

# MONOCULUS

copepod Newsletter



Nr. 17

November 1988



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# MONOCULVS

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Copepod Newsletter

Number 17

November 1988

Edited by: H. Kurt Schminke, Fachbereich 7 (Biologie), Universität Oldenburg, Postfach 2503, D-2900 Oldenburg, W. Germany.

Gerd Schriever, Zoologisches Institut, Universität Kiel, Biologiezentrum, Olshausenstr. 40, D-2300 Kiel, W. Germany.

Cover by: A. Salewski, Kiel. Portraits by: Juliusz Chojnacki, Institute of Fisheries, Oceanography and Protection of Sea, Kazimierza Królewicza 4, PL-71-550 Szczecin, Poland.

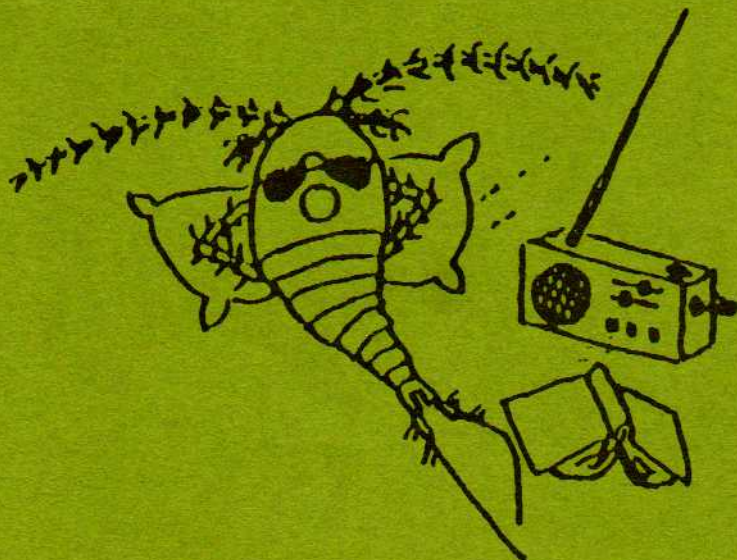
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This issue has been typed by: Angelika Sievers, Fachbereich 7 (Biologie), Universität Oldenburg.

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## E d i t o r i a l

With this issue *MONOCULUS* finally enters the computer age. We don't have the impression that this dramatically changes the lay-out of our newsletter, but it certainly helps Angelika Sievers a great deal whose speed and accuracy in typing the newsletter we have always admired and who now is even faster. A greater change will probably be the sketches that do appear for the first time and we hope will adorn our newsletter continuously from now on. Sorting of samples seems to be good for stimulating Mark Pottek's imagination. We look forward to publishing many more of these funny sketches.

We have a long interview this time with Tom Bowman on the occasion of his 70th birthday. Janet Reid and Frank Ferrari used a wonderful trick. They sent what they called a short version of this interview and also a much longer one. How can you possibly shorten a "short" version when you know all the interesting bits that have already been left out? But the long version will not be lost. In a later letter Janet remarked: *"Of course, we did remove lots of interesting material from the original version, much of which had nothing to do with copepods. We did deposit the unexpurgated version in the Library."* She means the Wilson-Library at the Smithsonian Institution. So if you are interested and happen to pass there, you are in for some entertaining reading.

This long interview is the reason why another one planned for the last issue already has again to be postponed. At the London meeting Kurt had an interesting conversation with Emilia Stella who personifies what adherents to the women's movements (he feels) would call womanly science. Wait and see.

The stream of literature received by the *MONOCULUS*-Library has almost become a trickle. We have no explanation for this. The more we are successful with our computer bibliography, the less it may appear we need support. The opposite would be

correct! Our project has been extended for another two years until the end of 1990. These will definitely be the last two years, and what will not have been achieved by then, will probably never be done. So, in case you haven't done it already, please let Kurt have copies at least of your publications in 1987 and 1988 but also of older ones.

Our next meeting, as you know, will be in Japan. For Europeans this is a long way. To make travelling cheaper we plan to organize a group flight. Those interested in participating should let Kurt know by letter.

This newsletter has profited from the help by G. Boxshall, F. Ferrari, G. Hicks, H. Juhl, T. Minoda, C. Moore, J. Reid, and J. Wells who have used their pencil for writing while J. Chojnacki and M. Pottek have used it for drawing. Many thanks to all of them.

Due to the delay of some contributions the newsletter this time is later than usual. Christmas and New Year are not far. We wish you all the best for both of these occasions or for only one of them, whichever you prefer.

J. K. Minoda

J. Schinner





## THE WORLD ASSOCIATION OF COPEPODOLOGISTS

WAC WAC ..... WAC WAC

### 1. Dues

In *MONOCULUS* 15, November 1987, we asked all members to postpone payment of dues because of an unfavourable exchange rate US \$/DM. We therefore now have outstanding claims amounting to 644 US \$ for 1987 and to 1,085 US \$ for 1988. This has to be corrected as quickly as possible.

The exchange rate has stabilized in the meantime and is acceptable. Our idea with regional treasurers published in *MONOCULUS* 15: 26 has not evoked a single reaction. Therefore the treasurer asks you to pay your outstanding dues into his account in Germany. From the list below you can see how many years you are in arrears. To save bank charges and mailing costs it is suggested that you pay for 1989 too. Dues are still at 7 US \$ (or 13.00 DM) per annum. Europeans may send their personal euro-cheques in German Marks. Americans and Canadians should send their personal cheques, while all the others should use international money orders or bank drafts in US \$ and make them payable to the following account:

No 7233190, Commerzbank Kiel, mark "WAC, c/o Dr. G. Schriefer".

Please note that Gerd has a new address:

Dr. Gerd Schriefer  
Zoologisches Institut  
Biologie-Zentrum  
Universität Kiel  
Olshausenstr. 40  
D-2300 Kiel 1  
F.R. GERMANY

Those who want to pay by postal money order may use the following account:

No 346508-303, Postgiroamt Hannover,  
mark "c/o Dr. H.K. Schminke"

A treasurer's report will be given in the next issue of *MONOCULUS*. Ease your conscience by paying your debts immediately and give the treasurer a chance to come up with a splendid report next time.

## MEMBERS OF THE WORLD ASSOCIATION OF COPEPODOLOGISTS

### Dues not paid including 1987

Arnott, Barnett, Barr, Bayly, Bell, Benz, Boucher, Bowman, Bradford, Burns, Chapman, Chen, Conover, Cordell, Dagg, Damkaer, Das, Dawson, Deets, Diel, Dojiri, Elmgren, Ferrari, Fleeger, Fosshagen, Frost, Fulton, Gannon, Gardner, Gotto, Grainger, Grindley, Hadel, Harding, Heeg, Heip, Heron, Hipeau, Hogans, James, Jonasdottir, Kahan, LeBrasseur, Madhupratap, Marcogliese, Mayzaud, McAlice, McKinnon, Moisan, Morris, Mufinon, Nagasawa, K., Nishida, Noodt, Onbé, Orsi, Öresland, Park, Peterson, Ranga Reddy, Razouls, Rieper-Kirchner, Rippingale, Robertson, Roff, Rouch, Sevigny, Simenstad, Stich, Stock, Suvapepun, Takegami, Tanaka, Taniguchi, Thatcher, Toal, Tseng, Turner, Ueda, Urawa, Uye, Vervoort, Walker, Walter, Wiebe, Wishner, von Vaupel-Klein.

### Dues not paid for 1988

Almeida Por, Alvarez, Arunachalam, Båmstedt, \*Ban, Bhattacharya, Björnberg, T.K.S., Blades-Eckelbarger, Boxshall, Castro-Romero, Chisholm, Chojnacki, Chow-Fraser, Citarelli, Decker, Drzycimski, Fernando, Fontaine, Fryer, Gee, Glatzel, Gophen, Greene, Greenwood, Hahn-Mieth, Hamond, Harding, Harries, Hay, Hoffmeyer, Hulsemann, Ito, Izawa, Kim, Kiørboe, Klein-Breteler, Kohlhage, Landry, Maas, Malta, Meenakshikunjamma, Miquel, \*Moskowitz, Motoda, Nair, O'Reilly, Paffenhöfer, Piasecki, Por, Poulet, \*Roman, Santos-Silva, Schminke, Schultz, Shih, Soler-Torres, Stephen, Tafe, Trinast, Vanderploeg, Varella, Vijverberg, Vilela, Ward, Yoosukh.

### Dues open for 1989

Arcos, \*Baars, Barthel, Beckmann, Bergmans, Böttger-Schnack, Carvalho, Chandran, Cohen, Conway, Corkett, Coull, Crawford-Kellock, Dahms, Daro, Fiers, Gamble, Geddes, Gifford, Gooding, Grau, \*Hattori, Haury, Holmes, Humes, Jones, Kabata, Keim, Kimoto, Koga, Kunz, Kurbjeweit, LeBorgne, Lenz, Lescher-Moutoué, Lewis, Li Song, Lindley, Lonsdale, Marcus, Marin, McLaren, Michel, Mielke, Miller, Monniot, Morioka, Ohtsuka, Purasjoki, Rainville, Rayner, Reid, Revis, Rocha, Roy, Sarvala, Schaber, Schiel-Schnack, Schwenzer, Shirgur, Sieg, Stearns, Stella, Tackx, Tester, Thompson, Tiemann, \*Uhlig, Vuorinen, Wellershaus, Wells, West, Wilkes, Wyngaard.

### Dues already paid for 1989 or waived

Ali-Khan, Björnberg, M.H., Bradley, Brenning, Campaner, Fava, Forro, Gusev, Hart, Hicks, Ho, Holynska, Ilig, \*Ishida, Kikuchi, Kukert, Lakkis, Lazzaretto, Mamaril, Nagasawa, S., Naidenow, Ooishi, Plesa, Schriever, Zeidane.

\* = Candidate member according to WAC by-law, article 1, MONOCULUS 11, Oct. 1985.

## 2. Financial statement for the Third International Conference on Copepoda

Before leaving for a trip to the Canary Islands Geoff Boxshall sent the following note:

*Now that our postal strike is over I can send you the financial statement for the Third International Conference, plus a cheque for £ 422. The latter is a donation from the Conference Committee to the World Association of Copepodologists. I sent the donation to the Japanese Committee back in January so the accounts are now closed. The volume should appear in mid-October after some delays at the printers. I have paid for the free copies for all participants, which will be mailed direct by Junk.*

### THIRD INTERNATIONAL CONFERENCE ON COPEPODA

#### Financial Statement as at 12th September 1988

INCOME		£
Registration fees		10,350
Donation from 2nd Conference		940
Royal Society Grant		1,500
Bank Interest		296
<u>TOTAL INCOME</u>	£	<u>13,086</u>
EXPENDITURE		
Publication of Proceedings		5,460
Speakers' expenses		3,091
Printing/secretarial/postage		1,567
Honorarium for projectionists		400
Accommodation		331
Social functions		415
Coffee-teas		353
Bank charges		47
<u>TOTAL EXPENDITURE</u>	£	<u>11,664</u>
<u>BALANCE</u>	£	<u>1,422</u>
Donation to 4th International Conference	£	1,000
Donation to World Association of Copepodologists	£	422
Dr. G.A. Boxshall, Chairman of Organizing Committee		
Third International Conference on Copepoda		

# BIOLOGY OF COPEPODS

Proceedings of the Third International Conference on Copepoda

edited by

G.A. Boxshall, London, England  
and

H.K. Schminke, Oldenburg, B.R.D.

This volume contains the proceedings of the Third International Conference on Copepoda, held at the British Museum (Natural History) in London during August 1987. Its central theme is the biology of marine planktonic copepods. Three invited symposia focused attention on particular topical areas of research with marine plankton (the biology of *Calanus*, rate processes in field populations, and oceanic and deep-sea copepods), and also provided reviews of chosen aspects of copepod biology. Together with numerous contributed papers and the invited review on copepod luminescence, marine planktonic copepods occupy about half the book. The other half reflects the extremely varied life styles of copepods, containing contributions on freshwater, benthic, cave-dwelling, meiofaunal and parasitic copepods. The volume provides a unique, up-to-date picture of copepod biology and will be of great value to all those interested in aquatic communities.

## SECTIONS

Rate Processes in Field Populations of Planktonic Copepods.

The Taxonomy and Biology of *Calanus*.

Oceanic and Deep-Sea Copepods.

Marine Plankton.

Freshwater Copepods.

Harpacticoid Copepods.

Parasitic and Associated Copepods.

1988, Hardbound, 656 pp.

ISBN 90-6193-654-3



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B I R T H D A Y

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Sigeru Motoda

Sigeru Motoda



The 80th birthday of Dr. Sigeru Motoda was celebrated by his students and colleagues at the alumni house of Hokkaido University in Tokyo on April 6, 1988. Motoda's name is well known not only to the members of *MONOCULUS* but also to marine ecologists in the world. He is a person who loves travelling around the world taking a sketchbook and a snap-shot camera in

hand. On 19 July he came back home via Thailand, Singapore, and Taipei of Formosa, after attending the Third International Symposium on Marine Biogeography & Evolution in the Pacific at University of Hong Kong from 26 June to 3 July, organized by the Western Society of Naturalists.

He was born in Tokyo in 1908, and he has loved the sea and ships since his childhood. He first chose to be a seaman, however, his desire failed on account of an illness. Instead, he decided to enter the Hokkaido Imperial University at Sapporo. He graduated from the Institute of Zoology, Faculty of Agriculture of Hokkaido Imperial University in 1933. His interest in marine biology was opened by the lecture of Professor C.A. Kofoed, University of California, in summer school at the Asamushi Marine Laboratory of Tohoku University in 1932. Though he began to study the taxonomy of Copepoda, his scientific interest gradually shifted to ecology after he graduated from Hokkaido Imperial University. In 1935 he became a research fellow of the Association for the Promotion of Sciences of Japan. He studied the ecology of corals and plankton productivity in coral reefs for two years at Palau Tropical Biological Station at Koror I, Western Caroline Is. However, his study of marine ecology was stopped by the Second World War, and, moreover, he was called up for Navy Service as a sailor shortly before the end of the War. He served on shore duty in the Navy for four months. After he returned to the Hokkaido Imperial University, his scientific activity, under very adverse circumstances, focused on limnological research in Hokkaido. He started to study the vertical distribution of zooplankton in lakes. His research work was developed using his hand-made tools and a box-shaped takedown boat. He was awarded the degree of Doctor of Agriculture of Hokkaido University for his thesis "Observations on diurnal migration of plankton crustaceans in lakes Shikotsu, Hokkaido, and Tsugarujuni, Aomori, and some experiments on photo- and geotropism" in 1948. In 1946 he was promoted to the position of Professor at the Faculty of Agriculture, Hokkaido Imperial University. When the Faculty of Fisheries at Hakodate was

established at Hokkaido University (formerly Hokkaido Imperial University) in 1949, he was appointed as Professor of Planktology in the new Faculty. He took to the research work of marine biology like a fish to water. He joined several cruises of the training ship "Oshoro Maru" from the Bering Sea and the Gulf of Alaska to the Indian Ocean and the Great Australian Bight, and supervised study of plankton ecology and productivity.

Throughout his work in the Faculty of Fisheries, his oceanographic career and his personality fascinated his young students and colleagues. From his long experience at sea, he designed plankton sampling gear, which is simple and convenient. His MTD net system that was designed in 1969 is ideal for simultaneous horizontal tows. He used insipid business meetings and monotonous times in his stateroom in a creative manner by letting his scientific imagination wander freely about. Most of his original ideas are the fruits of such hours.

He published more than 200 scientific papers, of which the one on "Corycaeus and Farranula (Copepoda, Cyclopoida) in Hawaiian waters" resulted from his staying at the University of Hawaii.

Dr. Motoda has a respected international reputation as a leading planktologist. He was one of the lecturers in the International Training Course in Marine Biology sponsored by UNESCO at Nhatrang, South Vietnam in 1958. He has served as a member of the planning committees for several international oceanographic projects; NORPAC expedition (1955), IIOE (1959-1964), CSK (1965-1967) etc.

In 1952 Dr. Motoda and his colleagues founded the Plankton Society of Japan to bring together Japanese planktologists of various institutions. In 1969 the Society reorganized as a formal scientific society, and elected him its first president. The society has grown to nearly 800 members including 70 foreign members. Dr. Motoda is a honorary member of the Society, and attends the annual meeting every year.

Hokkaido University elected him Professor Emeritus in 1971. On retiring from Hokkaido University he was appointed Professor at Tokai University, and also the Director of the Regional Marine Biological Center of Tokai University.

He was awarded the Oceanographical Society of Japan Prize for 1972 for his contribution to the advancement of marine biology. In 1979 he was decorated with the Third Order of Merit with the Middle Cordon of the Rising Sun in recognition of his contribution to education by the Japanese Government. In August 1987 he was awarded the Shinkishi Hatai Medal for distinguished service to marine biology of the Pacific by the Pacific Science Association.

We hope he will continue his scientific activities and continue to enjoy his life.

Takashi Minoda  
Hokkaido University  
Hakodate, Japan

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B I R T H D A Y

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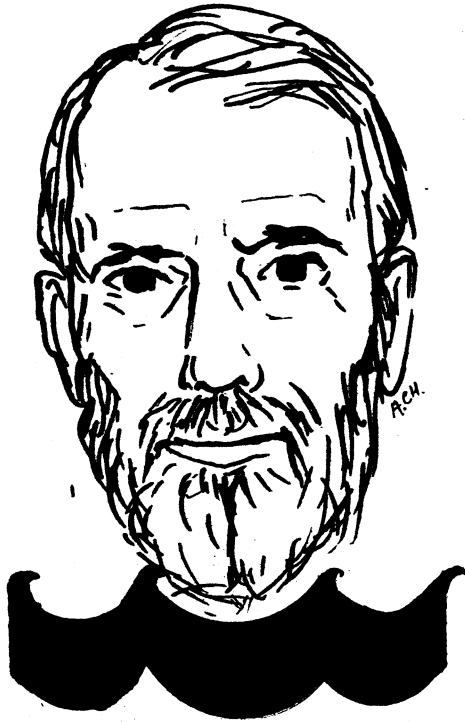
Thomas E. Bowman

Thomas E. Bowman

#### Interviewing copepodologists

Q - As an undergraduate at Harvard you were interested in color changes, in color patterns?

T - Yes, [for my senior thesis] I worked under John Welsh there, who was Ralph Smith's mentor at Harvard. It was to study the development of chromatophores in a crayfish, Procambarus clarkei. He had a lot of very small ones and the project was to keep some of these on a black background in an aquarium and some on a white background in a darkroom, and then at intervals I would take them out and count the numbers of red and white chromatophores on the telson. So I would come



up there and get the crayfish out and immobilize them by putting them on an ice cube under the dissecting scope and then count the chromatophores and put them back in the tank. And I did this for more than a year, I guess. And wrote it up and then Dr. Welsh says, you've got some interesting results here, why don't you publish it? So I did, wrote it up and it was published by the American Naturalist.

Q - And that was your first publication. When you went to Berkeley what was your thesis project in Berkeley?

T - I was still interested in the chromatophore work and so Ralph Smith said, why don't you find a crab that you can fool around with the color changes? So as it happened there was a

grapsoid crab in the San Francisco Bay that lived in the muddy parts of it, under stones and so on, easy to collect, so I worked on color changes in Hemigrapsus oregonensis for my master's thesis.

Q - This is after you had graduated from Harvard. [1941]

T - And spent four and a half years in the army. [1941-45]

One summer I went down to Pacific Groves to the Stanford station where Berkeley held a summer course, and my [course] project was on how two species of Orchestoidea partitioned the stretch of beach between them. Later at Scripps when Martin Johnson asked what I was interested in, and I told him amphipods, he said, fine, why don't you do the CalCOFI amphipods for your thesis. So I did. My thesis was on the hyperiid amphipods of the west coast, really, the ClCOFI cruises; but in addition to that there were a number of other cruises that Scripps had made. [Eventually] I decided I was going to work on [only] five of the families and then I went in and told Dr. Johnson I was going to have to cut down the scope of my dissertation. He was startled and not too pleased to hear this, but I convinced him that I had to, and cut the thesis back to only about 450 pages.

Q - When did you start studying copepods?

T - When I went to Scripps to work on the California sardine project under Martin Johnson, he wanted me to count and identify the copepods that they were collecting in the CalCOFI Expedition.

Q - How did you identify the copepods?

T - Well, I had Wilson's Copepods of the Woods Hole Region, and papers of Esterly, mostly on California calanoids, and Rose's Faune de France, which is probably the best for a beginner. I guess we had Giesbrecht too, so those were the main things I used in the beginning.

Well, when I was about finished at Scripps, Martin Johnson got a letter from Charlie Fish at the Narragansett Marine Lab in Rhode Island, looking for a marine biologist. So off Mary Jo and I went, back to Rhode Island, in December of 1953.

I worked on such things as scallops and plankton of some of the salt ponds along the southern coast of Rhode Island; Charleston Pond and Green Pond; but I had only been there about six months when a job opened up at the Smithsonian, and Fenner Chace asked me if I was interested. I was, although I was happy in Rhode Island and wasn't enthusiastic about moving again so soon. Anyway, I took it, and came to the Smithsonian in August of 1954, so I was at Rhode Island for about six months, or a little more.

Q - Did you know what your responsibilities would be when you came down?

T - Fenner told me that he was looking for someone to work on copepods. They had Paul Illg some years ago, but he left to go to the University of Washington. Fenner didn't want me to work on amphipods because Clarence Shoemaker was still there, but retired, still coming in to work almost every day, still publishing very nice papers on amphipods. So I got to work and the first thing I did was to write up my work [at Scripps] on Calanus lighti. I knew very little about putting together a taxonomic paper, but with Fenner's help I did manage and sent it off to Pacific Science, which accepted it.

This Calanus lighti is a sort of elongate tenuicornis and has almost no differences except the body shape and pigmentation of the [first] antenna which I was lucky enough to see in fresh specimens. After identifying tenuicornis for a while, I began to see that there were two different things there, and one of them had to be new. C. lighti is mostly more southern and offshore, and tenuicornis goes all the way as far as the CalCOFI sampled, which was roughly the Canadian border.

I brought the material with me when I left Scripps, I stole some of their material. I stole a bunch of their amphipods, and the ones that I'd worked on, and also the Calanus lighti material that I'd done; so that came with me to the museum and is there now.

While at Rhode Island, Charlie Fish had sent me on a cruise on the Theodore N. Gill, which was a Fish & Wildlife vessel operating out of Brunswick, Georgia. When I got to the



museum and was looking for a project to do, I thought it would be interesting to work up those copepods, which nobody had done. So I wrote to Bill Anderson, who was the head of the project and head of the lab down in Brunswick, and asked him if he would let me work those up. He sent me aliquots of samples from four cruises, in different seasons, each with about 120 stations in each cruise, from Cape Hatteras down to the middle of Florida, and I got to work counting and identifying copepods in the Gill material. We have aliquots of 1/10 of the samples from all the Gill cruises in our collections. So that's a very useful collection to have.

Q - So after you finished the Gill material, did you continue to work with copepods?

T - Yes, but not exclusively. I started getting interested in isopods also, as a result of sorting some collections made in some of the rivers emptying into the Atlantic from North Carolina down to Georgia.

Q - You had spent a great deal of time building up information about amphipods, and you knew a lot about copepods; why did you all of a sudden decide that you would start learning about isopods?

T - I don't know; they intrigued me; and I didn't want to have too narrow a view on the Crustacea. You see, the Division then was known as the Division of Marine Invertebrates; Fenner and I were the only crustacean curators. Fenner handled the decapods, and I had to deal with all the other kinds of crustaceans, everything from ostracods on up. And we would get stuff sent in with a request that it be identified. That may sound like an easy job - you just pack it up and send it out to somebody to identify it - but there aren't all that many specialists - taxonomists - who had the competence and also the time and willingness to do that for us. So it turned out that it was almost as easy to identify it myself, even though I was kind of a neophyte in the group, than to write around and find someone and pack it up, make an invoice and all the work that goes into that. So I kind of got into isopods. I had actually done some work on isopods when I was at Scripps.

Somebody there got a big collection of a little fish from the Pacific coast of Central America, and the majority of them had a cymothoid isopod, the female in the mouth and the male in the gills, so I removed these, before I ate the fish - well, we ate what we could then -

Q - At what rate were you getting material in? Was it comparable to what comes in today?

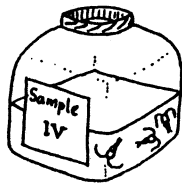
T - Pretty much, yeah; and at the time, providing identifications had priority over research; so for a period I didn't get too much research done, because I was so swamped with identification work. [There is] a request every two or three weeks, I would say; some of them fairly small, others involving quite a bit of work.



Q - By quite a bit of work, you mean a major collection.

T - Well, I'm doing one now; the Fish & Game people up in Alaska have a collection of diaptomids from a series of different lakes; I think about 30 or 40 samples. I got it in October and I'm just working on it now; I've had other obligations that I just couldn't put aside, and so I've got about a third of it done now.

Q - You're taking on diaptomids of Alaska. Why did you decide to do that? Just because somebody asked?



T - Well, yeah; because this fellow John Edmundson had sent me some in other years, smaller collections than I got this year; and I had done them for him; one reason - who else would do it? There's no one actively working on diaptomids in the United States, really, and also I'm interested in them. They are a group I've worked on some, published two or three

papers, so even though I'm not going to get a research paper out of it, why every now and then, you do a project like that, you run across an interesting little project that will end up in a publication. For instance, I've found only two species in this collection so far, Diaptomus pribilofensis and Diaptomus franciscanus. Although they are not too difficult to run down in Mildred Wilson's key in the Ward & Whipple volume, it's surprising how incompletely they are known. For instance, I have been unable to find a figure or a description of the female fifth leg of pribilofensis, although it's quite distinctive.

Q - Do you know how many copepod papers you've written?

T - Oh dear, I don't know; I've written, counting papers in press, about 135, and let's see, what percent of those are copepods, I think 30 or 40, somewhere near; I can look it up.  
[36]

Q - How did the work on Pseudocyclops start?

T - Robert Coker, [retired] from the University of North Carolina was doing some work in Puerto Rico with Juan Gonzalez on the plankton in the Phosphorescent Bay, Bahia Fosforescente, and adjacent bays, and he asked me if I would come to Puerto Rico for a week or two and help them with the copepod work ... I stayed down at the marine lab in Mayaguez part of the time and there I discovered the Pseudocyclops which had turned up in the samples but just an occasional specimen, very few, and I didn't think the plankton could be its real habitat because there would [have been] more of them. And so I thought it probably lived near the bottom, it's sort of benthic part of the time. So when I was down at the lab I had a plankton net and I swam through a turtle grass bed, dragging a net behind me, and I got hundreds of Pseudocyclops.

This was in the daytime, just a few feet deep, actually in a canal between the island and the mainland. So I got living specimens and watched them under the scope, and you could see that they weren't really pelagic. They were swimming around, using the second antenna and I guess the maxilla, just like any ordinary calanoid, but they were swimming in the little

spaces in the turtle grass, between the branches of the turtle grass and the epiphytic algae that was growing on them. They weren't grazing on the turtle grass, they were just filtering the water in those confined spaces. Because they were so small, with short antennae and short round body, they could maneuver in those spaces, whereas an ordinary calanoid such as Acartia, very common in the samples, wouldn't have room. So it was sort of a new microhabitat, one that hadn't been noticed before.

Q - Also in that paper, you described what might be called the facies of a copepod that lives close to the bottom; and that definition has proved useful. How did you come to describe that just based on the Pseudocyclops themselves?

T - It was clear that they were probably not very rapid swimmers. They were fitted for maneuvering in little spaces, you know, like certain kinds of birds that [have] small bodies and short wings, and move around in small spaces in the forest. And this would be analogous to that.

Q - So, this was a contribution that you could make through seeing the animals alive; do you think this has been a disadvantage of museum work, that most of the time the animals come to you preserved and having been collected by somebody else?

T - To some extent, yeah; for instance in the Pseudocyclops, there were four species living in this one turtle grass bed. I wouldn't have noticed this right away, probably, in preserved material, because some of the most obvious differences were in the pigment. One of them had a red band of pigment around the thorax, that's the one we named rubrocincta; things like that you don't see in preserved material. Just as the pigmentation is one thing that helped me distinguish Calanus lighti when I had quite fresh material, it was useful in Pseudocyclops, and I'm sure it would be with other copepods if we could find some way of preserving the animals so that the carotenoid pigments don't dissolve. About the only one that you can use is Candacia, which has what I suppose is a melanin, which is resistant to leaching by alcohol.

Q - How about your work on Sphaeronellopsis with Lou Kornicker?

T - Lou's work on [ostracodes] is extremely thorough. He wants to know what every little bit of stuff in the stomach is, and anything on the outside by way of ectoparasites or commensals; so he discovered this copepod in the brood pouch, along with egg sacs; so he brought it in to me. And I found it was an undescribed Sphaeronellopsis, so we described it together. In the course of this, we noticed that the eggs of the copepod occurred in little sacs and the sacs were almost exactly the size of the eggs of the ostracod; and also the female Sphaeronellopsis was also a [size similar to] the egg sac, which had maybe eight or ten [about 15] eggs in it. We know that [in] the ostracod the last appendage is very flexible and long and can reach up in the brood pouch, and we presume that it is used to clean the eggs, to keep them free of fungi and bacteria and so on. And we take it that if the ostracod while reaching up there noticed something that didn't feel like an egg, it would probably get rid of it. So we decided that this matching size and shape of the egg sac, and of the female copepod, to the ostracod egg, was a case of egg mimicry.

Q - What has changed in the many years of your life, in the way you investigate copepods?

T - Um, a tough one. Well, I think now we are inclined to be more splitters that we were back when we started in. We don't allow for so much variation within a species. We realize that in the past we've been lumping several very similar species of copepods into one name. And we're on the lookout for that now more; people are less inclined to lump.

Q - Do you err on the other side now?

T - To the splitters' side? I hope not, but I'm always on the lookout for ... If I have a clue from, say, distribution; if it seems unlikely that this species would occur in these two places, that then leads me to carefully compare the two and look for consistent differences to separate them. But I think I've been doing that right from the beginning. That was the case with Calanus lighti and tenuicornis, which were almost

identical in structure of their appendages and so on. Later on when working on the Gill material, I discovered a species of Paracalanus that would key out to parvus was really two other species, one of which was described as a variety [indicus] by Wolfenden, and another one which was a new species [quasi-modol]. Because parvus occurs in much colder water, it didn't seem reasonable to me that it would occur down below Cape Hatteras, which is a natural faunal dividing line. So just the geographic features led me to what the differences were... The same thing [happened] with the Oithona along this coast, which I named colcarva. It was known as brevicornis, which was originally described in Hong Kong, and it didn't seem reasonable to me that a mainly estuarine form would occur in such widely separated localities. So I managed to get some material from Hong Kong, and [it was] entirely different, so I redescribed the American species and that's the sort of thing, I think, if the distribution seems unreasonable, then you have to follow up closely, and look for differences.

Another case was the Diaptomus in the West Indies that had been called albuquerqueensis. And indeed, if you use Mildred Wilson's key, it would key out to albuquerqueensis very nicely. But it didn't seem like a reasonable distribution to me, and when I actually compared them, there were rather subtle but constant differences between the one in the West Indies that I named nesus, and albuquerqueensis.

Q - From very early in your work, you described structures very thoroughly; how useful is this attention to details?

T - Well, you know if you don't describe a species completely, someone else is going to have to come along and do it, some other time. If it turns out that, say some mouthpart has useful features that have been overlooked; and even if you don't see differences right away, it's best to record everything you can about the copepod, to save other people work. And to make it possible to classify it more effectively later.

Also when I was trying to identify them, it was very frustrating, identifying on the basis of descriptions that were incomplete, and left out characters that you could see on your animal that looked as though they might be potentially useful. And so even though it took a little more time, I thought it was worth it.

Most people do pretty thorough descriptions nowadays; some of the work on harpacticoids, for instance, coming out now, is just exquisite drawings and fine descriptions. I think we've come a long way from the works of C.B. Wilson, for example.

Q - Do you keep track of the number of species of Crustacea that you have named?

T - Well, I can't give you a count at the moment; I'll have to go back over my publications and sum 'em up. [slightly over 100]

Q - How about things that are named after you, do you keep track of that?

T - Well, I have to confess that I do. Something like fifteen or so, I think. [18]

Q - Do you happen to know how many copepods? [5]

T - Well, let's see, the first one was one that Kabata named after me [in 1963], I can't think of the genus, Clavella or something; and I wasn't sure that I should be flattered by this, because the main diagnostic feature of this was that it lacked a genital eminence.

Q - Have you named any species after your family members?

T - Named an isopod genus after Mary Jo.

Q - What's its name?

T - Joryma, which is an anagram of Mary Jo, in the good old Leach tradition. Leach made a number of isopod genera [like Cirolana, Anilocra, Lironica] that are anagrams of Caroline and Carolina, whoever she was; I've never been able to find out.

Q - How did you come to use the term pediger?

T - Judge Gooding had coined the term pedigerous somite, I think, to designate one of the leg-bearing segments, or somites, of the thorax, and that seemed to me a pretty clear



term, but rather cumbersome, and it would be nice to have a short term that meant the same thing, and I was editing a polychaete paper for the Proceedings of the Biological Society of Washington, and I noticed they used the term setiger, meaning seta-bearing segment, and I thought, it occurred to me, oh, if I used a term analogous to that, it would be pediger, and I introduced that in my paper on, what was it, the little thing from the cave in Cuba, Miostephos. So I started using that and I explained it in a footnote in that paper, and since then a lot of American copepodologists have adopted it, but the Europeans have been slow to follow, though I can't imagine why.

Q - Sure you can. Take a stab at it!

T - Well, they probably regard it as an American barbarism.



Q - Do you think you have benefited from a broad exposure [to different groups of Crustacea ], have written papers that you normally wouldn't have thought about?

T - Yes, through the work on different groups, it finally struck me that everything that was being called a telson was not the same thing, so I started playing around with this:

That there are two things being called a telson: one which is an ordinary body segment, or somite, which is the last segment of the body, with

a terminal anus, and the other thing that is being called a telson, in amphipods, is a sort of flap that [comes] off this body segment, and with the anus ending at its base. I couldn't for the life of me see that these were the same thing, although the definition of telson that had been accepted over the years would include both of them. But having been exposed to a variety of different kinds of Crustacea, I think that's what led me to write my controversial paper on the crustacean telson.

ABRAHAM FLEMINGER

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communicated by Frank Ferrari

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### PRELIMINARY CONFERENCE NOTIFICATION

#### INTERNATIONAL CONFERENCE ON CRUSTACEA:

BIOLOGY, BIOGEOGRAPHY & ECONOMICS OF CRUSTACEANS  
UNIVERSITY OF QUEENSLAND, BRISBANE, AUSTRALIA - JULY 1990

This conference will cover a comprehensive range of topics pertaining to crustacean biology and biogeography, including a section on commercial aspects/potential. Persons wishing to obtain further information or offering suggestions for symposia are invited to write to Dr. D. Fielder, Zoology Department, University of Queensland, St. Lucia, Australia 4067.

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## FIFTH DEEP SEA BIOLOGY SYMPOSIUM

The "Fifth Deep Sea Biology Symposium" was held at the "Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)" at Brest, France, from Sunday 26th June until Friday 1st July 1988. This triannual meeting was attended by about 170 scientists and students from countries all over the world. There were 90 oral and 40 poster presentations.

Sessions were devoted to the following topics: biogeography; evolution; structure and distribution of deep sea assemblages; biology and ecophysiology; chemosynthetically based ecosystems (hot vents and cold seeps); benthic fluxes, processes and food-webs.

Like on earlier deep sea conferences there were only very few papers and posters dealing primarily with copepods: BECKMANN, W.: Investigation of the abyssal near bottom zooplankton community in the BIOTRANS area, eastern North Atlantic Ocean; THISTLE, D. & J.E. ECKMANN: Response of harpacticoid copepods to habitat structure in the deep sea. One poster was displayed by WISHNER, K., M. GOWING & C. ASHJAN: New methods for deep sea near bottom zooplankton feeding studies. In further 8 oral and 2 poster presentations copepods were mentioned in connection with ecological studies, but rarely had they been determined to species level, in some cases at least to genus level.

One of the results of the workshop "Impact assessment studies in mining the deep sea bed" was unanimity in the fact that there is an urgent need for taxonomists with expertise in harpacticoid and probably calanoid copepods. That only four participants were copepodologists underlines this necessity. There definitely is a lack of people working on the copepods of one of the largest biota in the world.

G.S.



## CATALOGUE DES NOUVEAUX COPEPODES HARPACTICOIDES MARINS

A new edition of my "Catalogue des nouveaux Copépodes Harpacticoides marins" is now in press at the University offset printing. It will issue probably by the end of October 1988, just for the 40th anniversary of LANG's monography.

On 288 pages it contains a complete review and updating of the previous edition (1979) with addition of around 390 new names found in 180 papers. In 1979 I had the possibility to send free copies, but unfortunately it is no more possible and I have to sell each copy at 120 FF (postage and handling included), i.e. 20 US \$ or 12 £ . I recently met D. THISTLE and G. SCHRIEVER in Brest and they suggested to centralize orders in each country to prevent too much fees in sending money to France. So I think the best we can do, as far as possible, is to choose somebody who will be able to collect orders in each country and to send me rapidly the list of addresses to attend to.

For the future, I would ask everybody working on harpacticoid copepods to send me reprints of their publications with systematic points as soon as they appear to update this catalogue from time to time.

Ph. Bodin, Université de Bretagne Occidentale,  
Laboratoire d'Océanographie Biologique, 6, Avenue Le Gorgeu,  
F-29287 Brest Cedex, France

### The letter box

Although the problem raised in this letter seems to have found a solution, the letter by B. DUSSART (Le Bugue, France) is published as a document of an attitude which is not restricted to Dussart's country:

Je vous écris pour vous transmettre copie d'une lettre arrivée en réponse à une demande de subvention destinée à permettre la publication du tome 3 (Harpacticoides) du Répertoire mondial des Copépodes des eaux intérieures.

Comme vous le lirez, cette réponse est négative (D. Defaye et moi-même demandions 70.000 FF). Compte-tenu de l'intérêt que les Copépodologistes du monde ont manifesté pour les deux premiers volumes (Calanoides et Cyclopoides), je ne peux que regretter la décision prise par un spécialiste de Biologie moléculaire (le directeur du département des Sciences de la Vie au CNRS) qui entend réserver TOUS les crédits du CNRS aux seules recherches qui l'intéressent personnellement.

Le manuscrit est prêt depuis décembre 1986. Il est sur disquette Apricot (3"½) mais peut être transféré aisément sur disquette standard compatible IBM PC. Je ne sais plus que faire pour pouvoir mettre à la disposition de mes collègues du monde entier un texte qui a demandé plusieurs années de travail, de compilation et de révision aux niveaux spécifique et générique. Pouvez-vous me suggérer ou me proposer une solution? De toute manière, il serait intéressant de connaître les réactions des Copépodologistes, via MONOCULUS par exemple, à une telle attitude d'un organisme national qui ne peut être considérée que contraire à l'amélioration de nos connaissances en matière de zoologie des Copépodes.

P.S. Vous savez que, pour les mêmes raisons, D. Defaye a été mutée à Gif dans un laboratoire qui étudie la génétique des Drosophiles: encore un chercheur (et non des moindres!) perdu (?) pour la Copépodologie! Vous savez aussi que je n'ai plus ni laboratoire ni crédits et que je travaille donc désormais qu'en amateur!!! (seul et sans moyens ...)

In MONOCULUS 11: 15 we reported that Friedrich Kiefer has ruled that his scientific legacy be placed in the Landes-sammlungen für Naturkunde, Postfach 3949, D-7500 Karlsruhe, F.R.G.

Dr. U. FRANKE from this Museum gave the following information:

*Sicherlich dürfte Sie interessieren, was mit dem Nachlaß KIEFER geschieht.*

### **1. Sonderdrucksammlung**

*Die Separate sind nach Autoren geordnet und füllen rund 180 Ablagekästen. Das dürften zwischen 7.000 und 10.000 Schriften sein. An dieser Sammlung wird sich in nächster Zeit nichts ändern.*

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- a. Autorenkartei (DIN A6), in der Autor und Titel, jedoch keine Quelle angegeben sind.*
- b. DIN A5-Ordner mit Autor, Titel und Quelle.*
- c. DIN A5-Ordner nach Sachgebieten geordnet. Hier werden unter jedem Stichwort der Autor, die fortlaufende Nummer der betreffenden Arbeit und Besonderheiten angegeben.*

### **2. Mikropräparate**

*Das Kernstück der KIEFER-Sammlung umfaßt 11.500 mikroskopische Dauerpräparate. Dazu gehört noch eine Art Laborbuch.*

*Die Angaben zu den Präparaten sind von mir in letzter Zeit in den Computer eingegeben worden. Doch leider sind die Artnamen naturgemäß teilweise veraltet. Ziel der Erfassung ist die Schaffung eines Kataloges über den gesamten Sammlungsbestand sowie Zusammenstellungen nach verschiedenen Gesichtspunkten.*

### **3. Naßpräparate**

*Die Alkohol/Formalin-Sammlung umfaßt rund 6.000 Gläschen. Deren Daten werden z.Z. ebenfalls in den Computer gegeben.*

*Die Hardcover-Bibliothek enthält keine Copepoden-Literatur, sondern hauptsächlich breitgefächerte, naturwissenschaftliche Literatur eines Naturkundelehrers.*

S. GAVIRIA (Bogotá, Colombia) has returned home:

*Vor kurzem habe ich meine Dissertationsarbeit über das Thema "Calanoida und Cyclopoida (Crustacea, Copepoda) der Cordillera Oriental der kolumbianischen Anden mit besonderer Berücksichtigung ihrer Taxonomie, Ökologie und geographischen Verbreitung" an der Universität Wien beendet. Sie wurde von Herrn Prof. Dr. H. Löffler geleitet.*

*Jetzt wurde ich zum Chef der Abteilung "National Park Chingaza" in der Empresa de Acueducto y Alcantarillado de Bogotá (Wasser- und Abwasser-Behörde von Bogotá) ernannt, wo ich neben der Leitung des National-Parkes auch limnologische Forschungsarbeiten in den Gewässern des 50.000 Hektar großen Parks leiten werde. Ich werde natürlich weiter auch mit Copepoden arbeiten.*

S. WELLERSHAUS (Bremerhaven, Fed. Rep. Germany) informs us:

*Während der Fahrt (= "Meteor"-Expedition ins Rote Meer) habe ich zahlreiche Farbfotos von lebendem Zooplankton unter dem Mikroskop gemacht - mit gutem Erfolg. Ich glaube, daß es kaum eine so umfangreiche Sammlung von Fotos lebender (Meso-) Zooplankter aus dem Roten Meer gibt, wohl nur wenige aus anderen Meeresgebieten, wie ich sie hier machen konnte ...*

*Die Umfrage von mir und Beate Witzel in MONOCULUS 13: 25 hat keinerlei Reaktionen ergeben, insbesondere nicht den geringsten Hinweis darauf, daß sich irgendjemand durch ein solches Vorhaben eingeengt fühlt oder Konkurrenz fürchtet. Ich will nun versuchen, mein Projekt weiterzuverfolgen, den Giesbrecht & Schmeil 1898 neu zu bearbeiten.*

J. REID (Washington, USA) reports about the response to the call for reprints for the Wilson Library:

*The in-box of the Wilson Library continues to overflow with generous donations from many people. Thank you again for your help with the mailing stickers.*

*Of course a few letters continue to be returned, including one to Hans Jakobi in Brazil. I was told last year that he had passed away in 1986, which may explain the return of the letter.*

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O F F E R   A N D   R E Q U E S T   C O R N E R

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When David Thistle (U.S.A.), Philippe Bodin (France), and Gerd Schriever (Germany) met at the Fifth Deep Sea Symposium they discussed the problem of undetermined harpacticoid material filling the shelves in many labs. Especially during long-term deep sea projects lots of samples are taken yielding stacks of harpacticoids (most of them new to science) which nobody has the time to describe. Those who have taken the samples normally pick out the specimens of the family they are familiar with, the rest is put on the shelves. Major revisions such as have been undertaken during recent years might profit greatly from such material and it is therefore suggested that *MONOCULUS* opens a stock-exchange for such undetermined material. Whoever is willing to send material to other colleagues for further determination should send a list of samples available together with information on when, where and at which depth they have been taken, so that these lists can be published in *MONOCULUS* to arouse the interest of other colleagues eager to work up the material otherwise lost for science. This material should be separated from the sediment and be sorted such that there is one vial for each family. It is hoped that this suggestion will help many taxonomists in obtaining valuable additional material and that it will empty the shelves needed for new material.

G.S.

Copepodid or Copepodite ?

In *MONOCULUS* 15:18 Chris Corkett asked this question.

J.H. Stock wrote him the following letter:

*I noticed your "snippet" in MONOCULUS, about spelling copepodid vs. copepodite. I do agree with J.P. Harding, viz. that the ending -ite suggests part of an appendage (endopodite, carpopodite etc.). The spelling copepodid is no doubt grammatically correct (from the Greek words Copepoda and eides, i.e. shaped like a copepod). I likewise think the corresponding pronunciation should be copepodid (sounding like Pritt) and not copepodite (as in kite).*

*I know, however, that in many (neo)latinisms the ending -eides is replaced by -ite (like in meteorite), so that the case is not too strong.*

In his book "Ruderfusskrebse (Copepoden)", Franckh'sche Verlagshandlung, Stuttgart, 1973: 75, F. Kiefer deals with the same topic (and W. Janetzky brought this footnote to my attention):

*"Während Wörter wie Exopodit, Endopodit am Schluß von allen Zoologen mit t geschrieben werden, ist die Schreibweise für Copepodid uneinheitlich. In den meisten Fällen steht nämlich bei diesem Wort hinten ein t. Ich halte dies für sprachlich falsch. In beiden Fällen (Exopodit und Copepodid) ist zwar ein Bestandteil, nämlich -pod- vom Griechischen ποὺς, ποδός abgeleitet. Im Terminus Exo-pod-it drückt die Endsilbe -it lediglich einen -fuß aus, was schon daraus hervorgeht, daß anstatt Exopodit abgekürzt auch Exopod gesagt wird, ohne daß deshalb der Sinn geändert ist. Das ist jedoch bei Cope-pod-id nicht möglich. Dieser Terminus bezeichnet ein Tier, welches das Aussehen eines Copepoden hat (-id von εἶδος = Aussehen, Gestalt). Nach der letzten Häutung ist das Tier nicht mehr nur copepodenähnlich, sondern ist nun ein reifer, fertiger Ruderfußkrebs; aus dem Copepodid ist ein Copepod geworden.*

H.K.S.

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MODEL DESCRIPTION

I. *Harpacticoida*

MODEL DESCRIPTION

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Enhydrosoma variabile n.sp. (Figs. 11 and 12)

Enhydrosoma sp. Coull and Wells, 1981: 414.

Female. Total length about 485  $\mu$ m. Body slender; length/width ratio about 4:1 (Fig. 11a,b). Cephalothorax confluent with large rostrum with rounded apex. Anal somite lacking both sensilla set on small protuberances and pronounced epimeral projections. Suture of genital somite a complete, broad band of chitin with epimeral rudiments and with sensillate protuberances dorsally. Genital field simple (Fig. 11e). Caudal ramus (Fig. 11c,d) elongate, tubular, about 6 times as long as broad.

ANTENNULE (Fig. 12a,b) short, aesthete on 3rd segment. Plumose setae on segments 1 and 5.

ANTENNA (Fig. 11f). Allobasis without seta on anterior edge. Exopod stout.

MANDIBLE (Fig. 11g) with narrowly elongate praecoxa.

MAXILLULE (Fig. 11h) very small, simple. Coxa, basis and rami fused. Coxa, exopod and endopod represented by 1 seta each.

MAXILLA (Fig. 11i) very small, peculiar in having a definite line of articulation between what in other species would obviously be the 2 endites of the syncoxa. It appears that the syncoxa bears only 1 endite and that the distal 'endite' is a protruding portion of the basis.

MAXILLIPED (Fig. 11j) prehensile, with no trace of a coxa.

P1-P4 (Fig. 12c-f) all very similar in construction.



SETAL FORMULAE

P1

P2

P3,4

EXP.

0.0.0.2:2

0.0.0.2:2

0.0.1.2:2

ENP.

0.1:2:0

0.0:2:0

0.0:2:1

P5 (Fig. 12g-i). Inner expansion of baseoendopod not produced.

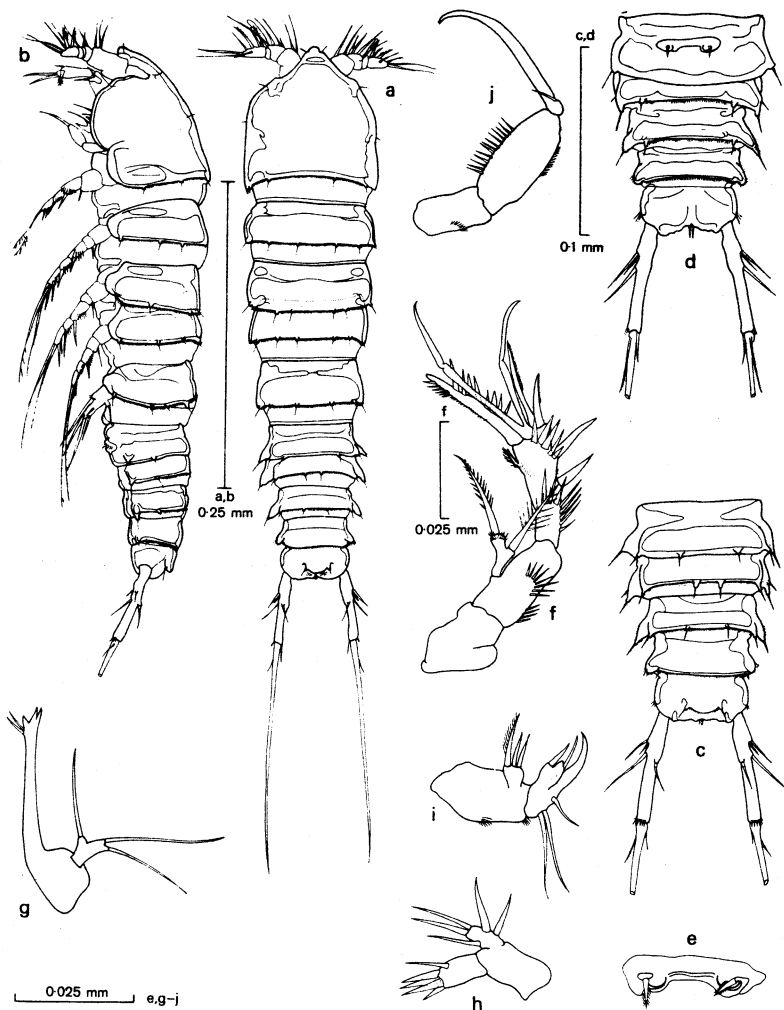


Fig. 11 *Enhydrosoma variabile*, ♀: (a) dorsal; (b) left lateral; (c, d) abdomen, dorsal and ventral; (e) genital field; (f) antenna; (g) mandible; (h) maxillule; (i) maxilla; (j) maxilliped.

**Male.** Differs from female in following respects. Total length about 475  $\mu\text{m}$ . First 2 abdominal somites distinct. Abdomen (Fig. 12j) more slender than female, with less pronounced epimeral rudiments; segments 2-4 with long ventral spinules. Antennule subchirocerate.

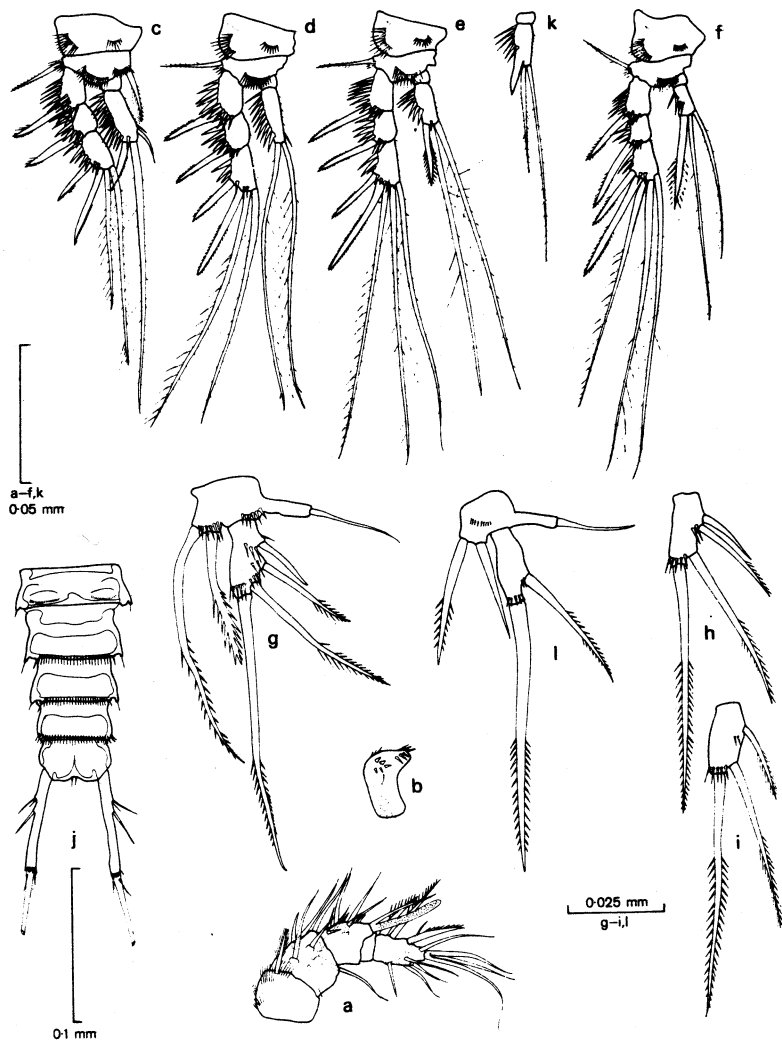


Fig. 12 *Enhydrosoma variabile*: (a) ♀, antennule; (b) ♀, antennule seg. 1 from other side; (c-g) ♀, P.1-5; (h, i) ♀, P.5 exopod, variants; (j) ♂, abdomen, ventral; (k) ♂, P.3 endopod; (l) ♂, P.5.

P3 endopod (Fig. 12k) with outer spine of 2nd segment fused to segment.

P5 (Fig. 12l).

P6 (Fig. 12j) apparently represented by 2 crescentric rows of setae.

Variability. All specimens obtained were examined and the only variability seen was in the female P5 exopod (Fig. 12g-i). Three Pauatahanui females have 4 setae on the exopod, while 3 have only 3 setae. Two Hobson's Bay females have 4 setae and 1 has only 3. All females from Whangateau have 4 setae, but in 1 the origin of the second outer seta is more proximal (Fig. 12h).

Following this description details should be given on: Etymology, Type Data (stating registration numbers and the institution of deposit), Material Examined, Ecology (if possible; even brief comments are a help), and general Remarks and Discussion on relationships.

Prior to the description a note should refer to abbreviations to be used.

J.B.J. Wells  
Victoria University

G.R.F. Hicks  
National Museum  
Wellington, New Zealand

P.S. Loyal to what they have said in London (see *MONOCULUS* 16: 7-11) John Wells and Geoff Hicks have herewith presented what they regard as a model description of a harpacticoid. This suggestion is now open for comment. In case you agree or disagree, don't hesitate to let Kurt Schminke know. He will gladly receive any comments (pro or con) for publication in the next issue of the newsletter.

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exchange      service      exchange
MONOCULUS    MONOCULUS    MONOCULUS
      service                exchange      service
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## VII. United Kingdom

There are many organizations facilitating visits to the U.K. by foreign research workers. The British Council is the most important, providing both funding and arranging accommodation, transport and programmes. In addition to running its own funding schemes, it acts as agent for other organizations, such as the Overseas Development Administration. The British Council has offices in 82 countries and your local office should be consulted or, failing this, your British Embassy. You should be armed with a letter of invitation from the British institution you wish to visit.

The British Council should also be able to provide information on grants from other organizations. Alternatively, you can find details of the major alternative sources, such as the Royal Society and the Association of Commonwealth Universities, in the Grants Register (Publ. Macmillan, 1986, ISBN 0-333-36686-7).

The EEC also provides funding for visits by scientists from member countries.

Colin Moore, Heriot-Watt University, Edinburgh, U.K.

Business ssenisuB

## 1. MONOCULUS-Library/Bibliography

We had good news as revealed already in the editorial. Our project of a computerized bibliography on copepods will financially be supported by the German Government for another two

years which, however, will be the last ones. The decision went through a very critical phase and for a while it appeared as though our project would be stopped at the end of this year. But somehow we were lucky. So let us make the best of these two years.

There have been a few changes in the team of the *MONOCULUS*-Library/Bibliography. Wolfgang Janetzky has left to concentrate on his scientific activities. He gave a memorable "farewell-breakfast" and has been replaced by Martina Stamm and Anne Sitterle. Joachim Kreft has joined Ove Breiholz at the computer. Erika Schwalda who works at the computer in Vechta where Jürgen Sieg organizes and supervises the activities will leave at the end of this year and is being replaced by Monika Schürmann.

Due to the constant efforts of the old and these new members of the team the bibliography has made tremendous progress in the meantime, and the first trials by a few colleagues to use its files have been quite satisfactory despite the fact that the bibliography still is very far from being complete. Frank Ferrari who was one of those colleagues found friendly and encouraging words to thank us: *"Thanks very much for the list of literature ... There were quite a few titles on your list of which I was not familiar and these in turn have led me to several more. Literature on this topic has not been compiled previously so I have no illusions as to what I am getting involved in. But certainly being able to rely on a file like the one you are creating is very reassuring. I also received the list of familial and generic taxa. Again I am impressed by what*

*you have accomplished. I much admire a central government that has the foresight to fund such an investment, and the scientist who recognizes the opportunity and capitalizes on it."* It was a pleasure for Jürgen Sieg and Kurt to read these lines and we hope others will find our services useful as well.

But help is something that should be reciprocal. We are in constant need for reprints (whether old or new). Just try to think how you can help our greedy library. Again a few colleagues have donated reprints of many or all of their publications: Castel, Landry, Muskó, B. Robertson, Sazhina, Scotto di Carlo, Shirgur. This brings the number of donors up to 228. *MONOCULUS* is distributed to three times that number of people. So there is no lack of potential benefactors, and those who have donated already should not forget to provide us with their latest publications.

## 2. MONOCULUS-Museum

No news, as usual. We have decided to let this idea steal away from these columns. Taxonomists and ecologists like to hoard specimens and eventually to throw them away.

## 3. Mailing

Again a few newsletters have been returned as being undeliverable. Who knows the new addresses?

T.T. Do (Fukuyama, Japan); P. Frenzel (Konstanz, F.R.G.); C.D. Jamieson (Petone, New Zealand); E. Poggensee (Schleswig, F.R.G.); S. Vijayalakshmi (Madurai, India).

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Pendant mon passage à Lobito, principal port d'Angola, j'avais eu l'intention de recueillir un peu de faune marine microscopique, pour y rechercher les Harpacticides (octobre 1933). Malheureusement, tout mon matériel, sujet à un rigoureux "tabou", était déposé à la douane, et je ne disposais d'aucun filet, d'aucun flacon, d'aucun réactif. Cependant, un tube vide d'aspirine, un produit de ma petite pharmacie que je supposais contenir du formol solide, et un couteau de poche suffirent: je pris quelques cailloux du littoral, les grattai, et c'est de cette râclure que j'ai extrait quelque vingt exemplaires d'Harpacticides, appartenant aux trois espèces nouvelles que je vais décrire.

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At Amble, immediately south of the mouth of the Coquet, is an old disused quarry separated from the sea by a narrow wall of rock through which, by means of a small opening, it receives intermittent supplies of sea-water at the time of high tides; and during stormy weather, especially with an east wind, the sea is liable to break in considerable volume over the intervening rampart of rock ... Fishes such as plaice, dab, flounder, eel, and even herring have been occasionally caught, and with a view to further investigation Mr. Meek planned a visit to the quarry during November of last year (1905). I was to have accompanied him, but was unable to do so owing to inclement weather, and the necessity of rising earlier in the morning than I found quite agreeable. The scanty proceeds of some netting and dredging were, however, submitted to me by Mr. Meek, and proved so interesting that I made an excursion to the pond in December in order to obtain further material for examination.

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E x c e r p t f r o m  
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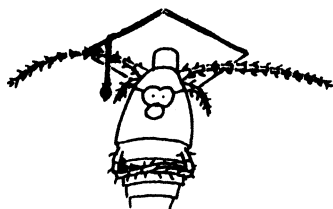
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Es wurde auch angestrebt, möglichst reichliche Fänge zu erzielen, da sich bei allen derartigen Untersuchungen immer wieder herausstellt, daß nur auf diesem Wege eine möglichst restlose Erbeutung der in Frage kommenden Organismen zu erwarten ist. Es muß allerdings schon an dieser Stelle darauf hingewiesen werden, daß es nicht immer möglich war, diesem Grundsatz treu zu bleiben. In mehreren Fällen trat an den erwählten Reisetagen ein derartiger Witterungsumschlag ein, daß ich mich mehrmals nur mit sehr geringem Material begnügen mußte, einmal sogar bei einem ganz plötzlich eintreten Gewitterstrom mit meiner Frau, die mich bei den Reisen begleitete und bei der Entnahme der Fänge große Dienste leistete, in

größte Lebensgefahr geriet. Die größte Zahl der Fänge habe ich übrigens in Gemeinschaft mit Herrn Dr. Paul Schulz ausgeführt, der über seine Ergebnisse an anderer Stelle berichtet. Auch mit diesem lieben Arbeitsgenossen habe ich einmal eine Fahrt ausgeführt, die, wenn wir wirklich die Absicht gehabt hätten, noch unser Testament zu machen, uns kaum die Gelegenheit dazu geboten hätte.

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#### DIRECTORY OF COPEPODOLOGISTS

ASENCIO G., GLADYS

Inst. Ecologia  
Universidad Austral  
de Chile  
Casilla 567  
Valdivia

CHILE

MOVERLEY, JOHN

Zoology Department  
The University of Tasmania  
G.P.O. Box 252C  
Hobart, Tasmania 7001

AUSTRALIA

MOTTA SCHUTZE, MARIA LUISA

Centro de Ciencias  
Biológicas  
Rua Fernando Ferrari, 75  
Botafogo  
22.231 - Rio de Janeiro - RJ

BRAZIL

MUSKO, ILONA B.

(Dr.)

Balaton Limnological  
Research Institute  
Hungarian Academy of Sciences  
Tihany

HUNGARY

C h a n g e o f a d d r e s s

ALVAREZ, MARIA PALOMA J.

Av. Prof. A. Bovero 952/174  
05019 Sao Paulo

BRAZIL

BOEGER, W.A.

I.N.P.A.  
Dept. Biologia Aquatica  
e Limnologia  
Cx Postal 478  
Manaus, AM 69000

BRAZIL

BUCKLIN, ANN (Dr.)

Office of Naval Research  
Oceanic Biology Program  
(Code 1122B)  
800 N. Quincy St.  
Arlington, VA 22217

U.S.A.

FRYER, GEOFFREY (Dr.)

Elleray Cottage  
Windermere  
Cumbria LA23 1AW

UNITED KINGDOM

NAGASAWA, KAZUYA (Dr.)

Hokkaido Fisheries  
Experimental Station  
238 Hamanaka-cho  
Voichi  
Hokkaido 046

JAPAN

RIO DE VALDE, MARIA LUISA

Dirección General de  
Medio Ambiente  
Calle Diecisiete No 355  
Urb. El Palomar  
San Isidro  
Apartado 4992  
Lima - 27

PERU

SHIH, CHANG-TAI (Dr.)

National Museum of  
Natural Sciences  
Zoology Division  
P.O.Box 3443, Station D  
Ottawa, Ontario

CANADA K1P 6P4

STOCK, JAN H. (Prof.)

Instituut voor  
Taxonomische Zoölogie  
Universiteit van Amsterdam  
Mauritskade 57  
P.O.Box 4766  
NL-1009 AT Amsterdam

THE NETHERLANDS

