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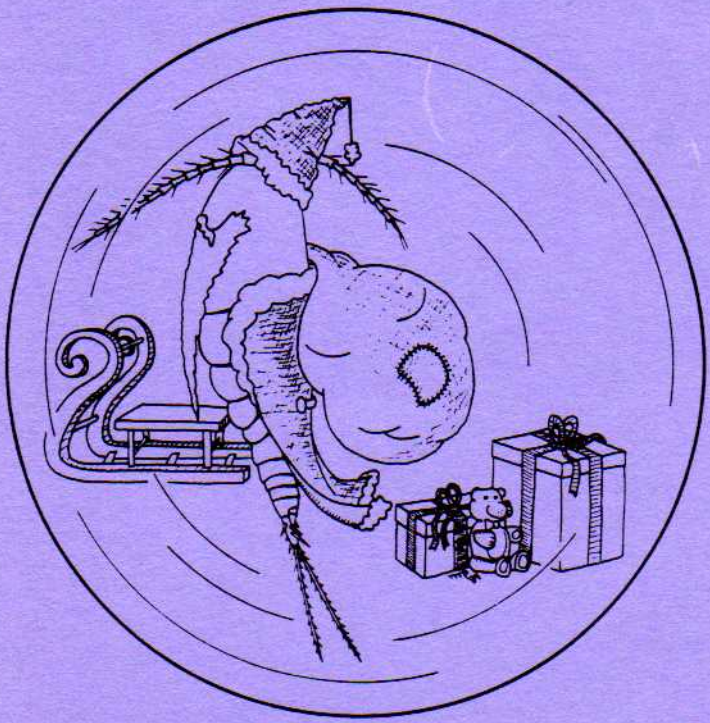
MONOCULUS

Copepod Newsletter



Nr. 19 **December 1989**

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MONOCULUS

Copepod Newsletter

Number 19 December 1989

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

Gerd Schriever, Institut für Hydrobiologie und Fischereiwissenschaft, Universität Hamburg, Zeiseweg 9, D-2000 Hamburg, W. Germany. Cover by: M. Pottek, Oldenburg.
Portraits by: Birgit Schumacher, Oldenburg.

Produced by: H. Kurt Schminke and Bibliotheks- und Informationssystem (BIS) der Universität Oldenburg, Ammerländer Heerstr. 67/99, D-2900 Oldenburg, W. Germany.

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

Died:

Antonio Frederico Campaner
(August 1989)

Deadline for the next issue of *MONOCULUS*: 15 April 1990

Editorial

1989 has been an unusual year for readers of *MONOCULUS*. Never before has the appearance of the newsletter been so irregular. For the first time we have a real Christmas issue and the cover celebrates this rare event.

This slight disturbance has a simple cause. At first we thought we would never have to disclose it. Meanwhile the interference has become so obvious that we feel we had better lift the secret before people start to suspect we may have lost interest in our tasks as editors. It is Kurt who has been affected most. For almost two years now there has been something that requires his attention every month a bit more, particularly over the weekends. As a result he doesn't get as much done as before. Postponement of activities especially of those without a strict deadline has become unavoidable. The lag may be a few weeks or at worst more than a year.

When Lars was on the way Kurt's wife Gisela was piecing together the new directory. The task was almost finished when the son was born. The directory fell into oblivion for a few months then and later someone persuaded us to use a different computer programme to make the directory look even more like a printed book. Complications with this programme caused a new interruption in the production of the directory. So the months went by. It reappeared on the agenda in 1989 and now it is ready and will be posted shortly after this newsletter. We trust you know what it is like to have to take up things again and again that had to be left unfinished.

Another reason for the late appearance of this newsletter is the events that happened behind what was formerly called the iron curtain. The changes were so staggering and the dynamics of the upheaval so bewildering that at times our whole attention was arrested by what was going on. The greatest relief was that the events had a peaceful course, with the

unfortunate exception of Rumania. Our colleagues there are probably in need of help. Whoever wants to offer his good services should perhaps inquire by letter whether help is desired at all and which kind of it in particular. You will find the names and addresses of our Rumanian colleagues below.

A couple of months ago Frank Ferrari offered to try his hand at a *"kind of article that evaluates new studies of or new ideas about copepods"*. This series of columns starts in this issue.

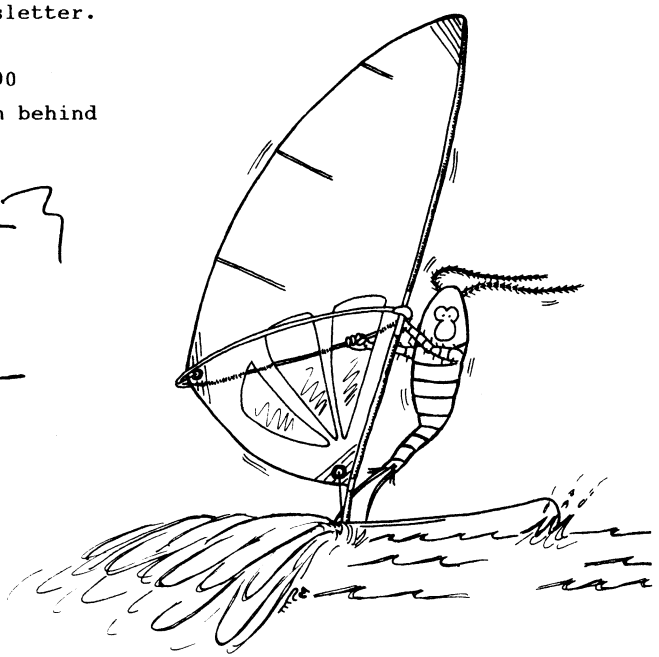
Other contributors to this newsletter are: T. Ishida, H. Juhl, J. Reid, S.-I. Uye. Many thanks to all of them.

The portraits have been drawn this time by Birgit Schumacher (Oldenburg) and our little copepod in new disguises and situations as witty as ever by Mark Pottek. It is time, we feel, that this copepod receives a name as funny as himself. This is a task for witty minds. We therefore open a contest. The best suggestion will win a prize which will have something to do with the name. Guess what it will be? Many thanks to the artists of this newsletter.

All the best for 1990
and always wind from behind

F. K. M.

J. Schram



Addresses of Rumanian colleagues:

Maria Alb, Institul de Speologie, Strada Clinicilor Nr. 5, R-3400 Cluj-Napoca, Rumania

Mihai Bacescu, Naturhistorisches Museum "Gr. Antipa", Kiseleff Nr. 1, R-71243 Bucuresti 63, Rumania

Livia Neagu, same address as Alb

Corneliu Plesa, Str. Gh. Dima 28/27, R-3400 Cluj-Napoca 6, Rumania

Mihai Serban, same address as Alb

BRUNO SCOTTO DI CARLO (1939-1988)

STILLMAN WRIGHT
1898-1989

Dr. Stillman Wright, limnologist and copepodologist, passed away on 19 February 1989. His scientific legacy includes a number of taxonomic works on calanoid copepods; several articles on physical and chemical studies of waters in Brazil; and limnological and fisheries studies in the northern United States.

Born on 27 September 1898 in Chicago, Stillman received the Bachelor of Science degree in Geology, with honors, from Beloit College in 1921, his baccalaureate studies having been interrupted by service in the U.S. Navy during 1918-1919. After working as a Wisconsin Scholar at the University of Wisconsin, Madison (1921-1922) and as a high school science teacher in Sioux Falls, South Dakota (1922-1924), he returned to the University of Wisconsin, where he became one of the first two students to complete their doctoral studies under Professor Chancey Juday (Beckel and Egerton, 1987). His three-part thesis included an extensive taxonomic work on South American Diaptomidae. During this period, Stillman also served part-time with the Wisconsin Biological and Natural History Survey and with the U.S. Bureau of Fisheries. After receiving the doctorate, he worked until 1933 as an assistant aquatic biologist at the Bureau of Fisheries' Ann Arbor biological station, participating in research on limnology, aquaculture and fish production, and in intensive studies on fisheries and pollution in Lake Erie. In 1929-1930, Doris Ann Wright (no relation, as yet) participated in the Lake Erie studies as a researcher on plankton, and she and Stillman were married in 1930.

Stillman's unique qualifications led to an appointment in 1933 with the Commissao Technica de Piscicultura (now Serviço de Piscicultura), Brazil, to serve as limnologist for the Commission under its first director, the eminent fisheries specialist Dr. Rodolpho von Ihering. The Commission was to study the potential for commercial fisheries in impoundmets ("açudes") in the northeastern "drought polygon" of the country. Besides the permanent team of eight scientific specialists, more than 40 short-term researchers, collaborators, and visitors were to take part in some aspect of this programme. Under Dr. Ihering's direction from 1933-1937, these researchers published some 77 articles, which constitute an extensive data base on tropical fisheries, limnology, and taxonomy (Braga, 1972; Paiva, 1972).

Dr. Ihering's team was at first headquartered in Campina Grande, Pernambuco, and subsequently in Fortaleza, Ceará, and Belém, Pará. Their activities included extensive field surveys, which eventually covered an area of over 1,150,000 km², from Bahía in the south to Belém in the north. At times, the team was accompanied by Dr. Ihering's wife and daughter and by Doris Wright and the Wrights' infant son Timmy. Dr. Ihering's daughter, Dora von Ihering Bonança, who served as secretary and driver for many of the field expeditions, described these journeys in a lively memoir which was published together with several of her father's essays (Ihering and Bonança, 1983). Stillman and Doris' enthusiasm and humor under primitive and occasionally dangerous circumstances endeared them to their Brazilian colleagues, to most of whom conditions in the Northeast were almost as unfamiliar as to the foreigners. "Everyone was in despair at not having a photo as proof of the incredible agility of the American limnologist, Prof. Stillman Wright, who when passing from the tug to the rowboat anchored in Lago Arari - Marajó, fell into the water! Perhaps reason, instinct and terror of the piranhas stimulated the speed with which he leaped back, in the fraction of a second, into the canoe. Even he did not credit his rapidity! The cursed things only succeeded in nipping a slice of his heel. Those, including Mrs. Wright, looking on from the deck turned pale and afterwards thanked heaven for its protection." (Bonança in Ihering and Bonança, 1983). "We were used to characterizing the Diaptomus by this characteristic zig-zag movement, when once, one of these swimmers, a little larger than the others, displayed different movements: its eccentricity was to make those "loopings" known from aviators. Dr. Stillman brought it to the microscope and with his imperturbable calm, which however on opportune occasions did not prevent a clever "bon mot", passed sentence: "It's a new species" and, in homage to Dr. Pedro Azevedo, to a colleague always energetic and companionable, christened it Diaptomus azevedoi." (Ihering in Ihering and Bonança, 1983).

For three months in 1935, Stillman served as guest investigator for the State of Sao Paulo, Brazil. From November 1936 to January 1937 he was seconded to the government of Argentina, conducting limnological surveys in lakes and streams of that country. In December 1937 the Wrights returned to the United States.

Stillman next accepted a position with the U.S. Bureau of Fisheries in Logan, Utah, to carry out investigations and recommend measures for management of trout resources of federal areas in the Intermountain Region, including the influence of hydroelectric power development on fisheries resources. In 1946 he was promoted and transferred as an aquatic biologist to the Office of River Basin Studies, Fish and Wildlife Service, then based in Chicago. He was transferred to Washington, D.C., in 1947, and in 1948 was made assistant director of the Office of International Relations of the Fish and Wildlife Service, in which capacity he served until his retirement in 1963.

Having joined the American Fisheries Society in 1929, Stillman was a Life Member, held the record for continuous length of membership, and was that society's oldest living member at the time of his death. He was also a fellow of the American Association for the Advancement of Science; a charter member of the American Society of Limnology and Oceanography; Honorary Life Member of the Wisconsin Academy of Sciences, Arts and Letters; corresponding member of the Internationale Vereinigung für Limnologie; honorary Curator of Crustaceans of the Michigan Museum of Zoology; and a member of the Academia Brasileira de Ciências, the American Microscopical Society, Sigma Xi, Phi Sigma, and Gamma Alpha.

Stillman Wright's distinguished career was highlighted by his numerous contributions to the scientific literature in the varied fields of fishery science, limnology, and taxonomy of copepods. His studies of physical and chemical properties of

impoundments in the Brazilian Northeast constituted some of the earliest limnological research carried out in that country. He generated several sets of long-term data on physical and chemical changes in shallow waterbodies of arid tropical regions. Reflecting his training by Juday, these articles are models of thoroughness in collection and preparation of data. This passion for thoroughness also resulted in a series of taxonomic articles on diaptomid and pseudodiaptomid copepods which are striking for their extreme care in the observation and comparison of different populations. In the case of many species, his descriptions and redescriptions still constitute the best morphological information available. He also provided excellent diagnoses of some species-groups, later to be separated as genera. Of about 74 species of diaptomids now known from South America, Stillman described 24, as well as an additional seven species of pseudodiaptomids and of diaptomids from other parts of the world. A subgenus Wrightius of the South American genus Notodiaptomus was recently named in honour of Stillman's work by Dr. B.H. Dussart (1985).

Stillman's library and reference collection was contributed to Beloit College. He deposited his correspondence, field notes and original manuscripts and plates from the South America period, as well as extra reprints of many of his articles in the C.B. Wilson Copepod Library of the Division of Crustacea, Department of Invertebrate Zoology, U.S. National Museum of Natural History.

Stillman will be remembered by his many friends as a gentle, friendly man with a keen sense of humour. He took much pleasure in personal relationships, maintained an active correspondence, and was greatly interested in the progress of younger colleagues. In 1985 the Wrights moved from Maryland to North Carolina, where Stillman died after a series of illnesses. He is survived by his wife of 85 years, Doris A. Wright, and by his son, a grandson and granddaughter, and two great grandsons.

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Ihering, R. von, and D. von Ihering Bonança. 1983. Ciência e Beleza nos Sertoes do Nordeste. Departamento Nacional de Obras Contra as Secas, Fortaleza. Pp. 1-305.

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Wright, Stillman

1927. A revision of the South American species of Diaptomus. Transactions of the American Microscopical Society 46(2):73-121.

1928. Studies in aquatic biology. I. A chemical and plankton study of Lake Wingra. 35 pp. II. A revision of the South American species of Diaptomus. III. A contribution to the knowledge of the genus Pseudodiaptomus. Ph.D. thesis, University of Wisconsin.

1928. A new species of Diaptomus from the Philippine Islands. Transactions of the Wisconsin Academy of Sciences, Arts, and Letters 23:583-585, Plate 11.

1928. A contribution to the knowledge of the genus Pseudodiaptomus. Transactions of the Wisconsin Academy of Sciences, Arts, and Letters 23:587-600.

1932. Plankton and the fisheries. Fisherman 1(7):3-4,11.

1935. Three new species of Diaptomus from northeast Brazil. Annaes da Academia Brasileira de Sciencias 7(3):213-233 + Plates I-IV.

1936. A revision of the South American species of Pseudodiaptomus. Annaes da Academia Brasileira de Sciencias 8(1):1-24 + Plates I-III.

1936. Preliminary report on six new species of Diaptomus from Brazil. Annaes da Academia Brasileira de Sciencias 8(2):79-85 + Plates I,II.

1937. A review of some species of Diaptomus from Sao Paulo. Annaes da Academia Brasileira de Sciencias 9(1):65-82 + Plates I-III.

1937. Two new species of Pseudodiaptomus. Annaes da Academia Brasileira de Sciencias 9(1):155-162 + Plates I,II.

1937. Distribuicion de Diaptomus (Copepoda - Calanoida) en la Argentina. Anales, 2nd Congresso de Ciencias Naturales, Mendoza.

1938. Distribuiçao geographica das especies de Diaptomus na America do Sul. Livro Jubilar Prof. Travassos, Rio de Janeiro 3:561-566 + Plate I.

1938. A review of the Diaptomus bergi group, with descriptions of two new species. Transactions of the American Microscopical Society 57(3):297-315.

1939. Algunas especies del género "Diaptomus" (Copepoda - Calanoida) halladas en la República Argentina. Physis, B. Aires 17:645-649.

1944. Increasing the production of fish food. Transactions of the Ninth North American Wildlife Conference, 1944, 9:190-196.

1955. Limnological Survey of Western Lake Erie. Special Scientific Report, Fisheries No. 139, Fish and Wildlife Service, Washington, D.C. 339 pp.

Wright, Stillman, and Willis L. Tressler.

1928. Two new species of Diaptomus from Nigeria. Transactions of the American Microscopical Society 47(3):372-377.

Janet W. Reid, Smithsonian Institution,
Washington, U.S.A.

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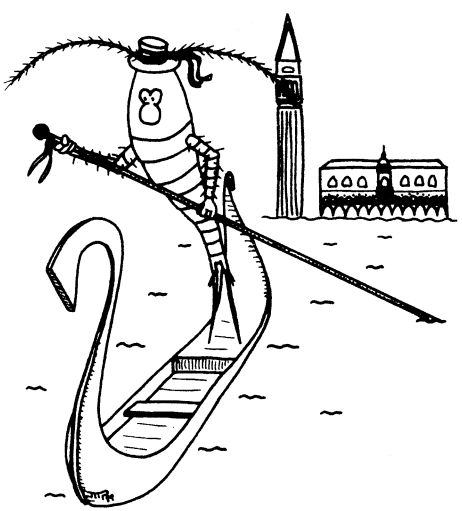
Emilia Stella Emilia Stella

The following quotation has to do with Emilia Stella. It mentions her mother Rina Monti and gives an idea of how women in science were viewed by men (at least in Germany) at the beginning of this century.

From: ZACHARIAS, O. - 1905: Hydrobiologische und fischerei-wirtschaftliche Beobachtungen an einigen Seen der Schweiz und Italiens. Forschungsberichte aus der Biologischen Station zu Plön 12: 169-302 (quotation from p. 265/66):

Leider kann sich PAVESI aus gesundheitlichen Rücksichten nicht mehr der anstrengenden Exploration großer Seen widmen; aber er wird nicht müde, mit Rat und Tat seine Schüler bei Vornahme solcher Arbeiten, die seine Lieblingsbeschäftigung gewesen sind, zu unterstützen. Da er ein Mann nicht bloß von ausgebreitetem Wissen (ein einseitiger Gehirnmensch) ist, sondern auch eine wirklich humane Persönlichkeit, die das Herz auf dem rechten Flecke hat, so kostet es ihn keine Überwindung, zu sehen, wie die von ihm verfolgten Aufgaben nun von der jüngeren Generation übernommen und von neuen Gesichtspunkten aus ihrer Lösung entgegen geführt werden.
So widmet sich gegenwärtig die Privatdozentin Frau Dr. RINA MONTI in Pavia, eine begabte Schülerin von Professor PAVESI, solchen Seenforschungen, und besonders hat sie ihre Aufmerksamkeit auf die kleinen alpinen Becken gerichtet, welche oft noch in bedeutender Höhe zu finden sind. Ihre Publikationen darüber sind in italienischen und zum Teil auch in deutschen Fachzeitschriften erschienen. Die genannte Dame, welche ich natürlich ebenfalls in Pavia kennen lernte, ist die Schwester des schon erwähnten Professors ACHILLE MONTI.



RINA MONTI hat seinerzeit (1882) mit einer Dissertation über das Nervensystem der Insekten promoviert, späterhin sich aber namentlich mit histologischen Arbeiten befaßt, von denen eine der neuesten, welche über die feineren Nervenendigungen in den Ernährungsorganen der niederen Wirbeltiere handelte, 1898 mit dem CAGNOLA-Preise gekrönt wurde. Bei ihrer streng wissenschaftlichen Beschäftigung aber hat Frau Dr. MONTI keine Einbuße an denjenigen Eigenschaften erlitten, deren Verlust leider nur allzuhäufig mit der höheren Ausbildung der Intelligenz beim Weibe Hand in Hand zu gehen pflegt. Überhaupt habe ich bei der Mehrzahl italienischer Studentinnen nicht jenes herausfordernde Selbstbewußtsein konstatieren können, was bei vielen deutschen Mädchen, die sich dem Gelehrtenberufe widmen, geradezu abstoßend und ästhetisch-widerwärtig wirkt. Die jungen Damen in Mailand und Pavia waren durchweg bescheiden, liebenswürdig und größtenteils auch durch natürliche Anmut ausgezeichnet. Eine Zigarettenraucherin habe ich gleichfalls nie darunter bemerkt; vor solchen Verirrungen scheint diese Kinder des Südens schon ihr ausgeprägter Schönheitssinn zu bewahren.

FOURTH INTERNATIONAL CONFERENCE ON COPEPODA

16th - 20th September 1990
Karuizawa Seminar House of Nihon University
Karuizawa, Japan

PRELIMINARY REGISTRATION

Due to delay of the preparation by the Organizing Committee, a PRELIMINARY REGISTRATION FORM was not inserted in the last issue of MONOCULUS. This is in this issue. Cut, fill and send as early as possible. Preliminary registrants will receive full Conference details including travel information and the instruction of authors for manuscript preparation.

REGISTRATION

Participants are asked to complete the REGISTRATION FORM inserted in this issue. The complete form should be mailed by 1st June 1990 at the latest to the address shown on the form. Each registrant should submit a separate registration from. Make extra photocopies of the form if necessary. Registration fee (see the form) includes a free copy of proceedings (not for accompanying person), party, conference dinner and excursion. The payment method is shown on the form. Personal check and credit card are not acceptable. Confirmation of Registration receipts will be sent immediately after the form and remittance are received. Please present the receipt at the Registration Desk in order to collect your Conference material. If it is necessary to cancel a registration, full refunds will be made, save for an administrative charge of 3,000 yen, on cancellations received before 1 August 1990. After that date, 50% refund will be made. There will be no refund after the beginning of the Conference.

CALL FOR PAPER

Those who wish to present a paper at the Conference should complete the inserted CALL FOR PAPER FORM (make photocopies if necessary) and mail it together with ABSTRACT to the address on the form. The dead line is 1st June 1990.

PUBLICATION OF THE PROCEEDINGS

An agreement has been reached with Seto Marine Biological Laboratory, Kyoto University, on the publication of the proceedings of the Fourth International Conference on Copepoda. The proceedings will be published in the Special Publications of the Seto Marine Biological Laboratory. Currently about 500 copies of the Publications are printed and distributed to 64 countries on exchange basis. All registered participants (except for amcompanying persons) will receive a free copy.

SUBMISSION OF MANUSCRIPT

Papers should be written in English. Writing should be concise

and should conform to standard rules of English grammar and style. All papers presented at the Conference will be considered for publication in the proceedings. All papers will be subject to the normal refereeing procedures of the Publications which will be the responsibility of the editorial board. Papers which do not meet the standard will be rejected. In order to be sure of publication within one year of the Conference it is essential that manuscripts are handed in during the Conference.

GUIDE FOR THE PREPARATION OF MANUSCRIPT

The INSTRUCTION OF AUTHORS used by the Publications will be sent upon receipt of a PRELIMINARY REGISTRATION FORM.

ACCESS TO KARUIZAWA

Most international flights arrive at New Tokyo International Airport (Narita), about 66km away from central Tokyo. There are two ways of transportation from Narita to central Tokyo: 1) a nonstop Airport Limousine directly to JR Tokyo Station or Tokyo City Air Terminal and 2) a Keisei Line Connecting bus-an express train called "Skyliner" to Ueno Station (300m walk to JR Ueno Station). It takes 1.5 hours or more. From central Tokyo to Karuizawa, you may take a JR (Shin-etsu Line) limited express "Asama" from JR Ueno Station. It takes ca. 2 hours. Otherwise use transfer package tours planed by the Japan Travel Bureau between Tokyo and Karuizawa (see below).

ACCOMMODATIONS

The Japan Travel Bureau, Inc. (JTB) has been appointed as the official travel agent for the Conference and will handle all related travel arrangements including hotel accomodations and tours. The travel information is available to those who sent a PRELIMINARY REGISTRATION FORM.

The Seminar House can accommodate all the participants of the Conference. The price is quite less expensive (tentatively 3,500 yen per day including three meals). But participants will be requested to share the room (2-4 for a tatami room, 3-6 for a room with two-stories beds). Participants requiring their own privacy will have to be booked into local hotels and guest houses. There are two softball fields and four tennis courts by the House. You can also enjoy jogging, hiking and bird watching etc. around the House.

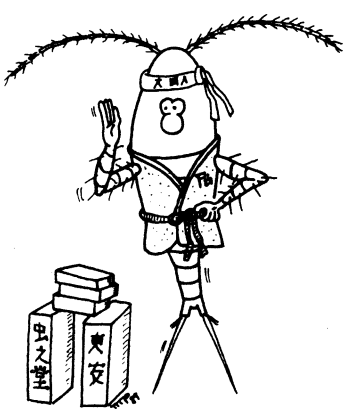
TENTATIVE TIMETABLE

Date	Morning	Afternoon	Evening
15 Sept. (Sat)		Registration	
16 Sept. (Sun)	Opening Symposium	Contributed papers	Party
17 Sept. (Mon)	Symposium	Contributed papers	Mini-symposium
18 Sept. (Tue)	Symposium	Contributed papers, Poster	Contributed papers, Poster
19 Sept. (Wed)	Symposium	Excursion	Conference dinner
20 Sept. (Thu)	Contributed papers	WAC meeting Closing	
21 Sept. (Fri)	Farewell		

SCIENTIFIC PROGRAMME

1. Four half-day symposia
   Copepod Feeding and Behavior in Environment with Low Food Concentrations (chaired by M. J. Dagg)
   Copepod Distributions in Coastal Zone Waters (chaired by B. P. Bradley)
   The Role of Copepods in Fisheries (chaired by M. M. Mullin)
   Symbiotic Copepods of Invertebrates (chaired by A. G. Humes)
2. One mini-symposium
   How copepodologists use larval development to infer copepod phylogeny (chaired by T. Ito)
3. Contributed paper sessions
   Slide (35mm) and overhead projectors are available. Each paper is allowed 15 minutes for oral presentation and 5 minutes for discussion.
4. Poster sessions
   A poster area ca. 2mx1m will be available.

MAKE SURE TO SEND A PRELIMINARY REGISTRATION CARD AS EARLY AS POSSIBLE



GROUP FLIGHT TO JAPAN FROM EUROPE

In the last issue of *MONOCULUS* we repeated our willingness to organize a group flight to Japan in order to reduce travel costs. Normally the air companies give a free ticket for a group of at least 16 persons. We have not yet reached this number and need at least 4 more persons.
In case we reach this number the air fare for a return flight would be DM 2,100.00 Frankfurt-Tokyo-Frankfurt. For a normal flight the price would be about DM 3,000.00.
We are trying to find out whether group flight means that all have to take the same plane or whether there is room for individual bookings. Whatever the outcome, please let me know quickly if you are interested in joining us. The main thing for the moment is to know how many are interested and with these the details can be settled individually.
We hope this information will attract some more European copepodologists. This is the last appeal, because the next issue of our newsletter will be too near to the event to assure the necessary bookings.

Kurt Schminke

CATALOGUE DES NOUVEAUX COPEPODES HARPACTICOIDES MARINS

We repeat the announcement of the new edition of Bodin's "Catalogue des nouveaux Copépodes Harpacticoides marins". This catalogue updates the previous edition (1979) with the addition of about 390 new names found in 180 papers. The catalogue has 288 pages and costs 120 FF (postage and handling included), i.e. 20 US $ or 13 . Orders must be accompanied by a cheque on the name of P. Bodin at the address below. So far 55 copies have been sold. More potential users had been anticipated. So hurry up for the remaining copies!

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

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Thinking about Acartia

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During the first two decades of this century Adolph Steuer THOUGHT about Acartia. He published a monograph (Steuer, 1923, Arb. zool. Inst. Univ. Innsbruck 1:91-144) in which he:

1) divided the genus into eight groups of species based on skeletal morphology,
2) gave these groups equal taxonomic rank as subgenera
3) discussed geographic distributions of the subgenera and their different species,
4) suggested that within a subgenus, a species' closest relative often occupied the immediate adjacent segment of coastline,
5) articulated a speciation mechanism for Acartia which combined geographic separation and character displacement in position of female gonopores.

In intervening years a few more copepodologists have THOUGHT about Acartia (of particular note is Janet Bradford's work on the subgenus (Acartiura) in 1976. - N. Z. Jl. mar. freshw. Res. 10:159-202). In the coming years many American copepodologists will be thinking more about Acartia because Gustav-Adolf Pfaffenhoffer and Donald Stearns have THOUGHT about A. tonsa. In a recent paper (Paffenhofer & Stearns, 1988, Mar. Ecol. Prog. Ser. 42:33-38) they considered four factors - temperature, salinity, predation, and food - which might be responsible for confining A. tonsa to estuaries along the east coast of North America, and preventing its exploitation of continental shelf waters. Paffenhoffer and Stearns determined that reproduction of A. tonsa was limited by low food concentrations, based on their experiments which showed that this copepod increased the volume of water it cleared with its maxilla 2 as food concentrations decreased. They concluded

that A. tonsa is found in estuarine areas because food concentrations there are higher; A. tonsa is absent along continental shelf areas where food concentrations are lower.

The name A. tonsa originally was applied by Charles Dwight Dana (1849, Proc. Am. Acad. Arts Sci. 2:9-61) to an acartiid found at Port Jackson, Australia. Almost 40 years later Herrick (1887, Mem. Denison scient. Ass. 1:1-56) described A. gracilis from the Gulf coast of North America. The descriptions of Dana and Herrick are incomplete and difficult to relate to animals collected today. For most copepodologists the morphology and identity of A. tonsa was established by Giesbrecht (1892, Fauna Flora Golf. Neapel 19:1-831) who used the name for copepods he described between Valparaiso, Chile, and Callao, Peru. Subsequently copepods similar to A. tonsa have been described as A. giesbrechti (by Dahl, 1894, Ber. naturf. Ges. Freiburg i. B. 8:10-23) from the mouth of Amazon River, A. bermudensis (by Esterly, 1911, Proc. Am. Acad. Arts Sci. 47:219-226) from Bermuda, and A. floridana (by Davis, 1948, Q. Jl. Fla. Acad. Sci. 10:79-88) from the Everglades National Park in Florida. Steuer placed A. tonsa in his subgenus Acartia (Acanthacartia).

Today the name A. tonsa is applied to disjunct acanthacartian populations along both east and west coasts of the new world. In addition, there now is a population in coastal waters of northern Europe which is hypothesized to have been introduced into seaports from the new world (Remy, 1927, Annls. Biol. lacustre 15:168-186). These introduced A. tonsa may or may not locally displace the endemic European acanthacartian, A. bifilosa.

As Paffenhoffer and Stearns point out, the new world A. tonsa, which occur along the east coast of the Americas, seem to be confined to estuaries. In east coast estuaries A. tonsa is replaced seasonally in winter and spring, and latitudinally northward, by a representative of the boreal subgenus

Acartiura (here A. hudsonica) (Bowman, 1961, Chesapeake Sci. 2:206-207). Robert Conover (1956, Bull. Bingham oceanogr. Coll. 15:156-233) suggested that lower salinities were critical to the distribution of A. tonsa in east coast estuaries because movements of its feeding appendages appeared less efficient than Calanus finmarchicus; thus A. tonsa would dominate only when lower salinities restricted the distribution of its competitors. Equatorward along the tropical and subtropical east coastline the distribution of A. tonsa is incompletely documented. At least one other acanthacartian relative, A. spinata, occurs in more saline coastal habitats of the subtropics.

Populations of A. tonsa along the west coast of North and South America differ in their habitat preference from their east coast conspecifics. West coast A. tonsa are not estuarine but live offshore along the coast. Off the California coast A. tonsa has been reported from Cape Medocino, California, to below Magdalena, Baja California, with highest densities immediately adjacent to the coast (Fleminger, 1964, California cooperative oceanic fisheries investigations Atlas, #2). The California estuarine acanthacartian is A. californiensis (recently described by Trinast, 1976, Crustaceana 31:54-58). A. californiensis, not A. tonsa, shares the acanthacartian/acartiuran seasonal cycle in San Francisco Bay (Ambler, Cloern, Hutchinson, 1985, Hydrobiologia 129:177-197). The equatorward extent of A. tonsa and A. californiensis along the west coast of the Americas remains to be published.

Based on our present knowledge of Acartia distributions, it is unlikely that A. tonsa from the west coast of South America (where Giesbrecht's specimens were collected) and the east Australian coast (Dana's specimens) are conspecifics. Furthermore, only one acanthacartian is reported from Herrick's Gulf coast locality and it is considered conspecific with Giesbrecht's A. tonsa.

Acartia tonsa today presents American copepodologists with three groups of interesting problems:

1) nomenclatural ones: the earliest use of the name A. tonsa was applied to an Australian copepod; many copepodologists agree that its use by Giesbrecht for the American species, while widely accepted, is incorrect. Herrick's name is the earliest one available for the east coast North American population and for the new world species if the disjunct populations are conspecific.

2) zoogeographical ones: a complete and thorough study of variation along either east or west coasts of the Americas has never been undertaken; it should be. An integrated international study of variation among the disjunct populations would be enhanced if animals introduced into Europe were included. It would be interesting to learn if present techniques for molecular discrimination, particularly of those repeated sections of secondary DNA, can determine the American source(s) of the European introductions.

3) ecological ones: if low food concentrations prevent A. tonsa from exploiting east coast continental shelf waters, why are animals referable to this species found offshore along the coast of California and Peru/Chile? Do coastal upwelling systems provide the requisite food concentrations there? And why is the species unable to penetrate the California estuaries?

Thanks to Tom Bowman for his help with the various avatars of A. tonsa.

Frank D. Ferrari
Smithsonian Oceanographic Sorting Center

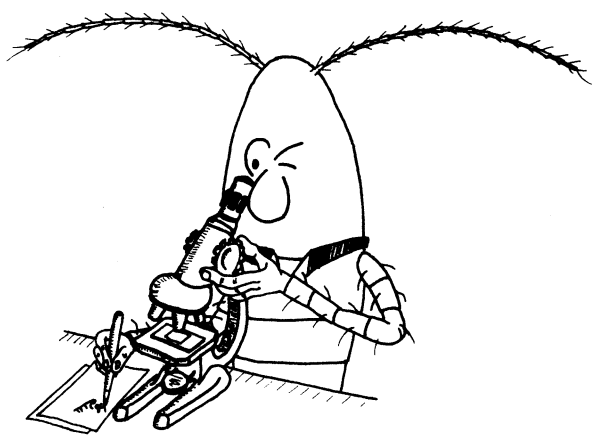
MODEL DESCRIPTION Reaction **MODEL DESCRIPTION**

The taxonomic literature abounds with what I call "living fossils". The descriptions are made of living species but give the impression that like in fossils only bits and pieces of them have been preserved from which drawings could be made with varying degrees of precision. The "living fossils" have to disappear from the literature. They serve no scientific purpose. They are useless for those who try to reconstruct phylogenetic relationships and they are useless also for those who try to make keys for more than just two insiders. They also have to disappear because they simply ruin the reputation of taxonomy as a science.

I like to test the reactions of colleagues who are not taxonomists. Therefore I show them descriptions of different qualities and ask for their opinion. Seeing one of those "living fossils" a physiologist remarked: *"You know, some pieces of modern sculpture give me the feeling that I could do them very easily myself. I therefore tend to think very naively this can't be art. For the same reason I am inclined to contend that this description is not science. Honestly, I am convinced I could do this description myself without having any knowledge whatsoever of the group to which the species belongs. Who makes descriptions like this can't have an intimate knowledge of his animals, he doesn't even seem to care, and I doubt that he has a serious scientific goal for the attainment of which this description could play a role."* Many colleagues outside taxonomy (and not only there) think like this. Some of them decide whether taxonomists are funded.

Knowing these reactions and being hampered together with others by bad descriptions in my own scientific endeavours I launched the campaign on quality of descriptions in *MONOCULUS* 11. I did not have to wait long for letters to arrive indicat-

ing that I had hit a sore point. The following quotation demonstrates what I mean: *"J'ai relu le no. 11 de MONOCULUS et relevé votre intervention sur "quality of descriptions". Je suis bien sûr tout à fait d'accord avec vous et j'irai même jusqu'à suggérer aux futurs descripteurs d'apprendre à dessiner correctement non seulement ce qu'ils voient mais aussi ce qu'ils devraient observer. Mais, dans le même numéro, je relève la requête de N. Revis qui veut une information sur toutes les espèces du plancton tropical en particulier Copépodes, approche systématique et analyse quantitative. Est-il possible de concilier la philosophie de K. Schminke: description fine, complète et bien illustrée et la soif de connaissances de N. Revis?"* I hoped the model descriptions would answer this question. We have now seen two of them and I wonder what they teach us.



When I received Geoff Boxshall's proposal for a model description of misophrioids my first reaction was perplexity. I wrote to him: *"Model descriptions should not be prize-winning ones but rather good standard. Honestly, with such high standards you frighten off potential newcomers in the field and you encourage the others to continue as usual. Who among us normal taxonomists will ever reach that degree of perfection? I just*

think of my work on the genus Parastenocaris where I have to describe well over 80 species. It would take me ages in Rony's style which means in my life-time I shall never finish that task ... Models should be the norm. If descriptions are better than the norm, excellent, but if they are worse they should be rejected." Geoff's answer was: *"I think the debate on drawings will be interesting - you do have a point as the standard is somewhat frightening. However it serves as an ideal to aim for."* Is this enough? I have repeatedly heard the opinion that a good example is enough to make the majority follow. Is it really?

I have seen a few frightfully bad descriptions in the literature recently and in two cases I complained to the editors. In both cases I was told that two reviewers had been consulted and that their comments had not been enthusiastic but not altogether negative either. Dear reviewers, your task is not to be nice, because this does not serve anybody, neither "la philosophie de K. Schminke" nor even "la soif de connaissances de N. Revis". One of these descriptions was the first record of a genus from a tropical island from which in my own collection I have several undescribed species belonging to the same genus. It took me two and a half hours to decide whether this new species is identical with one of my undescribed ones. I wonder what N. Revis would have done with such a description that pretends to quench her thirst but leaves her with muddy water.

Obviously, we need both the standard and the ideal. Only who reaches the standard is admitted to strive for the ideal. The main task therefore of the model descriptions lies in my opinion in the definition of the standard. On this we have to reach agreement. The ideal can do without such common effort, nobody will question it. The purpose of the description dictates the quality within the limits of standard and ideal. Who wants to satisfy "la philosophie de K. Schminke" should try to be nearer to the ideal (misphrioid example), who wants

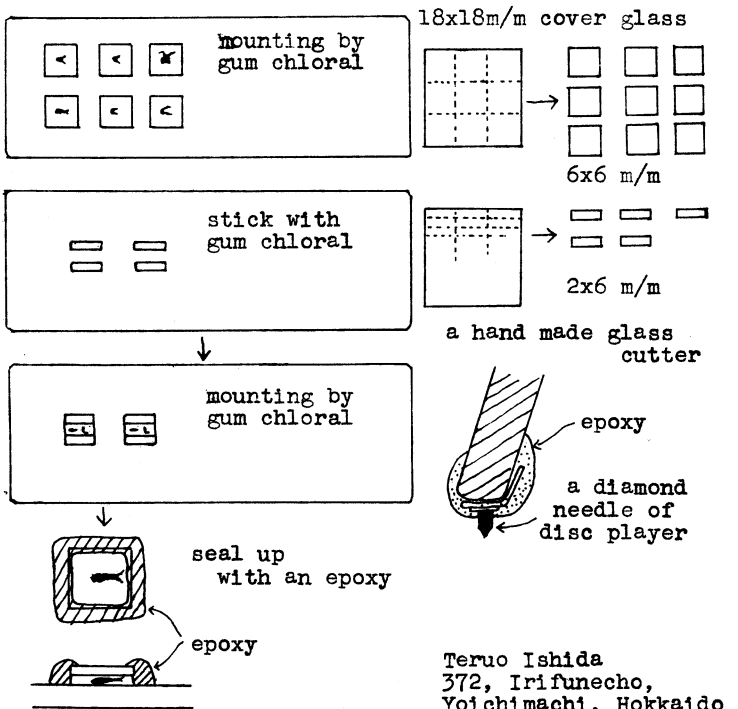
to cope with "la soif de connaissances de N. Revis" will have to be less ambitious and probably stay nearer to the standard (harpacticoid example with the amendments by Reid and Por). In other words, with phylogenetic reconstructions in mind one has to be as detailed as possible, when describing whole faunas, i.e. several tens of species, one will have to compromise. What has radically to be avoided, however, is failure to reach the standard. To say it in different words I quote Hammond (1987: 1029): *"I regard the figures of Canu (1892) to be the finest of all figures of copepods to date and the best modern line drawings (of freshwater harpacticoids) to be by Bowman et al. (1968) and by Ito and Takashio (1980), and of marine ones by Lang (1965) and Wells (1980) as well as those in various papers by Bodin, Gamo, Geddes, Ito, Mielke, C.G. Moore, Scheibel and Soyer, to name only the best delineators among authors whose papers are listed by Bodin (1979). Subsequent students of freshwater copepods should emulate these authors as far as is technically possible. If they cannot produce drawings as good as theirs they should stay away from the formidably exacting demands of modern taxonomic practice."* (Hamond, R. - 1987: Non-marine harpacticoid copepods of Australia. I. Canthocamptidae of the genus Canthocamptus Westwood s.lat. and Fibulacamptus, gen.nov., and including the description of a related new species of Canthocamptus from New Caledonia. Invertebr.Taxon. 1(7): 1023-1247).

I hope further model descriptions will concentrate on defining the standard for their respective groups and I would be interested in also hearing what those among us have to say about this debate who are not taxonomists.

H.K.S.

Hope for Cost and Space Saving, and HYP

Following illustration shows my methods on preparing the permanent slides for small copepods. As a rule, I mount a dissected individual (cephalothorax, p2,p3,p4,p5 and abdomen) or four whole animals (dorsal and lateral of both sexes) on a slide glass. Compact size is suitable for all purposes. Merit of epoxes is no contractility and the demerit is no removability.



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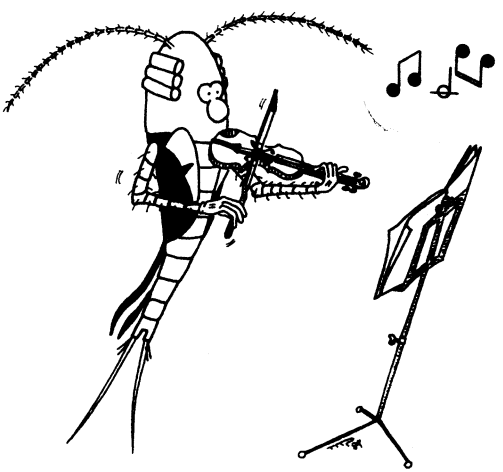
Business ssenisuB

1. *MONOCULUS*-Library/Bibliography

This has been a tough year for Jürgen Sieg. His university installed a new computer and this forced him to reshape the whole Crustacea-Database. His time investment was enormous. The normal work was interrupted with the result that we are behind schedule. We shall have caught up, however, by the middle of 1990 at the latest.



From then on we shall need help from others. We believe that by then over 90 % of the titles published on Copepoda will be in the computer. The trouble will be to find the rest. This will be the hour of the *MONOCULUS* community! Everybody, we hope, will offer his good services. We could produce an output of say the publications on a certain family and the respective specialist could check in his files what we have missed and let us know. Please send us a postcard if you are willing to help and let us know the field (taxonomic group, ecological topic, branch of investigation) you could cover. Please don't let us down.

There are a few new members in the cast of the *MONOCULUS*-Library/Bibliography. These are: Thomas Glatzel, Anant Patel, Sven Petersen, Sybille Seifried, Elke Willen.

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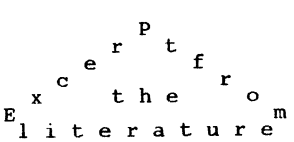

The story about flying copepods continues.

From: OSTROUMOFF, A. - 1894: Berichtigung zu meinem Artikel "Eine fliegende Copepoden-Art". Zool.Anz. 17: 415

Nach der Rückkehr von der Expedition im Marmarameere fand ich die Mittheilung des Herrn Prof. Dahl (in "Verhandl. d. Deutsch. Zool. Gesellsch. 1894), daß Pontella atlantica Miln. Edw. auch aus dem Wasser springen kann.

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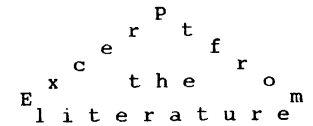

From: OSTROUMOFF, A. - 1895: Springen oder Fliegen? Zool.Anz. 18: 122

In No. 461 des Zool. Anzeigers bemerkte ich, daß nach Prof. Dahl Pontella atlantica M.Edw. aus dem Wasser springt. Leider besitzt die Bibliothek der hiesigen biologischen Station nicht Giesbrecht's schätzbare "Monographie der pel. Copepoden des Golfes von Neapel", wo diese Erscheinung, wie ich jetzt weiß, ebenfalls bei einigen Pontelliden beschrieben ist. Doch glaubt Dr. Giesbrecht, daß von einem Fliegen, wie es den fliegenden Fischen zugeschrieben wird, bei seinem Copepoden wohl nicht die Rede sein kann.
Das Fliegen der Pontellina mediterranea Cls. ist nach meiner Beobachtung unzweifelhaft. Vielleicht erklärt sich der Gegensatz meiner Auffassung mit der des Dr. Giesbrecht besser aus den folgenden Beispielen.
Die ungeflügelte Heuschrecke und Delphinus delphis L. springen, aber Pteromys volans L. und Pontellina mediterranea Cls. fliegen, denn Pteromys hat in der Flughaut und Pontellina in den gefiederten Gliedmaßen die Ausrüstung, welche als Fallschirm die Curve des Fallens verlängert. Von der activen Veränderung der anfänglichen Richtung kann bei Pontelliden wohl nicht die Rede sein.

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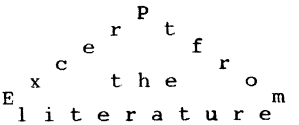

What was a feat in the pioneer times of the investigation of the fauna of tropical forests is common practice today without any service to science: "weeping trees". With this quotation from Müller (1878) begins Thienemann's treatise on the fauna of phytotelmata.

From: THIENEMANN, A. - 1934: Die Tierwelt der tropischen Pflanzengewässer. Arch.Hydrobiol., Suppl. 13 "Tropische Binnengewässer" 5: 1-91

An einem heißen Sommertage stand ich - vor mehr als 25 Jahren - mit einem Freunde unter einem Urwaldsbaume, gegen dessen eisenharten Stamm wir unsere Äxte wohl schon eine Stunde lang schwangen. Dieser Arbeit noch wenig gewohnt, begannen meine Arme zu erlahmen, und einen Augenblick ausruhend, ließen wir die Äxte sinken. Da, horch, fallen rings um uns schwere Tropfen nieder aus der hohen Krone des Baumes. "Der Baum fängt an zu weinen", rief mein Freund, "er kommt!" Und kaum hatte er noch einige wichtige Hiebe geführt, da begann auch, unter lautem Ächzen, der stolze Stamm sich langsam, doch sichtlich zu neigen und in beschleunigtem Falle schmetterte er krachend zur Erde. - Wie manches Mal habe ich seit jenem Tage die Tränen aufatmend begrüßt, mit denen ein Urwaldriese seinen nahen Fall beweinte!
Die Äste fast aller größeren Bäume sind hier reichlich bewachsen mit ananasähnlichen Pflanzen (Bromeliaceen), zwischen deren stachligen, am Grunde oft bauchigen Blättern das Regenwasser sich sammelt. Sind diese nie völlig trockenen Wasserbehälter bis zum Rande gefüllt, so gibt ihr Überfließen die erste Kunde von dem sonst noch unmerklichen Weichen des Baumes aus seiner Gleichgewichtslage.

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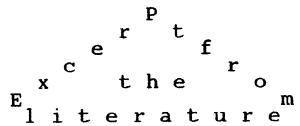

In a postscript of the same treatise Thienemann quotes from a book the author of which he had met in Indonesia and who writes about this rencounter:

Ich entsinne mich hier einer Unterhaltung mit einem Forscher, der in Soerabaja auf Java zu uns an Bord kam. Er hatte sich in den Urwäldern Javas zwei Jahre damit beschäftigt, die Lebewelt der winzigen Wasserreservoire zu erforschen, welche die tropischen Pflanzen an den Ansätzen ihrer Blätter bilden. Ein sonderbares Spezialgebiet! Ich fragte ihn, ob denn der große Aufwand an Arbeit und Geld dem Objekt entspräche? Da sagte er zu mir: "Es kommt nicht darauf an, den Geist immer nur auf große Dinge und generelle Probleme zu hetzen; große und verblüffende Erkenntnisse entspringen fast immer der Forschung im Spezialistischen; aus konzentrierter Kleinarbeit und Forschung springt auf einmal der Funke großer Gedanken." Und dann begann er aus seiner mikroskopischen Kleinarbeit biologische Weltprinzipien zu entwickeln.

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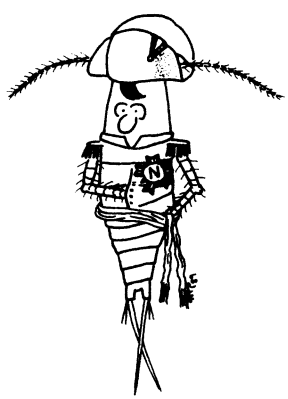

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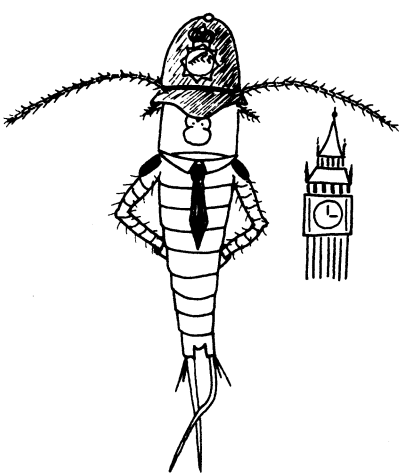
O F F E R A N D R E Q U E S T C O R N E R

Maria and Roman Holynski have returned from a collecting trip to Southeast Asia and Papua New Guinea. There is some material of freshwater harpacticoids to be determined:

Please accept our best wishes from our return way from Papua New Guinea! We spent there very interesting and productive six months, collecting about 150 water samples (and additionally, 50 from Siam, Malaysia, Java, Celebes, Indonesian part of New Guinea, and now from Borneo). No exact determinations were

as yet attempted, but preliminary segregation of ca. 20 samples has shown at least 17 spp. of Cyclopoids (with several spp. each of Tropocyclops, Mesocyclops, Paracyclops, Thermocyclops), and some Harpacticoids, Cladocerans, Ostracods etc.-these surely represent only a small fraction of those really present in the material. We plan to work out Cyclopoids and, perhaps, Cladocerans ourselves, but would be very glad to send Harpacticoids (or, for that matter, Ostracods, Decapods, or any other group) to any specialist interested in determining them. Such a specialist would, of course, have all rights to publish any result considered by him/her worth publishing, and could automatically retain every second, fifth, eighth etc. specimen of each species for his/her collection (other conditions, if preferred, could be agreed to, e.g. on the basis of exchange). We would like to have the remaining specimens divided between our collection, that of the Természettudomanyi Múseum in Budapest, and the Monoculus collection.

Maria and Roman Holynski, H-4440 Tiszavasvari, Elmunkás n. 1.I.4, Hungary



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