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**The type specimens of parasitic marine isopods (Crustacea: Isopoda: Cymothoidea)
described by Henri de Saussure and Gottfried Haller
deposited in the Muséum d'histoire naturelle de Genève**

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Abstract: The Muséum d'histoire naturelle de Genève contains type specimens of nine species of parasitic marine isopods, all described in the 19th century. These are enumerated and the current nomenclatural combination is given.

Keywords: Ectoparasite - fish - Geneva - Cymothoidea - type catalogue.

INTRODUCTION

The parasitic isopods of the family Cymothoidea are difficult to collect and unusual in that more than half of the roughly 400 known species were described in the 19th century, with relatively few added in the 21st (Smit *et al.*, 2014). They are all ectoparasites of fish, and the group includes the improbable sounding “tongue biters”, which cause the host’s tongue to drop off and then replace it with their own bodies.

The collection of marine isopods held by the Muséum d'histoire naturelle de Genève (MHNG) is very small but contains a number of type specimens. Some specimens were collected on the expeditions of Henri de Saussure to Mexico and the Antilles in 1854-1856 and of Aloïs Humbert to Sri Lanka (then Ceylon) in 1858-1860. Others were accidentally acquired with fish studied by the first director of the MHNG, the ichthyologist Godefroy Lunel (1814-1891), but the group was not actively collected by later MHNG staff, even though Jean Carl (1877-1944) worked on terrestrial, and especially cave, isopods.

Henri de Saussure (1829-1905), a prolific taxonomist who worked with many groups and greatly enriched the MHNG (Hollier & Hollier, 2013), described two new species from the material he had collected (Saussure, 1857).

The MHNG collection was also studied by Gottfried Haller, who described seven species from it (Haller, 1880). Gottfried Haller (1853-1886) was a zoologist from Bern whose most important work was on feather mites (Haller, 1878a, b, 1882). He was awarded a doctorate by Zurich University in 1878 for his revision of the genus

Analges Nitzsch (Haller, 1878a), and one of the genera he established (Haller, 1878b) now characterises the superfamily Freyanoidea. Haller also worked on marine crustaceans and hydracarians. His promising career was cut short by typhoid fever (Anonymous, 1886). The American obituary notices (Anonymous, 1886, 1888) refer to him as Gustav Haller.

Some of Haller’s type specimens were studied by Neil Bruce, who established several synonymies (Bruce, 1990); it was then that a number of specimens were transferred from the dry collection to alcohol. Ernest Williams studied some of Saussure’s type specimens of cymothoids which were likewise transferred to alcohol.

TYPE CATALOGUE

The species are listed alphabetically. The nomenclature follows Boyko *et al.* (2016) for the current combinations.

acuminata Haller, 1880: 389-391 [*Anilocra*].

Bourbon. Two specimens.

The MHNG collection has two specimens in alcohol under the name *Anilocra acuminata*, each in a separate vial. One has the typewritten label “Anilocra acuminata HALLER, syntype transféré en alcool 18.IV.1985”, the other has a similar label and a rather faded handwritten label “Anilocra accuminata, Ile Bourbon”. These specimens are syntypes. Ile Bourbon is an old name for the French island of Réunion in the Indian Ocean.

Anilocra acuminata Haller, 1880

cumulus Haller, 1880: 383-386, figs 13-15 [*Livoneca*].

Fig. 1

Gouadeloupe. Three specimens.

The MHNG collection includes three pinned specimens under the name *Livoneca cumulus*. The largest has the label “Livonica cumulus Haller” in Haller’s handwriting, the others lack labels. There is a handwritten label in the insect box “Vit dans la bouche des chirurgiens (Acanthurus). Guadeloupe. M. Debr.” indicating the provenance. These specimens are syntypes. Crustacea box 12.

Agarna cumulus (Haller, 1880)

ellipsoidea Haller, 1880: 386-388, figs 16-17 [*Livoneca*]. [Unknown provenance]. Two specimens.

The MHNG collection includes two specimens in alcohol under the name *Livoneca ellipsoidea*, each in a separate vial. Each vial contains a typewritten label “*Livoneca ellipsoidea* HALLER, syntype transféré en alcool 17.IV.1985” and a small label printed on yellow paper with the hole made by the original pin and now

illegible. The larger specimen also has a label “*Livoneca ellipsoidea* Hall. Original Exempl.” handwritten by Carl, followed by extensive but barely legible notes in pencil. These specimens are syntypes. Although the provenance was unknown to Haller, the yellow labels indicate that the specimens were believed to be from the Oriental region. A junior synonym of *Livoneca redmanii* Leach, 1818

lunelii Haller, 1880: 381-383, figs 10-12 [*Livoneca*].

Macassar (Celebes). One ♀ and one juvenile.

The MHNG collection includes two specimens in alcohol under the name *Livoneca lunelii*, each in a separate vial. Each vial contains a typewritten label “*Livoneca lunelii* HALLER, syntype transféré en alcool 17.IV.1985” and a small label printed on yellow paper with a hole made by the original pin reading “MACASSAR”. The larger specimen also has a label handwritten in pencil “*Livoneca Lunelii* Haller, Mère et juvénile individu. Fixé contre la surface interne de l’Upneus [sic] indica Shaw” on one side and “Trouvé par G. Lunel, Don de Dr G. Haller” on the other. This label has four holes, having



Fig. 1. Two syntypes of *Agarna cumulus* (Haller, 1880).

been folded twice and placed on a pin. Haller stated that the specimens came from a specimen of *Upeneus indicus* Shaw, 1803 (now *Parupeneus indicus*). These specimens are syntypes.

A junior synonym of *Elthusa emarginata* (Bleeker, 1857)

mexicana Saussure, 1857: 505 [*Anilocra*].

Golfe du Mexique. Unspecified series.

The MHNG collection includes four specimens in alcohol under the name *Anilocra mexicana*, each in a separate vial. Two vials have the typewritten label “*Anilocra mexicana* SAUSSURE transféré en alcool 27.IX.1982” and the handwritten label “*Anilocra mexicana* Sauss Debr. Westindies”, one original and the other a photocopy. This label has four holes, having been folded and secured on a pin. The other two vials each have a handwritten label with a hole from the original pin “*mexicana* Sss., Tuxpam Sss.” A label in Crustacea box 13 indicates that these specimens were transferred to alcohol on the 23.IX.1982. The latter two specimens are syntypes; the status of the other two is less clear because there is no indication of when they were collected. These specimens were studied by Ernest Williams, presumably the occasion of their transfer to alcohol from the dry collection.

A junior synonym of *Anilocra laticauda* H. Milne-Edwards, 1840

paradoxa Haller, 1880: 378-380 [*Cymothoa*].

Indischer Ocean. One ♀.

The MHNG collection includes one specimen in alcohol under the name *Cymothoa paradoxa*. The vial containing the specimen has the typewritten label “*Cymothoa paradoxa* HALLER, holotype transféré en alcool 18.IV.1985” and a label handwritten in pencil “Don de Dr G Haller, *Cymothoa paradoxa* Hall. Dans la bouche d’une caranx carangus Bloch. Malabar. Trouvé par G Lunel”. This label has three holes, having been folded and secured on a pin, and has been sealed in protective plastic. Haller stated that the specimen came from the mouth of a *Caranx carangus* Bloch, 1793. This is a junior synonym of *C. hippos* (Linnaeus, 1766), a fish with an Atlantic distribution; the host was probably the Indian Ocean species *C. ignobilis* (Forsskål, 1775). Haller also stated that had he had more specimens he would probably have erected a new genus for this species. *Cymothoa paradoxa* was placed in the synonymy of *Enispa irregularis* (Bleeker, 1857) by Bruce (1990). This specimen is the holotype.

Cymothoa paradoxa Haller, 1880

parasita Saussure, 1857: 306 [*Cymothoa*].

Cuba. Unspecified series.

Saussure (1858: 485) later gave the locality information “Pris sur les côtes de Cuba, attaché au ventre d’un poisson”. The MHNG collection includes one pinned specimen under the name *Cymothoa parasita* with the

handwritten label “*Cymoth. parasitica* Sauss. Cuba.” The type series was unspecified and so this specimen should be regarded as a syntype. Crustacea box 14.

A junior synonym of *Cymothoa excisa* Perty, 1830

plagulophora Haller, 1880: 380-381, figs 8-9 [*Livoneca*].

Mauritius. Three ♀.

The MHNG collection includes four specimens in alcohol under the name *Livoneca plagulophora* in two jars. The first jar has three specimens, each in a separate vial containing a typewritten label “*Livoneca plagulophora* HALLER, syntype transféré en alcool le 26.IX.1985” and “ILE MAURICE” and a small label printed on pink paper with a hole made by the original pin and now illegible. One vial also contains a handwritten label “*Livoneca plagulophora* Hall. Ile Maurice” with two pin holes, having been folded and then secured on a pin. These specimens are syntypes. The second jar contains one ♀, also from Mauritius, but with a label in Carl’s handwriting indicating that it is not part of the type series. *Mothocya plagulophora* (Haller, 1880)

rotundifrons Haller, 1880: 375-377, figs 1-4 [*Cymothoa*].

Mauritius. One specimen.

The MHNG collection includes one pinned specimen under the name *Cymothoa rotundifrons* with the label “*Cymothoa rotundifrons*, Mauritius” in Haller’s handwriting. This specimen is the holotype. Crustacea box 14.

Cymothoa rotundifrons Haller, 1880

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