

Joseph Hughes de Boissieu de La Martinière

26 January 1758–? 1788

The La Pérouse Strait between Sakhalin and Japan was a major discovery of a classic French scientific expedition. Less acclaimed was the expedition's record of the first definite Pacific Ocean copepods. Joseph de Boissieu de La Martinière was a naturalist in this expedition, sent out in 1785 in *L'Astrolabe* and *La Boussole* under the command of the Comte de La Pérouse (1741–1788). The journals and records of the voyage were dispatched overland to France from Russian Asia in 1787 and by ship from Australia in 1788, so they escaped the subsequent destiny of their compilers. The expedition was last seen at Botany Bay (Australia) in January 1788; it is well known now that this voyage ended in New Hebrides later that year, when the expedition's two ships were wrecked on a reef and every man was officially lost, including La Martinière some weeks before his thirtieth birthday (Gaziello 1984, d'Hondt 1990, Dunmore 1994). However, the disappearance of the La Pérouse Expedition was one of the great sea-mysteries for forty years. The discovery and investigation of the wrecks in the late 1820s brought disclosure from native witnesses of Vanikoro that both ships had struck the reef in a typhoon. Many survivors were killed by the natives in the belief that they had brought the severe storm. About forty others defended themselves as a group and eventually built a small vessel from the wreckage. All but two sailed away to a second oblivion. The two castaways, perhaps already stricken by fevers, lived for a time amid native indifference.

Since there were to be several general naturalists who would share responsibilities on the La Pérouse Expedition, the planners found it necessary to have only one explicit botanist. The selection was Louis Bosc, an important French biologist who has been mentioned before and will be mentioned again before we address him formally in 1802. Possibly his first, but not his last, close brush with death, Bosc declined, and his place was taken by La Martinière. Unconventionally, although it was the custom in some circles, La Martinière, who is known variously as "Lamartinière" or "de Lamartinière," did not transcribe a first name or initial, and so he appears half nameless in the copepod literature.

La Martinière was born in Saint-Marcellin (Isère), the ninth child of a physician. He obtained a Master of Arts degree in 1776, followed soon after by an



A Foresight of Nature

An officer and a scientist of the La Pérouse Expedition examine the Easter Island effigies. The seated scientist, who could be La Martinière, watches a native attempt to steal the officer's hat. "Mr. Duché has given a very exact drawing"; the artist was in a group, including La Martinière, exploring the interior of the island. From La Pérouse (1799).

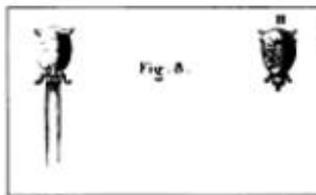
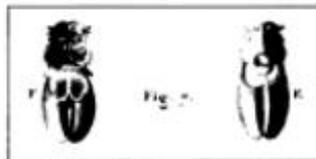
M.D. from Montpellier, in the tradition of Rondelet. An energetic botanist, La Martinière came to Paris as a protégé of Andre Thouin (1747–1824), Professor of Horticulture at the Museum of Natural History. Thouin, in truth, was born in and died in the Jardin du Roi (Cap 1854). La Martinière was known to be acquainted with Bosc and Lamarck, both of whom were destined to serve natural history well and to play a part in the study of copepods. La Martinière's enthusiasm for the expedition's contributions to science shows still in his surviving letters. It is distressing, then, to read that he became melancholy before departure and gained a reputation as a solemn, restless, and not very likable personality (Gaziello 1984). On the other hand, the expedition's second-in-command "infinitely praised La Martinière's social qualities" (Chinard 1937). Perhaps he got along better with the officers than with the sailors.

The detailed records of the expedition's resources revealed that La Martinière was furnished many fine books of his choosing, among which were several by Linnaeus, J. C. Fabricius, and Duhamel du Monceau, and the major works of Barbut and Forskål (Chinard 1937).

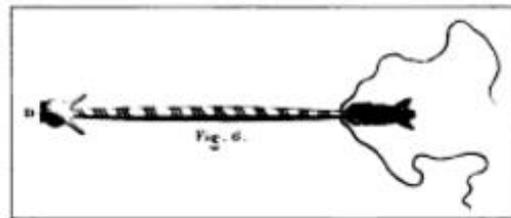
Of La Martinière, Agassiz (1853) had only a single reference: La Martinière (1787). This publication contained the first two of three copepods described

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from the notes sent back to Paris from the voyage of La Pérouse. (That year's journal also printed a letter from Benjamin Franklin referring to naval matters.) The copepod descriptions and illustrations were republished in the slightly better-known Atlas accompanying the printed results of the voyage (La Martinière 1797), with the addition of a third copepod species. By the time La Pérouse's collected results were published, France itself had been shipwrecked on the reefs of revolution, and its world had begun anew; Citizen La Martinière's copepod observations were republished in "Year V."



"Pennatula" species (Fig. 6) and two "Oniscus" species (Figs. 7-8). From La Martinière (1797).



The journals of La Pérouse (up to the departure from Botany Bay) were sanitized of all royal references and incorporated into the official reports. Then like the expedition itself, the journals also vanished, only to be recovered in the 1980s (Dunmore 1994). In spite of its drama and tragic end, the La Pérouse Expedition remains one of the world's epics of discovery.

Because of the obscurity of La Martinière's (1797)

many small mouths by which this animal sucks the blood of fish, from the flesh in which it is embedded as far as it can be. The extremity of its body, which is always outside of the fish, has the form of a quill of a feather: this quill, of the same substance as the body, serves as its excretory duct, of this I am convinced; because, in pressing the animal lightly, most of its cartilaginous quill emits a very clear liquid in small streams. At the base of this quill, and under the body, are set two long cartilaginous threads [egg sacs], of which it is impossible for me to imagine a purpose: they are not always on every animal, because I have encountered some with none at all.

The circulation of the blood is easily observed: a moment is sufficient for a complete cycle. I have tried to copy these undulations by drawing some marks along the length of the animal's cylinder. It is likely that this animal is not able to insert itself into the various fish, except when the animal is very young; and when it finds a time to lock itself in, having then plenty enough to live on, its head enlarges considerably, and the two horns with which it is endowed necessarily constitute an obstacle to its escape; a foresight of nature, since it wants to feed itself, the one is at the expense of the other. I have found them implanted to more than an inch and a half into the body of a *Diodon* in the region near Nootka.

Figure 7 represents an insect of a genus very near to *Oniscus* of Linnaeus: the letter E indicates it as seen from above, and the letter F as seen from below.

Its body is crustaceous, and its color is a dull white,

record, and its historic importance, I have translated it below:

The species of *Pennatula*⁴ (Fig. 6) appears to me to have some characters that have not yet been mentioned at all; therefore I have made a sketch. Its body is of a cartilaginous substance, and of a cylindrical form: its head, armed with two small horns of the same substance, displays a spherical shape flattened on its anterior extremity; this part is covered with small nipples, of which one sees a part, letter D, and which are so

3. To roughly date these revolutionary-era texts to the rest of the world, add "1792" to the Roman numeral. The system was abolished at the end of Year XIV (21 September 1806). We will see this chronology again.

4. A footnote here states that "it is likely a *Lernaea*." This footnote was not La Martinière's but was added by the editors of the *Journal de Physique*.

5. *Oniscus* species are isopods, not copepods.

6. The text says "elytre," wing-sheath.

having two round and reddish spots on the anterior part of its corselet, two other very much larger, crescent-shaped [spots], on its back-sheath⁵; its *scutellum* is also the same color. The underside of the thorax is equipped with four pairs of legs: the first and the third pair end in a stoutly pointed hook; in the second [pair], one sees a form, that could serve in swimming; the fourth [pair], very small, consists of two membranous threads. The thin lappets, equally membranous and multi-notched, are also able to function as legs; the two lower are the largest. Its abdomen is filled by a bundle of vermiform intestines, of the size of a hair: its mouth is located between the first and the second pair of legs; it is represented by a small proboscis between two lips joined only at the upper part. I have found this insect attached to the gills of the *Diodon* victim of the two insects I have already spoken about.⁷

7. Note that here he unequivocally refers to the "*Pennatula*" (Fig. 6) as an "insect"; a previous species

Figure 8 represents an insect of the genus *Oniscus* of Linnaeus: its body has nearly the form, the consistency, and the color of a wood-louse, except that it is not divided into segments as is the latter. It is provided with a double tail [egg sacs], three times as long as its body: at the insertion of this tail, on the posterior part of the body, there originate two legs that the animal uses mainly for swimming, when it finds itself on its back. The insect seen from the underside, letter H, shows six pairs of legs; the first two pairs end in very sharp and solid points; the third [pair] is used for swimming; and to balance the body in concert with that inserted at the base of the tail; the fourth pair, the largest, is armed with two very sharp points, which the animal implants with great force into the body on which it has attached itself; the last two [pairs] are of a kind of membrane with several segments. Between the first two pairs, is its proboscis, of a soft consistency, and a half-line long; at the base of the third pair, are two points, with a consistency of horn, very hard, very adherent; the two lower horns, underneath the large pair of legs, are equally strongly fixed to its body. I believe that it is with the aid of these kinds of barbs, which pierce the body of the fish upon which it is found, and which otherwise would be an unstable place, that it finds the means to insert its pump into the hole made by these barbs. Put into a vessel, it goes to the bottom and turns around on the surface with the greatest ease, by which it performs as though showing the features of its body and demonstrating the curves. Its two long tails are detached very easily, apparently without the animal suffering. I have found this

insect, in large numbers, attached to the body of the same *Diodon*.⁸ (La Martinière 1797)

The chance encounter with this sunfish, obviously a floating zoo, provided La Martinière the opportunity to describe not just the first copepod definitely from the Pacific Ocean, but the first three kinds of copepods. He believed that the first species was a *Pennatula*, although his editors added that they thought it was a *Lernaea*. In the beliefs of his era, La Martinière was right; it is clearly a pennellid and therefore be-

(Figs. 4-5) was a monogenean flatworm, *Capsala martinierei* Bosc, 1811, which La Martinière also termed an "insect." There was some irony in Bosc's naming this flatworm for La Martinière.

8. This insect is more likely to be a *Monoculus* than an *Oniscus*, the shell being of a single piece (added by journal editor).

longed to the excessively broad Linnaean genus *Pennatula*, whose copepods are now *Pennella* species.

La Martinière placed his second copepod, from the sunfish's gills, into Linnaeus's *Oniscus*, which was a pretty fair guess. That genus is now reserved for isopods, its original use. Baird (1850), reviewing La Martinière, believed this to be a species of *Cecrops* Leach, 1816. The third species reminded La Martinière of a wood-louse, and his provisional identification as another *Oniscus* should have been retained; however, the editors ended by saying it must be a *Monoculus*, in this case not a bad assumption. It is likely one of the hundreds of species of *Caligus* Müller, 1785, a common copepod parasite of fish.

La Martinière was inspired when he referred to the "*Pennatula/Lernaea*" as an insect. The opinion of the time was that these were worms. Perhaps his creative leap of faith followed from comparing the three very different species side by side. La Martinière was also ahead of his colleagues when he conjectured that the species could not infest the fish in the adult parasite's form, but rather in some (unknown) pretransformed, juvenile stage. His observations on the various behaviors were also unique. Finally, his illustrations, though too small to reveal details necessary for species determinations, are better than most from the period.

Wilson (1917a) and Kabata (1979) both referred to a "*Lernaea cirrhoia* La Martinière, 1798," without providing a literature citation. Wilson indicated only a "1798 Atlas, Pl. 2, fig. 6"; this date is likely

from a different calculation for the Revolutionary calendar, but there may have been another version of the atlas with species names added. I do not know of such. In any case, both authors equate this species to *Pennella filosa* (Linnaeus, 1758). The mystery deepens when another Wilson (1917a) reference to La Martinière is noted, this time to "*Pennatula bocconii*" as a synonym of *Pennella sagitta* (Linnaeus, 1758), again incompletely citing the "Atlas 1798 with Pl. 20, fig. 6." Consequently, I believe that neither of these references to species were made by La Martinière. They were probably named by others using La Martinière's description, but because of La Martinière and the editor's use of both "*Pennatula*" and "*Lernaea*" for the same specimen, both were used by later investigators. That is, the same description and figure were given two different genus and species names. Both Wilson's references are to a Figure 6, one on a Plate 2, the other on a Plate 20. The 1797 publication I examined had Plate 20, Figure 6. This

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is *Pennella filosa*. The 1787 publication had Plate 2, Figure 6. This is an identical illustration. None of La Martinière's specimens were *Pennella sagitta*. The kindest thing that can be said about "*Lernaea cirrhosa*" and "*Pennatula bocconi*" is that they should have another author besides La Martinière, and that both are likely junior synonyms of *Pennella filosa* (Linnaeus, 1758).