



The taxonomic research of Jules Richard on Cladocera (Crustacea: Branchiopoda) and his collection at the National Museum of Natural History, U.S.A.

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Abstract

Jules Richard (1863–1945) contributed significantly to cladoceran taxonomy before he became Director of the Musée Océanographique de Monaco and assistant to Prince Albert I-er de Monaco. His collection, including slides and samples preserved in ethanol, was purchased by E. A. Birge, subsequently incorporated into the collection of David G. Frey, and later gifted to the National Museum of Natural History, Smithsonian Institution. A list of publications of Richard about cladocerans is presented, as well a list of all new taxa described by him (three genera and 37 taxa of species rank), with information about type localities, synonymies and taxonomic comments. Lectotypes and in some cases paralectotypes are selected for *Daphnia* (*Ctenodaphnia*) *bolivari* Richard, 1888; *D.* (*Daphnia*) *curvirostris insulana* Moniez in Richard, 1896; *Bosmina japonica* Poppe & Richard, 1890; *Grimaldina brazzai* Richard, 1892 and *Alona sarsi* Richard, 1891. Syntypes exist for *Alona moniezi* Richard, 1888 and *Pleuroxus letourneuxi* (Richard, 1888). The ethanol samples of Richard that may contain species for which there are no types are discussed. In addition, samples in the collection of David G. Frey from type localities of Richard's species are noted. These samples could be important for future revisions of the Richard's taxa. A redescription of *Pleuroxus letourneuxi* (Chydoridae, Chydorinae) is given; *Bosmina japonica* Poppe & Richard, 1890 (Bosminidae), a junior synonym of *B. longirostris* (O. F. Müller, 1776), also is redescribed.

Key words: Anomopoda, Ctenopoda, systematics, taxonomy, museum collections, lectotype

Abbreviations for collections

DGF, collection of David G. Frey donated to the Smithsonian Institution's National Museum of Natural History, and kept at the Museum Support Center in Suitland, Maryland, U.S.A. **NHM**, the Natural History Museum, London, United Kingdom; **NMNH**, National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A. **USNM**, preface to catalog numbers of the National Museum of Natural History.

Introduction

Several biographies exist of the eminent French scientist Jules Richard (Portier 1945; Fage 1946; Rouch 1948; Damkaer 1995). Richard (18 November 1863 – 24 January 1945) is best known for his oceanographic research. He was the assistant to Prince Albert I-er de Monaco for many years, occupying positions of the Director of the Musée Océanographique de Monaco and director of the Prince's publication series. He also served as President of the Zoological Society of France (Portier 1945; Damkaer, manuscript).

His early scientific activities, however, concerned freshwater microcrustaceans, particularly cladocerans and copepods. His first paper was about reproduction in *Daphnia* (Richard 1884). There followed a series of fifty-eight publications on the taxonomy and faunistics of Cladocera that began toward the end of 1880's. As