera lenuis*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.
17.	*Euchaetomeropsis merolepis*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 ♂	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3 ♂, ♀, ♂j	—	—	—	—	—	—	—	—	—	1 ♀j	—	—	17.
18.	*Paramblyops rostrata*	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	18.
19.	*Pseudomma calloplura*	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	5	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	19.
20.	„ *kruppi*	—	—	—	—	—	—	—	—	—	—	—	—	—	2 ♂j	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.
21.	*Mysidopsis*, sp.?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.
22.	*Leptomysis*, sp.?	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22.
23.	*Calyptomma puritani*	—	—	—	—	—	—	—	—	—	—	—	—	22	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23.
24	*Mysidetes farrani*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24.
25.	*Arachnomysis leuckarti*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	25.
26.	*Siriella norvegica?*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.
27.	*Haplostylus normani*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27.
28	*Anchialina agilis*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.
29.	*Boreomysis arctica*	—	—	—	—	—	—	—	—	8	—	—	—	14	a	—	—	—	—	—	—	a	—	—	—	20	—	—	—	—	—	—	—	—	a	—	—	1	a	—	—	—	—	—	—	—	—	—	—	—	35	—	—	—	29.
30.	*Mysidella typica*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

Table 3.

The distribution of Mediterranean Schizopoda in the seas of the globe.

Mediterranean species	Siberian Sea	White Sea	Spitzbergen	Greenland	Labrador	Murman Sea	Sub-Arctic Norway	Sub-Arctic N. Atlantic	Irming Sea	Sub-Arctic N. America	West Norway	South Norway	North Sea	British N. Atlantic	Boreal N. Atlantic	Boreal N. America	Bay of Biscay	Coasts of Spain	Sub-Tropical N. Atlantic	South Atlantic	Pacific	Indian Ocean
Euphausia mülleri	—	—	—	—	×	—	×	—	×	—	—	—	—	×	×	×	×	—	×	×	—	—
Euphausia brevis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	×	×	—
Euphausia gibba	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	×	—	×
Meganyctiphanes norvegica	×	×	×	×	—	×	×	×	—	×	×	×	×	×	×	×	×	×	×	—	—	—
Nyctiphanes couchii	—	—	—	—	—	—	—	—	—	—	—	—	×	×	—	—	×	—	—	—	—	—
Thysanopoda aequalis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—
Nematoscelis megalops	—	—	—	—	×	—	—	—	×	×	—	—	—	×	×	×	×	—	×	×	—	—
Nematoscelis microps	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	×	×	—
Stylocheiron suhmi	—	—	—	—	—	—	—	—	—	—	—	—	—	×	×	—	×	—	×	×	×	—
Stylocheiron abbreviatum	—	—	—	—	—	—	—	—	—	—	—	—	—	×	×	—	×	—	×	×	×	—
Eucopia unguiculata	—	—	—	—	—	—	—	—	—	—	—	—	—	×	×	—	×	—	×	—	×	—
Lophogaster typicus	—	—	—	—	—	—	—	—	—	×	—	—	—	×	—	—	×	—	—	×	×	—
Erythrops elegans	—	—	—	—	—	—	—	—	—	—	×	×	×	×	—	—	—	—	—	—	—	—
Parerythrops lobiancoi	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Euchaetomera tenuis	—	—	—	—	—	—	—	—	—	—	—	—	—	×	×	—	×	—	×	—	—	—
Euchaetomeropsis merolepis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×
Paramblyops rostrata	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—
Pseudomma calloplura	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—
Pseudomma kruppi	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Calyptomma puritani	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mysidetes farrani	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—
Arachnomysis leuckarti	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Siriella norvegica	—	—	—	—	—	—	—	—	—	—	×	×	×	×	—	—	×	×	—	—	—	—
Haplostylus normani	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—
Anchialina agilis	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—
Boreomysis arctica	—	—	—	×	—	—	×	—	—	×	×	×	—	×	—	—	×	—	—	—	—	—
Mysidella typica	—	—	—	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

Order **Euphausiacea.**

Family **Euphausiidae.**

1. ***Euphausia mülleri*** Claus.

E. pellucida (pars), Lo Bianco (1901 and 1903).
E. mülleri, Hansen (1905b).

Since the appearance of Dr. Lo Bianco's reports on the collections of the Maia and Puritan, Hansen has published two preliminary notices of the Schizopoda collected by the Prince of Monaco, in the second of which he shows that the species known hitherto as *Euphausia pellucida* Dana, is a compound one, embracing at least 4 distinct species. The Mediterranean material, examined in the light of Hansen's work, proves to contain 2 of these species which Dr. Lo Bianco included under the one name, *E. pellucida.*

The first of these species is *E. mülleri*, the earliest known member of the genus. It appears to be a very abundant species, since it was present in 10 gatherings of the Maia collections and in no fewer than 35 of the hauls made by the Puritan. The largest specimens measured 18 mm.

2. ***Euphausia brevis*** Hansen.

E. pellucida (pars), Lo Bianco (1901 and 1903).
E. brevis, Hansen (1905b).

I find this species to be readily distinguishable from *E. mülleri* at all sizes above 6 mm. It appears to be nearly as abundant a species as the last, occurring in 9 of the Maia gatherings and 21 of those of the Puritan. It was captured 27 times in company with *E. mülleri.* None of the specimens exceeded 10 mm in length.

Time did not permit of my separating all the *Euphausia brevis* from *E. mülleri.* In large gatherings I satisfied myself as to whether one or other or both species were present and in the tables accompanying these notes, a bracket including *E. mülleri* and *E. brevis*, followed by a number, indicates that both species were present, the number including all specimens of the two forms.

3. ***Euphausia gibba*** G. O. Sars.

E. gibba, Lo Bianco (1901 and 1903).

This species was almost as equally well represented in these collections as the previous two members of the genus. It occurred

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

in 9 of the Maia hauls and 28 of those of the Puritan. The largest specimen measured 15 mm in length.

This species was new to the fauna of the Mediterranean at the time of its capture by the Maia.

4. ***Meganyctiphanes norvegica*** (M. Sars).

Nyctiphanes norvegica (pars), Lo Bianco (1901, 1903 and 1904).
Meganyctiphanes norvegica, Holt & Tattersall (1905 and 1906), Masi (1906).
Euphausia intermedia, Riggio (1905).

This species occurred sparingly in 4 gatherings from the Maia and in 10 from the Puritan. The largest specimen measured 33 mm.

Previous to the cruises of the Maia and Puritan this species had not been recorded from the Mediterranean. It has since been noted from there by Riggio as *Euphausia intermedia*, a name corrected to *M. norvegica* at the end of his paper, and as abundant off the island of Giglio by Masi. Holt and Tattersall (1906) have already called attention to the fact that the drawing in one of Lo Bianco's memoirs (1904) attributed to this species, has, in fact, no connection with *M. norvegica* at all.

5. ***Nyctiphanes couchii*** (Bell).

N. norvegica (pars), Lo Bianco (1903).

This species is evidently not common in the Mediterranean since 4 specimens were all that were found in the collections of both the Maia and Puritan. It seems probable, however, that both expeditions were fishing beyond the true zone of *N. couchii* which is apparently an inshore rather than an oceanic form and is rarely found in depths exceeding 100 fathoms.

Lo Bianco included this species in his records of *M. norvegica*.

6. ***Thysanopoda aequalis*** Hansen.

T. obtusifrons, Lo Bianco (1901 and 1903; nec G. O. Sars, 1885).
T. microphthalma, Lo Bianco (1903; nec G. O. Sars, 1885).
T. aequalis, Hansen (1905b).

I refer all the *Thysanopoda* in this material to *T. aequalis* Hansen, a species but very recently defined. It is very closely allied to *T. obtusifrons* G. O. Sars, with which Lo Bianco has confused it, but is distinguished by the shape of the lobe on the antennular

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

peduncle, for a description of which HANSEN's paper should be consulted.

Dr. LO BIANCO referred a small specimen of *Thysanopoda*, 8 mm in length, to *T. microphthalma*, chiefly on account of its having the rostrum acute instead of obtusely rounded. This, however, is a characteristic of young specimens only and I can see no reason against referring this specimen to *T. aequalis*. This species is, perhaps, the most abundant in the collections. It occurred in 8 gatherings of the Maia and no fewer than 36 of the Puritans hauls. The largest specimen measured 21 mm, which is 2 mm longer than HANSEN's largest example.

7. ***Thysanoëssa*** sp.?

The single specimen apparently referable to this genus measured only 6,5 mm in length and was too small to be definitely associated with any known species.

I am not aware that the genus *Thysanoëssa* has ever been recorded previously from the Mediterranean. It would seem to be very rare there, as this specimen was the only one I could detect from an immense material.

8. ***Nematoscelis megalops*** G. O. Sars.

Dr. LO BIANCO did not refer the *Nematoscelis* captured by the Maia and Puritan to any of the recognised species. I found two species of the genus present, *N. megalops* and *N. microps*. *N. megalops* was very abundant, occurring in 10 hauls from the Maia material and in 29 from the Puritan. The largest specimen measured 20 mm.

9. ***Nematoscelis microps*** G. O. Sars.

N. microps, HANSEN (1905a and b).

This species was almost as abundant as the last, occurring in 10 of the Maia gatherings and 24 of those of the Puritan. It was generally found in company with *N. megalops*. The largest specimen measured 15 mm. The present material confirms HANSEN's observation that the spine on the lateral margins of the carapace is characteristic only of males and immature and sub-adult females, being quite obsolete in completely adult females.

It was noticed in this collection that the eyes of *N. microps* were invariably more or less well preserved while those of *N. megalops*,

on the contrary, were, with very few exceptions, considerably damaged. This fact made it easy to separate the two species from a gathering.

Under the name *N. mantis*, this species has been recorded by CHUN (1896) from the Mediterranean.

10. ***Stylocheiron suhmi*** G. O. Sars.

S. mastigophorum (pars), LO BIANCO (1901 and 1903).
S. suhmi, HANSEN (1905 a).

This species occurred in 9 hauls from the Maia and in 20 from the Puritan. The largest number in a single haul was 16, so that the species was not nearly so abundant in point of number as some of the previously mentioned Euphausians, though it appeared to have been almost as widely distributed. This is the species noted by LO BIANCO as *S. mastigophorum* Chun (1888), a species which HANSEN has shown to be synonymous with *S. suhmi* G. O. Sars.

11. ***Stylocheiron abbreviatum*** G. O. Sars.

S. mastigophorum (pars), LO BIANCO (1901 and 1903).
S. chelifer, LO BIANCO (1903).
S. abbreviatum, HANSEN (1905 a).

S. abbreviatum was almost as equally well represented as *S. suhmi*. It occurred in 4 hauls from the Maia and 21 from the Puritan. Like *S. suhmi* the number of specimens in a haul was few, the largest number from a gathering being 13. The largest specimen measured 21 mm. Dr. LO BIANCO, in recording an elongate leg of this species which was found in the gathering from St. 41, 1902, and which measured 27 mm in length, has calculated that the specimen to which it belonged must have measured about 40 mm, basing his estimate on the drawings given by CHUN of this species from specimens, 14 mm in length. This would be, as LO BIANCO remarks, a gigantic length for a specimen of *Stylocheiron*. It must not be forgotten, however, that the elongate legs of *Stylocheiron* and its allies increase in length proportionately faster than the body, so that to judge of the possible length of a specimen from the isolated elongate legs, basing the estimation on the proportion of these limbs to the body length in small specimens, would lead to an erroneous result.

Larvae belonging to various species of adult Euphausians were present in the majority of the gatherings. They were not referred

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

to their adult species and are merely noted in the tables for the sake of completeness.

Order **Mysidacea.**

Family **Eucopiidae.**

12. ***Eucopia unguiculata*** Will.-Suhm.

E. australis, Lo Bianco (1903).
E. unguiculata, Hansen (1905 b).

The depths at the 12 stations where this species was found, varied from 900 metres (492 fathoms) at St. 32 to 2600 metres (1420 fathoms) at St. 58, while the nets were fishing from 1000 metres (547 fathoms) to 2500 metres (1366 fathoms). The species is, apparently, by no means rare in the deeper waters of the Mediterranean, so that its absence from the collections of the Maia is rather surprising as several gatherings were made over suitable depths during that cruise.

Dr. Lo Bianco has given some interesting notes on the colours of this species in his paper on the results of the Puritan gatherings.

Family **Lophogastridae.**

13. ***Lophogaster typicus*** M. Sars.

L. typicus, Lo Bianco (1901 and 1903).

The specimen from station 29, 1902, is a male (15 mm long) and agrees with the same sex from the Challenger collections in having the median fork of tbe rostrum equal to the two lateral forks though the rostrum as a whole appears somewhat longer than in Sars' figures, since it extends quite half way along the terminal joint of the antennular peduncle. There are 6 teeth on the outer margin of the antennal scale in addition to the strong terminal spine.

The lateral spines on the carapace, immediately behind the eye and in front of the gastro-hepatic groove appear to be more acute than I have ever observed them in females.

The lateral margins of the telson are armed with 4 spines, the additional pair being placed anterior to those figured by Sars in his Challenger work. There are 5 teeth on the apex of the telson between the strong lateral spines. On the sterna of the 2. to the 7. thoracic segments and on the first 5 abdominal segments there is a rather long very acutely pointed and somewhat forwardly di-

rected scythe-like spine. I am not aware that this ventral armature has previously been noted in *Lophogaster*. I have observed similar spines on the first 5 abdominal segments in the female but they appeared to be absent from the thorax of that sex. This, indeed, is what might have been expected since they would obviously be seriously in the way of the young during their development and life in the brood pouch. The absence of the spine from the 8. thoracic segment of the present male specimen may be due to accident but it also may have some significance from the fact that the male genital ducts have their openings on the appendages of this segment. I have not had an opportunity of examining further male specimens with reference to this point. — The small specimen of this species, from St. 43, 1901, measuring 7 mm, has all the characters of the fully grown animal with the exception that the margins of the rostral plate are pectinate instead of smooth. This is a larval character, associated with the early pelagic life of the species and apparently disappearing when the animal takes up its abode permanently on the bottom. It affords an interesting parallel with the Calyptopis larvae of many Euphausians, in which the rostral plate is similarly pectinate but in the later stages the pectinations are lost in all species with the exception of *Euphausia schotti* Ortmann (1893) where they appear to persist in the adult.

The present small Mediterranean example has 6 teeth on the antennal scale in addition to the strong terminal spine, 3 spines on the lateral margins of the telson and 4 teeth on the apex of the telson between the strong lateral spines.

Family Mysidae.

14. ***Erythrops elegans*** G. O. Sars.

E. goësii, Lo Bianco (1903; nec G. O. Sars, 1870).

I am unable to agree with Dr. Lo Bianco in assigning these specimens to *E. goësii*. They appear to be indistinguishable from *E. elegans*. They differ from *E. goësii* in having the spines at the apex of the telson more nearly subequal in length and also in the fact that the inner margin of the inner uropod is minutely serrulated. Sars has noted this latter character in 3 of the species of *Erythrops* and it is reasonable to suppose that if it had been present in *E. goësii* it would not have escaped his attention. It is true, Holt and Beaumont (1900) have shown that, in *E. serrata*, the serrulations on the inner uropod are characteristic of females and imma-

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

ture males only, but SARS had both sexes of *E. goësii* at his command when drawing up his description. Of the present examples 5 are females and 3 males, but all have serrulated inner uropods.

E. goësii must, therefore, be deleted from the Mediterranean list. *E. elegans* has been recorded from the Mediterranean, from Messina and Naples by SARS.

15. ***Parerythrops lobiancoi*** sp. n.

P. obesa, LO BIANCO (1903; nec G. O. SARS, 1870).

Pl. 7 Fig. 1—6.

General form (Fig. 1) small, compact and rather robust.

Carapace wider than the pleon, covering almost entirely the thoracic segments; anterior margin obtusely rounded; cervical sulcus well marked.

Pleon longer than the carapace; 1. segment slightly shorter than the subequal 2. to 5. segments; 6. segment slightly greater than twice the length of the 5. segment.

Eyes well developed and normal in structure; greatest width of the cornea approximately equal to the width of the last pleon segment; pigment in preserved specimens light golden brown.

Antennular peduncle (Fig. 2) slightly shorter than the 6. segment of the pleon, robust; 2. joint very short, 3. joint longer than the first; inner flagellum much more slender than the outer.

Antennal scale (Fig. 3) extending slightly beyond the distal end of the antennular peduncle; more than 3 times as long as the breadth at the spine on the outer margin and narrowing considerably towards the base; outer margin considerably arcuate and terminating in a strong spine beyond which the apex of the scale is produced for one quarter of the entire length of the scale; no spine on the outer distal corner of the basal joint.

Antennal peduncle (Fig. 3) slightly shorter than the antennular and less robust; 3. joint longer than either the first or second.

Mouth parts and 1. thoracic limb (Fig. 4) agreeing in all essential particulars with the same appendages of *P. obesa*.

2. thoracic limb (Fig. 5) somewhat longer proportionately and more slender than the same limb in *P. obesa*; carpus longer than themerus; propodus small and densely armed; no distinct dactylus.

3.—8. thoracic limbs broken off in all the specimens.

Pleopods of both sexes agreeing substantially with those of *P. obesa*.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/

Telson (Fig. 6, 6a) rather short, about three quarters as long as the last segment of the pleon and one quarter longer than broad at its base; triangular in shape with the lateral margins tapering evenly to a very narrow apex armed with 4 minute spines the terminal pair of which are somewhat longer than the others; median setae absent; lateral margins unarmed.

Inner uropods one third as long again as the last segment of the pleon and rather more than twice as long as the telson; a single spine on the ventral face at the posterior inner corner of the otocyst but no row of spines along the inner margin; otocyst rather small.

Outer uropods about one and a half times as long as the last segment of the pleon.

Length of the largest specimen, a male 5,5 mm from the rostrum to the apex of the telson and 7 mm from the distal extremity of the antennular peduncle to the tip of the outer uropods.

All the specimens of this species are very small and I cannot be sure whether they are quite mature. The largest specimen, the above mentioned male, 5,5 mm in length, had the pleopods fully formed and seems in all other respects completely adult, but it lacks entirely the hirsute lobe on the antennular peduncle, so characteristic of males in this and allied genera. There is a slight elevation on the ventral face of the distal joint of the antennular peduncle which is, however, devoid of hairs.

Dr. Lo Bianco identified this species with the northern *P. obesa* G. O. Sars. While certainly closely allied to the latter, there can be no doubt, I think, of its separate specific identity. The species is dedicated to the distinguished Italian naturalist who first made known the presence of this genus in the Mediterranean.

P. lobiancoi may be distinguished from *P. obesa* by the following characters: —

(1) size. Adult *P. obesa* reach to a length of 13 mm.

(2) length of the last pleon segment. In *P. obesa* the last pleon segment is only about one and a half times as long as the fifth. In *P. lobiancoi* it is twice as long as the fifth.

(3) The carpus of the 2. thoracic limb is longer than the merus. In *P. obesa* the reverse obtains.

(4) The telson is shorter than in *P. obesa*, the terminal spines much smaller and median setae entirely wanting.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

(5) The absence of spines along the inner margin of the inner uropods.

The last two characters will also serve to separate it from the remaining two species of the genus: *P. abyssicola* (which is doubtfully distinct from *P. obesa*) and *P. spectabilis.*

The species is a deep water form but at suitable depths.

16. ***Euchaetomera tenuis*** G. O. Sars.

Brutomysis vogtii, Lo Bianco (1901; nec Chun, 1896).
Euchaetomera tenuis (pars), Lo Bianco (1903).
E. fowleri, Holt & Tattersall (1905 and 1906).

The specimen from St. 43. 1901, came to me labelled *Brutomysis vogtii* and is evidently the single specimen recorded under that name by Dr. Lo Bianco (1901). On examination it proved to belong undoubtedly to *Euchaetomera tenuis.* As no further specimens of *Brutomysis vogtii* occur in the collection, this species must be deleted from the Mediterranean list, its place being taken by *Euchaetomera tenuis.* In a recent letter, Dr. H. J. Hansen informs me that, after examining the type of *E. tenuis* G. O. Sars, he regards the latter and *E. fowleri* Holt & Tattersall as one and the same species. Mr. E. W. L. Holt has kindly compared for me the types of *E. tenuis* and *E. fowleri* and entirely agrees with Dr. Hansen. Accordingly I here adopt Dr. Hansen's conclusion and sink *E. fowleri* as a synonym of *E. tenuis.* Dr. Lo Bianco's original records of the latter species from the Mediterranean, therefore, remains correct, except in so far as they refer to the following species. *E. tenuis* is evidently very rare in the Mediterranean, having been captured only on one occasion during each cruise though gatherings were made at several stations over depths suitable for its capture.

Euchaetomeropsis gen. nov.

Euchaetomera (pars), Lo Bianco (1901 and 1903). *E.*, Illig (1908).

In accordance with a suggestion made by Holt & Tattersall (1906), I define this genus for the species recently named *Euchaetomera merolepis* by Illig. Specimens of this species were communicated to the authors named, by Dr. Lo Bianco, and in noting its occurrence, without, however, naming it, they pointed out that the character of the antennal scale excluded it from the genus *Euchaetomera.* Illig does not seem to have been aware of this note when naming the species and he retains the latter in the

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

genus *Euchaetomera*, without comment. The antennal scale in Mysidae has always been regarded as an appendage from which to derive characters valuable for classification of the various species into genera. The scale of *Euchaetomera merolepis* differs so markedly from that of the other members of the genus, that the institution of a new genus for its reception seems clearly called for.

The new genus *Euchaetomeropsis* may be defined as follows: Having the characters of *Euchaetomera* G. O. Sars except: Antennal scale narrowly lanceolate in shape, setose all round, with a minute 2. joint at the apex. — Type species: *E. merolepis* Illig (1908).

17. ***Euchaetomeropsis merolepis*** (Illig).

Euchaetomera tenuis (pars), Lo Bianco (1903).
Euchaetomera merolepis, Illig (1908).
nec *E. tenuis*, G. O. Sars (1885).

Illig's specimens, both females, measured only 4 and 5 mm, but in the present material one female measured 9 mm and two males 8 mm, all three apparently adult. I am, therefore, able to supplement Illig's brief diagnosis in one or two points though none of my specimens are perfect.

In the adult male the antennular peduncle extends to the level of the apex of the antennal scale. The 3. joint is about equal in length to the first but considerably more robust and bears on the ventral distal edge a densely hirsute lobe, as in male Mysids generally. The outer distal corner of the basal joint bears a long setae, as long as the remainder of the peduncle.

The antennal peduncle is slender, not quite as long as the antennular and has the last joint little more than half as long as the preceding one.

The pleopods of the male conform to the general type of the Leptomysinae.

None of the above specimens have the telson perfect but from a study of the material as a whole the armature of the apex appears to be as follows: —

At each angle there is a single small very slender spine and between these, 2 very long and stout setae, set about as far apart as in *E. tenuis* and extending about two thirds of the way down the inner uropods. These apical setae appear to be simple, instead of plumose as in the species of *Euchaetomera*. In the above mentioned note on this species by Holt & Tattersall it was stated that the

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

apical setae were plumose. This was a clerical error for "not plumose".

Illig has noted for this species, as well as for most of the other Mysidae which he has described from the Valdivia collections, the presence of a small slender papilla on the inner ventral surface of the eye and has further noted in the species he calls *Euchaetomera limbata*, that in the male this papilla is much longer than in the female. The same sexual difference is to be noted in the present species, the papilla in the male extending for quite half its length beyond the cornea of the eye and being, moreover, very slender. At the same time, I cannot but think that Illig has attached too much importance to the omission of any mention of such papillae from the diagnoses of various species by earlier authors, more especially of species of *Euchaetomera*. The eyes of examples of the latter genus are very delicate and fragile and seldom retain their form in preserved specimens so that it is often a matter of great difficulty to make out their exact shape and structure. For instance, in the present material of *Euchaetomeropsis merolepis*, 3 of the 5 specimens have either no eyes at all or the eyes are reduced to irrecognisable pulp. A fourth specimen has one eye more or less in good order, the other, absolutely fragmentary while only one of the specimens has the two eyes in a tolerably fair state of preservation. When it is further remembered that the papilla is situated on the ventral face of the eye and is usually small, it will be readily understood that its existence is very liable to be overlooked unless specially sought for, and even then it may be lost sight of, in the general mass of setae from the antennal scales and antennular peduncles. Under the circumstances, therefore, I cannot resist the suggestion that the species named by Illig (1906) *Euchaetomera glyphidiophthalmica* and *E. limbata* will prove eventually to be synonymous respectively with *E. tenuis* and *E. typica*, species described by Sars from the Challenger collections, for it seems to me that Illig has been chiefly led to regard them as new, from their possessing ocular papillae and from the absence of any mention of such papillae in Sars' diagnoses.

E. merolepis is an interesting addition to the fauna of the Mediterranean. It is a bathypelagic species, captured, so far as present records show, in water from 900—2500 m (500 to 1200 fathoms). Illig's specimens were caught in the Indian ocean.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

18. ***Paramblyops rostrata*** Holt & Tattersall.

P. rostrata, Holt & Tattersall (1905 and 1906).

This species is new to the Mediterranean fauna. The depths at which it was captured ranged from 950—1100 metres (520—600 fathoms). Though but recently described this species has already been shown to have a very extensive horizontal distribution, having been recorded from several points on the Atlantic slope off the west coast of Ireland and from the north side of the Bay of Biscay (Tattersall 1908).

19. ***Pseudomma calloplura.*** Holt & Tattersall.

P. calloplura, Holt & Tattersall (1905 and 1906).
P. affine, Lo Bianco (1903; nec G. O. Sars, 1870).

Holt & Tattersall have already indicated (1906) the presence of this species in the Mediterranean and pointed out that the species recorded by Dr. Lo Bianco as *P. affine* is in reality *P. calloplura.*

The present material indicates a distinct tendency in Mediterranean specimens of this species to a normal number of 4 instead of 3 pairs of plumose spines at the apex of the the telson. Of the 14 specimens in the collection, 5 have 4 pairs of plumose spines, in 4 the apex is asymetrical with 4 plumose spines on one side and 3 on the other, 3 have 3 pairs (the normal number in Irish examples), while in the remaining 2 the apex of the telson is broken.

20. ***Pseudomma kruppi*** sp. n.

Pl. 7 Fig. 7—12.

Carapace evenly rounded in front with the antero-lateral margins rounded but slightly produced.

Pleon longer than the carapace, the first 5 segments sub-equal, the 6. segment more than one and a half times as long as the preceding one.

Ocular plates (Fig. 7) contiguous; cleft rather shallow; each plate quadrangular in outline; margins smooth, without teeth or serrations.

Antennular peduncle (Fig. 8) short and stout; 1. joint concealed by the ocular plates, almost square in shape; 2. joint very short; 3. joint about equal to the first and bearing on its ventral anterior face a rather large blunt process, which has not yet developed the antennular brush of setae, characteristic of mature males.

Antennal peduncle (Fig. 9) very little shorter than the antennularbut much more slender; the 3 joints subequal in length.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

Antennal scale (Fig. 9) short and rather broad; extending to the level of the distal end of the antennular peduncle; about 3 times as long as broad; outer margin entire and terminating in a strong spine beyond which the apex in not at all or only very slightly produced.

Genital appendix (Fig. 11) to the 8. thoracic legs of the male very long, reaching forwards to the base of the 2. thoracic legs, and rather broad with a single curved seta at the apex.

Pleopods of the male conforming to the usual type in the genus but the setae arming the outer ramus of the 4. pair (Fig. 10) are very long, the one on the penultimate joint reaching beyond the 6. segment of the pleon.

Telson (Fig. 12, 12a) about as long as the 6. segment of the pleon, broadly lanceolate in shape, the margins gradually tapering to a blunt and broadly rounded apex; armature consisting of 6 pairs of spines; proximal pair situated four-fifths of the way down the telson; the spines increasing in length posteriorly; the most posterior pair situated on the apex, very nearly equal to one third of the telson in length; between these latter spines, a pair of apical setae are placed.

Uropods barely longer than the telson, the outer one very slightly longer than the inner; the latter with a single spine on the inner ventral margin, at the anterior corner of the otocyst.

Length of the only 2 specimens, immature but nearly adult males, 4 and 5 mm. I have ventured to describe this species from two immature specimens. They are, however, so very nearly adult that I do not think their characters can undergo any very remarkable changes before maturity is reached. The pleopods appear to be fully formed, the genital appendices to the 8. thoracic legs are well developed and the antennular lobes are already well forward in development but as yet without setae.

The specimens were not dissected so that the structure of the mouth parts and thoracic limbs has not been ascertained, though, indeed, all but the 1. pair of the latter limbs are broken away in both specimens.

The large and broad genital appendices of the 8. thoracic limbs are quite a conspicuous feature of both specimens and quite unlike anything I have noticed in other species of the genus, in point of size. They are figured on pl. 7 to the same scale of magnification as the other appendages so that their proportional length can be

judged therefrom. They extend forwards to the base of the second thoracic limbs.

The ocular plates are distinctive in being without armature of any kind and in not having the antero-lateral corner produced as in the males of some other species of the genus.

The antennal scale is much shorter than in any other species of the genus and the same is true of the uropods, which are bareyl longer than the telson.

The latter is rather like that of *P. roseum* G. O. Sars, but has fewer spines on the lateral margins and apex (the apex in both these species merges so gradually into the lateral margins, as to be difficult of accurate demarcation) and the spines are only present on the distal fifth of the margins of the telson whereas in *P. roseum* they extend from half way down the margins. The form of the antennal scale easily separates the two forms.

I append a table showing the place of *P. kruppi* among the other northern species of the genus, from which it will be seen that this species approximates nearest to *P. nanum* and *P. kempi* but is very distinct from either.

Table for the identification of the northern species of
Pseudomma.

1. Apex of the antennal scale extending far beyond the terminal spine of the outer entire margin 2
   Apex of the antennal scale barely or not at all extending beyond the terminal spine of the outer entire margin . . 4

2. Ocular plates with teeth on the antero-lateral margins only 3
   Ocular plates with teeth on both the antero-lateral and entire lateral margins . . . . . *P. affine* G. O. Sars

3. Apex of the telson distinctly truncate, armed with 2 pairs of strong spines and a pair of median setae; lateral margins of the telson with 8 small spines . *P. truncatum* S. J. Smith
   Apex of the telson not sharply marked off from the lateral marins and evenly rounded; the telson with about 8 spines altogether, on each side and a median pair of apical setae. *P. roseum* G. O. Sars

4. Apex of the telson without median setae 5
   Apex of the telson with a pair of median setae 7

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

5. Apex of the telson armed with 3 pairs of strong plumose spines 6
   Apex of the telson armed with 5 pairs of rather short simple spines . . . . . *P. théeli* Ohlin

6. Lateral margins of the telson armed with 13—14 spines *P. calloplura* H. & T.
   Lateral margins of the telson armed with 5 spines *P. parvum* Vanhöffen

7. Lateral margins of the telson unarmed . . *P. nanum* H. & T.
   Lateral margins of the telson armed with more or fewer spines 8

8. Ocular plates smooth, without armature, antennal scale not extending beyond the antennular peduncle, telson armed with 6 spines on each margin . . . . . *P. kruppi* sp. n.
   Ocular plates with 12 teeth on the antero-lateral corner, antennal scale far outreaching the antennular peduncle, telson armed with about 30 spines on each margin . *P. kempi* H. & T.

21. ***Mysidopsis,*** sp.?

M. gibbosa, Lo Bianco (1903).

The single specimen, a female 7 mm in length, which is referred to *M. gibbosa* G. O. Sars, by Lo Bianco, deviates somewhat from the figures given by Sars (1870—79) in the characters of the telson and uropods.

The telson has the lateral margins considerably more concave than is shown in Sars' figure so that the form in dorsal view is somewhat narrowly lanceolate. The number of spines on the lateral margins is only 10 and they only extend about five-sixths of the way down instead of almost to the apex as shown in Sars' figure.

The outer uropod is considerably narrower than shown by Sars while the inner uropod extends half way between the apex of the telson and the tip of the outer uropod and has only one spine on the inner ventral margin.

Having only one specimen at my command from the Mediterranean, I am unable to say whether these slight differences indicate a new but closely allied species or whether they are due to abnormality. In other characters the specimen conforms to Sars' figures, but I prefer to leave the species to which it should be referred, an open question for the present.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

22. ***Leptomysis,*** sp. ?

The specimens are all small and in very indifferent condition so that the species to which they should be referred, cannot be determined with any satisfaction. The dermis in all the specimens is hispid and the telson shaped more as in *L. gracilis* than in any of the other species.

L. gracilis has not, so far as I am aware, been recorded from the Mediterranean but it is not advisable to admit the species to the list on the evidence of these specimens.

Calyptomma gen. nov.

Eyes in the form of an ocular lamina resembling somewhat that of the genus *Pseudomma*, partly hidden by the vaulted form of the carapace; lamina without any indication of median cleft, absolutely contiguous, produced in front into 2 short pointed processes; visual elements rudimentary.

Antennal scale very short and narrow, outer margin entire, terminating in a strong spine beyond which the apex of the scale is not produced.

Telson long and narrow, entire, armed distally with few simple spines, median setae absent. *1., 2. and 3. pleopods* in the male simple and rudimentary as in the female; 4. and 5. pleopods elongate but each apparently consisting of a single branch which is uni-articulate; the 4. pleopod longer than the 5., terminating in a long stout curved seta.

The mouth parts and such thoracic legs as remain on any of the specimens present no distinctive features but on the whole resemble those of the genera *Pseudomma* and *Amblyops*. This genus has the superficial aspect of a small and slender *Pseudomma* but the curious condition of the male pleopods at once separates it from all other genera of Mysidae know to me. It does not fall within any of the sub-families of Mysidae as at present defined and it is necessary to institute a new sub-family, which may be called the **Calyptomminae** for its reception.

This sub-family may be defined as follows:

Calyptomminae, sub-fam. nov. Males having the 1., 2. and 3. pleopods rudimentary as in the female, the 4. and 5. pleopods elongate, consting of a single uni-articulate ramus. — Other characters as in the Leptomysinae.

The sub-family would appear to have a natural place quite

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

near to the Leptomysinae, from which it appears to have directly diverged, along lines of specialisation peculiarly its own. It does not appear possible to decide which of the branches of the elongate pleopods has become obsolete.

23. ***Calyptomma puritani*** sp. n.
Pl. 7 Fig. 13—18.

Form generally rather slender, particularly posteriorly; the body seems to be roughened by microscopical, irregular, blunt asperities.

Carapace considerably and evenly vaulted anteriorly, the front margin evenly rounded; entirely covering the thoracic segments; cervical sulcus well marked; antero-lateral angles rounded.

Pleon longer than the thorax, rather slender; 1. segment very slightly longer than the next 4, which are sub-equal; 6. segment very elongate, considerably exceeding twice the length of the preceding segment.

Eyes (Fig. 13 and 14) in the form of a contiguous membraneous lamella, partly hidden by the vaulted anterior part of the carapace; the lamella is completely contiguous and is drawn out anteriorly into two pointed possibly tactile, processes; in the part of the lamella hidden in dorsal view the optic nerves have their terminations and may be noticed as a dark patch in lateral view (Fig. 14); the optic nerves appear to be swollen somewhat at their ends as in *Pseudomma*, but I could not detect any ramifications such as are to be seen in that genus; the lamella is unarmed with teeth or serrations of any kind and seems on the whole to be less rigid than in *Pseudomma*.

Antennular peduncle (Fig. 13) rather long and slender; 1. joint the longest; 3. joint longer than the second; very feebly armed with setae; no antennular brush of setae was noted in male specimens though the latter may be possibly immature.

Antennal peduncle (Fig. 13) reaching to the distal end of the 2. joint of the antennular peduncle; rather more slender than the latter; 3 joints sub-equal.

Antennal scale (Fig. 15) about equal in length to its peduncle and therefore considerably shorter than the antennular peduncle; rather narrow, about 6 times as long broad; outer margin entire and terminating in a strong spine beyond which the apex of the scale is not produced; there is apparently no spine on the outer distal corner of the basal joint.

©Akademie d. Wissenschaften Wien; download unter www.biologiezentrum.at

The mouth parts on the whole resemble those of the genus *Pseudomma* but the molar tubercle of the mandible seems unusually pronounced. Of the *thoracic limbs* only the 1. remains on any of the specimens and this does not appear to present any features of distinction from the same limbs in *Pseudomma* and allied genera.

The genital appendix to the 8. thoracic limbs of the male is short and rather robust, terminating in 7 or 8 stout curved setae.

The pleopods of the female are all rudimentary as are also the first 3 in the male; the 4. pleopods of the male are elongate (Fig. 17) and consist of a uni-articulate single ramus terminated by a long and powerful seta or filament, recurved at its tip; there is a single shorter and more slender seta some little way from the origin of the terminal one, on the inner margin of the branch; the 5. pleopods (Fig. 18) are likewise elongate but shorter than the 4. and like them consisting of a single uni-articulate branch, tipped by a few short setae.

Telson (Fig. 16, 16a) about as long or a little shorter than the 6. segment of the pleon, narrowly lanceolate in shape, from $2^1/_2$ to 3 times as long as broad; evenly tapering to a narrowly rounded apex which bears a pair of long terminal spines, rather more than a quarter of the telson in length; on either side of the terminal spines are 4 other spines occupying the distal one sixth of the lateral margins of the telson and decreasing in length anteriorly; there are no median apical setae.

Uropods long and very narrow, a little longer than the telson; the outer sub-equal to the inner in length; no spines on the inner ventral margin of the latter; otocyst well developed.

Length 4.5 mm.

The material of this new form, while abundant enough from the point of view of the number of specimen present, is unsatisfactory by reason of the very indifferent state of preservation of the majority of the examples, so that it was with difficulty that the structure of the various parts was made out. The small size of the specimens added to the difficulties originated by poor preservation. There is, indeed, a suspicion that the specimens are not mature as I could not find any incubatory lamellae on the females and the males were without traces of the antennular brush of setae though the pleopods of the latter sex looked fully formed and the genital appendix to the 8. thoracic limbs was well developed. The distinguishing feature of the species is, of course, the structure of the 4. and

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

5. pleopods in the male but the vaulted form of the carapace, the elongate antennular peduncle, the short and narrow antennal scale and especially the form of the ocular lamina and the structure of the telson will, combined, serve to distinguish the species in collections. It would appear to be an abundant form in the Mediterranean at a depth of 1000—1700 metres (500 to 600 fathoms) and was, in all cases, captured on the bottom.

24. ***Mysidetes farrani*** (Holt & Tattersall).

M. farrani, Holt & Tattersall (1906).

None of the specimens exceed 10 mm in total length but otherwise agree so well with Irish examples that I have no hesitation in referring them to the same species. As Norman (1892) points out, southern examples of a species are not infrequently of smaller size than their more northern brethren.

M. farrani is now recorded from the Mediterranean for the first time. Though but recently described its distribution is already known to be extensive as besides the original locality off the West of Ireland it has recently been recorded from the northy side of the Bay of Biscay (Tattersall, 1908).

25. ***Arachnomysis leuckarti*** Chun.

A. leuckarti, Lo Bianco (1901, 1903).

Of this interesting and distinctive species 4 examples were captured during the cruises of the *Maia* and *Puritan*.

Its known distribution so far confines it to the Mediterranean where it forms one of the characteristic features of the bathypelagic fauna and would appear to be by no means rare though captured usually in single specimens.

26. ***Siriella norvegica?*** G. O. Sars.

S. clausii, Lo Bianco (1903).

It is with considerable diffidence that I refer the two specimens of *Siriella* to this species instead of to *S. clausii* under which name they were recorded by Dr. Lo Bianco.

They differ from *S. clausii* in having the median one of the 3 small spines at the apex of the telson longer than the other 2, agreeing with *S. norvegica* and *S. jaltensis* in this respect. The

slenderness of the thoracic legs separates the present examples from *S. jaltensis* and there remains only *S. norvegica* to which they can be referred. In other respects they agree equally well with adult *S. clausii* or young *S. norvegica*, two species extremely closely allied. If the character of the apical spines of the telson can be relied on, there can be no doubt that the specimens belong to *S. norvegica* but it is not beyond the bounds of possibility that extended observation would show this character to be variable enough to allow of the merging of the two species under one name, *S. norvegica*.

It should be mentioned here that Dr. Lo Bianco himself seems to have been in doubt as to whether these specimens should be referred to *S. norvegica* or *S. clausii*, since the bottle in which they reached me contained two labels with the former name on one of them and the latter on the other.

S. norvegica does not appear to have previously been recorded from the Mediterranean proper though Norman (1892) records a specimen from off Gibraltar at the entrance to the Mediterranean.

27. ***Haplostylus normani*** (G. O. Sars).

Gastrosaccus normani, Lo Bianco (1901, 1903).

The specimens agree with Sars' original description of the species in being without lobes on the hinder margin of the carapace. The species is common in the Mediterranean.

28. ***Anchialina agilis*** (G. O. Sars).

Anchialus agilis, Lo Bianco (1903).

Norman has recently (1906) substituted the name *Anchialina* for *Anchialus* Kröyer, which was preoccupied for a genus of Coleoptera. The species is widely distributed in the Mediterranean.

29. ***Boreomysis arctica*** (Kröyer).

B. arctica, Lo Bianco (1903).

No difference could be noted between the Mediterranean specimens and those from the west coast of Ireland, with which they were compared. Dr. Lo Bianco has given some interesting notes on the variation in colour of these examples.

The depths at the stations at which it was captured varied between 950 metres (520 fathoms) and 1900 metres (1040 fathoms). All the specimens were caught on the bottom with the exception

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at

of St. 12 where the net was lowered with 1000 metres of wire over a depth of 1150 metres.

30. ***Mysidella typica*** G. O. Sars.

This interesting little species is new to the Mediterranean fauna, Dr. Lo Bianco not recording it in his lists. The single specimen agreed in all points with northern specimens.

List of Authorities quoted.

Chun, C., 1888, Die pelagische Thierwelt in größeren Meerestiefen und ihre Beziehungen zu der Oberflächenfauna. in: Bibliotheca Zoologica Heft 1.

—— **1896,** Atlantis. 5. Über pelagische Tiefsee-Schizopoden. ibid. Heft 19.

Hansen, H. J., 1905 a, Preliminary report on the Schizopoda collected . . ., in the year 1904. in: Bull. Mus. Océanogr. Monaco No. 30.

—— **1905 b,** Further notes on the Schizopoda. ibid. No. 42.

Holt, E. W. L. & W. I. Beaumont, 1900, Survey of Fishing Grounds, West Coast of Ireland. 10. Crustacea Schizopoda of Ireland. in: Trans. R. Dublin Soc., (2) Vol. 7.

Holt, E. W. L. & W. M. Tattersall, 1905, Schizopodous Crustacea from the North East Atlantic slope. in: Rep. Fisheries Ireland for 1902 & 1903, Pt. 2, App. 4.

—— **1906.** Idem. Supplement. ibid. for 1904 No. 5.

Lo Bianco, S., 1901, Le pesche pelagiche abissali eseguite dal Maia nelle vicinanze di Capri. in: Mitt. Zool. Stat. Neapel Bd. 15.

—— **1903,** Le pesche abissali eseguite da F. A. Krupp col yacht Puritan nelle adiacenze di Capri ed in altre località del Mediterraneo. ibid. Bd. 16.

—— **1904,** Pelagische Tiefseefischerei der Maja in der Umgebung von Capri. in: Beiträge zur Kenntnis des Meeres und seiner Bewohner. Bd. 1 Jena. (translation of Lo Bianco 1901, with figures).

Illig, G., 1906, Bericht über die neuen Schizopodengattungen und -arten der Deutschen Tiefsee-Expedition 1898—99. in: Z. Anzeiger Bd. 30.

—— **1908,** Ein weiterer Bericht über die Mysideen der Deutschen Tiefsee-Expedition 1898—99. ibid. Bd. 32.

Masi, L., 1906, Sulla presenza della *Meganyctiphanes norvegica* (M. Sars) nelle acque del Giglio. in: Ann. Mus. Civ. Genova (3) Vol. 2.

Norman, A. M., 1892, On British Mysidae, a family of Crustacea Schizopoda in: Ann. Mag. Nat. Hist. (6) Vol. 10.

Norman, A. M., & T. Scott, 1906, Crustacea of Devon and Cornwall. Wesley & Son, London.

Riggio, G., 1905, Contributo alla carcinologia del Mediterraneo. 1. Nota sopra alquanti Crostacei nel mare di Messina. in: Naturalista Siciliano Anno 17.

Ortmann, A. E., 1893, Decapoden und Schizopoden. in: Ergeb. Plankton Exp., Bd. 2 Gb.

Sars, G. O., 1870—79, Carcinologiske Bidrag til Norges Fauna. 1. Monographi over de ved Norges Kyster forekommende Mysider.

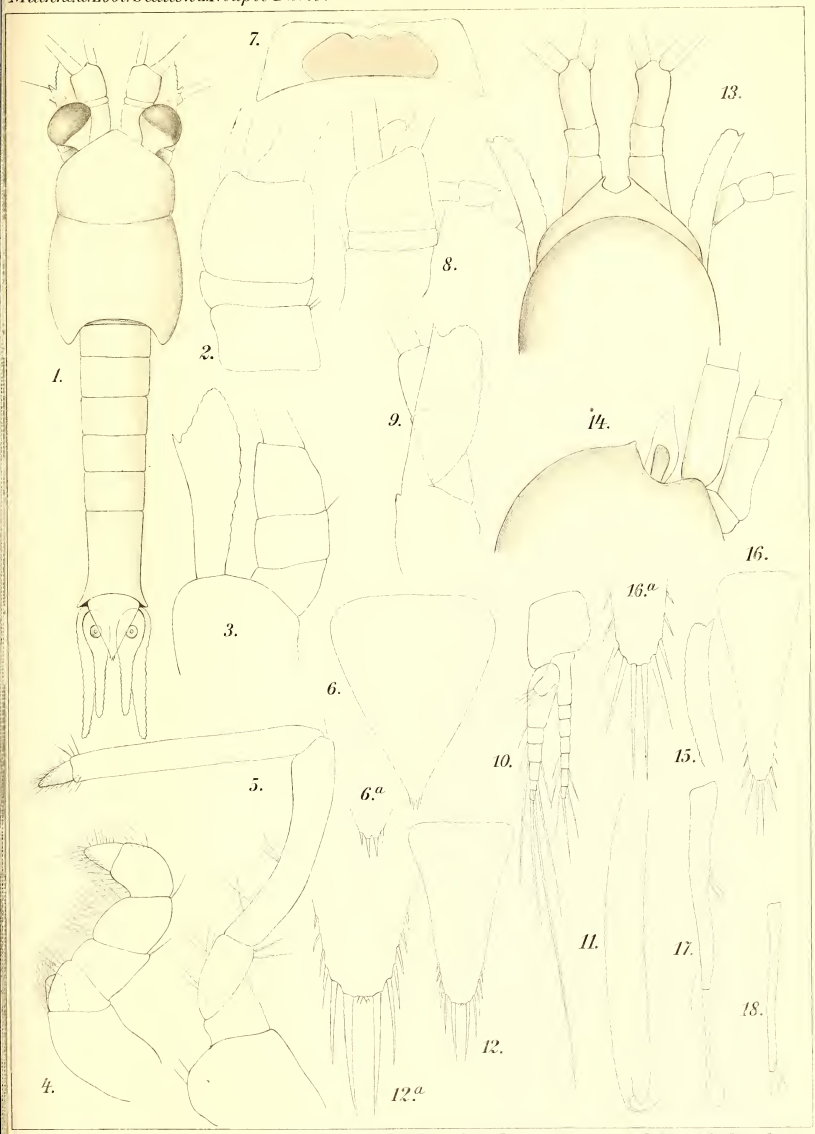
Sars, G. O., 1885, Report on the Schizopoda. in: Rep. Challenger Vol. 13 Part. 37.

Tattersall, W. M., 1908, The Schizopoda and Isopoda collected by the "Huxley" from the north side of the Bay of Biscay, in August 1906. in: Jour. Mar. Biol. Assoc. Vol. 8.

Explanation of Pl. 7.

Fig. 1. *Parerythrops lobiancoi* n. sp., dorsal view of male. × 16.
Fig. 2. „ „ „ „ antennular peduncle. × 50.
Fig. 3. „ „ „ „ antennal scale and peduncle. × 50.
Fig. 4. „ „ „ „ endopod of the 1. thoracic limb. × 50.
Fig. 5. „ „ „ „ endopod of the 2. thoracic limb. × 50.
Fig. 6. „ „ „ „ telson. × 50.
Fig. 6a. „ „ „ „ apex of telson. × 100.
Fig. 7. *Pseudomma kruppi* n. sp.. ocular lamina. × 50.
Fig. 8. „ „ „ „ antennular peduncle. × 50.
Fig. 9. „ „ „ „ antennal scale and peduncle. × 50.
Fig. 10. „ „ „ „ fourth pleopod of male. × 50.
Fig. 11. „ „ „ „ genital appendix of 8. thoracic legs of male × 50.
Fig. 12. „ „ „ „ telson. × 50.
Fig. 12a. „ „ „ „ apex of telson. × 100.
Fig. 13. *Calyptomma puritani* gen. et. sp. n., anterior view. × 50.
Fig. 14. „ „ „ „ „ „ lateral view of anterior end. × 50.
Fig. 15. „ „ „ „ „ antennal scale. × 50.
Fig. 16. „ „ „ „ „ „ telson. × 50.
Fig. 16a. „ „ „ „ „ „ apex of telson. × 100.
Fig. 17. „ „ „ „ „ 4. pleopod of male. × 50.
Fig. 18. „ „ „ „ „ „ 5. pleopod of male. × 50.

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/; www.zobodat.at



W.M. Tattersall del. Verlag v. R. Friedländer & Sohn, Berlin. Lith. Inst. v. F. A. Brockhaus Leipzig.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Mittheilungen aus der Zoologischen Station zu Neapel

Jahr/Year: 1908/09

Band/Volume: 19

Autor(en)/Author(s): Tattersall Walter M.

Artikel/Article: The Schizopoda collected by the Maia and Puritan in the Mediterranean. 117-143