



MONOCULUS Copepod Newsletter

The Newsletter of the World Association of Copepodologists

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Planktonnet planktonnet@yahoogroups.com

Copepod List copepods@yahoogroups.com

Message from the President

Dear copepodologists,

Time flies! Nearly three years have already passed since the last ICOC in Hammamet, Tunisia, and the next ICOC is just around the corner. This message is the last from me. The most important activity during my presidency has perhaps been to make an integrated membership database. This painful and time-consuming project is being worked on by students of our WAC webmaster Rubens Lopes, and will be completed by July. After this new database is available, membership management will become much easier than before, particularly for keeping track of payment of annual dues for each member.

During the next business meeting, some WAC officers will be replaced and the venue for the 11th ICOC will be selected. Hence, I invite nominations from members (see below for the nomination announcement). At the meeting, I also would like to propose to set up a new officer post, i.e. two auditors to review the Treasurer's accounts.

It is a WAC tradition that the outgoing President gives a lecture called the Maxilliped Lecture, which might be derived from the name of the powerful appendage that performs all kinds of functions and is thus a symbol of copepods. It is indeed my great honor to deliver this special lecture.

The title of my lecture will be "Human forcing of the copepod-fish-jellyfish triangular trophic relationship." My scientific career started as a copepodologist, working mainly on the production ecology of planktonic copepods, and my interest has gradually expanded to study of the whole marine ecosystem. I am seriously concerned about the deterioration of formerly healthy and productive seas. The sea in my hometown where I used to swim, fish and shout out in my childhood no longer appears as it did then. Instead, the phytoplankton and jellyfish blooms are stunning. Whereas, I find that the vital role of copepods to sustain higher trophic organisms remains unchanging. It is our responsibility to maintain the ecosystem dominated by fish where copepod production most efficiently transforms to our food.

I look forward to seeing you in Pattaya, soon.

— Shin-ichi Uye, President Hiroshima University, Japan



Nominations Open for New WAC Officers

New members of the WAC Executive Council will be elected during the Business Meeting at the 10th ICOC.

Elected positions include those of President, Vice-President, General Secretary, Treasurer, and several Members of the Executive Council. Their terms will run for three years, or until the 11th ICOC.

Any two WAC members in good standing (who have paid their dues up to date!) may nominate a candidate, in writing — but must ascertain beforehand that their candidate is willing to serve if elected.

Additional nominations may be made by a Nomination Committee appointed by the Executive Council, *and* during the business meeting.

Please send your nominations to Shin-ichi Uye by the end of May, if possible.

As provided by the WAC By-Laws, Shin-ichi Uye will serve as Past-President until the 11th ICOC.

A venue for the 11th ICOC (in 2011) will also be selected at the Business Meeting. It will then be the responsibility of the Executive Council to appoint the Local Secretary of the 11th ICOC from among WAC members living in the locality where the next Conference will be held. *Anyone who is interested in hosting the next ICOC should contact Shin-ichi Uye.*

— Shin-ichi Uye
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Update on Progress in the 10th ICOC

The local organizing committee is delighted to inform you on the progress in the 10th International Conference on Copepoda (ICOC), to be held during **13-19 July 2008** in **Asia Pattaya Beach Hotel, Pattaya, Thailand**.

Two hundred and ten copepodologists from 41 countries have so far registered to attend the conference. Two hundred and forty-nine abstracts (90 oral and 159 poster presentations) have been submitted.

Several (84) applicants are interested in attending the Pre-conference workshop, to be held during 7-11 July 2008 at Khon Kaen University, Khon Kaen, Thailand, but only 50 have been selected due to limited space.

Submission of manuscripts

The **deadline** for manuscript submission is **19 September 2008**. The conference proceedings will be published in *Hydrobiologia*, but as strict page limits apply, short communications would be much appreciated. The page limit for manuscripts (double-spaced, on A4 or quarto-sized paper) to be considered for publication is normally 20 pages, resulting in *ca.* 10 printed pages. Please see the "Guide for Preparation of manuscripts" in the journal website <http://www.springer.com/prod/s/DIHY>. Manuscripts not conforming to the standard format will be rejected. Potential participants are reminded to take this into account when preparing manuscripts. Please note that, following the publication policy of *Hydrobiologia*, all manuscripts will be subjected to **rigorous** peer-review. Presenting a paper at the conference will not guarantee its publication in the proceedings.

In order to facilitate young participants to publish their research work in the proceedings, the organizing committee has arranged an oral presentation “Guide for Preparation of manuscripts to be published in *Hydrobiologia*” by the **Editor-in-Chief, Prof. Dr. Koen Martens**, in a session to be held at the conference.

Hotel reservation

For your personal comfort and convenience during your stay in Thailand, the Organizing Committee recommends the conference hotel. The cost for accommodation will be paid directly to the Conference Hotel, Asia Pattaya Hotel when you check in. We guarantee the availability of your room reservation only for those who pre-paid the registration fee. Special Conference rates for hotel rooms have been arranged for those who book rooms through the Conference Organizer. Rooms will be allocated on a “**first come first served**” basis. Please send your [Registration Form](#) to the Conference Organizer **as soon as possible**.

Transportation from Suvarnabhumi Airport to Pattaya

The organizing committee will arrange buses or vans from the Bangkok (Suvarnabhumi) International Airport to the Conference hotel for all registered participants and accompanying persons arriving on Saturday 11th July 2008 and Sunday 12th July 2008. You will meet staff of the local organizers at the **Airport Information Counter** which is situated between **Entrance 7 and 8** of the arrival hall (second floor). Please look for the sign “**10th International Conference on Copepoda**”. It takes about 2 hours to reach the Conference hotel by car. Please send your [Travel Form](#) to the Conference Organizer **as soon as possible**.

For participants who plan to arrive before 11th July 2008, you can travel by taxi which costs about 1,500-2,000 baht from the airport to Pattaya. For more information please contact the conference organizer.

We look forward to meeting you at the 10th ICOC in 2008 in Thailand.

— Professor Dr. La-orsri Sanoamuang
Chairperson
Local Organizing Committee of the 10th ICOC
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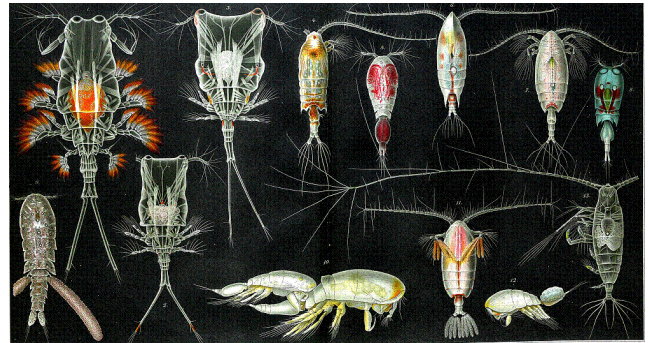


Plate 2 from the classic 1892 monograph *Systematik und Faunistik der pelagischen Copepoden des Golfes von Neapel und der angrenzenden Meeres-Abschnitte* by Wilhelm Giesbrecht.

News from the “World of Copepods” Website

We are constantly adding new literature and taxa to the website. If you find literature or taxa missing on this site, please send me the information so that the databases can be updated. This summer we will be adding some new features to the website.

First, we will be adding the ability to view the pdf’s of the Wilson 3x5 card collection. This collection consists of approximately 40,000 3x5 cards, which were created beginning in the late 1800s by Charles B. Wilson, curator at the Smithsonian. He recorded all published literature for each copepod taxon over the years. He maintained a card for each genus and species, and when an author published on that taxon he recorded the author, year, pages, plates, and figures. He also recorded any synonyms, and added geographical data. These cards were kept up to date by various researchers during the 1900s. Finally in 1999, we stopped recording information on the cards, because on-line databases, indexes, and search engines now allow us to access much current information. However, the information on these cards continues to be extremely valuable for copepod researchers.

We have scanned the text and plates of the 1892 monograph by Giesbrecht, and plan to make them available as well.

Also in collaboration with Burkhard Köster of Senckenberg University and Slava Ivanenko of Moscow State University, a DOS-based application was created to act as a front-end program that uses the

Microsoft ACCESS program which stores the four databases, just as on the web site. This program allows the user to get to the databases without using Microsoft Access. It allows basic searches and the search results to be exported in Microsoft EXCEL-compatible CSV delimited format.

We are in the process of determining valid species and synonyms for the copepod taxa. Several researchers have offered their valuable time to go through the groups with which they are familiar and determine which taxa are valid. Ju-shey Ho is working on the poecilostomes, and Chad Walter is working on the calanoids, but we need help with other groups. If you are willing to work with the other taxa at the genus or even family levels, your help will be deeply appreciated. Contact me at walterc@si.edu to help, and I will send you a file of your group to work on at your convenience.

— Chad Walter
National Museum of Natural History (Smithsonian)
Washington DC, U.S.A.

Publication of a selection of papers presented during the 9th International Conference on Copepoda

1. Special issue of the *Journal of Plankton Research*

In order to consider the most promising topics related to copepod (and more generally to ecosystem) research, the scientific programme of the 9th ICOC in Hammamet, Tunisia, 11-15 July 2005 included four plenary sessions on the following topics: (i) behaviour of copepods: role of small scale processes; (ii) use of copepods as bioindicators; (iii) role of copepods in climate change studies; and (iv) role of copepods in aquaculture. The 12 papers selected in this first Special Issue of the *Journal of Plankton Research* (volume 29, Supplement 1: Copepods, which appeared in March 2007) represent a diverse array of presentations during these scientific sessions. The Guest Editors were Sami Souissi, Mohammed Néjib Daly Yahia, and Jiang-Shiou Hwang.

Together, these papers show the diversity of topics studied by copepodologists and the key role of copepods in ecosystem studies. Sophisticated techniques developed for the study of parasitic copepods can be applied to key planktonic copepods as well. Various studies showing the role of small-scale processes (behaviour, immunity and genetics) in copepod life-cycle traits have not yet been incorporated into larger-scale population or ecosystem models. One may hope that future conferences can enhance such new multidisciplinary studies based on copepods and other planktonic groups.

This first special issue of the *Journal of Plankton Research* was funded by the guest editors. The remaining monies in the 9th ICOC budget covered only 35% of the total cost of the special issue. Additional financial resources were obtained from the National Taiwan Ocean University (J. S. Hwang) and the University of Sciences and Technologies of Lille – Lille 1 (S. Souissi). Consequently only a limited number of copies of this special issue have been ordered. Around 60 copies will be sent to corresponding authors, invited speakers of the 9th ICOC, and the members of the Executive Committee of the WAC. A limited number of copies will be available to be sent free of charge, to other participants in the 9th ICOC. If you are interested in obtaining a free



Cover page of the *Journal of Plankton Research* special issue (volume 29, Supplement 1: Copepods). The cover image (by S. Souissi) is a SEM image of an attached male + female of the estuarine copepod *Eurytemora affinis* (Copepoda: Calanoida) from the Seine estuary, France. A multidisciplinary research program focussing on the life-cycle strategies of *E. affinis* in the Seine estuary has been financed since 2001 by the Seine-Aval consortium (www.seine-aval.fr). The Seine-Aval program contributed to finance this special issue. The other sponsors are both co-conveners and cosponsors of the 9th ICOC, the National Taiwan Ocean University (Taiwan) and the University of Sciences and Technologies of Lille-Lille 1 (France).

copy of the special issue, please send an email to S. Souissi (Sami.Souissi@univ-lille1.fr).

2. Set of papers in a section of *Hydrobiologia*

Another set of manuscripts presented during the 9th ICOC were submitted to *Hydrobiologia*. Following the review process, which unfortunately involved extensive delays because of factors unrelated to the normal procedures of the journal, several papers have now been accepted. These will be published within the next few months, in a prefaced special section dedicated to the 9th ICOC. Guest Editors Sami Souissi and Geoffrey A. Boxshall are very grateful to Dr. Koen Martens, Editor-in-Chief of *Hydrobiologia*, for his generous help during all phases of this process.

— Sami Souissi

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Alteutha potter (harpacticoid copepod), ventral view (10x). Photo by Jan Michels and Olga Lévai, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany. Confocal, Autofluorescence. Nikon Small World "Image of Distinction," 2007. Reproduced with permission from Jan Michels.

New Books and Websites: Reviews

A Plankton Safari with Rudi Strickler

<http://planktonsafari.net>

By J. Rudi Strickler

WATER Institute, University of Wisconsin - Milwaukee

The website's introduction:

"A safari is an overland journey. It usually refers to a trip by non-Africans to Africa, traditionally for a big-game hunt and in more modern times to watch and photograph big game and other wildlife as a safari holiday.

"Entering the English language in the late 19th century, the word safari means 'journey' or 'to travel' in Kiswahili — the Swahili language. The word is originally from the Arabic *safar* meaning 'journey' ...

"Today, we understand safari as a trip into any undeveloped area to see, photograph, or hunt wild animals in their own environment. There are safaris even to the Arctic, the Amazon, Micronesia, and soon to the outer space. Our safari will visit the inner space of life in water at small scales.

"Our excursion goes into a territory unknown to most of us, into a space where no-one has gone before, a space which is exotic and strange to the human experience. Our excursion is an excursion through the 'dense bush' of biology, mathematics, fluid mechanics, and natural history. What we will visit is the space where small animals live, behave, interact, and search and find food and mates while avoiding predators. This space exists in every water body, in ponds, in lakes, and in the oceans. It is the space where plankton lives – cyanobacteria, algae, rotifers, micro-crustaceans, jelly fish, and many other creatures small enough to belong there.

"Because our target space is so small, a few centimeters in every direction, we can only go there with our thoughts not with our bodies. We will have to conduct thought experiments, observe very carefully in great detail, and use the sciences to understand what goes on, how the parts of this environment survive, how they get along with each other, and how they contribute to the well-being of their larger ecosystems, the ponds, lakes and oceans."

Beginning with Geoff Boxshall's calculation that there may exist 1,347,000,000,000,000,000 individual copepods, Rudi guides us into the action world of the very small by means of several of his more famous video recordings, now condensed for viewing via the Web. Be warned, however, that this voyage may take awhile for those of us with slow modems ...

First up is a film of *Eucalanus pileatus*, tethered to a dog hair and feeding on algae. The incredibly fast mouthpart action is slowed down somewhat but still requires close attention. The film was made in 1979 by Tim Cowles, Mimi Koehl, Gus Paffenhöfer, and Rudi Strickler. I believe that this is the same sequence that I remember watching open-mouthed during Rudi's presentation at the 2nd ICOC in Ottawa in 1984.

Next is a clip of the feeding current produced by a tethered *Eucalanus crassus* feeding on algae *Lauderia borealis*, which forms chains. It easily captures an algae chain and stuffs the cells in one by one.

There follows a sequence of *Eucalanus pileatus*, from the Coral Sea east of Australia, presented with a glass particle coated with beta-carotin. The manipulative movements of its mouthparts while it tries to fit the large particle into its mouth beautifully illustrate that calanoids can "handle" individual particles and are not limited to "filtering" sweeps. Again we see *E. pileatus* deal with many good-smelling algae – zooxanthellae – within a very small time interval. Chemically sensing the food, in a one-second feeding bout the copepod tries to capture as many algae as possible.

The structure of feeding currents is illustrated by an animated GIF file, and a graph of the paths of suspended particles as seen by a feeding *Leptodiptomus minutus*. In this case, the copepod is swimming freely.

In a study of an encounter, two individuals of *L. minutus* approach each other. They both realize that the other is a conspecific and move to avoid each other via short hops. Apparently, they can perceive each other by means of mechanoreception of their hydrodynamic trails in the water. The encounter and trails are illustrated by Schlieren images.

Rudi's lively commentaries on the action of these films are cherished by those of us who have heard him in person. If you ever have a chance to hear one of Rudi's talks, don't miss it!

— Jan Reid

The Internet Archive
<http://www.archive.org/index.php>

Several classic publications on copepods by George S. Brady, P. J. Van Breeman, Wilhelm Giesbrecht, Georg Ossian Sars, and Thomas Scott are available in pdf format on this website.

Ocean Images: the Plankton
Photographic Guide to Identifying Common
Plankton

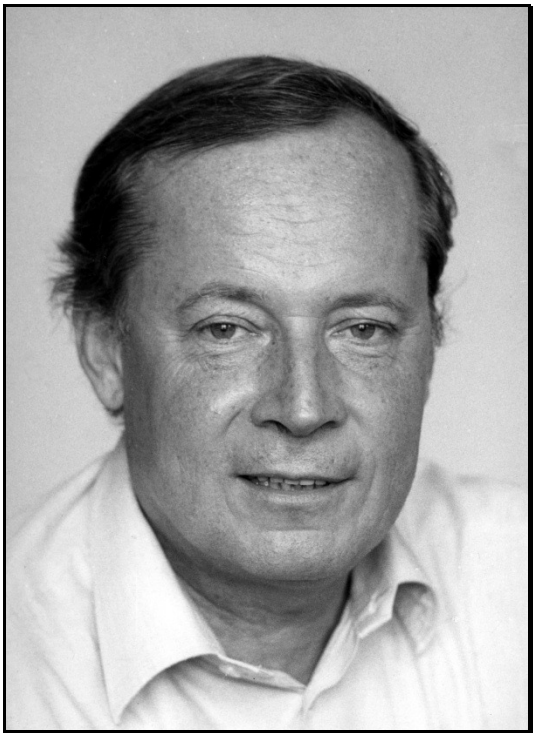
By Robert Bradbrook Perry
106 pp. <http://www.blurb.com/bookstore/detail/207666>

From the website: "A gallery of over 300 color photographic images of marine plankton. Plankton samples were taken along the shore and by boat all over southern California for several decades. This gallery represents one man's effort to categorize and identify the most commonly observed organisms that drift in the sea. Plankton are animals and protists that cannot swim against the currents and are taken around by those currents. There are permanent forms of plankton that live their entire lives drifting, and there are the larval stages of just about everything that lives in the sea. This makes studying plankton one of the most interesting aspects of biology and marine science. Plankton form the base of the ocean food chain which affects mankind in countless ways. Looking at these wonderful creatures will change your life."

Marine Interstitial Poecilostomatoida and
Cyclopoida (Copepoda) of Australia
By Tomislav Karanovic

Crustaceana Monographs 9. 290 pp. Brill, The
Netherlands. ISBN 978 90 04 16459 8 (May 2008)

From the publisher's website: "The prime function of the interstitial system is the processing of organic material flushed into the sand. It functions as a carbon sink, which has significant implications in this age, in which we are trying to fight carbon levels in the atmosphere. Copepods are top predators here and thus crucially important. This book presents the first data about cyclopoid and poecilostomatoid copepods from the Australian marine interstitial. It includes one new cyclopoid family, the second record of the poecilostomatoid family Polyankaliidae, one new genus, and 21 new species. A zoogeographic analysis of the copepods recorded emphasizes the importance of looking at small-scale patterns when inferring Gondwanaland biogeography, and a number of distinct zoogeographic regions is now becoming apparent in Australia."



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.

— Santiago Gaviria
Lecturer, University of Vienna, and
Technisches Büro für Biologie
Vienna, Austria

References:

- Danielopol, D.L. & P. Pospisil. 2002. Taxonomic diversity of Crustacea Cyclopoida in the Austrian "Danube floodplain" national park. *Vie et Milieu* 52(2-3):67-75.
- Danielopol, D.L. & F. Schiemer. 2007. In memoriam Heinz Löffler (1927 – 2006). *Crustaceana* 80(8):1013-1018.
- Dokulil, M.T. 2007. Obituary: Heinz Löffler (1927 – 2006). *SIL News* 51:3.
- Gaviria, S. 1998. Checklist and distribution of the free-living copepods (Arthropoda, Crustacea) from Austria. *Annalen des Naturhistorisches Museums in Wien, B*, 100:539-594.
- Gaviria, S. & N. Aranguren. 2007. Free-living species of the Copepoda (Arthropod, Crustacea) subclass of the Colombian continental waters. *Biota Colombiana* 8(1):53-68.
- Guo, X. 1998. *Ligulocamptus löffleri* n.g., n.sp. (Copepoda: Harpacticoida) from Chengdong Lake in China. *Hydrobiologia* 368:209-215.
- Guo, X. 2000a. Two new species of *Mesocyclops* from southern China and notes on the genus *Mesocyclops* in China. *Hydrobiologia* 429:115-131.
- Herzig, A. 1979. The zooplankton of the open lake. In: Löffler, H. (ed.). *Neusiedlersee: The limnology of a shallow lake in Central Europe*. *Monographiae Biologicae* 37:281-335.
- Löffler, H. 1955. Die Boeckelliden Perus. *Sitzungsberichten der Österreichischen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse, Abteilung I*, 164:723-746.
- Löffler, H. 1959. Beiträge zur Kenntnis der iranischen Binnengewässer I, der Niriz-See und sein Einzugsgebiet. *Internationale Revue der Gesamten Hydrobiologie* 44:227-276.
- Löffler, H. 1961a. Beiträge zur Kenntnis der iranischen Binnengewässer II. Regional-limnologische Studie mit besonderer Berücksichtigung der Crustaceenfauna. *Internationale Revue der Gesamten Hydrobiologie* 46:309-406.
- Löffler, H. 1961b. Zur Systematik und Ökologie der chilenischen Süßwasserentomostraken. *Beiträge zur Neotropischen Fauna* 2: 197-206.
- Löffler, H. 1961c. Beitrag zur Copepoden- und Ostracodenfauna Chiles. *Anzeiger der Österreichischen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftlichen Klasse* 98:111-116.
- Löffler, H. 1963. Zur Ostrakoden- und Copepodenfauna Ekuadors. *Archiv für Hydrobiologie* 5:196-234.
- Löffler, H. 1964. The limnology of tropical high-mountain lakes. *Verhandlungen der Internationale Vereinigung für Theoretische und Angewandte Limnologie* 15:176-193.
- Löffler, H. 1965. Die Gattung *Maraenobiotus* in Afrika. *Zoologische Jahrbücher, Abteilung für Systematik* 92:195-218.

- Löffler, H. 1966. Beitrag zur Kenntnis der Harpacticiden- und Ostracodenfauna Chiles. Zoologischer Anzeiger 176:192-205.
- Löffler, H. 1968. Die Crustaceenfauna der Binnengewässer ostafrikanischer Hochberge. Hochgebirgsforschung 1:107-170.
- Löffler, H. 1972. Contribution to the limnology of high mountain lakes in Central America. Internationale Revue der Gesamten Hydrobiologie 57:397-408.
- Löffler, H. 1973. Die Harpacticidenfauna des Mt. Kinabalu (Borneo) mit besonderer Berücksichtigung der Gattung *Maraenobiotus* nebst Angaben zur Harpacticidenfauna des Gebietes Nuwara (Hochplateau Ceylon). Hochgebirgsforschung 3:5-28.
- Löffler, H. 1974. Harpacticiden (Crustacea, Copepoda) der Hochgebirgsgewässer Andalusiens (Sierra Nevada, Spanien. Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse, Abteilung I, 181:191-195.
- Pospisil, P. 1989. *Acanthocyclops gmeineri* n. sp. (Crustacea, Copepoda) aus dem Grundwasser von Wien (Österreich): Bemerkungen zur Zoogeographie und zur Sauerstoffsituation des Grundwassers am Fundort. Zoologischer Anzeiger 223:220-230.
- Pospisil, P. 1999. Two new species of the *Diacyclops languidoides*-group (Copepoda, Cyclopoida) from groundwaters of Austria. Hydrobiologia 412:165-176.
- Rouch, R. 1962. Harpacticoides (Crustacés, Copépodes) de l'Amérique du Sud. Pp. 237-280. In: Delamare, Cl. & E. Rapoport (eds.). Biologie de l'Amérique Australe. Vol. 1, Études sur la Faune du Sol. Ed. Centre Nat. Rech. Scient., Paris.
- Schiller, E. 2004. Beitrag zur systematischen Stellung zweier Diaptomiden (Crustacea, Copepoda) permanenter bzw. temporärer Lebensräume der Balkaninsel (SO Europa). Diplomarbeit, Universität Wien, Vienna. 117 pp.
- Schiemer, F. 2006. In memoriam Heinz Löffler (1927 – 2006). Verhandlungen der Zoologisch-Botanischen-Gesellschaft in Österreich 143:167-179.

**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.

News from or about Members

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Natural History Library Annex
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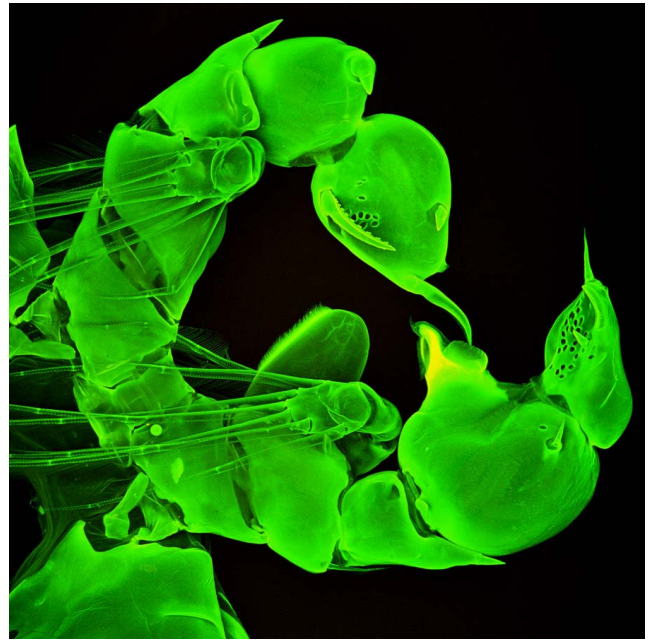
Beginning balance January 1, 2007	\$29,795.73
Membership dues received	280.00
Interest earned	712.91
Postage for mailing MONOCULUS.....	(-20.63)
Seed Money for 10 th ICOC in Thailand	(-1,500.00)
Up-dating the WAC website and membership data base	(-3,300.00)
Banking fees	(-40.00)
Balance December 31, 2007	\$25,928.01

— John Fornshell, Treasurer

Editor's Notes

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— Jan Reid, Editor
Martinsville, U.S.A.



Pair of fifth swimming legs of the calanoid copepod *Heterorhabdus* sp. (20x). Photo by Jan Michels and Olga Lévai, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany. Confocal, Autofluorescence. Nikon Small World "Image of Distinction," 2007. Reproduced with permission from Jan Michels.

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