



Heinz Löffler
1927 – 2006

Heinz Löffler passed away in Vienna on 14 October 2006. His contributions to limnology have already been recounted in detail by Schiemer (2006), Danielopol & Schiemer (2007), and Dokulil (2007). In the present obituary I summarize his career and underline his great contribution to the taxonomy and faunistics of copepods.

Löffler graduated from the University of Vienna in 1955, and undertook graduate study in Sweden (1951 and 1953) and postgraduate study in the U.S.A. (1955-1957), with G.E. Hutchinson. He was director of the Biological Station Lunz am See (1967-1972) in Lower Austria, and founder of the Institute of Limnology (1972). As an ordinary member of the Austrian Academy of Sciences, he participated for many years in the commission for projects related to development. As a professor of the University of Vienna, he lectured on the taxonomy and biology of freshwater invertebrates, general limnology, paleolimnology, and ecology of wetlands until shortly before his death. From 1992 to 1996 he was director of the Institute of Zoology of the University, and from 1979 to 1996 head of the Department of Limnology. One of his great merits was the foundation of the International Postgraduate Course on Limnology (IPGL) in 1974, with the object of teaching the different fields and methods of limnology to biologists from developing countries.

Löffler contributed importantly to taxonomy, especially that of ostracods and copepods. As a result of his expeditions to South America, Asia and Africa, he described 42 species and subspecies of copepods (Table) collected in freshwater and semiterrestrial environments. The major part of his work in copepod taxonomy was done on harpacticoids. Based on his systematic studies, he always tried to explain the distribution of species in relation to their ecology and evolution, as in the case of species of the genus *Maraenobiotus* found in the high mountains of East Africa and in the Himalayas: the variability of populations, existing species and subspecies of the genus related to their distribution in different (sometimes very closely located) habitats, were used to explain speciation processes (Löffler 1965), and trends during recolonization and ecology (Löffler 1968). Another example in this matter is the way he tried to explain evolution within the centropagids in freshwaters of South America and the circum-Antarctic islands. Studying the comparative morphology of the fifth leg of males and females and the distribution of the species, he arrived at the conclusion that the genera *Pseudoboeckella* and *Gladioferens* are older representatives of the family, and had their center of development in the southern corner of South America (Löffler 1955), while *Boeckella* derived from a group near those genera.

He found and described a great number of species of copepods within the harpacticoid genus *Attheyella* (Löffler 1961a, 1961b, 1963, 1968, 1973) and several *Elaphoidella* (Löffler 1963, 1968, 1973), among other Canthocamptidae, two species of Ameiridae from Iran (Löffler 1959), and two Cletodidae (Löffler 1961a, 1963). The intensive exploration and sampling of lake sediments of the region of Valdivia in southern Chile, led him to find and describe the largest number of species (within the subgenera *Delachauxiella* and *Chappuisiella*, both belonging to *Attheyella*) for a region prospected by him (Löffler 1961b, 1961c, 1966). The semiterrestrial harpacticoid *Löfflerella*, discovered in andine Patagonia by Rouch (1962), was named in his honour. Afterwards, Löffler himself described 3 more species within this genus, from mosses and soils in the forest region between Antofagasta and Chiloe (Löffler 1966). Besides *Löfflerella*, two species of copepods were named in his honour: *Neoboeckella löffleri* Bayly, 1992 from Bolivian ponds, and *Lingulocamptus löffleri* Guo, 1998 from China.

His discoveries in the mountain lakes of South America led him to undertake expeditions between 1960 and 1961 to Ruwenzori, Mount Kenya, and Mount Elgon in East Africa. There he discovered new species in the genera *Maraenobiotus* and *Elaphoidella* (Löffler 1965, 1968). He concluded that in contrast with the tropical Andean lakes, East African mountain lakes are characterised by only a few forms (Löffler 1964) and have more zoogeographical affinities with the Northern Hemisphere. In subsequent expeditions, he collected and described new species in Nepal (*Maraenobiotus*, *Bryocamptus* and *Elaphoidella*) (Löffler

1968) and Borneo (*Atheyella* and *Elaphoidella*) (Löffler 1973).

Based on comparative studies of species distribution in mountain lakes of Central America, and central and southern Europe, he could also explain the general distribution of harpacticoids. He arrived at the conclusion that tropical high mountain lakes of Central America were colonized during the Quaternary with crustacean fauna originating from the north (Löffler 1972), as also occurred in the mountain lakes of the Sierra Nevada in southern Spain (1974).

Some of his former students have been working in copepod taxonomy, zoogeography, and ecology: Dan Danielopol often included information on copepods in his groundwater studies (e.g., Danielopol & Pospisil 2002) and Alois Herzig (e.g. Herzig 1979) in his articles on zooplankton, Xyoming Guo studied copepods in China (e.g. Guo 2000), whereas I examined those of different regions of Colombia (e.g. Gaviria & Aranguren 2007) and Austria (e.g. Gaviria 1998). Peter Pospisil described a species of *Acanthocyclops* and two of *Diacyclops* from groundwaters of the Danube (Pospisil 1989, 1999), and Edmund Schiller (2004) studied the taxonomy of *Arctodiptomus steindachneri* of the Balkan region.

In addition to the many species descriptions, Löffler accomplished an enormous task of inventorying copepods, branchiopods, ostracods, and rotifers from a great number of lakes and ponds all around the world. Many of the known species that he identified were new records for the respective countries.

Löffler frequently published ecological and geographical information on the lakes where he carried out taxonomic work and faunistic surveys (see list of publications in Schiemer 2006 and Danielopol & Schiemer 2007). Thus, autoecological information of the species is often available from these articles.

Löffler's collection is now deposited at the Naturhistorisches Museum of Vienna; it contains the type material of most of the species of copepods that he described, and is already inventoried. The organisation of the remaining collection material is now in process. I had the opportunity to participate in the organisation of the collection. An article with detailed information on the type collection is in preparation.

All copepodologists highly appreciate the valuable contribution of Heinz Löffler to the morphology, taxonomy, ecology, and faunistics of copepods. We will always remember him as a great taxonomist, limnologist, and biogeographer.

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**Copepod taxa described by Heinz Löffler,
and country of the locus typicus**

CALANOIDA

Centropagidae

- Boeckella kinzeli* Löffler, 1955 Peru
- Pseudoboeckella peruviansis* Löffler, 1955 Peru

Diaptomidae

- Arctodiaptomus jurisowitchi* Löffler, 1968 Nepal
- Notodiaptomus amazonicus occidentalis* Löffler, 1963 Ecuador

Pseudodiaptomidae

- Pseudodiaptomus acutus leptopus* Löffler, 1963 Ecuador

CYCLOPOIDA

Cyclopidae

- Eucyclops breviramatus* Löffler, 1963 Ecuador
- Eucyclops serrulatus chilensis* Löffler, 1963 Chile
- Mesocyclops longisetus araucanus* Löffler, 1961 Chile
- Thermocyclops hooki* Löffler, 1968 Uganda-Kenya border

HARPACTICOIDA

Ameridae

- Nitocrella iranica* Löffler, 1959 Iran
- Nitocrella mara* Löffler, 1959 Iran

Canthocamptidae

- Attheyella (Attheyella) nepalensis* Löffler, 1968 Nepal
- Attheyella (Canthosella) silvicola* Löffler, 1973 Indonesia
- Attheyella (Chappuisiella) pichilafquensis* Löffler, 1961 Chile
- Attheyella (Chappuisiella) puyehuenensis* Löffler, 1961 Chile
- Attheyella (Chappuisiella) quillehuensis* Löffler, 1961¹⁾ Chile
- Attheyella (Delachauxiella) ciliata* Löffler, 1961 Chile
- Attheyella (Delachauxiella) freyi* Löffler, 1963 Ecuador
- Attheyella (Chappuisiella) levigata* Löffler, 1961²⁾ Chile
- Attheyella (Delachauxiella) nuda* Löffler, 1961 Chile
- Attheyella (Delachauxiella) ornata* Löffler, 1961 Chile
- Attheyella (Delachauxiella) serrata* Löffler, 1961 Chile
- Attheyella (Delachauxiella) triarticulata* Löffler, 1961 Chile
- Attheyella (Delachauxiella) wieseri* Löffler, 1961 Chile
- Bryocamptus (Limnocamptus) hiemalis yetii* Löffler, 1968 Nepal
- Elaphoidella angirmii* Löffler, 1968 Nepal
- Elaphoidella damasi nivalis* Löffler, 1968 Uganda
- Elaphoidella helminchi* Löffler, 1968 Nepal
- Elaphoidella humboldti* Löffler, 1963 Ecuador
- Elaphoidella kieferi* Löffler, 1968 Nepal
- Elaphoidella labani* Löffler, 1973 Indonesia
- Loefflerella chilensis* Löffler, 1966 Chile
- Loefflerella rouchi* Löffler, 1966 Chile
- Loefflerella trisetosa* Löffler, 1966 Chile
- Maraenobiopsis fontinaloides* Löffler, 1960 Peru
- Maraenobiotus insignipes altissimus* Löffler, 1968 Nepal
- Maraenobiotus insignipes nepalensis* Löffler, 1968 Nepal
- Maraenobiotus kenyensis* Löffler, 1965 Kenya
- Maraenobiotus kinabaluensis* Löffler, 1973 Indonesia
- Moraria (Kuehneliella) neotropica* Löffler, 1961²⁾ Chile

Cletodidae

- Cletocamptus deitersi ecuatorianus* Löffler, 1963 Ecuador
- Cletocamptus gabrieli* Löffler, 1961 Iran

¹⁾ Nomen nudum. ²⁾ No type material.