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Copepod Newsletter

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MONOCULUS

Copepod Newsletter

Number 31 April 1996

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This issue has been typed by: Angelika Sievers; cover as well as cartoons by M. Pottek (Fachbereich 7 (Biologie), Universität Oldenburg).
Cover: *Botryllophilus norvegicus* CANU, female (after OOISHI et al. 1996 - Journal of Crustacean Biology 16 (1): 169-191.

Birthdays this year:

85: C. Cheng
Takuo Chiba
J.P. Harding
Kalle J. Purasjoki

75: Brian P. Boden
R.V. Gotto
L.B. Holthuis
Mihai Serban

70: José Bresciani
E.H. Grainger
S. Krishnaswamy
J.P. Murnane
Kiril Trajan Petkovski
Alexandra Shmeleva
Francisco Vives

Deadline for the next issue of MONOCULUS: 30th September 1996

EDITORIAL

A copepodologist's reflections from an expedition of „RV Polarstern" to the high Antarctic Weddell Sea.

It seems to be the first time that the MONOCULUS editorial is not written at a desk of our Oldenburg laboratories. Instead, I am trying to sit steadily inside the cabin of a rolling research vessel, while glimpsing through my bull-eye window at the elevated margin of the Antarctic shelf-ice coast which reflects the sunrays to the deep-blue sky of Antarctic fall. Thinking about the words I want to write during a short break in between two research stations in the more „shallow" waters (200-300 m depth) within the Atlantic sector of the Southern Ocean.

Mainly scientists of biological disciplines (47 colleagues plus a crew of 45) are using the German ice-breaker „RV Polarstern" as a research platform in order to study the benthic ecology of a stretch of the coastal shelf within the frame of the CS-EASIZ programme (= Coastal Shelf - Ecology of the Antarctic Sea Ice Zone). Not much to achieve for a copepodologist in such an endeavour, you may think, and we also thought so when embarking for this voyage in Cape Town end of January. Mainly the Harpacticoida as the second most abundant meiofauna taxon could be of relevance for a benthos study. However, this thinking comes from considering „benthos" as an isolated entity with no interrelationship to the various strata of the overlaying water column. There, many other major copepod taxa occur: An association of hypoplanktonic copepods close to the bottom (recently revealing many new taxa belonging to the Misophrioida, Platycopioida, Cyclopoida, and Calanoida), parasitic copepods, inquilines, and those of the mesopelagic and upper surface waters. All of these may interact with the sea-bottom, e.g. individually, as their carcasses and feces may sink down, or, by sending their dormant stages downwards. Then, water-column-derived copepods may become the desired food of benthic predators (e.g. young bottom fish, Ophiuroidea, Polychaeta) or suspension feeders (e.g. Hydrozoa, Gorgonaria, Echinodermata). This „benthо-pelagic coupling" therefore is one of the key topics during our cruise and is integrating colleagues from various disciplines into multidisciplinary working groups. Benthologists are deploying plankton nets in order to get food items for their macro-suspension feeders. Parasitologists look at plankton samples to find free-living stages of e.g. fish-parasitic copepods. Planktologists learn to inspect bottom samples for diapausing stages as eggs, cysts, and torpid copepodids, or their carcasses and feces. The water layer close to the bottom is of most interest. This is the habitat of an assemblage of temporary plankton (larvae of benthic adults, emergent meiofaunal Harpacticoida) and a most exciting hypoplanktonic community - dominated in these waters by peracarid crustaceans and the Copepoda. Copepods, may they be free-living or associated, water-column-derived or substrate-bound, provide us with a unifying bond - beyond disciplines, method(olog)ical approaches, or scientific concepts.

Back to Oldenburg, preparations for this year's copepod conference are proceeding at rising speed. We are all looking forward to this event. The latest news are provided in this issue of MONOCULUS and as always in the MONOCULUS home pages.

We thank A.L. Allcock, H. Dumont, C.H. Fernando, H.J. Hirche, H. Juhl, P. Rumm, J. Reid, and S. Schiel for their contributions, Angelika Sievers for substantial work on the text, and Mark Pottek for garnishing it with caricatures.

Welcome to Oldenburg and Bremerhaven II
(Important conference information)

This is the last newsletter before the next Conference on Copepoda. We are just sending out the messages about the acceptance of the submitted abstracts. We are a little behind and guess that some are already waiting impatiently. But we have to organize a second (national) conference with about 600 participants in Oldenburg and have lately mainly been occupied to prepare this event. The annual meeting of the German Zoological Society takes place in Oldenburg at the end of this month.

The Conference on Copepoda will have less participants. So far we have received 195 registrations, among them quite a lot from East European countries. These colleagues will join us for the first time and we are glad that 35 of them will have the possibility to come. There will be 92 oral presentations (16 symposium lectures, 75 contributed papers, and the Maxilliped lecture) and 106 posters. The contributed paper sessions will have to be run in two parallel sessions. There are 20 minutes for the talks including discussion. The time for the oral presentations is booked out but there still is place for posters. Some have offered more than one poster and we have been able to accept all of them. Some had the intention to give more than one oral presentation, but there is only time to accept one per person.

There is the possibility to publish the Proceedings of the Conference in a special issue of the Journal of Marine Systems. The symposium papers are the core of the conference and we expect that all of them will be published in the Proceedings. The remaining space is for the other contributions, but there is not enough space for all of them. All manuscripts will be refereed. Of all the manuscripts to be submitted for the Proceedings the original, two copies, and a diskette must be handed over to the editors during the conference. They must be prepared according to the instructions published elsewhere in this newsletter. Symposium papers have ten pages in the journal, contributed papers five pages including abstract, illustrations, tables, and literature. One page in the journal is 60 typed lines with the computer with 70 characters per line.

There has been a good response to the culinary and musical activities planned during the conference. Only the demonstration of specimens has to be cancelled due to lack of enough volunteers. This was disappointing. Instead an evening session on digital databases will be organized. We are at work to finalize the details of the programme. When this is done, the timetable of the conference and the abstracts will be disclosed in our home page. So, in case you are curious and want to be informed in advance, please, look under: http://www.hrz.uni-oldenburg.de/monoculus. Before you do so, please give us 14 days time. All news pertinent to the conference will be published in the home page.

We have no reactions yet from people interested in participating in the post conference workshops and discussion groups. All will have a limited number of participants. If you are interested in one of them, please let us know. Subscriptions will be handled on a first come, first serve basis. The schedule is as follows: In the morning computer cladistics, copepod anatomy, dormancy, in the afternoon preparation techniques and discussion on Canthocamptidae. The afternoon sessions end at 6 p.m. at the latest. The excursions to the Island of Helgoland and to the Wadden Sea take the whole day. Participants in the excursions can therefore not subscribe to the workshops. Also the two excursions are mutually exclusive. There is no possibility to take part in both.

Please remember that the total sum on the registration form such as you have handed it in has to be paid cash at the registration desk. Make sure that you have enough German Marks (DM) ready to pay. This includes the T-shirts in case you have ordered one or more.

If you want to profit from the transfer we are willing to arrange from Bremen Airport to Oldenburg, please let us know the time of your arrival there. We need the date, the time of arrival and the flight number. Don't forget to send us these data by letter or by fax (our number: +441/798-3520, + means the number for Germany) or via e-mail (our address: schminke@hrz1.pcnet.uni-oldenburg.de). When you have arrived in Germany and you want to ring us from whereever you are, the number of the conference telephone is: 0441/798-3373.

We wish you a good trip and look forward to having you here.

On behalf of the organizing committee
H.K.S. (1st May 1996)

Guide for authors

Journal of Marine Systems

Elsevier Science B.V., P.O. Box 1930, 1000 BX Amsterdam, The Netherlands

MANUSCRIPTS

1. Manuscripts should be written in English.
2. The original and two copies of the manuscript together with the originals and two sets of copies of the figures should be submitted for review purposes. In the case of very large originals, these may be sent after the manuscript has been reviewed. Good glossy prints of the line drawings are also acceptable.
3. Manuscripts should be typewritten and double spaced. Leave good margins on each side of the paper. The various headings should be clearly differentiated. First lines of each new paragraph should be indented. Corrections should be made in the text, not in the margins.
4. The entire manuscript should be paginated starting with the title page.
5. Only words to be set in italics should be underlined. In cases when a word processor is used, these words should be in the appropriate style code for italics. An excessive use of italics to emphasize parts of the text should be avoided.
6. The metric system should be used and temperatures expressed in Celsius or in Kelvin. The use of S.I. units is recommended.
7. Manuscripts should in general be organized in the following order:
   a. Title
   b. Name(s) and affiliation(s) of author(s)
   c. Abstract (not more than 500 words)
   d. Introduction
   e. Methods, techniques, material studied, and area descriptions
   f. Results
   g. Conclusions
   h. Acknowledgements
   i. References
   j. Tables
   k. Figure captions
   l. Figures

   For general rules of manuscript lay-out and style, the author is referred to: *Suggestion to Authors of the Reports of the United States Geological Survey*, U.S. Government Printing Office, Washington, DC 20402; to *A Manual of Style*, The University of Chicago Press, Chicago, Ill.; and to W. Cochran, P. Fenner and M. Hill (Editors), *Geo-writing - a Guide to Writing, Editing, and Printing in Earth Science*, American Geological Institute, Washington, D.C., 1973.
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9. Submission of an article is understood to imply that the article is original and unpublished and is not being considered for publication elsewhere.
   Upon acceptance of an article by the journal, the author(s) will be asked to transfer the copyright of the article to the publisher. This transfer will ensure the widest possible dessemination of information.

TABLES

1. Authors should take note of the limitations set by the size and lay-out of the journal. A table should not exceed the printed area of the page. If this seems impossible, reserving clumns and rows will often make „the impossible possible".
2. Large tables should be avoided. Fold-outs can only be accepted in exceptional cases. If many data are to be presented, an attempt should be made to divide these over two or more tables.
3. Drawn tables, from which prints need to be made, should not be folded.
4. Tables should be numbered according to their sequence in the text. The text should include references to all tables.
5. Tables should be typewritten on separate pages, added to the manuscript. They should never be included in the text.
6. Each table should have a brief and self-explanatory title.
7. Column headings should be brief, but sufficiently explanatory. Units of measurements should be added between parentheses.
8. Vertical lines should not be used to separate columns. Extra space should be left between the columns instead. Accolades (braces) should not be used and ditto marks should be avoided.
9. Explanations essential to the understanding of the table should be given in footnotes at the bottom of the table.

ILLUSTRATIONS

1. All illustrations should be given separately, not pasted on pages and not folded.
2. Illustrations should be numbered according to their sequence in the text. References should be made in the text to each figure.
3. Each illustration should be identified on the reverse side (or, in the case of line drawings, on the lower frontside) by its number and the name of the author. An indication of the top of the illustration is required in photographs of profiles, thin sections, and other cases where doubt can arise.
4. Illustrations should be designed with the page format of this journal in mind and should allow for the eventual need for reduction. Fold-outs can only be accepted in exceptional cases.
5. Lettering should be in Indian ink or by printed labels. Lettering should be sufficiently large to allow a reduction without it becoming illegible. The lettering should be in the language of the manuscript. The same kind of lettering should be used thoughout.
6. Bar scales should be used on all illustrations rather than numerical scales that must be changed in case of reduction. Do not forget to mention the units used in diagrams.
7. Each illustration should have a caption. The captions should be collected on a separate list at the end of the manuscript.
8. Explanations should be given in the typewritten legend. Drawn text in the figures should be kept to a minimum.
9. Photographs are only acceptable if they have good contrast and intensity. Sharp, glossy copies are required. Reproductions of already printed photographs cannot be accepted.
10. Line drawings can be made or improved by Elsevier, at the author's expense.
11. Colour illustrations cannot usually be included, unless paid for by the author.

REFERENCES

1. All references to publications made in the text should be presented in a list of references following after the text. The list should preferably only contain references which are cited in the text. The manuscript should be carefully checked to ensure that the spellings of authors' names and dates are exactly the same in the text as in the reference list. Do not type author's and editor's names in capitals.
2. In the text refer to the author's name (without initial) and year of publication, followed - if necessary - by a short reference to appropriate pages. Examples: „Since Peterson (1967) has shown that ...". „This is in agreement with results obtained later (Kramer, 1969, pp. 12-16)".
3. If reference is made in the text of publications written by more than two authors the name of the first author should be used, followed by „et al.". This indication, however, should never be used in the list of references. In this list names of authors and all co-authors should be given in full.
4. References in the text should be arranged chronologically. The list of references should be arranged alphabetically by authors' names, and chronologically per author. If an author's name in the list is also mentioned with co-authors, the following order should be used: Publications of the single author, arranged

according to publication dates - publications of the same author with one co-author - publications of the author with more than one co-author.

5. The following system should be used for arranging references:
   a. *For periodicals*
   Lamb, H.H., 1971. Climate-engineering schemes to meet a climatic emergency. Earth-Sci. Rev., 7: 87-95.
   b. *For edited symposia, special issues, etc., published in a periodical*
   Fox , P.J., Ruddiman, W.F., Ryan, W.B.F. and Heezen, B.C., 1971. The geology of the Caribbean crust, I. Beata Ridge. In: B.C. Heezen and I.P. Kosminskaya (Editors), The Structure of the Crust and Mantle beneath Inland and Marginal Seas. Tectonophysics, 10: 495-513.
   c. *For books*
   Van Meurs, A.P.H., 1971. Petroleum Economics and Offshore Mining Legislation. Elsevier, Amsterdam, 208 pp.
   d. *For multi-author books*
   Davies, W.E. and LeGrand, H.E., 1971. Karst of the United States. In: M. Herak and V.T. Stringfield (Editors), Karst: Important Karst Regions of the Northern Hemisphere. Elsevier, Amsterdam, pp. 467-505.
6. Periodical names should be given in full or abbreviated using the *International List of Periodical Title World Abbreviations*, or *the Bibliographic Guide for Editors and Authors* (The American Chemical Society, 1974).
7. For publications in any other language than English, the original title is to be retained. However, the titles of publications in non-Latin alphabets should be transliterated, and a notation such as „(in Russian)" or „(in Greek, with English abstract)" should be added.
8. In referring to a personal communication the two words are followed by the year, e.g. „(J.McNary, pers. commun., 1968)".

CROSS-REFERENCES

1. Cross-references cannot be finally inserted until the page proof is available. Type them: „see page 000". In the margin, pencil the page number of the cross-reference in the manuscript.

FORMULAE

1. Formulae should be typewritten, if possible. Ample space should be left around the formulae.
2. Subscripts and superscripts should be set off clearly.
3. Greek letters and other non-Latin or handwritten symbols should be explained in the margin where they are first used. Special care should be taken to clearly show the difference between zero (0) and the letter O, and between one (1) and the letter l.
4. The meaning of all symbols should be given immediately after the equation in which they are first used.
5. For simple fractions the solidus (/) should be used instead of a horizontal line, e.g. $I_p/2m$ rather than $\frac{I_p}{2m}$.
6. Parentheses and square brackets are preferred in formulae. Accolades should be used only when they are absolutely necessary.
7. Equations should be numbered serially on the right-hand side and in parentheses. In general, only equations explicitly referred to in the text need be numbered.
8. The use of fractional powers instead of root signs is recommended. Also, powers of e are often more conveniently denoted by exp.
9. In chemical formulae the valence of ions should be given as, e.g., Ca^{2+} and CO_3^{2-} rather than Ca^{++} or CO_3^{--}.
10. Isotope numbers should precede the symbols, e.g., ^{18}O.
11. The use of superscripts added to superscripts, and subscripts added to subscripts should be avoided, if possible.
12. Mark italic, bold or italic-bold symbols. Symbols denoting matrices, vectors and tensors will be set in italics if not marked.

FOOTNOTES

1. Footnotes should only be used if absolutely essential. If possible the information should be incorporated in the normal text.
2. If used, footnotes should be indicated by asterisk and kept as short as possible.

3. If references are given in footnotes, full bibliographic data must be given in the list of references, not in the footnote.

STRATIGRAPHIC TERMINOLOGY AND NOMENCLATURE

A guide for the preferred use of stratigraphic terminology and nomenclature is given in: „Stratigraphic terminology and nomenclature; a guide for editors and authors", *Earth-Science Reviews*, 6(4): 267-288. Free reprints of this article are available from Elsevier on request.

PROOFS

1. Technical editing of manuscripts is performed by the staff of Elsevier. The author is asked to check the proofs for typographical errors and to answer from the the desk editor.
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SUBMISSION OF ELECTRONIC TEXT

In order to publish the paper as quickly as possible after acceptance, authors are encouraged to submit the final text also on a 3.5" or 5.25" diskette. Both double density (DD) and high density (HD) diskettes are acceptable. Make sure, however, that the diskettes are formatted according to their capacity (HD or DD) before copying the files onto them. Similar to the requirements for manuscript submission, main text, list of references, tables and figure legends should be stored in separate text files with clearly identifiable file names. The format of these files depends on the word processor used. Texts made with DisplayWrite, MultiMate, Microsoft Word, Samna Word, Sprint, T_EX, Total World, Volkswriter, Wang PC, WordMARC, WordPerfect, Wordstar, or supplied in DCA/RFT, or DEC/DX format can be readily processed. In all other cases the preferred format is DOS text or ASCII. Essential is that the name and version of the wordprocessing programme, type of computer on which the text was prepared, and format of the text files are clearly indicated. Authors are encouraged to ensure that the disk version and the hardcopy must be identical. Discrepancies can lead to proofs of the wrong version being made.

The study of copepods in Germany

It is impossible to write an objective history of copepodology in Germany, because the task requires a few arbitrary decisions. First of all there is the difficulty to decide whom to call a copepodologist. The more one goes back in history, the more arbitrary it becomes to speak of someone as a copepodologist. The old folks would have been surprised to be designated as such and they would probably not have joined the World Association of Copepodologists by themselves, but would have had to be declared honorary members. A copepodologist is a rather recent invention.

Once someone has been declared a copepodologist the problem arises whether he is German. Some would have gone through as good Germans in the past who today would be regarded as Austrians or even Swiss. For our purpose Germans are those who are born in Germany and we are not here concerned with living copepodologists. These we hope to meet in Oldenburg where they have the opportunity to attract public attention themselves.

We begin our brief - and certainly incomplete - history of copepodology in Germany with A. Poppe, not because of the impressive number of his publications on copepods between 1880 and 1892, but because he was an inhabitant of the region where the meeting takes place this year. Poppe was a teacher in Vegesack (now a suburb of Bremen) and besides freshwater copepods sent to him by various collectors he studied the brackish fauna of the estuary of the River Weser. Taking samples was not an easy task in those days. Therefore he enjoyed the

assistance of a teacher named Huntemann who lived in Dangast (on the shore of the Jadebusen not far from Oldenburg) and who later moved to Eversten (now a part of Oldenburg where the Schminkes live). Huntemann made collections for Poppe and survived in the name of a harpacticoid copepod: *Huntemannia jadensis* Poppe ....

German copepodologists can be classified in three categories: There are those who have mainly published on copepods. They are called copepodologists s.str.. Then there are those whose work includes copepods without concentrating on them. These are ecologists or planktologists for example and they are called here copepodologists s.l. Finally there are a few who started with work on copepods but abandoned them and became famous for their achievements in other fields. These are the lost sons, but they are few.

Copepodologists s.str.

Let us begin with what are regarded here as copepodologists s.str. Among them are:

CLAUS, Carl Friedrich studied in Marburg and Gießen, where he was Leuckart's pupil. He was professor in Marburg, Würzburg, Göttingen and finally Vienna. At the same time he was director of the newly founded Zoological Station at Trieste. Between 1857 and 1895 he published a great number of works on morphology, anatomy, systematics, development, and faunistics of free-living and parasitic copepods from German waters and the Adriatic. In 1862 he laid the foundations for the modern System of Crustacea. He was the author of the classical textbook „Grundzüge der Zoolgie" which appeared in 1868 and which as the „Claus/Grobben/ Kühn" remained the most important textbook in its field until the Second World War.

ZACHARIAS, Otto published many papers mainly on freshwater plankton, faunistics and biology between 1885 and 1906. In 1982 he founded the first permanent freshwater biological station in Plön (northern Germany), now the Max-Planck-Institut für Limnologie. His papers are not only interesting because of their scientific content, but also because of his reports and comments on what he experienced during his collecting trips in Germany, Switzerland and Italy. These reports include remarks on the danger to navigate on a lake, descriptions of how and where he spent the night and details on the meals he was offered.

GIESBRECHT, Walter published on marine zooplankton and parasitic copepods of the Baltic, North-Atlantic, Pacific, Red Sea and most parts of the Mediterranean between 1881 and 1921. His work centers around faunistics, morphology, and systematics of copepods. His collections are stored in the Zoologisches Museum at Kiel University. Upon his recommendation, scientists in those days took plankton samples while crossing the oceans on trading vessels. To prepare a bath for the passengers water was pumped from the outside into the bath-tub. A plankton net had only to be attached to the tap and after a few hours interesting material had been collected.

APSTEIN, Carl published on the faunistics and production of freshwater (Germany, Sri Lanka) and marine (Baltic, North Sea, Atlantic, Indian Ocean) plankton between 1890 and 1912. He is the author of the book „Das Süßwasserplankton" (1896). Living in Kiel and studying the plankton of the lakes in the surroundings he mentions in his papers, how difficult it was to walk to them (25 km one way) carrying weighty equipment and that such one-day excursions could sometimes be futile efforts, because strong winds made sampling impossible.

KESSLER, Erich lived in Dresden and later in Leipzig. He died in the field during World War I. He published on freshwater Harpacticoida between 1912 and 1914.

KLIE, Walter (1880-1951) was a teacher at Bremerhaven. After he had taken part in a course on ecology and limnology at the Hydrobiologische Anstalt Plön in 1909 he began to study copepods (and ostracods), encouraged to do this by Zacharias and Thienemann. He published on copepod taxonomy since 1912 working on material he had collected himself in German rivers and lakes. He was affiliated with the Institute in Plön and with the Zoological Institute at Kiel University. He fell ill and retired early from school. He moved to Bad Pyrmont where he continued to study copepods sent to him by other scientists. When after World War II a vital medicine was not available in Germany, Thienemann was lucky enough to procure it for him in Sweden. In 1944 Klie became Honorary Doctor of Natural Sciences of Kiel University.

KIEFER, Friedrich also was a teacher using his spare time at night or over the weekends for his taxonomic work. When he started publishing in 1921 he concentrated on freshwater cyclopoids and harpacticoids, but later turned his interest also to calanoids. The systematics of these groups was rather obscure in those days and only starting to take shape. Kiefer helped to clear the ground with his revisions of the cyclopoids in 1928 and of the diaptomids of the Old World in 1932. The limnology of the Bodensee (Lake Constance) became the second major field of research besides copepods. At a time when conservation and pollution were still widely neglected Kiefer warned against the growing eutrophication of the lake. When the director of the „Anstalt for Bodenseeforschung" retired, Kiefer succeeded him in 1963 as honorary director and worked in this Institute mainly on copepods until his death in 1985.

SCHÄFER, Hans-Wolfgang worked together with A. Remane and published on copepods between 1933 and 1936 especially on those from the island of Hiddensee (Baltic). He lost all his scientific collections and notes during World War II and moved to South Africa where he only produced one article on groundwater fauna.

HERBST, Hans Volkmar studied the ecology of ponds and pools in the vicinity of Kiel in the difficult times after World War II for his doctorate. He concentrated on copepods. He was research assistant at the „Hydrobiologische Anstalt der Max-Planck-Gesellschaft" in Plön and later became director of the „Limnologische Station Niederrhein". He was editor of the journal „Gewässer und Abwässer". Between 1951 and 1989 he published on cyclopoids from all over the world.

NOODT, Wolfram also began his studies just after World War II. Under the supervision of A. Remane he worked on the ecology of harpacticoids along the coasts of the North Sea and the Baltic. He later turned to the groundwater fauna and besides harpacticoid copepods studied Bathynellacea, interstitial Amphipoda and Mystacocarida. He stayed in Latin America for long periods of time serveral times and travelled widely in the world gathering an important and extensive material. He was professor (zoology) at Kiel University since 1969. Between 1952 and 1974 he published on copepods. When plate tectonics led to a reconsideration of animal distribution patterns, he was the first to recognize the potential of the groundwater fauna to contribute to the reconstruction of former intercontinental land connections.

JAKOBI, Hans started with work on Bathynellacea and studied the life cycle of *Bathynella* for his PhD in Erlangen. He then moved to Curitiba/Brazil and also turned to harpacticoid copepods. He published on them between 1953 and 1976.

BECKER, Karl-Heinz first studied geology and mineralogy at Tübingen University. He then moved to Kiel turning his interest to biology and in particular marine biology. Under Noodt's supervision he studied deep-sea harpacticoids for his doctorate. The material had been collected by Noodt from the Peru Trench (Pacific) and by Becker himself from the Iberian deep sea (Atlantic). Apart from several harpacticoids he also described the second species of what is now called Tantulocarida. After his sudden death in spring 1975 almost complete manuscripts on new species were found and have been published by Noodt and Schriever.

Copepodologists s.l.

LEYDIG, Franz von studied medicine in Würzburg and Munich and was Professor of Anatomy in Würzburg, Tübingen and Bonn. He published on parasitic copepods and on morphology as well as distribution of free-living copepods between 1851 and 1881.

GERSTÄCKER, Adolf published on Siphonostomata 1853/54, wrote the chapters on Copepoda in Carus, J.V. & A. Gerstäcker (eds.) „Handbuch der Zoologie" (1863) and in Bronn, G.H. (ed.) „Die Klassen und Ordnungen des Tierreichs" (1866-1879).

LEUCKART, Rudolf is remembered by the widely distributed *Mesocyclops leuckarti*. As director of the Zoological Museum in Leipzig he also founded the Zoological Institute at the University there. Of his important books we may mention „Über die Morphologie und Verwandtschaftsverhältnisse der wirbellosen Tiere" and „Zur Morphologie und Anatomie der Geschlechtsorgane". He published a few other papers mentioning copepods.

HAECKEL, Ernst was Professor of Comparative Anatomy and later of Zoology in Jena, where he founded the Zoological Institute. He is famous both for his propagation of Darwinism and for his monographs with magnificent drawings (e.g. Radiolaria, Kunstformen der Natur). Between 1864 and 1893 he also published on copepods encountered during his plankton studies, especially Corycaeidae.

HENSEN, Victor introduced the term „plankton". He was Professor at Kiel University and his research focussed on marine biology. In 1889 he led the famous „Atlantic-Plankton-Expedition". His publications on marine plankton between 1887 and 1911 mention copepods.

CHUN, Carl studied zoology under Leuckart in Leipzig, did research at the Zoological Station of Naples, was professor at various universities, finally at Leipzig University. He led the first „German Deep-Sea Expedition" on board the RV „Valdivia". Between 1886 and 1905 his publications also include copepods.

DAHL, Friedrich was a pupil of K. Möbius in Kiel, where he also was assistant professor for ten years. He participated in two big plankton expeditions and finally became Curator at the Zoological Museum in Berlin. He introduced the term „biotope" and was the first to use quantitative sampling methods. His publications on marine plankton between 1890 and 1912 also include copepods.

SCHMEIL, Otto was professor in Halle and studied plankton of fresh, brackish and saline waters. Between 1889 and 1897 he published on copepods. Important are his treatments in „Bibliotheca Zoologica" on Cyclopidae (1892), Harpacticidae (1893), and Centropagidae (1896).

BRANDT, Karl was professor in Kiel and studied marine plankton. His publications between 1889 and 1933 also deal with copepods. Together with C. Apstein he was editor of the four volumes of „Nordisches Plankton" (1905-1933).

VANHÖFFEN, Ernst was professor in Berlin. His publications on plankton between 1895 and 1918 include copepods. He also worked on parasitic copepods from the Indian Ocean and the Antarctic.

Here finally is the lost son:
HEBERER, Gerhard worked on the spermatogenesis of Centropagidae, on the caryology, the reproductive system and biology of several copepods. His papers appeared between 1924 and 1937. He then turned to anthropology and became famous in this field in Germany. A copepodological relapse happened between 1951 and 1965.

This, surely, is a very subjective selection of German copepodologists, but it may give an idea of the long and rich tradition of copepodological work in Germany. A complete history of copepodology in Germany would fill a book, but this was not our ambition.

H. Juhl/H.K.S.

The History of Oldenburg

The territorial history of Oldenburg mainly took place in the plain marsh- and swamp-areas, in the high and dry lands among the Northern Sea and the Wiehengebirge. In the beginning about 780 a.C. it is closely connected with the history of two tribes, the Frisians and the Saxons. In this landscape the missionar Willihad worked by order of Karl the Great. In 1000 The Emporer Konrad II. ratified the tribal rules of the Frisians and Saxons, written down in the Frisian „17 Küren". In the 9th Küre the „Omeresburg" (Ammersche Burg, the Frisian name of Oldenburg) was mentioned for the first time. A fort lay at the passage over the River Hunte where the trade route leaves from Jever to Bremen. A passage promissed revenue and tribute - reason enough for the later counts of Oldenburg to settle down near the river. Around 1150 the counts of the Saxon and Frisian borderland established themselves permanently at the Omeresburg and the Saxon name „Aldenburg" pushed the Frisian name aside, giving the lineage of the counts their name from then on. Under the protection of the medieval fort the growing civil settlement developed into a market for the Frisian-Westphalian exchange of goods. The two churches St. Nikolai and St. Lamberti were founded around 1200, but only St. Lamberti has been preserved until present days. While Oldenburg developed to the commercial and administrative centre of the region, the count Konrad I. and his son Konrad II. granted their capital the freedom of the city in 1345. In the constantly aspiring city the city wall was expanded and the donation St. Lamberti was founded. The importance of the sea-borne trade grew and so the „Stau", the port of the city was mentioned documentarily for the first time in 1383. In spite of some efforts Oldenburg was not accepted as a member of the Hanse. With the election of the count Christian for King of Denmark in 1448 the city and the

county of Oldenburg entered the parquetry of European policy. The count Anton I. displaced his brother Johann from government in1529. In the course of the reformation the princely authority had been strengthened and enriched with church property. The riots of Münster, set ablaze by the anabaptists, spread to Oldenburg. Together with the related principality of Denmark and Schleswig-Holstein the count Anton I. acted vigorously against the rebells during the „Schmalkaldische Kriege". The count Anton Günther (1603-1667) rules under the guardianship of King Christian IV. of Denmark. Inspite of the difficult political situation in Europe, Oldenburg witnesses a golden age under his reign. He established the historical „Kramermarkt", which takes place every year until today. During the disorders of the „30jähriger Krieg" he pursued a policy of neutrality and caused Tell to retreat, who stood with military forces at Wardenburg near the residence of Oldenburg. Giving thoroughbred horses as a present to diplomats and generals the count god badges of neutrals („Salvaguardien") from the German Emperor, from Sweden, from France. So Anton Günther protected his county from serious infringements during this time. As Anton Günther died without leaving a legitimate descendent, Oldenburg fell to the Danish crown in 1667 and hard times came for the city. The pestilence took away about 450 of the 4,000 inhabitants. A heavy fire devastated the biggest part of the old city and French troops plundered the city in 1679 claiming new losses. Under the pressure of permanent costs for dams and defence expenditures the conflict between Denmark and Holstein-Gottorp intensified, because both parties laid claim on Oldenburg. For the restoration of peace („Ruhe des Nordens") Denmark was willing to hand over Oldenburg to Holstein-Gottorp for an appropriate compensatory taxation. The grand duke Paul Petrowitsch left the city and the county to the bishop Friedrich August of Lübeck and so Oldenburg became independent again. In 1777 the Emperor Joseph II. raised the county to a dukedom and the prince bishop Friedrich August of Lübeck, now duke of Holstein-Oldenburg, designated his nephew Peter Friedrich Ludwig for the administrator of the dukedom and his successor. The duke Peter Friedrich Ludwig supported music, paintings, and classical architecture. Under his reign wide promenades were built, the castle received a library and the design of the palace garden started. The architectonic and forming culture of this time can be admired nowadays in such impressive buildings as the Peter-Friedrich - Ludwig-Hospital, the old watch or the prince palais. After the disintegration of the old German Empire („Heiliges Römisches Reich Deutscher Nationen") Dutch troops temporarily occupied the dukedom the independence of which was acknowledged in the „Tilsiter Frieden" (Peace of Tilsit) in 1807. The ports of Oldenburg were under the protectorate of France after the foundation of the „Rheinbund". The senat consulate, controlled by the French, concludes the union of the countries lying at the coast of the Northern Sea in 1810. This decision and the refuse of the princedom Erfurt, which was offered as compensation caused duke Peter Friedrich Ludwig to emigrate to Russia. The dukedom Oldenburg came completely into French possession. The battle of the nations from Leipzig in 1813 marked the losing control of Napoleon's power over Europe and over Oldenburg as well. Duke Peter Friedrich Ludwig returned from his exile and took over the government of Oldenburg and Jever. At the „Wiener Kongress" (Congress of Vienna) in 1815 Oldenburg joined the „Deutscher Bund" (German Union) and received one vote in the plenary. In the last act of Vienna Duke Peter Friedrich Ludwig got the title „grand duke", but until his death he never made use of it. Paul Friedrich August accepted the title grand duke of Oldenburg immediately, introduced a state coat of arms and led Oldenburg to a golden age once more as the principal place of his residence.

The German Revolution brought a constitution to Oldenburg in 1848 as the last federal state, which was proclaimed by the first land parliament on March 1st, 1849. As a state lying alongside the sea Oldenburg strongly stood up for the German fleet and made a secret treaty

with Prussia to which it sold an area at the Jade for installing a Prussian naval port. In the German War (1866, Prussia versus Austria) Oldenburg fought at the side of Prussia. Later the „Norddeutsche Bund" (North German Union) was founded and Oldenburg joined it giving up its own military authority. With the building of the railway line from Bremen via Oldenburg to Wilhelmshaven, Oldenburg was connected to the railway network. So Oldenburg noticeably gained importance as a garnison and regiments of infantry, artillery and cavalry were stationed at the end of the century. The completion of the Hunte-Ems-Canal suddenly increased the economical meaning of the city. The enlargement of the „Küstenkanal" (coast canal) made it possible for ships of 1,000 t (and more) to use this connection up to 1922. After World War I Oldenburg got a heavy stroke by the dissolution of the court administration. The free state of Oldenburg was founded with its own government and its own elected land parliament. The place of land parliament near the „Dobbenteiche" can be visited until now. During the assumption of power by the national socialists Oldenburg became the capital of the district Weser-Ems from 1933 up to 1945. In 1945 largely spared out from heavy destruction after World War II, about 50,000 fugitives from the eastern and middle parts of Germany flooded over Oldenburg increasing the number of inhabitants to 125,000. Oldenburg became the place of the President of Administration in 1946 after the integration of the land into the federal state of Lower Saxony.

Today Oldenburg is the seat of the district government of the Weser-Ems region and has established both a cultural and economic centre of this area after the local reformation of the territory. Oldenburg is a city of many markets, of a university, of different courtyards, the medical centre in the area of the between the rivers Weser and Ems and owing to its favourable link to the river Weser it is an attractive centre of trade as well.

All the new lines of development harmonize with the tradition and the cultural heritage of the city and so the old residence of Oldenburg has kept its special charme and attraction until today. Therefore all the citizens of Oldenburg had reason enough to celebrate the 650th anniversary of the freedom of the city.

P. Rumm, Oldenburg

Recipes for the Conference Dinner

1. Ho-Chiminh Sauce

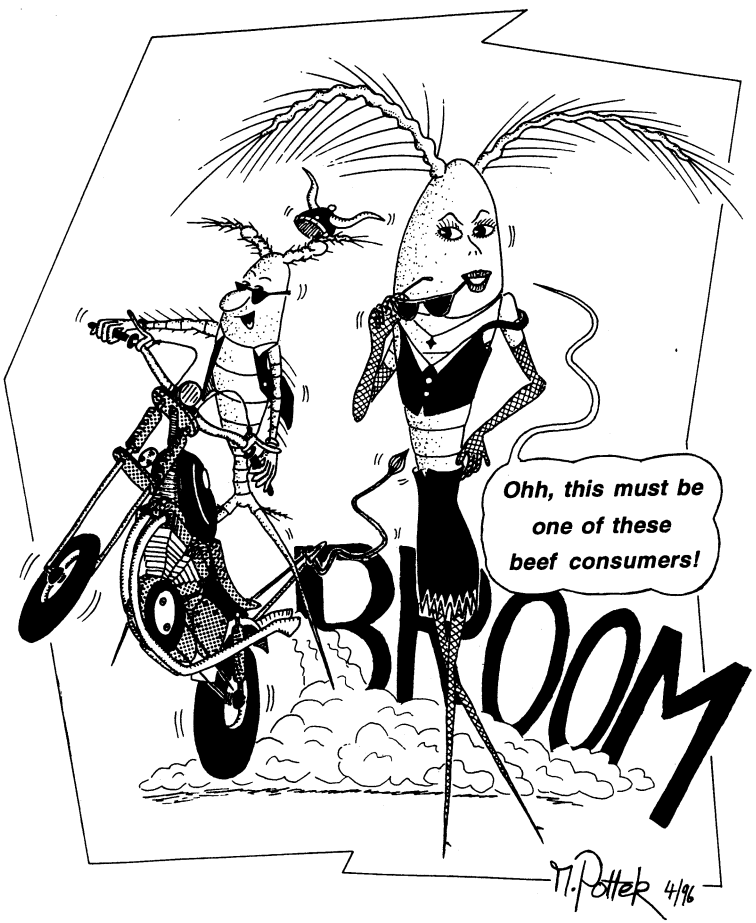
Ingredients: Tomato paste (base)
Chili
Paprika
Ginger
Garlic
Black pepper
Vinegar
Lime juice
Salt

White steamed rice

2. Copepoda Soup

Ingredients: *Calanus finmarchicus*
Finely chopped onions
Finely chopped garlic or garlic powder
Finely chopped ginger or ginger powder
Water cress
Tomatoes cut into small squares
Pepper (black)
Salt to taste

Fry all the ingredients for two minutes in a very small quantity of olive oil. Add copepods and an adequate amount of H_2O. Boil for five minutes and serve hot. Add boiled and cut tomatoes before serving.



3. Mysids and coconut (*Mesopodopsis zeylanica, Heteromysis zeylanica, H. proxima*)

Ingredients: Dried mysids (obtainable in Indian shops)
Coconut (desiccated, unsweetened)
Green chilies chopped
Curry powder
Paprika
Tumerie
Onions (chopped)
Garlic (chopped)
Parsley (chopped)
Pepper (black)
Salt

Lightly fry in vegetable oil (very little) all the ingredients and add adequate quantity of desiccated coconut, fry 2-3 minutes with rapid moving. Can be served cold.

4. Shrimps and vegetable *(Penaeus semisulcatus, P. monodon, Crangon vulgaris, C. crangon*)

Ingredients: Cleaned shrimps
Green beans cut into small pieces
Cabbage, chopped into fairly large pieces
Ginger (chopped)
Garlic (chopped)
Bean sprouts (fresh)

Cook for 5-10 minutes together after frying the shrimps in a little oil. Add a little soya sauce, serve warm.

5. Chicken à la Chou Enlai

Ingredients: Chicken wings
Garlic (powder)
Ginger (powder)
Pepper
Salt
Soya sauce

Marinate the chicken wings in all the ingredients. Leave for 1-2 hrs. Bake till almost crisp and serve warm.

6. Krill - if obtainable (*Euphausia superba* or *Nyctiphanes couchi*)
with Ho-Chiminh sauce (recipe secret still) as an entree, cold.

C.H. Fernando, Waterloo

ARRIVAL guide to hotels CCH and ANTARES and as to the venue university (Arabic numbers are indicated, see below)

- **Arrival by car**

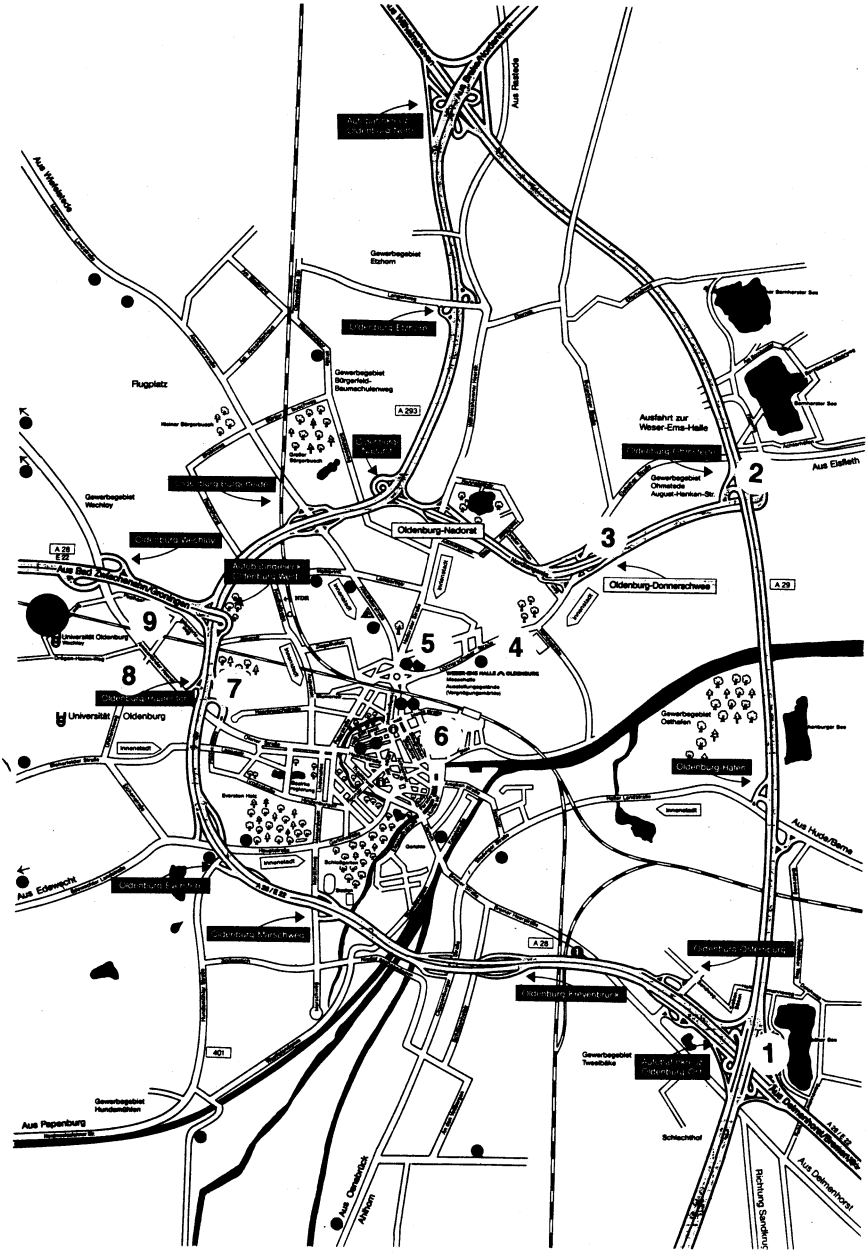
1. **To the hotels (see plan)**
   Motorway A28 ➔ at the motorway cross Oldenburg-East ① exit to the motorway A29 direction Wilhelmshaven (north) ➔ leave the motorway at the exit Oldenburg-Ohmstede ② (follow sign Messehalle Weser-Ems / City) ➔ at the next exit Oldenburg-Donnerschwee ③ continue follow signs and leave the highway direction south / City. Follow the road ➔ after a few minutes on the left hand side will be the Messehalle Weser-Ems and the CCH Hotel ④. To the ANTARES Hotel follow the road to roundabout traffic ⑤ ➔ follow signs to city centre and central railway station and main post office ➔ when you cross water (ditch on your left hand side) the ANTARES Hotel ⑥ will be on your right hand side.
2. **To the conference office and the venue university**
   Motorway A28 ➔ at the exit Oldenburg-Haarentor ⑦ leave the motorway and follow sign to university ➔ follow the road, after 3 traffic lights you see on the left hand side the main university ⑧ ➔ continue to next lights and follow sign to university location WECHLOY ⑨ ➔ turn right follow the road across bridge to car park.

- **Arrival by airplane via airport BREMEN** (connection to OLDENBURG from BREMEN)

1. **Shuttle service LUFIBUS from airport directly to OLDENBURG and hotels**
   Fare: First person 50 $ /75 DM, sec. person 30 $ /45 DM third/fourth each 10 $ /15 DM ➔ a transfer of four persons would cost 100 $ /150 DM in total.
   Contact the WESER-EMS BUSVERKEHR GmbH
   Sales Office Oldenburg
   Bahnhofsplatz 2
   26122 Oldenburg / Germany
   Fax 49+(0)441-9259299 / Phone 49+(0)441-925925
   You can book at the earliest 3 months in advance directly or by your travel agency. Single passengers should contact the conference office. We will try to arrange groups for the shuttle service.
2. **Via railway**
   Use tram line 5 to central station BREMEN (time 15min., fare about 2$/ 3DM) continue by train to central station OLDENBURG. Departure every hour, time 30min., fare about 11$/ 16DM.

- **Arrival by train and pedestrians**

1. **From central station OLDENBURG to hotels** ANTARES ⑥ and CCH ④ see plan. ANTARES within easy reach on foot. To CCH you must cross a pedestrian brigde at the station.
   Also take any bus to central coach station LAPPAN ⑩ and then bus line 6 direction Messehalle Weser-Ems.
2. **From central station to conference office** first take also any bus to central coach station LAPPAN ⑩ and then bus line 6 to the university location WECHLOY ⑨. Bus will stop directly in front of the main entrance.



Map of Oldenburg and surroundings

City of Oldenburg

The CALANOID

Calanus, the copepod,
A single eye to us is odd
Likewise your diel migrations
Are these special adaptations?
Numerically you overwhelm
Other creatures in your realm
Ideal for you, the plankton void
Dominion of the calanoid.

A. Louise Allcock, Isle of Man

WAC - TREASURER'S REPORT 1994/1995

The financial situation

	01.01.-31.12.1994	01.01.-31.12.1995
Balance forward	**19,888.89 DM**	**21,436.63 DM**
Deposits	2,071.06 DM	3,423.82 DM
Interests	799.57 DM	755.05 DM
Total	2,870.63 DM	4,178.87 DM
Expenses		
Transfer to Conference		5,000.00 DM
Support of MONOCULUS 93/94	1,170.89 DM	1,246.52 DM
Account dues	152.00 DM	152.00 DM
Cheque remittance		107.05 DM
Total	1,322.89 DM	6,505.57 DM
Balance	**21,436.63 DM**	**19,109.93 DM**

Remarks

The total financial situation of WAC looks always better than it actually is. Several members have paid their dues in advance in 1995 as well.

You may be astonished about the difference in the value of support of MONOCULUS. Although we have doubled the support of MONOCULUS from 2$ to 4$ per year per member who has paid his/her dues, there is just a slight increase. Although more members have paid their dues in 1995 than in 1994, the exchange rate from US $ to German Marks (DM) has tremendously decreased. I always have taken the exchange rate of 31 December of the financial year and this was 1.5488 DM for 1 US $ in 1994 and only 1.4295 in 1995. Many thanks again to all who have made generous donations to the WAC. All this helps the Association to support those members whose dues have been waived and to give grants to some colleagues to attend the next conference in Oldenburg/Germany. 5,000 DM were already transferred to Kurt in 1995 and 2,500 DM will follow soon.

LETTER BOX *LETTER BOX* *LETTER BOX* *LETTER BOX*

The making of „Introduction to the Copepoda" by Bernard Dussart and Danielle Defaye.

The previous issue of MONOCULUS (30: 21-23, 1995) contains a list of so-called „errata" (the majority of which in broken English), mainly from the pen of Bernard Dussart, to his book on the copepods of the continental waters of the world. Without much foundation, he even claims the book to be „unusable" and, of course, the blame for this is put on the

publishers. As the editor, responsible for the scientific content of this guide-book series, I feel personally insulted by this pamphlet. Consequently, I have decided to offer here my version of the story behind the publication.

But first and foremost, I wish to make clear that I believe in this book, which I consider a unique contribution to copepodology. For the first time ever, it has now become possible to identify the genus of any cyclopoid or calanoid, whatever its geographic origin. I also remain convinced that Bernard Dussart was the best choice for writing it. He is the only expert who has the depth of knowledge required to do this job. The problems that arose where therefore not problems of content, but of form.

When the manuscript diskettes were first delivered to me, it took only a quick check to find that the English was cripple. I asked for and obtained green light from the publisher to have the language corrected by a native speaker. I selected a professional copepodologist for that, and here the trouble started. First, he had problems opening the files. Dussart owns a prehistoric Apricot, with a French keyboard (remember the abundant use of accents in that language), still operating under CPM, so we had to transpose the complete set of files into something a modern PC will accept. Experts advised us to refuse the floppies, and urge the authors to retype their text on an IBM-compatible computer (as Danielle Defaye in fact did with the literature files), but I was enthusiastic about the book, and wanted it out quickly, so we kept the diskettes and had them transformed. Of course, in the act, things happened, like in the acknowledgements, where the name of a Mr. Rebière was printed Rebi re (Anglo-saxon computers hate accents). Dussart's so-called errata abound with such examples, but these can hardly, as he claims, make the book „unusable". At this point (the spelling of Rebière), a representative sample of Dussart's idea of good English may be found. He -literally- writes „au lieu de", as if „instead of" did not exist. As I shall illustrate further, his list is replete with similar instances. Consequently, I edited it down to half its length, and a page with acceptable errata was slipped into each copy of the book.

Next act: The copepodologist, in frustration, sent back the text, lamenting that he could not understand it. I then took a closer look myself, and found the „au lieu de" not to be an exception, but rather the rule. One needed to know French to be able to understand this English, and my copepodologist did not. So I took it upon myself to mentally translate every sentence into French and then back into English. Five versions followed.

Whatever meaning was changed in the act was my doing. Using my experience as a science editor, I indeed edited for brevity and clarity, and I am ready to take responsibility for that. But Dussart does not seem to understand that. There is an „erratum" where he objects against my correction of his sentence „... resins *able to be dissolved* in toluene ...". I cut out the words in italics, which are literally translated from the French „capable d'être dissous". In fact I should have cut out „dissolved" as well, and replaced the whole thing by „soluble", but I chose to preserve as much of the original wording as possible. There are numerous other cases, like where similar words in English and French have different meanings. Thus, in the errata on pp. 11 and 22, Dussart insists on inserting the word „fundamentally". I cut it out, because it adds nothing to the meaning. But what he really meant was English wording for the French „fondamentalement", and for this we might have used „basically", but surely not fundamentally. Similarly, on p. 32, Dussart objects to my correction of „the diverticulum, *where* present ...", which he replaces by „*when* present ..". No reader will likely cease to find the book useful because of this, but I still wish to point out that a diverticulum is an organ present in space, not in time, and therefore „where" should be preferred.

I could go on and on, and comment on the hundreds of „*very*"'s which I skipped from the text (what is the difference between a long and a very long seta?), as well as countless other - sometimes funny - errors and redundancies, but I have to admit that, at the end, the product

was not flawless. I did overlook some residual errors (like the ridiculous term „*copepils*" instead of „*Copepiones*"), although all errata applying to the keys and reference list, which we did not touch, must have been present on the author's diskettes, and they were required to submit a camera-ready document.

I repeat that these few errors do in no way touch the core of the book, which is on copepod identification.

It is true that the authors did not see a proof, and in hindsight I regret that, because now the book has no index. But there were two reasons for that. First, we were afraid of an avalanche of changes (the list of Dussart's „corrections" certainly proves us right here), which would have delayed printing and increased costs. Copepodologists should know that, by the time we had a workable product, so much money had been spent on the project that the publishers will likely never make a cent of benefit from it (the printing run is only 600 copies, and the price is kept as sharp as possible, to make the volumes affordable to a wide audience). And secondly, the SIL conference in Sao Paulo was approaching, and we wished to be able to present the new volume - of which, in the end, we were quite proud - at that meeting.

Frankly, we had expected Dussart to join us in our enthusiasm. We never expected him to behave the way he did. We feel sorry for this, but I for one am convinced that this book is a landmark in copepodology. It eliminates the need for people in the tropics to use keys written for Europe and North America, and hence gross errors in generic identification should in principle no longer occur. For sure, there will be problems with the keys, especially for the calanoids, but that is *not* Dussart's fault. Many generic diagnoses are so vague, and so many genera seem to merge with each other that any key can only be tentative. Consequently, we regularly run into problems with it in my international course on zooplankton science in Gent, where the key is extensively used and tested now. But in science, we learn from our mistakes, and every improved couplet means progress. If, in future, there is need for a second edition - which we hope - Dussart and Defaye will be welcome to revise and enlarge their book. However, knowing a few things about copepods myself, I predict that serious amendments will be in the generic diagnoses and the keys, and not in some silly wording.

Henri Dumont, Gent

New taxa of the COPEPODA lists

To make the list as complete as possible, the incorporation of authors of new taxa is most essential. In the past I have subscribed BIOSIS through the Canadian Institute of Science and Technology Information, and was able to pick up most papers on new taxa. Now that I shall be here for one or two years, I feel I may be somewhat out of touch. It may be a good idea if you will ask fellow copepodologists to send a copy of their publications on new taxa (new synonymy included) to MONOCULUS library and/or to me. My lists will be very useful for copepodologists who are interested in copepod taxonomy. One interesting example appears on page 8603. I found that *Diaptomus lighti* published by Mahoon & Nisa (1986) was preoccupied by *Diaptomus lighti* M.S. Wilson, 1941. In fact I wrote to Mahoon and asked him to change the name or someone else could rename it and take the credit to be the author of a new species. So far I am not aware of any action taken by Mahoon. If I have more time, I would like to compile an index of the scientific names so that the chances to name a species that is already preoccupied will certainly be greatly reduced.

Chang-tai Shih, Taipei

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Dr. H. Kurt Schminke
Fachbereich 7 (Biologie)
Universitat Oldenburg
Postfach 2503
D-26111 Oldenburg, GERMANY

25 April 1996

Dear Dr. Schminke,

Since retirement, I have been working long and pleasant hours on my much delayed History of the Study of Copepods. In spite of a nearly 40-year effort, I have yet to locate significant biographical material on a number of copepodologists who may have been better known in other fields. Perhaps the many eyes of the readers of the one-eyed Monoculus will be able to help me locate references. I am certain that biographies, obituaries, notices, and portraits of these researchers have been published in learned journals--the only questions are Where? and When? Those who have thus far escaped me are listed here:

Carl W. S. Aurivillius (ca. 1890)
P. W. Bassett-Smith (ca. 1900)
R. Bruzelius (ca. 1860)
Fr. Delaroche (ca. 1810)
A. L. Embleton (ca. 1901)
Sebastian Fischer (ca. 1850)
E. Graeffe (ca. 1883)
L. Joliet (ca. 1880)
Carl Edward Robert Hartmann (ca. 1856)
Jean R. Hermann (ca. 1804)
Robby Kossmann (ca. 1874)
W. Kurz (ca. 1880)
W. Harold Leigh-Sharpe (ca. 1930)
G. M. R. Levinsen (ca. 1878)
Jos. H. List (ca. 1900)
C. L. Oakley (ca. 1930)
Ossian Olofsson (ca. 1917)
Franz Poche (ca. 1900)
Nicolo Prestandrea (ca. 1830)
A. Quidor (ca. 1930)
K. Aug. Ramdohr (ca. 1800)
Aug. Roussel de Vauzeme (ca. 1830)
K. Sumpf (ca. 1870)
E. Topsent (ca. 1928)
Fr. Will (ca. 1844)
Wilhelm Zenker (ca. 1850)
Antonio de Zulueta (ca. 1912)

Any information about these pioneer copepod workers would be most appreciated.

Sincerely yours,

David M Damkaer

David M. Damkaer

Reprints available for donation from the Wilson Copepod Library

BORUTSKII, E.V. - 1952: Freshwater Harpacticoida. Fauna of the USSR. Crustacea III (4). (1964 English translation)

CARTER, M.E. & J.M. BRADFORD - 1972: Postembryonic development of three species of freshwater hapacticoid Crustacea. Smithsonian Contributions to Zoology 119: 1-26

DAMKAER, D.M. - 1975: Calanoid copepods of the genera *Spinocalanus* and *Mimocalanus* from the central Arctic Ocean, with a review of the Spinocalanidae. NOAA Technical Report NMFS CIRC-391. 88 pp.

HUMES, A.G. & J.H. STOCK - 1973: A revision of the family Lichomolgidae Kossmann, 1877, cyclopoid copepods mainly associated with marine invertebrates. Smithsonian Contributions to Zoology 127: 1-368

LEWIS, A.G. - 1964: Caligoid copepods (Crustacea) of the Hawaiian Islands: parasitic on the fishes of the family Acanthuridae. Proceedings of the US National Museum 115 (3482): 137-244

LEWIS, A.G. - 1963: The calagid copepod genus *Dentigryps* (Crustacea: Calogoida). Proceedings of the US National Museum 115 (3487): 347-380

LEWIS, A.G. - 1967: Copepod crustaceans parasitic on teleost fishes of the Hawaiian Islands. Proceedings of the US National Museum 121 (3574): 1-204

RYLOV, V.M. - 1948: Freshwater Cyclopoida. Fauna of the USSR. Crustacea III (3). (1963 English translation).

SMIRNOV, N.N. - 1971: Chydoridae. Fauna of the USSR. Crustacea I (2). (1974 English translation).

Large series of articles by STILLMAN WRIGHT on calanoids of South America; and by ROGER CRESSEY on parasitic copepods.

ANNOUNCEMENTS *ANNOUNCEMENTS* *ANNOUNCEMENTS*

Scripps Planktonic Invertebrates Collection on the Web

The World Wide Web home page (http://gdcmp1.ucsd.edu/plankton) for the Planktonic Invertebrates Collection of Scripps Institution of Oceanography, University of California at San Diego, includes information of interest to copepodologists. This collection presently includes ca. 95,000 whole zooplankton samples from most sectors of the world ocean and grows annually. The home page includes maps of the world coverage of the collection, the locations of deep plankton trawls, and the 52,500 samples collected in the California Current System by the CalCOFI programme. An online search engine permits you to search our database of whole zooplankton samples. The Collection also includes the Fleminger Copepod Library, an extensive collection of monographs and reprints concerning the Copepoda as well as ca. 21,500 sorted copepod specimens from the late Dr. Fleminger's research programs. Sorted, identified specimens from other zooplankton taxa are also held in the Collection. (Other Scripps collections, including Benthic Invertebrates and marine Vertebrates, can be accessed from http://gdcmp1.ucsd.edu/sci_coll.html).

For more information on the Planktonic Invertebrates Collection contact the Curator, Dr. M.D. Ohman (mohman@ucsd.edu) or the Collections Manager, Ms. A. Townsend (atownsend@ucsd.edu).

Welcome to the International Working Group on Larviculture

A new working group, the International Working group on Larviculture (IWGL), has been formed with the support of the European Aquaculture Society (EAS) at the occasion of the Larvi'95 Symposium (University of Ghent, Belgium, September 1995).

The objectives of the Wcrking Group are:

- To improve communication among larviculturists. In this regard, a Larviculture Newsletter will be distributed (from the University of Ghent) by electronic mail to Working Group members and members will also be able to interact via the Larvi-BB bulletin board (can be reached at: e-mail: larvi@rug.ac.b).
- To sponsor symposia or special sessions at aquaculture conferences. Several possibilities for this exist in the coming year.
- To improve international education in aquaculture. Through the use of modern technology, lectures can be given in one country to students in another country (even another continent), with two-way interaction, including questions, discussions, etc.
- To improve ties between industry, academia and government. The Working Group should serve as a forum in which industry can identify its research needs to academia and government, academia can inform industry and government about new results in fundamental research, so that possibilities for application can be identified, etc.
- To facilitate conduct of interlaboratory exercises. Some members participate in these exercises within an ICES Working Group, but that organization is limited to countries that border the North Atlantic. The EAS-IWGL could extend those exercises worldwide and/or could initiate its own exercises.

It should be emphasized that the EAS-IWGL is *not* just a European Group. Attendance at the organizational meeting included participants from every continent except Antarctica. Those

who have agreed to serve as provisional officers to get the Working Group up and running come from three continents: Chairman - David Bengtson (USA), Vice-Chair - Daniel Fegan (Thailand), Newsletter Editor - Gilbert Van Stappen (Belgium), Secretary/Treasurer - Patrick Sorgeloos (Belgium). The officers will be working during the first year to establish bylaws and working protocols, and to develop the necessary networks (e.g. an industry council, identification of 'country' representatives to distribute information to members who may not have e-mail yet, etc.).

Membership in the Working Group costs BEF 500 per year (plus financial transaction charges) and simultaneous membership in EAS is not required, although it is certainly encouraged.

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LARVICULTURE & ARTEMIA NEWSLETTER

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3rd International Conference on Reservoir Limnology and Water Quality

Ceské Budèjovice, Czech Republic
August 31 - September 5, 1997

Conference Organization:

Chairpersons
Vèra Straskrabová (Organizing Committee)
Milan Straskraba (Programme Committee)

Local Organizing Committee

L. Cervinka (ICARIS Ltd.), J. Hejzlar, J. Kubecka, M. Straskraba, V. Straskrabová, J. Vrba (all from the Academy of Sciences of the Czech Republic)

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Deadlines

Preliminary registrations: December 31, 1995
Abstract submissions & registrations: January 31, 1977
Manuscript submission: September 1, 1997

J. Reid, Washington

Excerpt from the literature

From: CLAUS -1858: Zur Anatomie und Entwicklungsgeschichte der Copepoden

„... Wenn die jungen Larven nach der Zersprengung der Eihüllen in das Freie gelangt sind, stellen sie eine Zeit lang alle Thätigkeiten ein und ruhen mehrere Augenblicke aus, um sich allmählich unter langsamen Bewegungen an die künftige Lokomotion und Lebensweise zu gewöhnen. Bald hat die Körperbedeckung unter dem Einflusse des Wassers einen höheren Grad von Starrheit angenommen, den Muskeln sind festere Insertionspunkte zu Theil geworden, so dass ihre Contraction mit einer kräftigeren Wirkung verbunden ist, und die Bedingungen sind erfüllt, unter denen sich unsere Geschöpfe mit lebhaften Sprüngen in ihrem Elemente umhertummeln können." ...

BOOK REVIEW *BOOK REVIEW* *BOOK REVIEW*

Biologie der Polarmeere - Erlebnisse und Ergebnisse
(edited by I. & G. Hempel)

To write a book for the non-specialist, for those who are not (as yet) involved in polar marine research, and to fascinate a coming generation of students about polar biology - this was the intention of both editors, I. and G. Hempel.

As such this book should also show emotional aspects always involved in scientific endeavours, especially so during the adventure of an expedition to polar regions. To pass on some of the vibrations of scientific curiosity, ambition and pleasure to the reader, as well as the frustration which may turn up when things do not work as they should. Also, to write about failures or misconceptions should provide a different view of living science - aspects which are usually neglected in the hard core of scientific publications which are predominantly restricted to „positive results":

Contrary to this intention most authors stuck to the objective side of their experiences. Little is said about failing methodological approaches or the improvements usually to be made step by step. Even less is mentioned about the hypothesis which finally could be falsified. If one turns to the conclusions concerning the future of polar regions and the issues of concern, little is mentioned about these as well.

Also copepods are considered in this book. Copepoda which live in the crevices or underneath the sea ice which covers as pack ice the main area of the Southern and Arctic Oceans during polar winter. Planktonic Copepoda which contribute also a substantial portion of the plankton of polar seas.

On the other hand, deals the book with a wide variety of subjects and to discuss all of them here would be superfluous. It contains 33 chapters, with some introducing essays at the beginning of the book which outline its scope. Initial chapters introduce the reader to the geological history, oceanography and ice phenomena of polar regions. These are followed by contributions on the living communities belonging to the plankton, the benthos, and sea ice. The reader gets involved in the biology and ecology of phytoplankton, copepods, krill, squid, fish, birds, seals, and whales. It was particularly satisfying to the present reviewer to see that evolutionary causes of polar biodiversity were not altogether divorced from their ecological background - may their nature be abiotic or biotic. Each of these chapters was written by a single author in most cases: altogether 43 experts gave their contributions. Although the chapters are of uneven quality, in general a wealth of knowledge has been summarized here and has been made available to the general public. As this is a multi-author book, it promises to be a mosaic of independent contributions, each dealing with aspects of certain groups of organisms belonging to certain habitats. It was not intended for the scientists who wants to make an in-depth study of a certain problem, but may be of stimulating value to everybody with an interest in the marine biology of polar regions.

Most of the results were obtained from cruises of the research vessel and ice breaker „Polarstern". About 3800 scientists from German and foreign research institutions have taken the opportunity to make use of this high-tech research platform, since its maiden voyage in spring 1984 to the high Antarctic. Since then „RV Polarstern" made approximately 550000 sm, that is almost equal to 25 times the circumference of the earth. It was the first time in men's history when „RV Polarstern" and the Soviet icebreaker „RV Oden" reached the North-pole in 1991.

The authors have tried to present their results in an attractive way and the book includes many excellent pictures, drawings and diagrams. The illustrations are clear, and not loaded with data which would irritate the initial reader. The book is well edited and printed in a most appealing format. It will not only be a very useful volume for aquatic ecologists, it is also a beautiful book. Also, there is a comprehensive set of references and index. Although the literature is not complete (...it can hardly be exhaustive for such a wide-ranging topic), the cited references may give a good start for anybody looking at the biology of Polar Oceans. This book should be on all library shelves as a reference source for undergraduates. Furthermore, as scientific books come these days, the price of this paperback edition is low enough to be affordable by those most likely to benefit from this book: honours students, postgraduates and any marine scientist who needs an introduction and a brief survey to the biology of Polar Seas. It will be invaluable for researchers, students and amateur biologists for years to come.

Hans-U. Dahms, Oldenburg

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(Sources marked by an asterisk * are donated to the MONOCULUS library)

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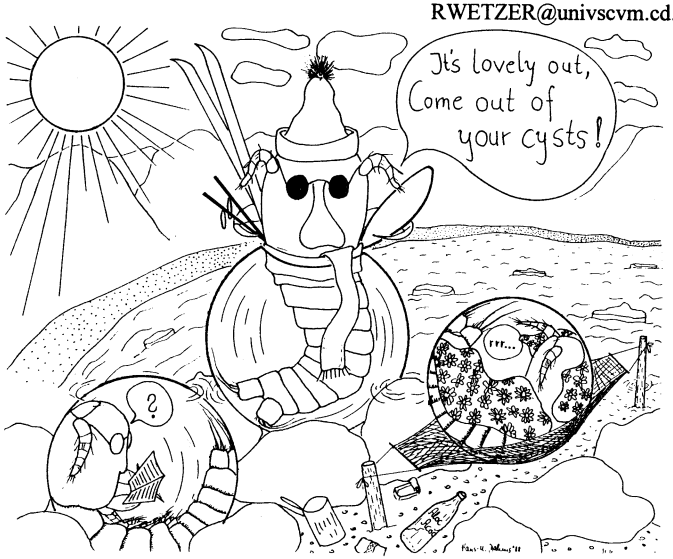

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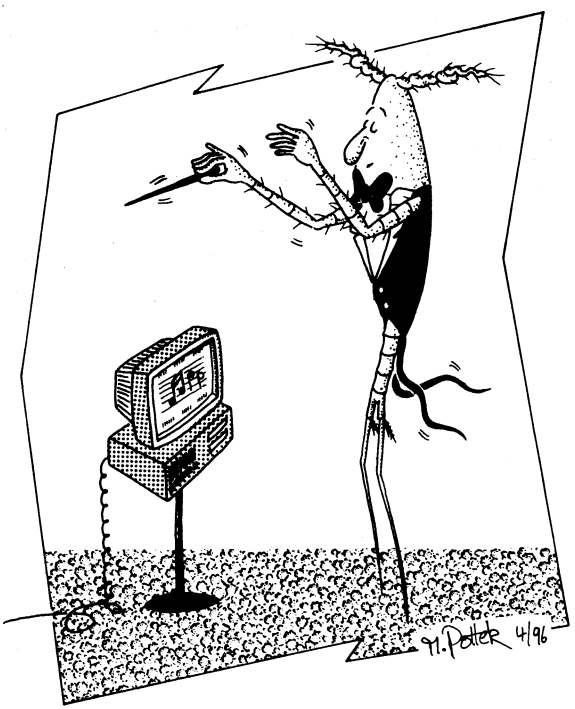
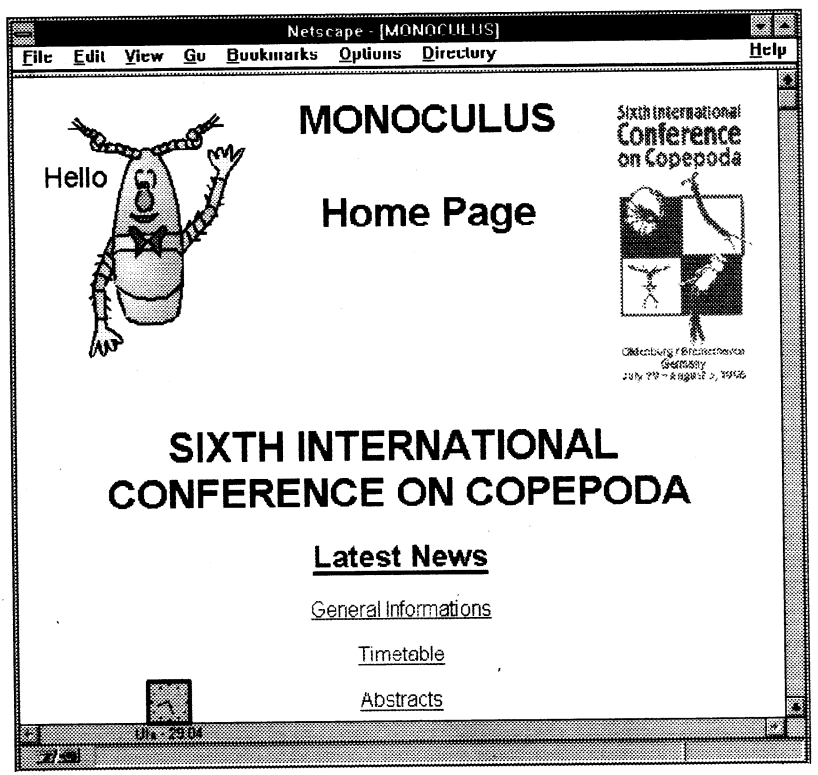
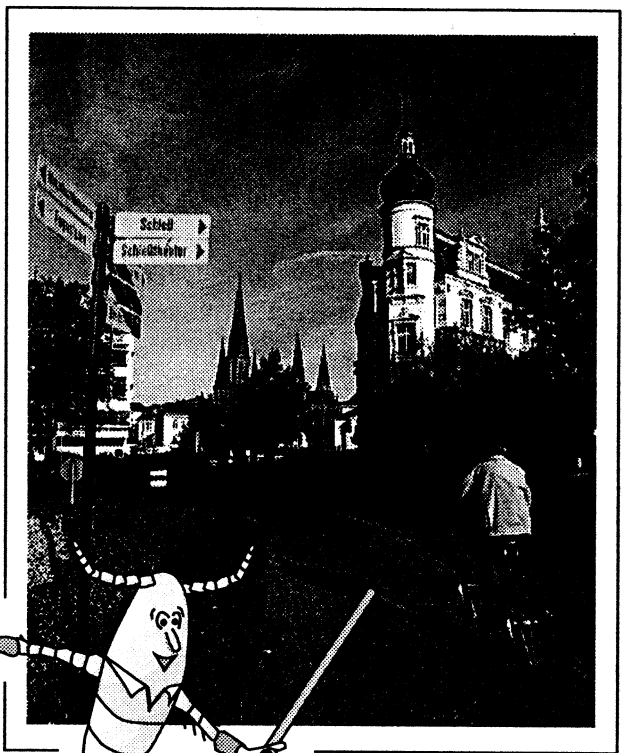
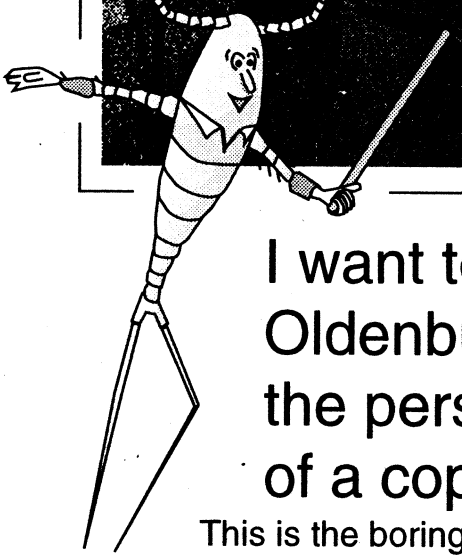




The **MONOCULUS home-page** is available from the www-service under:
http://www.hrz.uni-oldenburg.de/monoculus.
We try to keep it up with the most recent information.

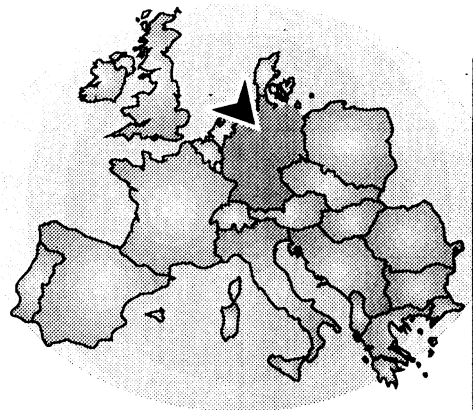
Oldenburg

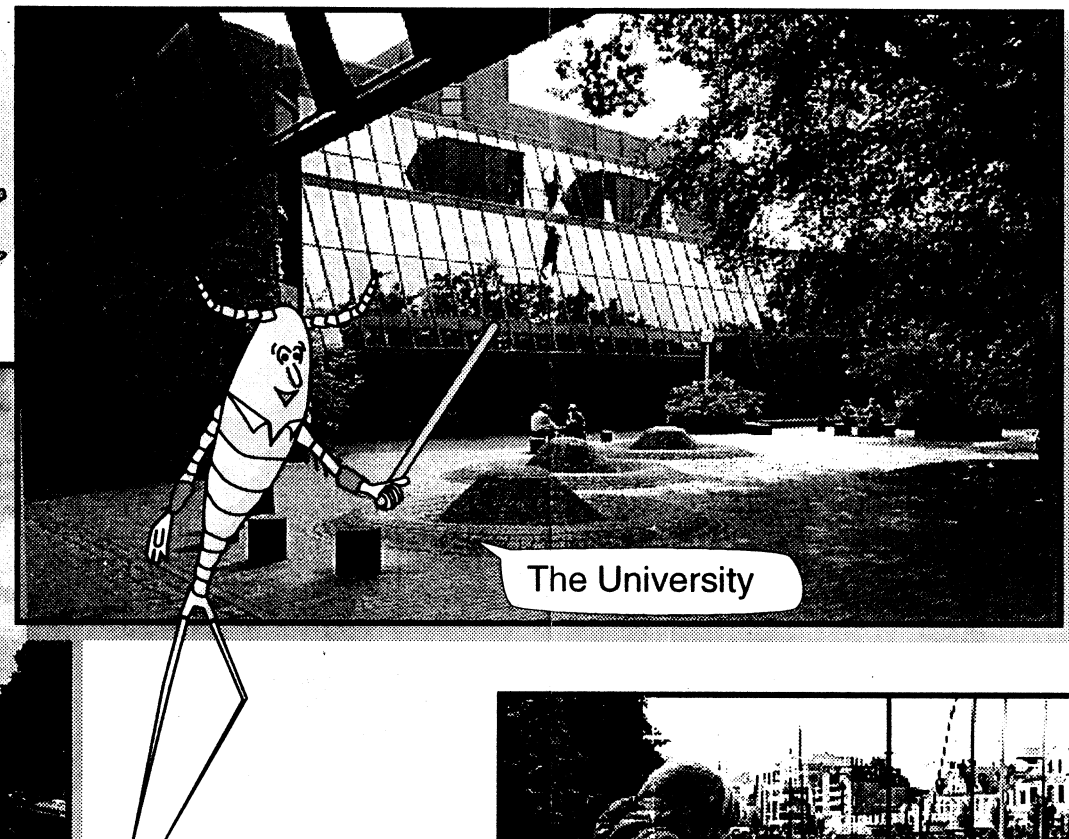




I want to show you Oldenburg from the perspective of a copepod

This is the boring castle (right), not good for copepods, no water but heavy bicycle traffic

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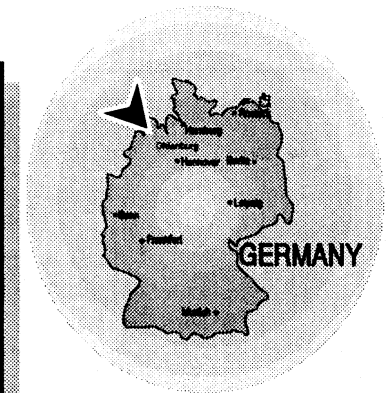
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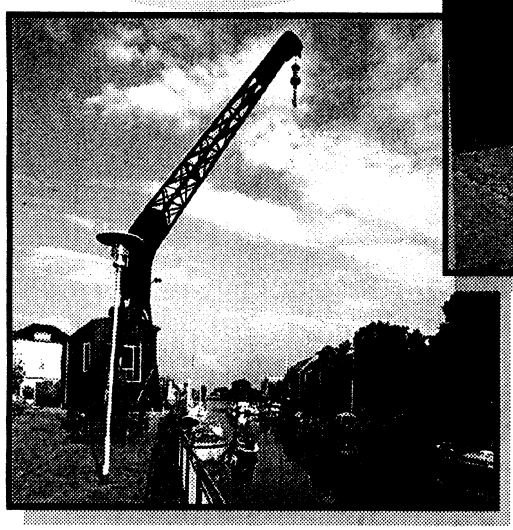
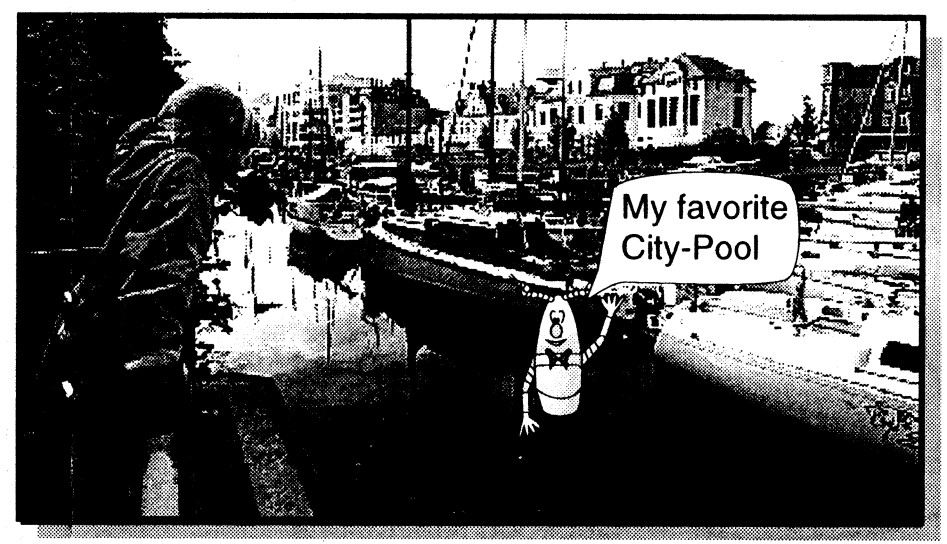
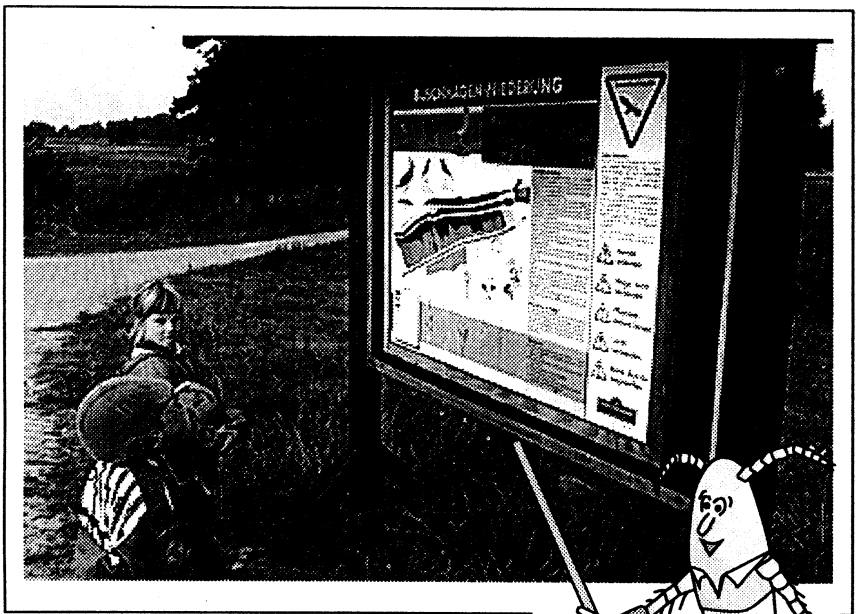


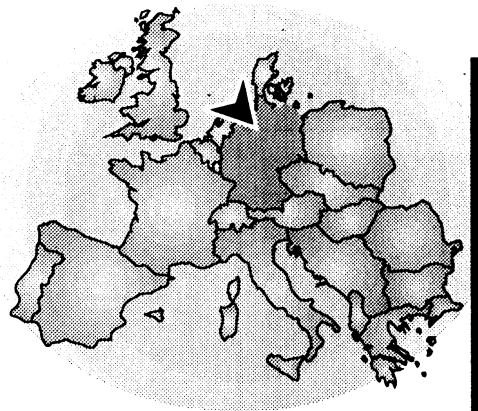

I am out for a swim

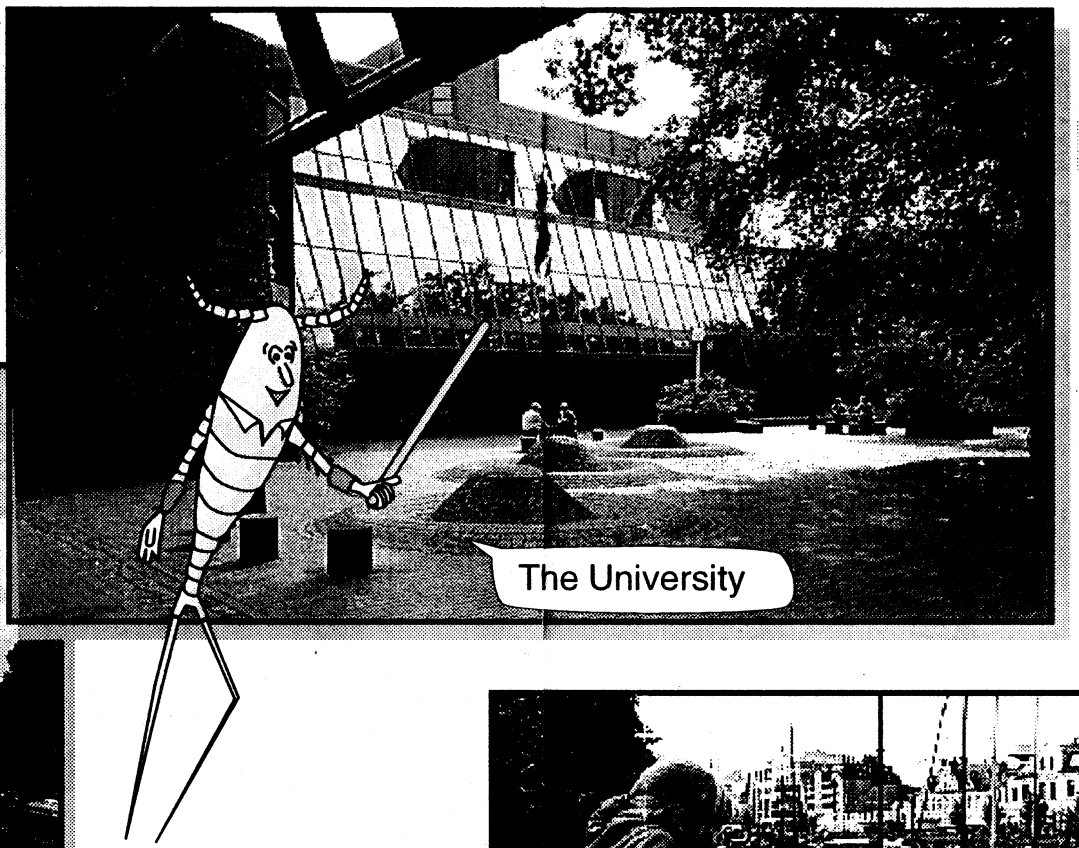

My favorite
City-Pool



Around Oldenburg you find a lot of natural resorts, like fens and sandy dry lands. Many signs inform people about plants and protected animals. Unfortunately no one thought about us, the copepods. In the ponds in and around the city we have to struggle

Pictures, Text and Design
by Klaus Kohlhage.
Copepod Illustrations
based on

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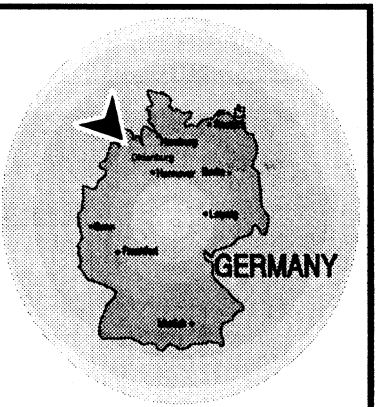
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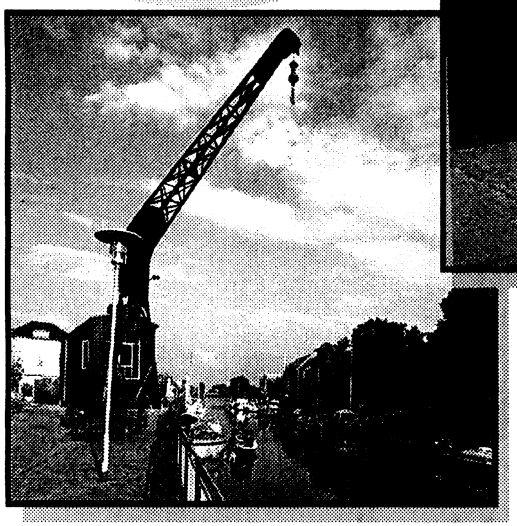

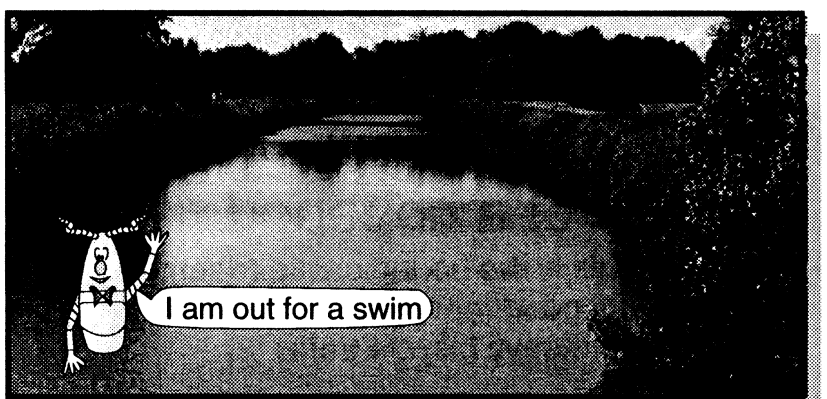
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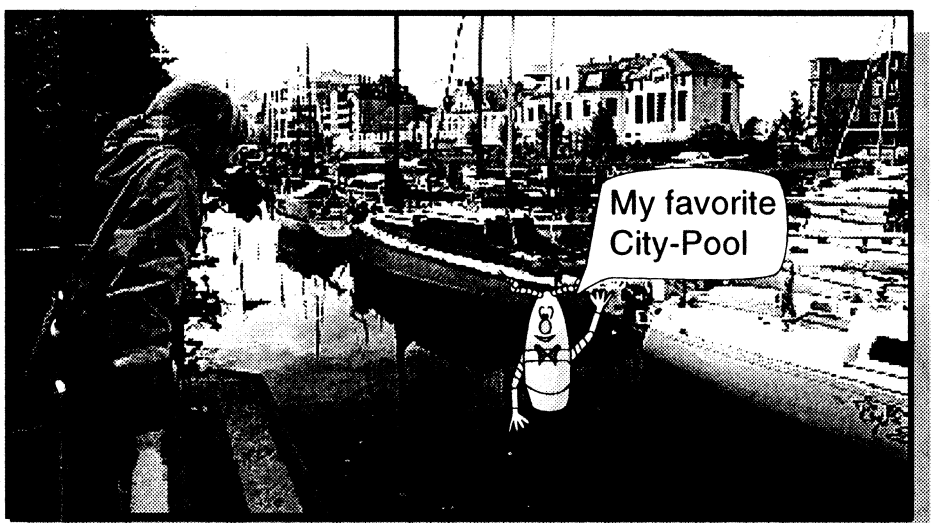
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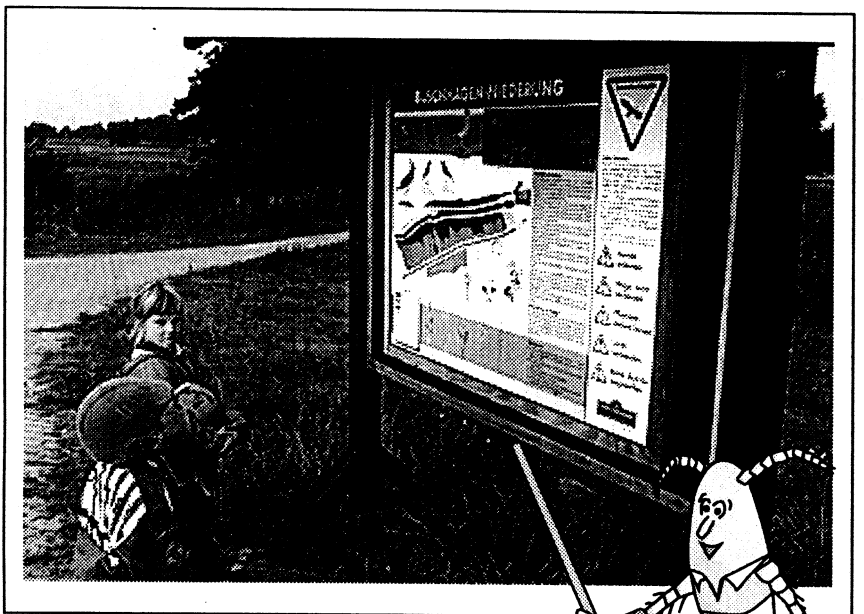

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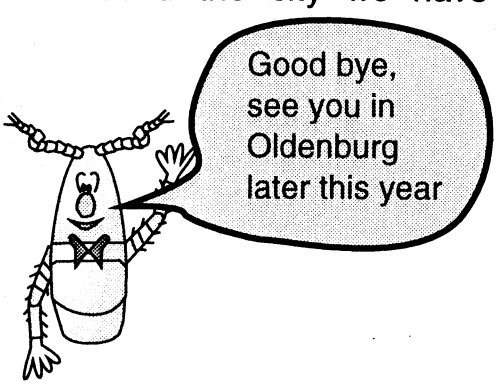

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