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editor : RICHARD WARWICK
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INTERNATIONAL ASSOCIATION OF MEIOBENTHOLOGISTS – FOUNDED 1966

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Lab. Ekologie en Systematiek, Vrije Universiteit, Pleinlaan 2, B-1050 Brussels, Belgium

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Department of Zoology and Physiology, Louisiana State University, Baton Rouge, LA 70803-1725, USA

LAURENCE GUIDI

C.E.R.O.V., Station Zoologique, B.P. 28, 06230 Villefranche-sur-Mer, France

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Limnol. Institut, Abteilung Mondsee, A-5310 Gaisberg 116, Austria

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Zool. Inst. Akad. Sci. SSSR, Universitetskaja Embankment 1, Leningrad V-164, USSR

ANDREW GOODAY

Institute of Oceanographic Sciences, Wormley, Godalming, Surrey, GU8 5UB, UK

LAURENCE GUIDI

C.E.R.O.V., Station Zoologique, B.P. 28, 06230 Villefranche-sur-Mer, France

GEOFFREY HICKS

National Museum of New Zealand, P.O. Box 467, Wellington 1, New Zealand

RONY HUYS

Lab. Morfologie, Ledeganckstraat 35, B-9000 Gent, Belgium

CATALINA PASTOR

Centro Nacional Patagonico, 28 de Julio 28, (9120) Puerto Madryn, Prov. Chubut, Argentina

TERESA RADZIEJEWSKA

Inst. Fisheries Oceanography, Kazimiera Krolewicza 4, 71-550 Szczecin, Poland

YOSHIHISA SHIRAYAMA

Ocean Research Institute, University of Tokyo, 1-15-1 Minamidai, Nakano-Ku, Tokyo 164, Japan.

DAVID STRAYER

The New York Botanical Garden, Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545, USA

ZHANG ZHINAN

Department of Marine Biology, Ocean University of Qingdao, Qingdao, Shandong, Peoples Republic of China.

Dues are £5 per year payable to Mike Gee.

“This newsletter is not deemed to be a valid publication for formal taxonomic purposes”

EDITORIAL

I must be one of the few meiobenthologists who has not yet seen a loriferan. On a couple of occasions I thought I had found them, but they turned out to be false alarms. Working on meiobenthos samples collected in Hamilton Harbour, Bermuda, two summers ago we found specimens which looked remarkably like loriferans, but on closer investigation we found them to be the so-called lorica larvae of the priapulid *Tubiluchus corallicola* (Fig. 1). In Roscoff this summer, working on meiobenthos from the North Sea, I also renewed my acquaintance with the lorica larva of *Priapulus caudatus*.

complete its development (Lang, 1948, Ark. Zool. 41A, 1-12), and it does seem strange that an animal which will eventually attain a length of 20 cm should spend more than two years at a size of less than 2 mm. It is almost as if it doesn't want to grow up (and who can blame it: an adult *Priapulus* is a pretty obscene looking creature). But to put it more scientifically, there must be strong selective pressures to stay at this small size for a long period. The gonads are already beginning to develop in these larvae and it would seem to me to be a very small evolutionary step for the gonads to attain functional maturity, allowing the animal to avoid the adult stage altogether. This has led me to ask myself (and now all of you) the question of whether the Loricifera are really a distinct phylum at all,

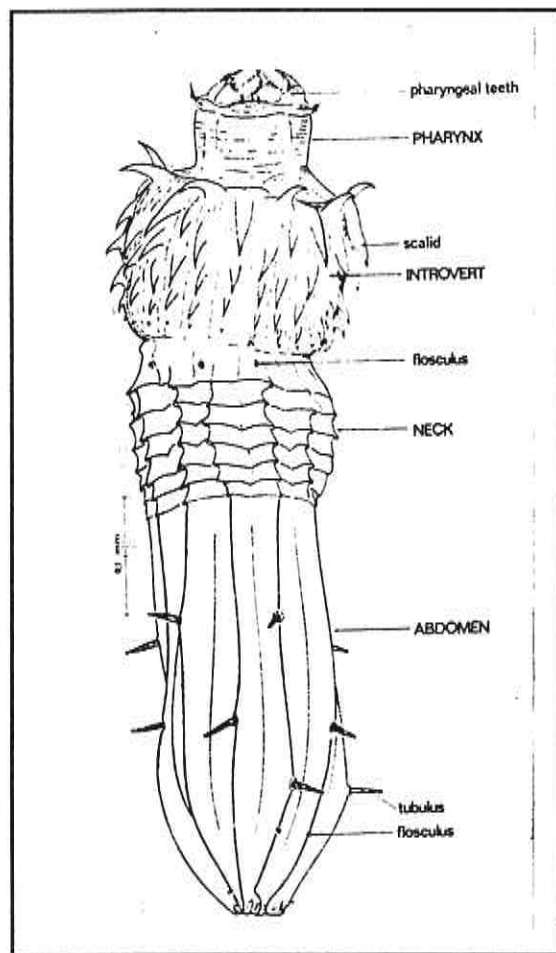


Fig. 1. The larva of the priapulid *Tubiluchus corallicola* (from van der Land, 1970).

Priapulids are remarkable in that they spend such an extraordinarily long time in this larval stage (van der Land, 1970, Zool. Verh. 112:1-118). For example, the larva of *Priapulus caudatus* needs at least two years to

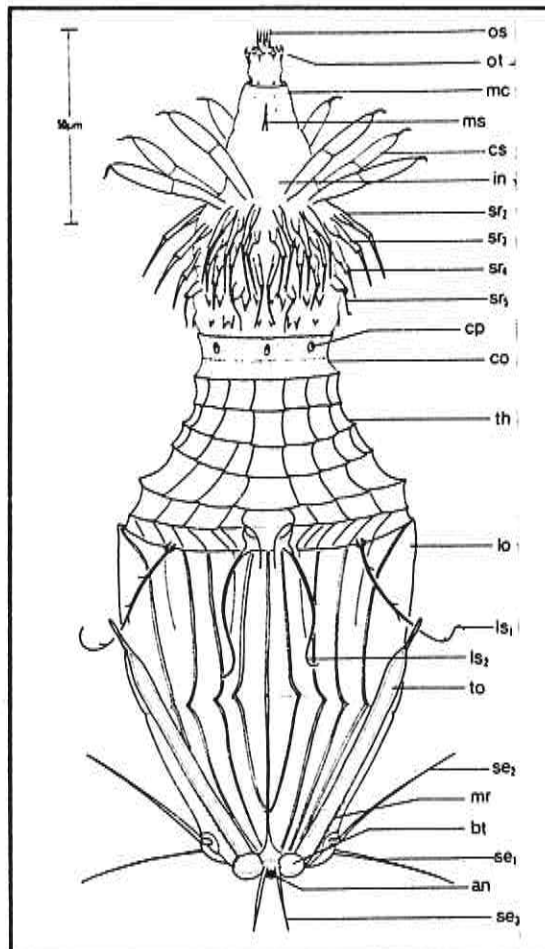


Fig. 2. The loriferan *Pliciloricus gracilis* (from Higgins & Kristensen, 1986). Abbreviations relevant to the text: ot = oral tooth, mc = mouth cone, in = introvert, sr = scald rows, cp = collar pore, co = collar, th = thorax, lo = lorica, ls & se = setae.

or might they possibly be simply neotenous priapulids. The close similarity between loriciferans and larval priapulids has not gone unnoticed, and indeed the first loriciferan ever found was assumed to be the juvenile of an unknown priapulid (Higgins & Kristensen, 1986, Smithsonian Contr. Zool. 438: 1-70). Comparing a typical loriciferan (Fig. 2) with Fig. 1 shows that the animals have a very similar body plan, although the terminology used for some of the parts does differ. Starting from the front end, we have a pharynx in the larval priapulid (= mouth cone in the loriciferan) with pharyngeal teeth (= oral teeth), followed by the introvert bearing rows of scalids. According to Adrianov et al (Sov. J. Mar. Biol. 15: 136-138) the first crown in both loriciferans and priapulids bears 8 scalids which differ in structure from the numerous scalids in the more posterior crowns. Next comes the neck region (= thorax) covered in plates like a tiled-roof, the anterior border having a ring of sense organs termed flosculi (= collar with collar pores?). Then finally there is the abdomen (= lorica) with tubuli (= setae). According to Adrianov et al (who also question the phyletic status of the Loricifera) the loricas of larval priapulids and loriciferans have a similar structure and microstructure, although I have been unable to find any original references to the latter. Many loriciferans, but not the one illustrated, have flosculi located posteriorly on the lorica, similar to those of the *Tubiluchus* larva illustrated, and these sensory organs seem to be shared uniquely between the two taxa. In both larval priapulids and loriciferans there is an internal septum which separates the proboscis from the trunk section. Internally, the nervous and urino-genital systems in the two taxa also seem to be built on a similar plan. In short, I can find nothing in the most recent definition of the Phylum Loricifera (Higgins & Kristensen, 1986), apart from the presence of mature gonads of course, which is contradicted by larval priapulids.

In my own mind, then, I am still very unclear as to why loriciferans are not just neotenous priapulids. Is this naivety stemming from unfamiliarity with this section of the animal kingdom or with a lack of thoroughness in reading the relevant literature? Probably both. However, a newsletter such as *Psammonalia*, not being part of the scientific literature, does seem an appropriate vehicle for informal scientific debate, where people like myself with half-baked ideas are prepared to put their heads on the block without fear of totally losing their scientific credibility. We will of course publish any views on the matter which we receive.

Richard Warwick

CONSTITUTION AND MEMBERSHIP LIST.

The constitution of the Association and a full list of members names and addresses will be published in the November issue of *Psammonalia*. So many members HAVE STILL NOT PAID their 1990 subscription that a list published at this time would be incomplete - unless all these unpaid members have decided to resign, which we hope is not the case!

NEW MEMBERS

Christian Bussau
Zoologisches Institut
Universität Kiel (Biologiezentrum)
Olshausenstraße 40-60
D-2300 Kiel
FED. REP. GERMANY

"I am presently investigating deep-sea Nematoda and Tardigrada from a manganese nodule area of the deep South East Pacific. I am a candidate for a doctor's degree under the supervision of Dr. Lorenzen. Before working on deep-sea meiofauna I was investigating the nematode fauna of coastal dunes and adjoining biotopes of Schleswig-Holstein and Denmark. I would appreciate it if colleagues with similar fields of interest would put me on their mailing list. Please write to my above address, I'm looking forward to hearing from you."

Tim Ferrero
Dept. Zoology
The Natural History Museum
Cromwell Road
London SW7 5BD
UK

"After unremitting pressure from certain members of staff at PML, another reader of other peoples *Psammonalias* comes into the fold! I graduated in Marine Biology at Heriot-Watt University in Scotland in 1986 and then spent three years at The University of Bristol studying for a PhD on the effects of macrofaunal activities and biogenic structures on estuarine nematode assemblages. This work involved both direct sampling of discreet macrofaunal burrow structures and investigations of the effects of artificially controlled habitat modifications by macrofaunal organisms (caging experiments). I am still writing my thesis but hope to complete it this year.

I am currently working at the Natural History Museum, London (the BMNH as was) and have recently been involved in a baseline study of the meiofauna of the Mersey estuary."

Sandy Lipovski
Columbia Science
P.O. Box 451
Royston B.C. VOR 2VO
CANADA

Cecilia Lopez-Canovas
Instituto de Oceanologia
Academia de Ciencias de Cuba
CUBA

Raffaella Pollicoro
Istituto Sperimentale Talassografico "A. Cerruti"
Via Roma 3
I-74100 Taranto

ITALY

"I carry out research on meiobenthos, in particular, free-living nematodes."

CHANGE OF ADDRESS

James A. Blake
Science Applications Int. Corp.
89, Water Street
Woods Hole Mass. 02543
USA

Dietrich Blome
Universitat Hamburg
Institut Hydrobiol. Fischereiwissenschaft
Zeiseweg 9
D-2000 Hamburg 50
FED. REP. GERMANY

C. Bradford Calloway
Smithsonian Marine Station at Link Port
5612 Old Dixie Highway
Fort Pierce, Florida 34946
USA Telephone (407) 465-6630

Carla Corazza
Civico Musco Di Storia Naturale

Via De' Pisis 24
I-44100 Ferrara
ITALY

Dennis P. Levy
50, Cottonwood Drive
Holland PA 18966
USA

Ricardo Moreno-Osorio
Trv. 41 #115-69 Int. 2D
Bogotá
COLUMBIA

Peter Pospisil
Reichmangasse 3/6
A-1160 Vienna
AUSTRIA

Judy Williams-Howze
Department of Biological Science
University of South Carolina
Columbia SC 29208
USA

CORRECTIONS!

Apologies for misprints in the last issue:

Yoshihisa Shirayama
Ocean Research Institute
University of Tokyo
1-15-1 Minamidai
Nakano-Ku
Tokyo 164
JAPAN

In the last issue we gave the name of a new member as BRIAN BETTS where it should have been BRIAN BETT (a very singular fellow!).

NEWS FROM THE MEMBERS

Carla Corazza has moved from the Institute of Zoology at the University of Ferrara where she was working with Prof. Victor Ugo Cecherelli to the Natural History Museum where she is now a researcher in Ecology. (See change of address section).

IRWIN LOOPS

For those of you wishing to purchase Irwin loops, Kevin Carman informs us that the sole surviving maker of them, Mark Schramm, has yet another new address: 1621 Main St., Murray, KY 42071, USA. (Tel. 502/753-4350). He plans to be at this address for at least a year. There seems to have been some trouble in forwarding his mail from Arkansas, and Psammonalia readers who have placed orders with him there, but have not yet had them filled, may wish to contact Mark at his new address.

NEW NEMATODE BOOK

Yoshihisa Shirayama writes:

I would like to report about a recently-published book entitled "Aquatic Nematode Chromadorida, an illustrated guide", written by K. Nozawa and N. Yoshikawa. This is very similar to the book published by A.C. Tarjan in 1976. This book compiles information regarding chromadorid aquatic nematode genera. The diagnosis of each genus in the book would be of little use for non-Japanese people because it is written in one of the most difficult-to-learn languages, Japanese. The figures they collected, however, are very good in quality, and they may be useful for all nematologists, even though it is very expensive (Y12,360). If anyone is interested in the book, contact the following address:

Kouseisha Koukeikaku
8, San'eichou, Shijuku-ku
Tokyo, Japan
TEL. 03-359-7371
FAX 03-359-7375

OSTRACODS WANTED

Thomas Cronin is a geologist working on the palaeo-biogeography of Ostracoda. He is looking for shallow water specimens of the group from temperate to boreal zones. If anyone can provide him with samples, contact him at USGS, Reston, VA 22092, U.S.A. (703-648-6363). - Yoshihisa Shirayama.

A Tail of Two or More Tails

or

Harps In Spring Eternal Sometimes (A bad-verse Reply to T. Shirley)

Are meiobenthos so bad to follow drummers in Alaska
or Kiel that differ? Not the seasonal pulsing
after Rhode Island's winter?

Do they offend to not follow a trend dictated by minds
- that pretend that life can be regimented
from top-down? bottom up? to what end?

In the end, which end ends up up?
in the sand? in the mud?
Perhaps it's heads or tails in your neighbourhood.

Oh what to do to figure it out, covered in mud,
year after year eyes glued to the tubes,
sight disappears? or fingers playing god in the
night?

This all should be fun - all bias aside! - to be free
in the mud - to explore - a badverse in time.

D.Rudnick

A Note of Thanks to the Poet Laureates of Meiofauna

That creatures grouped as meio-
could generate such noble
and aesthetic prose
gives hope that copepods
can lead to grander themes
than most would care to dream.
Conclusions filled at once with many beauties;
the beauty of a symmetry
the beauty of an ordered presence,
the beauty of assymetry
the thoughts of why that lead to dreams.
These dreams of wonder
led Shirley to pontificate,
and Fleeger to reverberate,
Rudnick then distilled it all
reaching those of us who know their game,
resulting in a pleasant high.

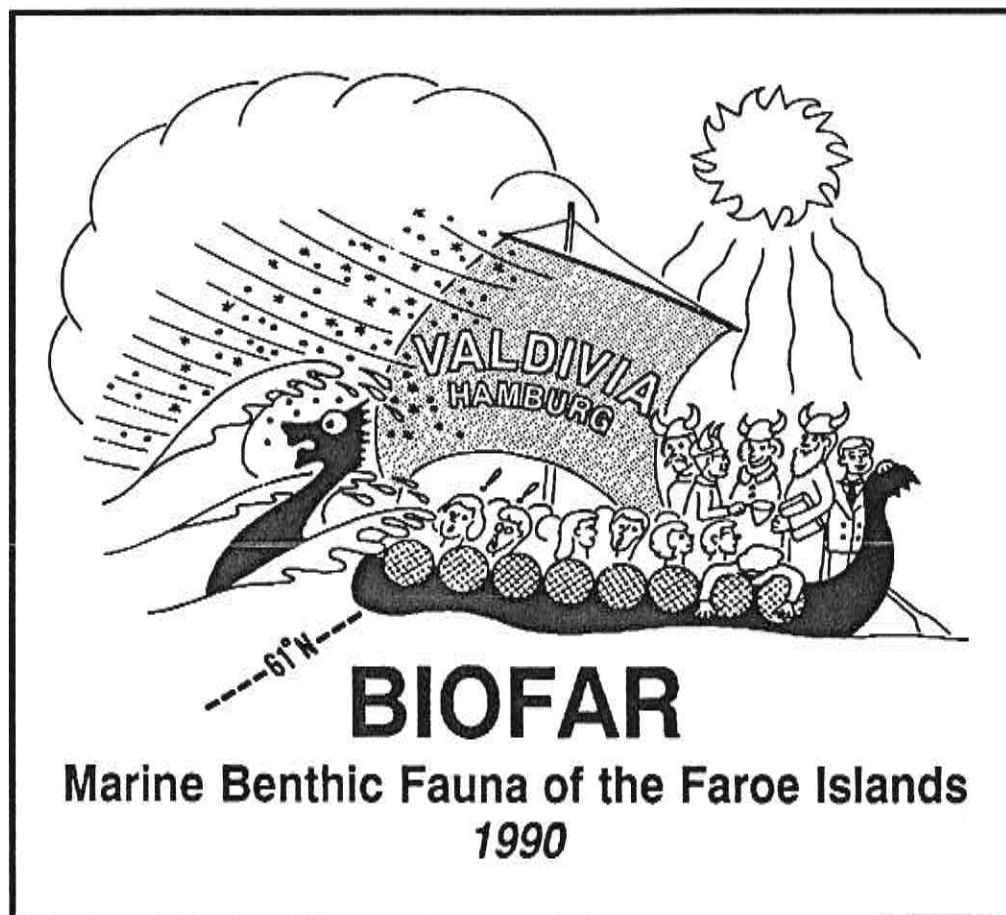
Harold Silverman

BIOFAR

The BIOFAR-project is a Nordic project dealing with the biology of the marine benthic fauna of the Faroe Islands. For a few weeks in April, BIOFAR was primarily devoted to meiofauna.

Organised by Hjalmar Thiel (Univ. Hamburg), the F/S VALDIVIA provided the primary research platform for Hjalmar, Bob Higgins (Smithsonian), Reinhardt Kristensen (Zoology Museum Copenhagen), Olav Giere (Univ.

Hamburg), and Thomas Cedhagen (Univ. Goteborg). In addition to these notorious meiofaunists (carefully portrayed at the rear of the VALDIVIA in the accompanying t-shirt design), there were students from the University of Hamburg and University of Copenhagen, and Ole Tendal (Macrofauna), University of Copenhagen. Claus Clausen (Univ. Bergen) also participated but preferred the comforts of the BIOFAR laboratory at Kaldbak.



REPORTS OF MEETINGS

SEVENTH INTERNATIONAL SYMPOSIUM ON AQUATIC NEMATODES

Yerseke, The Netherlands - 1990

On the 8-10th August 1990, forty participants from Europe, both East and West, America and Africa gathered at the Delta Institute for Hydrobiological Research in Yerseke, The Netherlands for the Seventh International Symposium on Aquatic Nematodes. Some twenty verbal and poster presentations were given on a range of topics which demonstrated the broad scope of current nematological research around the world.

The first working day was devoted to morphology and systematics. The ultrastructure of nematode sensory organs and receptors were discussed in relation to phylogenetic studies (Hope, D.W.) and the evolution of free-living nematodes (Malakhov, V.V.). Systematic presentations included an analysis of the Aegialoalaimidae (Tchesunov, A.V.) and descriptions of several new species. A round table discussion considered the relevance of ultrastructural studies to systematic research and the future of basic taxonomic research.

The second day was devoted to ecological topics ranging from studies of nematode/bacteria symbiosis (Novak, R. et al) and nematode/plant interactions (Alkemade, J.R.M. and Wielemaker, A.; Riemann, F.) to broader studies of nematode community ecology and habitat preferences in marine and aquatic ecosystems (Galtsova, V.V. & O.N. Pavljuk; Sergeeva, N.G. & Shalovenkov, N.N.; Vanreusel, A.; Haar, J. van de & Bongers, T) and in response to pollution (Hauptmann, P. and Palacin, P.). In a round table discussion, the Maturity Index (Bongers, T. and Alkemade, R.) was discussed in relation to broader aspects of biomonitoring with nematodes and the possible future use of molecular biological and genetic techniques in nematological research was considered.

Many presentations stimulated lively discussions which, in keeping with the spirit of informality of this meeting, were allowed time to develop to the full, enabling a very useful exchange of information and ideas to take place. Once again, many thanks to Carlo Heip, Mrs. E.S. Nieuwenhuise and all those at the Delta Institute for organising a most stimulating and enjoyable symposium.

I include a full list of presentations with apologies for any inaccuracies.

Tim Ferrero.

ORAL PRESENTATIONS - Seventh ISAN.

Alkemade, J.R.M. and Wielemaker, A. - Effects of the marine nematode *Diplolaimelloides brucei* on decomposition of leaves of *Spartina anglica*.

Bongers, T. and Alkemade, R. - The Maturity Index as an instrument in biomonitoring marine sediments.

Galtsova, V.V. & O.N. Pavljuk. - The freeliving marine nematodes on the industrial plantations of *Pectens*.

Haar, J. van de and Bongers, T. - Typology of Rhine sediments based on the nematode fauna.

Hope, W. Duane - Observations on the amphids and buccal sensory receptors of *Rhabdodemanina* and *Pandolaimus* with a discussion of their phylogenetic implications.

Malakhov, V.V. - Ultrastructure and evolution of the sense organs of free living marine nematodes.

Novak, R., Ott, J., Nebelsick, M. - Microbial hitch-hikers - a bacteria/nematode symbiosis in the sulphide system.

Riemann, F. - Observations on intertidal brackish-water nematodes: do they browse on diatoms at the air/water interface during ebb tide?

Sergeeva, N.G. and Shalovenkov, N.N. - Free-living nematodes in benthic biocenoses of the Black Sea.

Tchesunov, A.V. - A critical analysis of the family Aegialoalaimidae Lorenzen, 1981, with suggestion of new taxa.

Vanreusel, A. - The habitat preferences of the dominant nematode species of the Dutch Delta Region (Southern bight of the North Sea).

POSTER PRESENTATIONS - Seventh ISAN.

Decraemer, W. - A new draconematid species from a mangrove on Motupore Island (Papua New Guinea) with some reflections on the phylogeny of the Draconematidae.

Gourbault, N. and Decraemer, W. - Habitat and distribution of the free-living marine nematode families Epsilonematidae and Draconematidae.

Hauptmann, P. and Palacin, P. - Horizontal and vertical distribution patterns of nematodes in polluted sublittoral sediments off Barcelona (Spain).

Novak, R., Nebelsick, M., Ott, J. - Structure of Hypodermal Glands in Stilbonematinae.

Palacin, C. - Viviparity in the Family Xyalidae (Nematoda, Monhysterida). A Description of *Paramonhystera (P.) vivipara* n.sp.

Palacin, C. – Four new species of Desmodoridae (Nematoda, Chromadorida), in a coastal shallow water bay (Western Mediterranean).

Swart, A. and Heyns, J. – A SEM-study of a *Microlai-mus* species from South Africa (Chromadorida: Micro-laimidae).

Tchesunov, A.V. and Spiridonov, S.E. – Unusual mer-mithids from the schizocoel of marine free-living nema-todes *Enoplus* spp. of the White Sea.

Yushin, V.V. – Head-end cuticle ultrastructure in free-living marine nematodes and its significance for system-atics.

THIRD INTERNATIONAL CRUSTA-CEAN CONFERENCE

It has been 10 years since the last International Crusta-cean Conference, which was held at the Australian Mu-seum, Sydney. This Third meeting was prompted by such a long interregnum, together with a desire to appropri-ately celebrate a decade of existence for the Crustacean So-ciety and its flagship the Journal of Crustacean Biology.

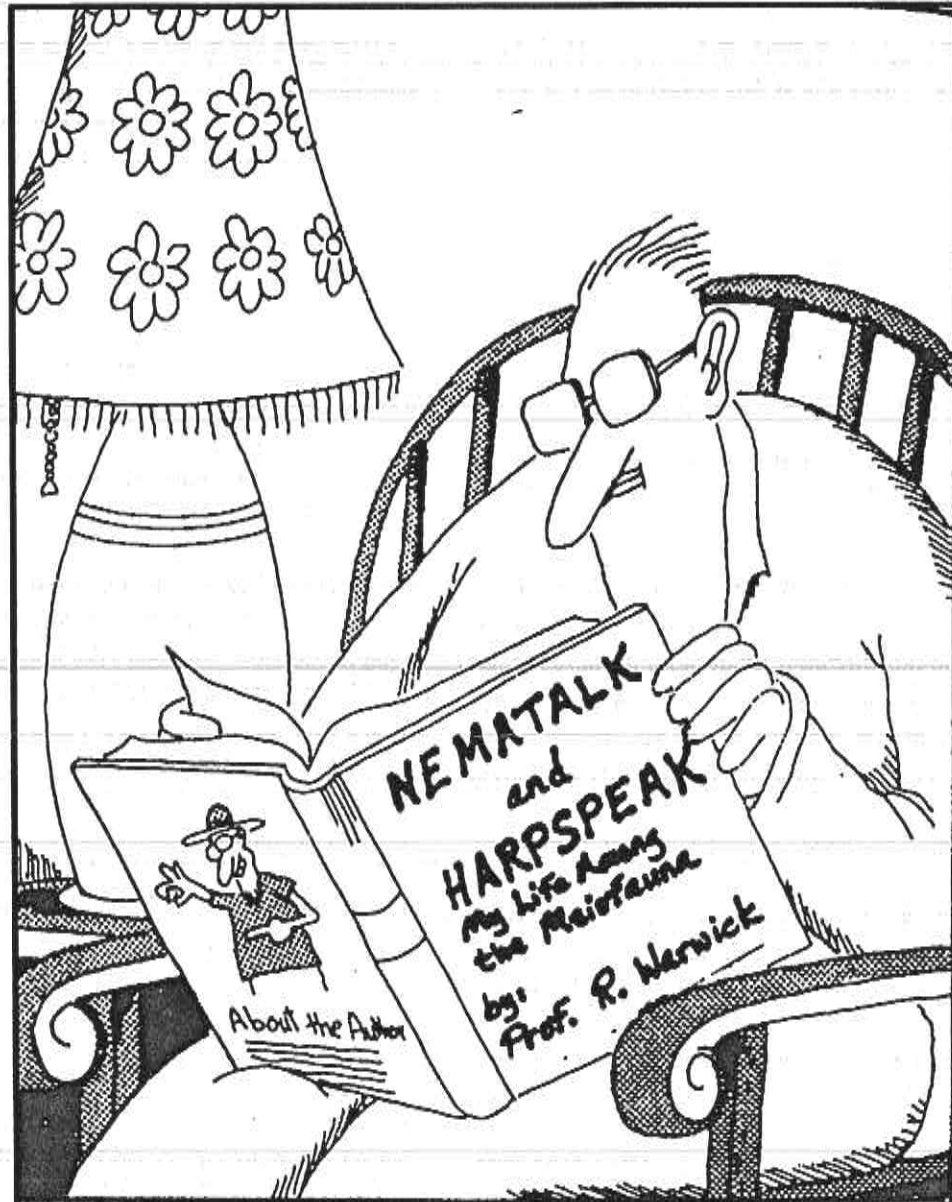
The conference was hosted by the University of Queensland, St. Lucia, Brisbane between 2–6 July 1990. Recognising the contribution of crustaceans to the Aus-tralian economy, the meeting was officially opened by the Right Honourable Ed Casey, Minister for Primary Indus-tries. The meeting was attended by 192 participants from 30 countries and consisted of a total of 149 oral presen-tations and 41 posters. Further statistics reveal the heavy weighting of the commercial sector, with 126 papers and posters devoted to "large" crustaceans such as prawns, shrimps, lobsters and crabs, with only 50 devoted to "small" crustaceans like peracarids, copepods and bar-nacles. The remaining presentations were "big picture" contributions on evolution and phylogeny of the entire Class Crustacea. Morning sessions of each day con-cerned plenary reviews covering areas such as Evolution and Biogeography, Phylogeny and Systematics, Physio-logical Ecology and Behaviour, Larval Biology and Re-cruitment, Fisheries and Aquaculture. Afternoons were split into three parallel sessions of contributed papers, which was the only practical way to process all oral pres-entations within the five day conference, but of course suffered because of the inevitable conflict of timing and interest. Nevertheless there were some compelling pa-pers, not the least one that attempted a reclassification of the Crustacea on the basis of ribosomal RNA nucleotide sequencing. The challenge of biochemical taxonomy to

the more traditional morphological and ontogenetic ap-proach was here clearly focussed.

This conference provided slim pickings for meio-benthologists with only six contributions dealing with meiofaunal sized crustaceans. Kerry Swanson's paper "The Evolutionary History of Punciid Ostracods" pro-vided new insights into the origins of the "living fossil" *Manawastaceyi*. A detailed SEM and ontogenetic eval-uation of this enigmatic ostracod has helped evaluate the relationships between the living Punciidae and the pre-sumed ancestral members of the Palaeozoic Kirkbyacea. Yoshiaki Kikuchi presented evidence in his paper "On the Cysts of Two Freshwater Harpacticoids from Japan", of fundamentally different construction and matrix compo-sition of cysts in *Mesochra* and *Canthocamptus*. It is thought that mucoidal secretions vary according to differ-ent glandular structures within which it is produced. Sticking with mucus (!), Jenny Hall's paper on "Feeding and Locomotion in Sarseillid Myodocopid Ostracods" held evidence of mucus hardening in these animals, espe-cially in starved individuals. This parallels the phenome-non already known in some nematodes and harpacticoid copepods. Under normal circumstances, however, sar-siellids are typical detritivores, but they also (shameful-ly!) were shown to consume copepods. Geoff Hicks gave a paper entitled "Tidal and Diel Variability in a Meio-benthic Copepod Population on an Intertidal Estuarine Sandbank". Sampling every 2 hours for 24 hours re-vealed no clear influence of tide or light on the total sedi-ment abundance of the harpacticoid *Parastenhelia mega-rostrum*. Juvenile abundance, however, showed a signifi-cant covariance with tidal height and it is suggested that both flow and behavioural activity might be implicated in these results. Andrew Cockcroft focussed on the impor-tance of interstitial copepods in the recycling of nitrogen in the high energy surf zone ecosystem of the South Afri-can Eastern Cape. Along with other crustaceans in this system they are responsible for 79% of the dissolved inor-ganic nitrogen excreted by the macrofaunal food chain. Ivana Lazzaretto and co-worker B. Salvato exhibited a poster entitled "Evidence of Chemosensory Functions in *Tigriopus fulvus* (Copepoda, Harpacticoida). This held a great deal of personal interest for me, since it extended earlier work done by the Italian school on the effects of crowding (ie high densities) on developmental rate and sex ratio lability. At last it seems we have good data im-plicating the release of species specific chemicals that mediate a number of activities such as delaying develop-

ment of females, recognition of conspecific offspring, female attraction of males for mating contacts.

Geoff Hicks



cartoon by Gary Larson, modified by John Fleeger.

CURRENT LITERATURE

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X

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