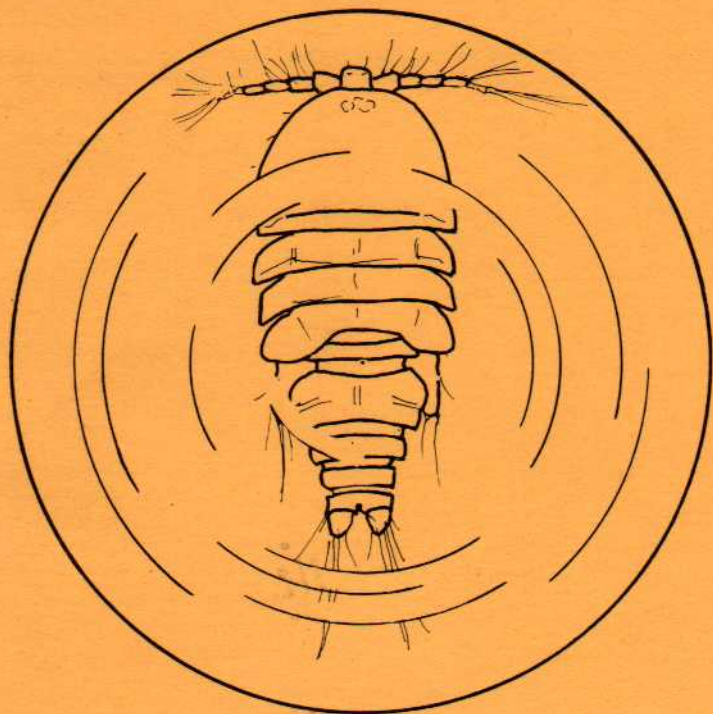


# MONOCULUS

Copepod Newsletter



Nr. 7

Nov. 1983



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# *MONOCULUS*

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Copepod Newsletter

Number 7

November 1983

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(This document is not part of the scientific literature and is not to be cited, abstracted or reprinted as a published document.)

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## NOTE TO CONTRIBUTORS

There are several ways in which you may contribute to *MONOCULUS*:

- points of view
- interviews and portraits of copepodologists
- reports on current research activities
- *MONOCULUS*-Glossary and *MONOCULUS* Exchange Service
- offers and requests
- reports on meetings and symposia
- book notices and reviews
- change of address and addresses of new candidates
- drawings-drawings-drawings-drawings-drawings-drawings

Deadline for the next issue of *MONOCULUS*: 15 March 1984

## E d i t o r i a l

The season of kites has begun, and like the red kite rising into the blue sky before the window, *MONOCULUS* appears to rise into a glorious future. A fresh impetus certainly has been given to it by the questionnaire added to the last issue. A number of people, passive receivers of *MONOCULUS* so far, have been stimulated to react for the first time. Hence the list of current literature published at the end of this issue is double the size than usual. A lot of new candidates for the *MONOCULUS*-community have been proposed and Gerd has started a broad campaign to hire them for our undertakings. The list of members is becoming longer and longer, and we hope that all of them will contribute in one way or another to keeping *MONOCULUS* aloft and add to its attraction just as the ribbons tied to its tail do so in the case of the kite dancing in the air before the window.

No new activity will be started this time, but we may already announce that in the next issue we want to start what may be called the "*MONOCULUS* Exchange Service". In most countries funds and scholarships are available for (exchange) scientists from abroad. Very often these possibilities are not as widely known as they should be or uncertainty prevails as to where to write and what to do. What will be needed therefore are reports about the situation in countries offering such possibilities. We need authors for such reports and since, as a rule, a certain amount of time has to elapse before volunteers start to appear on the scene, we thought we had better announce our plans a little in advance.

The pre-registration material for the Second International Conference on Copepoda in Ottawa next year has been mailed. C.-t. Shih accumulated nearly 1000 names for the mailing list! If participation is as active as is cooperation with *MONOCULUS* it will be a nice conference.

Since this is the last issue of *MONOCULUS* before the end of the year we wish you a Merry Christmas and all the best for 1984.

J. K. P. Z

G. Schmitt

Business ssenisuB

1. Bibliography

In a recent letter someone made the following remark: *You seem to be saddened (MONOCULUS Nr. 6, pp. 1, 6, 10-11) by the lack of collaboration of copepodologists in sending you their reprints or publication lists.... You MUST continue in your efforts to build up that bibliography, but be prepared to the sad truth: most scientists are NOT good bibliographers, do NOT understand the importance of good bibliographic work, do NOT try to have complete bibliographies, and do NOT think they should help you or anyone else complete their bibliographies; their career shall NOT profit from the time they may spend in helping you. Besides, doing bibliographic work or helping others to do it requires ORGANISATION; many scientists are NOT organised and are even quite disorderly..., and they don't send you their reprints simply because it takes too much time and personal organisation to remember to send them to you. The fact that 171 of the 426 MONOCULUS receivers do send you their reprints or informations, is already QUITE REMARKABLE. So it is, indeed, and we are rather optimistic that this relation will even improve over the years. This time 13 new names can be decorated with an asterisk. (For those not so familiar with the game: An asterisk is added to the name of those who have sent their complete list of publications and/or a complete set of their reprints.) The names are: Benz, Bhattacharya, Binet, Citarella, M.S. Evans, Grygier, Herbst, McLaren, Montagna, B. Morris, Radhakrishnan, Tande, Wells. The letter continues: *I suspect that you are a perfectionist: don't expect other people to be perfectionists too! Well, we don't expect them to be all perfectionists, a nightmare that would be. What we simply expect them to be is sensible. Is that too much?**

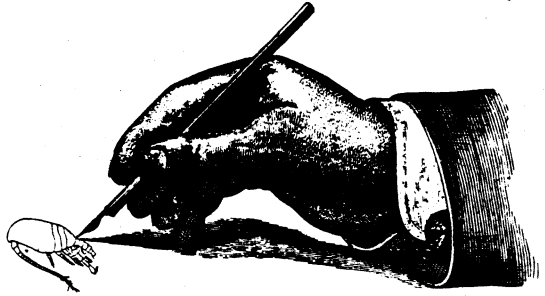
2. MONOCULUS-Library

As a result of the questionnaire more reprints than usual have been received. This is a rather encouraging state of affairs. We thank all those who have put the MONOCULUS-Library on their list for regular and quick mailing and urge all the others to follow suit. We hope the extensive list of current literature

14 July 83

SCRIBELLA PRESS

Seattle, Washington



Many thanks for "Monoculus"  
& for your efforts toward  
this. There is no doubt that  
it fills a gap.

David Damkaer

further below will convince them that this would be a real feat.

### 3. MONOCULUS-Museum

Gerd has received signals of encouragement. He secretly has put a bottle of champagne into the fridge already. It must be serious this time. His optimism stems from a passage in a letter by Vernon Thatcher from Manaus: *We also plan to send you some identified specimens in the near future.... We will ask someone who is going to Germany to hand-carry the specimens. I could also send permanent balsam whole-mount slides of some species, if desired. I can't await hearing the cork shoot into the air.*

### 4. MONOCULUS-Glossary

Geoff. Boxshall from London makes the following remark: *I always look forwards to the arrival of the next issue of MONOCULUS because it always contains so much of interest. I am particularly enjoying seeing the divergent views on copepod terminology as they appear. We should ideally strive for some progress towards a uniform terminology so that workers on the different orders can converse easily and unambiguously however Kuni Hulsemann made a very important point when she wrote 'I advocate change only when a term (or homology) is found that is convincing and has a good chance to become adopted'. What must be avoided is the introduction of new terms as a compromise between different 'ordinal' camps as there are already in existence terms for virtually every conceivable morphological concept. The discussion in Ottawa will be fascinating.*

The actual situation in preparing this discussion is summarized by Chris Corkett from Halifax: *I have received 6 replies from copepodologists regarding the possibility of finding a consensus on terminology but would welcome further replies especially from specialists on cyclopoids and harpacticoids. To date nobody working on these groups has written in. Cyclopoidologists and harpacticoidologists SPEAK UP!*

### 5. Reports on current research activities

From letters by Geoff. Boxshall from London and Frank Ferrari from Washington I compiled the following conversation:

Geoff: Several newsletters arrive in the Crustacea section in the Museum. Each deals with a different group and is pounced upon by the specialist in that group. The most avidly read sections are the bibliography and the 'current research activities'. I would hope to see the latter section become one of the strengths of *MONOCULUS* in the years to come.

Kurt: So would I, but who is jumping into the water?

Frank: Thanks for printing my two requests for specimens. I wrote the requests in a rather feeble attempt to initiate the "Current Research Section" of *MONOCULUS*, but somehow they did not seem to fit the category.

Kurt: Sorry for not having realized that you were jumping. But, look, you are alone. Copepodologists shun the water.

Frank: I sympathize with your problems in starting that section. Many individuals may feel apprehensive outlining ongoing research projects in a public forum. Some may be concerned that their ideas will be preempted by the casual reader. Others may be reticent to outline an hypothesis that they themselves might eventually have to reject in print. These are both natural reactions. I do strongly support your idea of developing a "Current Research Section". Let me suggest that you write the initial article for the section.

Geoff: What is needed is action from 'us' the readers, accordingly I enclose a brief report on my current research.

Kurt: Thank you Geoff for coming to my rescue! My role as Vice-president of Oldenburg University doesn't leave me much time for research at present. All I can say is that I am carrying on with my monograph on the Parastenocarididae (Harpacticoida) and that I shall give it the finishing touches next year when I am rid of my extra administrative commitments. Would you please jump now, Geoff.

Here is Geoff's report: I am close to finishing a comparative study of the musculature of the mormonilloid Mormonilla and a

calanoid Euaugaptilus. Mormonilla is a passive filter feeder with an enormous filter basket. Its cephalic appendages have quite simple musculature, with only a few powerful muscles controlling the broad sweeping movements of the filtering appendages. Euaugaptilus is predatory and has a large number of muscles to each appendage giving relatively fine control over more manipulative movements than in Mormonilla. I have also examined some of the other organ systems in Mormonilla as this group is poorly known. I also hope to complete a comparison of the musculature of the oral siphon in several siphonostomes in time for the Ottawa meeting. I am using the large free swimming Hyalopontius as my basis for comparison with a caligid (Lepeophtheirus) and with a new deep sea species which has a long siphon that it is able to coil up like the proboscis of a butterfly (Lepidopteran).

The l e t t e r b o x

G. Merinfeld from Halifax writes: *I enclose a short article on nomenclature and bibliography problems in copepod research.... I am a protozoologist, not a copepod specialist (although I have occasionally worked with copepods). During the last months, I happened to have some contacts with Dr. Claude Razouls (Banyuls), about a large Bibliography of the Marine Planktonic Copepods of the World, which he is preparing, and I was horrified to find that copepod taxonomic nomenclature is beset by many problems which could be spotted at a glance when going through Dr. Razouls' very detailed lists of species names.... Contrary to most people, I believe that, unfortunately, accurate nomenclature is a necessity because of the future irruption, in taxonomic work, of taxonomic computers that will execute much of our taxonomic work in an extremely "bureaucratic" and "pedantic" manner, as computers always do..... I have no time to study further copepod nomenclature, but I wanted to alert as many copepod taxonomists as possible, about these problems.*



COPEPOD TAXONOMY, THE INTERNATIONAL CODE OF ZOOLOGICAL NOMENCLATURE, AND BIBLIOGRAPHIC WORK

E. Georges Merinfeld - Dept. of Oceanography - Dalhousie University - Halifax, N.S., Canada B3H 4J1

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I am a protozoologist but I have occasionally worked on copepods. I am also a nomenclaturist and I have given nomenclatural advice to specialists in various animal groups, including copepods. Everywhere I have met with a disastrous situation. (A) Most animal biologists haven't heard of the existence of the International Code of Zoological Nomenclature. (B) Most animal taxonomists have heard of the existence of the Code, but have no idea of its real contents and don't realize they need to learn it. They often mistakenly believe that the Code "only says" that species are designated by binomens and subspecies by trinomens: this rule is only part of one of the 87 articles of the Code. (C) Some animal taxonomists have a more or less vague idea of the contents of some articles of the Code; they sometimes publish erroneous nomenclatural discussions and opinions (often quoting the Code) which seem to be authoritative to uninformed readers; in fact, such taxonomists are unaware of the exact and complex contents of the Code. (D) Very few taxonomists have a decent knowledge of the Code, and even then sometimes forget to apply it, or apply it in conjunction with incomplete bibliographic data, and this leads them to mistakes.

Usually, we human specialists all know what taxa we are talking about, even when we give them illegal names, because our brain can analyse the context of what we are reading or writing. But in the near future, TAXONOMIC COMPUTERS shall help us with the filing, storage, processing and retrieval of all kinds of biological data that are filed under those labels we call "taxonomic names". The International Code of Zoological Nomenclature shall be part of the program of those computers. Contrary to us, computers cannot analyse the complex semantic context of our written taxonomic statements (they shall perhaps be able to do so in the future, but only at great cost and with probably unavoidable errors). It is up to us, human taxonomists, to adapt our hitherto fuzzy, often illegal taxonomic language to the limited, "bureaucratic", Code-programmed "intellect" of those future taxonomic computers. Sure enough, the non-taxonomic copepod biologist (ecologist, histologist, physiologist, etc.) should not be forced to learn the Code (although he/she should know that a Code exists and must be obeyed). It is up to the taxonomist to respect the Code in his/her publications, and so to help efficiently his/her non-taxonomist colleagues with nomenclatural problems.

Widespread ignorance of the Code among taxonomists is due to (1) the scandalous silence maintained on it in the Universities of the entire world, even in their advanced courses in systematic zoology; (2) the lack of training programs, of technical handbooks and of technical computer programs (with the description of efficient methods for day-to-day nomenclatural work; so far, these methods have not been available in print and are known on-

ly to a few specialists). Jeffrey's little book "Biological Nomenclature" (1973, 1977), in spite of its merits, is too short to fulfil the function of a technical handbook. A decent course in taxonomic nomenclature, with practical training, can be given in 15 to 25 hours (plus homework) if a good handbook or syllabus can be prepared.

On the basis of a fast scanning of some secondary literature sources (a major potential pitfall since, in nomenclature, only the original works count), I offer the following minuscule sample of the nomenclatural problems that seem to beset the recent literature on marine planktonic copepods. I suspect that most of these problems will be confirmed by those who shall check the relevant original literature, most of which is unavailable to me. Note that, in Code jargon, "invalid" means "illegally used".

- (a) Andronov (1974), in his classification of the "Calanoidea", gave invalid names to several superfamilies, by violating the Law of Priority. Bowman & Abele (1982, in Bliss, ed., "The Biology of Crustacea", vol.1) reproduced Andronov's errors and added more mistakes of that kind: as a result they gave invalid names to 8 copepod superfamilies: Augaptiloidea, Centropagoidea, Megacalanoidea, Cervinioidea, Tachidioidea, Tisboidea, Ameiroidea, Thalestroidea. For instance, their "Superfamily Centropagoidea Giesbrecht 1892" should be called "Diaptomoidea Baird 1850".
- (b) The Law of Priority requires using the superfamily names Calanoidea and Harpacticoidea, which can be confused with the names Calanoida and Harpacticoida of two much wider "Sarsian" orders. The valid superfamily names Calanoidea and Harpacticoidea must be maintained because they are covered by the Code, while the names of taxa above superfamily rank, which are not submitted to the Code, should better never be based on genus names, in order to avoid the kind of confusion mentioned above. What was wrong with the name Gymnoplea instead of the confusing "Calanoida"? The name "Calanoida" means a high-rank taxon which, whatever its characters, is in practice (albeit not legally) "typified" by Calanus; there is a potential infinity of such taxa "Calanoida", of which the "traditional" taxon Calanoida as circumscribed by Sars is but one example.
- (c) The name australis Brodsky 1959, first proposed in the combination Calanus australis, is invalid within genus Calanus, at the species or subspecies rank, for anyone who admits (like most specialists) that the nominal species Cetochilus australis Roussel de Vauzème 1834 should be placed inside Calanus (secondary homonymy).
- (d) The name pacificus Brodsky 1959, first proposed in the combination Calanus australis var. pacificus, is invalid forever, for all users, at the species or subspecies rank (even if transferred to another genus), as primary homonym of the name pacificus Brodsky 1948, first proposed in the combination Calanus pacificus.
- (e) The copepod genus name Phyllopus Brady 1883 and its derived family name Phyllopodidae Brodsky 1950 (often spelled Phyllopidae) are both invalid forever, because Phyllopus Brady 1883 is a junior homonym of Phyllopus Rafinesque 1815,

- a phyllopod genus name suppressed by the International Commission of Zoological Nomenclature (1958, Opinion 502) for the purposes of the Law of Priority but not for those of the Law of Homonymy.
- (f) "Pareuchaeta" is a frequent invalid misspelling of the correct original spelling Paraeuchaeta A. Scott 1909.
  - (g) If one believes the nomenclatural history of Calanus given by Marshall & Orr in their book "The Biology of a Marine Copepod" (1955), the genus name Temora would be a junior objective synonym of Calanus and thus should not be used for any genus, unless a suspension of the Code rules is obtained, for the name Temora, from the International Commission of Zoological Nomenclature. Someone should check the relevant literature and, if my impression is confirmed, should request such an intervention of the Commission.
  - (h) The genus name Ryocalanus Tanaka 1956 is illegally misspelled Riocalanus by some (e.g. Andronov, 1974). Furthermore, Andronov (1974) misspelled the relevant family name as Riocalanidae when he created it (thus violating art. 29 of the Code). "Riocalanidae" is an incorrect original spelling (art. 32c) and must be replaced by "Ryocalanidae Andronov 1974".
  - (i) There is much confusion about the exact publication dates (hence, sometimes, about the priority and validity) of many names created by Sars in "An Account of the Crustacea of Norway". The title-page of each volume of this work does not always indicate the correct publication dates of the various fascicles of this volume, which were published separately and successively, each with individual paper covers bearing the correct date. Many libraries discarded those covers when binding the fascicles into volumes.

The official version of the International Code of Zoological Nomenclature that is valid today, consists of two, fully bilingual parts (English / French);

(1) the full 2nd edition of the Code (1964) (a first edition, of 1961, is no longer valid): STOLL, N.R., et al., 1964, "International Code of Zoological Nomenclature adopted by the XV International Congress of Zoology. Second Edition." - London: International Trust for Zoological Nomenclature; xix + 175 pp.

(2) amendments to that 2nd edition, enacted in 1972, and published in Bull. zool. Nomencl., 1974, 31(2):77-89, and 1975, 32(2):65.

The Code's 2nd edition (1964) and a separate fascicle with the 1972 amendments can be purchased from the International Trust for Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London SW7 5BD.

There are non-official translations of those texts in several languages. When using them, make sure they refer to the 1964 and/or 1972 texts listed above, not to the now invalid 1961 original first edition. I can give exact references only for the German translations:

(1) 1964 Code: "Internationale Regeln für die zoologische Nomenklatur, 2. Auflage", 1970, Senckenberg-Buch Nr. 51.

(2) 1972 amendments: translated by O. Kraus, 1973, Senckenbergiana Biol., 54:219-225.

A 3rd Edition of the Code (official English / French text), with some changes relative to the 1964/1972 texts, should be published at the end of 1983 by the International Trust for Zoological Nomenclature (see address above).

The problem I mentioned with the fascicles of Sars' "Crustacea of Norway" brings me to a general remark: a good nomenclaturist, and in general a good taxonomist, must be an experienced bibliographer. A growing number of taxonomists, at least of the "applied" variety (not to speak of other biologists) are tragically untrained in modern, efficient bibliographic methods. Retrieving the literature by scanning some "holy journals", scanning the bibliography of some papers, and through "grapevine rumors", is a method which, although still useful, dates from before the 19th century and is inefficient. Scanning bibliographic publications such as the Zoological Record, Biological Abstracts, etc., is a better method, dating from the 19th century. Today, efficient bibliographic retrieval is done through computerized searching. The increasing inexperience and helplessness of too many scientists in bibliographic techniques inflicts on them such serious losses of ideas, time and funds that programs towards advanced degrees should include an examination on bibliographic competence, with, if needed, training courses for that purpose. Help is available from specialized librarians and documentalists, but no one can replace a scientist as his/her own most efficient bibliographer if he/she is well trained. A decent course in modern bibliographic techniques, with exercises, can be given in 15 hours or less.

I shall be unable to answer most requests for help with copepod nomenclature. Competent nomenclatural advice requires (1) familiarity with the Code and the nomenclatural working methods; (2) familiarity with the bibliography and literature of the relevant taxonomic group. For the copepods, I don't fulfil the second requirement. Let copepod taxonomists do the job.

I thank Drs. C. Razouls and Th.E. Bowman for correspondence on copepod nomenclature. No personal offence was meant in this note.

COPEPOD TAXONOMISTS, CLEAN YOUR NOMENCLATURAL MESS !!!

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R.V. Melville, Secretary of the International Commission on Zoological Nomenclature, contacted us with the following suggestion: *May I ask whether we can publicise applications concerning Copepods through MONOCULUS? Normally this would mean our sending you a bare announcement of the fact that an application had been received for the conservation of such and such a name, or for the designation of a type species for such and such a genus. We could also send notices of the publication of Opinions in which rulings had been given on Copepod names. This would make it easier for copepod workers to send their comments to the Commission.*

*As a first step I enclose brief summaries of three Copepod cases pending before the Commission. We should not normally have time to go into so much detail, but on this occasion I think it is right to find the time.*

#### NOMENCLATURAL PROBLEMS IN COPEPODA

The following problems have been brought to the attention of the International Commission on Zoological Nomenclature and have not yet been voted on by the Commission. Advice or comment on them would be welcome. Correspondents should cite the file number given for each case and write to R.V. Melville, International Commission on Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London SW7 5BD, UK.

##### S.836. Penella Oken and Clavella Oken

Since Oken's Lehrbuch der Naturgeschichte was found to be not consistently binominal, the Commission rejected it. In consequence, the names in that work are not available. It is, however, open to anyone to ask that the Commission use its plenary powers to re-establish an Oken name. This has been done for Penella and Clavella; and it has been suggested that Pennatula sagitta Linnaeus, 1758 be accepted as type species of Penella and Lernaea uncinata O.F. Müller, 1776 as type species of Clavella. Is there any opposition to these proposals?

##### S. 1517. Dactylopusia Norman, 1903

See Bull.zool.Nom. vol. 40, pp. 56-57. Professor Verwoort and Professor Holthuis point out that Norman, in designating Cyclops stroemii Baird, 1837 as type species of Dactylopusia, misidentified the species. He was thinking of the thalestrid (or rather the mixture of thalestrids) that had been before Claus in 1863, not the laophontid, type species of Heterolaophonte, named by Baird. The object of the application is to get a thalestrid species designated as type of Dactylopusia as otherwise that name will have to be transferred to the Laophontidae. Of the two species discussed, D. vulgaris is probably a composite; D. tribooides Claus, 1863 is therefore proposed. Is there any comment on this proposal?

S.2242. Calamoecia australica Sars and C. australis (Searle).

In order to remove the obvious that confusion arising from having two such similar names applied to species in the same genus, Dr. I.A.E. Bayly proposes that Searle's name be suppressed and that Brunella expansa Sars be adopted in its place (see Bull.zool.Nom. vol. 37, pp. 165-166). Are there any comments on this proposal?

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M. Omori from Tokyo makes the following announcement:

*I am enclosing a copy of my report on marine planktology in the People's Republic of China (see below list of current literature: OMORI 1982) which contains a bibliography on the relevant subjects in China from 1961 to 1981. I hope that it will be useful for copepodologists who are interested in the area. Dr. Chen Chung et al's Marine Planktonic Copepods from China II has been published in 1982 from Shanghai Scientific and Technical Publishing House (162 pp.).*

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C.-t. Shih from Ottawa sends a "Survey of Invertebrate Zoologists in Canada - 1982" (see below list of current literature: SHIH & LAUBITZ 1983) and remarks:

*Syllogeus No. 42 is not a copepodological reference but it does provide some information on Canadian activities on copepod research.*

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S.O.S....S.O.S....S.O.S....S.O.S....S.O.S....S.O.S....S.O.S....

E. Michele Trinast, P.O. Box 4570, University Finance Station, Irvine, California 92716, USA, has the following call for help:

*I am currently preparing a major review essay and annotated bibliography on aspects of the physiological ecology, taxonomy and biogeographical distribution of Acartia (Calanoida: Copepoda). Since this is an independent project (and funds are limited), I would appreciate any relevant offprints, manuscript reports, distributional records, etc. for review. Upon completion of the project, source material will be deposited in a reference library, making it accessible to interested scholars. Details will be announced in MONOCULUS.*

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## Second International Conference on Copepoda

Ottawa, August 13 to 17, 1984

### PROGRAMME OF SYMPOSIA

#### GROWTH, LIFE HISTORY AND CULTURE:

Dr. Robert J. Conover (Bedford Institute of Oceanography, Dartmouth, Canada): Secondary production.

- Dr. Wim C.M. Klein Breteler (Nederlands Instituut voor Onderzoek der Zee, Texel, The Netherlands):  
Growth of *Temora longicornis* (Copepoda: Calanoida) cultured under different conditions of temperature and food.
- Dr. Michael R. Landry (University of Washington, Seattle, USA):  
Fecundity and mortality.
- Dr. Gustav-Adolf Paffenhofer (Skidway Institute of Oceanography, Savannah, USA):  
Life history variables in marine planktonic copepods.
- Dr. C. Heip and Dr. P. Hermen (Museum voor Dierkunde, Gent, Belgium):  
Dynamics and reproduction of harpacticoid copepods.

#### MORPHOLOGY AND ANATOMY:

- Dr. José Bresciani (Den kgl. Veterinaer- og Landbohøjskole, København, Denmark):  
Aspects of morphology and anatomy of the integument.
- Dr. Patricia Dudley (Barnard College, Columbia University, New York, USA):  
Aspects of general body shape and development.
- Dr. Pamela I. Blades-Eckelbarger (Harbour Branch Foundation, Inc., Fort Pierce, USA):  
Aspects of internal anatomy and reproduction.
- Dr. Tagea K.S. Björnberg (Universidade de Sao Paulo, Sao Paulo, Brasil):  
Aspects of the appendages in development.

#### BEHAVIOURAL ECOLOGY:

- Dr. J. Rudi Strickler (Australian Institute of Marine Science, Townsville, Australia):  
Calanoid functional morphology: Ecological and evolutionary consequences of feeding and locomotion in a low Reynold's Number environment.
- Dr. Geoff A. Boxshall (British Museum, London, U.K.):  
Functional morphology of misophrioid feeding and locomotion and its consequences for theories of copepod evolution.
- Dr. Geoffrey Fryer (Freshwater Biological Association, Ambleside, U.K.):  
The role of functional morphology and behavioural ecology in crustacean systematic theories.
- Dr. Brian Marcotte (McGill University, Montréal, Canada):  
Harpacticoid feeding and locomotion: life among the roots and at the tips of evolutionary trees.

BIOGEOGRAPHY OF COPEPODA:

- Dr. John B.J. Wells (Victoria University of Wellington, Wellington, New Zealand):  
Biogeography of marine benthic Copepoda.
- Dr. Abraham Fleminger (Scripps Institution of Oceanography, La Jolla, USA):  
Biogeographic patterns of marine epiplanktonic copepods - past views and present trends.
- Dr. Maureen Lewis (University of Auckland, Auckland, New Zealand):  
Biogeographic trends within the freshwater Canthocamptidae (Harpacticoida).
- Dr. Roger F. Cressey (Smithsonian Institution, Washington, USA):  
Biogeography of bomolochid and taeniacanthid copepods.

PHYLOGENY OF COPEPODA:

- Dr. Geoff A. Boxshall:  
Misophrioida, and Siphonostomatoida
- Dr. Taisoo Park (Texas A & M University, Galveston, USA):  
Monstrilloida.
- Dr. J. A. Stock (Instituut voor Taxonomische Zoölogie, Amsterdam, The Netherlands):  
Poecilostomatoida.
- Dr. Brian Marcotte:  
Harpacticoida.
- (Two speakers on Calanoida and Cyclopoida not confirmed yet.)

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1981

- ALMEIDA PRADO-POR, M.S. & F.D. POR - 1981: First data on the Calanoida (Copepoda) of the northern Gulf of Elat (Red Sea). Rapp.Comm.int.Mer Médit. 27(7): 173-174
- BELLWOOD, D.R. - 1981: Two new species of Cardiodectes Wilson (Copepoda: Siphonostomatoida). Syst.Parasitol. 2: 149-156
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**Directory of Copepodologists:** This bibliography will never be complete if not all living copepodologists are brought to the attention of **MONOCULUS**. We are far from having all living copepodologists on our mailing list. Suggestions of new candidates for this list should be addressed to Gerd Schriever.

**MONOCULUS - Museum:** The Museum is meant to build up a comprehensive collection of copepod species from all parts of the world. The Museum does not want type or paratype material but authenticated (voucher) specimens of as many common (and less common) species as possible. The Museum will act as a base for material which might not be available from other sources. If contributions would be made from all over the world, this collection could serve as a base for phylogenetic, morphological and zoogeographical studies. Tubes and vials containing specimens of only one single species each may be sent properly labelled to Gerd Schriever.

**MONOCULUS - Glossary:** The glossary aims at compiling a comprehensive list of all terms and their exact definitions currently used by copepodologists. Besides the more general terms there are specific ones applicable only to particular groups and stages. Specialists are urged to provide lists with terms (and their definitions) which are in use in their field of research. The lists should be sent to Kurt Schminke.