

PSAMMONALIA is sent to individuals interested in the study of the minute biota of aquatic sediments.

Editor: W. DUANE HOPE, Department of Invertebrate Zoology, Museum of Natural History, Smithsonian Institution, Washington, D. C. 20560, USA.

Board of Editors: JOHN S. GRAY, Wellcome Marine Laboratory, Robin Hoods Bay, Yorkshire, England; ROBERT P. HIGGINS, Marine Biological Laboratory, Woods Hole, Massachusetts 02543, USA; DONALD J. ZINN, Department of Zoology, University of Rhode Island, Kingston, Rhode Island 02881, USA.

Board of Correspondents: CLAUS CLAUSEN, Zoological Laboratory, University of Bergen, Bergen, Norway; TOM FENCHEL, Marine Biological Laboratory, University of Copenhagen, 3000 Helsingør, Denmark; LILIANA FORNERIS, Departamento de Zoologia, Caixa Postal 8105, São Paulo, Brazil; BRUCE E. HOPPER, Canada Department of Agriculture, Entomology Research Institute, Ottawa, Ontario, Canada; JEANNE RENAUD-MORNANT, Laboratoire de Zoologie, Museum National d'Histoire Naturelle, 57 Rue Cuvier, Paris, France; PETER SCHMIDT and W. WESTHEIDE, II, Zoologisches Institut und Museum der Universität, Berlinerstrasse 28, 34 Göttingen, Germany; WOLFGANG STERRER, University of North Carolina, Department of Zoology, 205 Wilson Hall, Chapel Hill, North Carolina 27514, USA.

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Newly Established Board of Correspondents.

When the *ad hoc* committee on organizational matters for the Association of Meiobenthologists met last February, it was decided that a Board of Correspondents would be selected to represent various geographic regions of the world as well as different disciplines of meiobenthology. It was conceived that they would assist in the task of gathering references to current literature and notifying the editors of forthcoming meetings or other activities of interest to the membership. Selection of the first Correspondents has been completed, although additional Correspondents will be added as the need arises. As each Correspondent completes his or her term of assistance, a replacement will be selected.

This issue of *PSAMMONALIA* is the first to be compiled with the assistance of the Correspondents and, on behalf of the Association, the Editors wish to acknowledge the substantial contribution they have made in striving to obtain a complete bibliography to current literature pertaining to meiobenthology.

The Third European Marine Biology Symposium.

The single most noteworthy activity to recently engage the interests of meiobenthologists was the meetings of the European Marine Biological Symposium III, 2-7 September, 1968, at Arcachon, France. In addition to the regular meetings, there was an informal meeting of meiobenthologists and an IBP productivity group conference on benthos methodology. Several members of the Association of Meiobenthologists attended including Dr. John Gray who provided the following resume of the meetings.

Third EMBS Meetings - An excellent symposium was enjoyed by over 300 participants from most European countries and from the United States, Canada, Vietnam, etc.

The programme consisted of two parts, one concerned with the biology of mixed sediments and the other with the biology of waters of variable salinity. I shall only deal with the former topic.

Papers ranged from ecological surveys of the macrofauna of sand and mud to those concerned with the interstitial fauna. Professor Banse of the University of Washington, showed in his paper how little the macrofauna contributed to the oxygen consumption on soft-bottoms, the microorganisms accounting for some 70-80% of the total oxygen consumed. Professor Weill (the host) gave us a supremely funny account of the behaviour and ecology of a psammophilic population at Arcachon (*Homo sapiens littoralis*)! The most important aspect of this paper to meiobenthologists was his study of the feeding behaviour of this animal which catches interstitial species by the use of gum! Thus, careful attention should be given to this paper if one is considering population dynamics and energy flow calculations.

One full day was devoted to interstitial papers. Drs. Rieger and Ott from Vienna gave a detailed account of the behaviour of certain species of Turbellaria and Nematoda in relation to tides on a North Adriatic beach, showing differences in vertical distribution at different stages of the tide. Following this paper Dr. Schmidt showed that the bacteria and yeasts in a sandy beach were maximal in the strand area and at the surface of the sand, numbers decreasing rapidly with increasing depth.

Dr. Christensen's paper gave an account of the Foraminifera of sand, stressing the variety of feeding types and lack of knowledge of the life-cycles.

In a most interesting paper Dr. Boaden showed that the gastrotrich *Turbanella hyalina* occurred just below the level of *Protodriloides symbioticus* (archannelida) on a sandy beach in North Ireland. Small behavioural differences were found between the two species, the most important being that *T. hyalina* refused to enter sand that had previously contained *P. symbioticus* suggesting a chemical inhibitor.

Dr. Sterrer discussed the Gnathostomulida giving a lucid account of the general biology of this little studied group. The oxidation-reduction potential of sand in a very stable Danish beach was discussed by Dr. Fenchel. The occurrence of the ciliates in relation to differences in oxidation-reduction potential were shown to be well marked.

Finally, Dr. Lasserre showed in a physiological investigation how two species of interstitial oligochaetes had different requirements which could explain their different localities on the beach.

Other papers of general interest included one by M. Longbottom showing carbon nitrogen ratios in relation to the distribution of *Arenicola marina*. Where microorganisms are abundant *A. marina* was apparently abundant.

Dr. R. Williams showed how, using epoxy resins the spatial relationships of sand grains could be studied and available pore sizes could be calculated. In relating pore size to the sizes of certain ostracod species he showed that the ostracods did not occupy all the niches available to them. Thus implying that other factors controlled the populations.

The meeting was not all work and a splendid banquet at the Chateau Pontet-Canet with receptions at the Arcachon Casino and University of Bordeaux did an excellent job in breaking down formality barriers. It is hoped that the papers will be published as a Symposium proceedings, but since all the papers were accompanied by abstracts, writing to the authors should produce some details if these topics are of interest.

Informal Meeting of Meiobenthologists - As one of the themes of the Arcachon symposium was the biology of sediments, many European (and some United States) meiobenthologists were present. An informal meeting of these meiobenthologists was convened.

Bob Higgins was forced into the chair! He outlined the aims and objectives of *PSAMMONALIA* for those people not already familiar with it. The primary aims, he suggested, were to facilitate and promote research in meiobenthology. This could probably be best achieved by providing details of current work in progress and recent publications. To this end it was important to circulate *PSAMMONALIA* to all interested colleagues and students.

Finally, the meeting was invited to make suggestions as to how the newsletter could be improved. Dr. Higgins suggested that *PSAMMONALIA* might publish bibliographies of different taxa. These would be of immense help to students. Secondly, since keys to interstitial fauna are poor, and often lacking, meiobenthologists willing to provide suitable keys might send them to *PSAMMONALIA*.

Dr. Sterrer suggested that a third item to be considered might be methodology, as each worker had his own technique for obtaining animals and for fixation and preservation.

Dr. Schröm asked if there was not a need for some rationale to the appeal for keys and bibliographies as this might prove to be an immense editorial problem. Dr. Kirsteuer proposed that some researchers should commit themselves to providing keys and bibliographies to groups and following this a number of people agreed to do this. These were:

Ciliates	-	Fenchel	(Bibliography)
Coelenterates	-	Clausen	(Bibliography)
Gastrotrichs (Macrodasyids)	-	Boaden	(Bibliography & Key)
Gastrotrichs (Chaetonotids)	-	Schröm	(Bibliography & Key)
Gnathostomulids	-	Sterrer	(Bibliography & Key)
Nemerteans	-	Kirsteuer	(Bibliography & Key)
Turbellaria (Acoela)	-	Dörjes	(Bibliography & Key)
Nematoda	-	Williams R.	(Bibliography)
Nematoda	-	Vitiello	(Bibliography)
Kinorhynchs	-	Higgins	(Bibliography & Key)
Ostracods	-	Hulings	(Bibliography)
Archannelids	-	Gray	(Bibliography)
Ascidia	-	Monniot	(Bibliography & Key)
Isopoda	-	Galhano	(Bibliography & Key)

We hopefully solicit additional keys and/or bibliographies from our colleagues.

Dr. Sterrer said that Luther's superb bibliography of the Turbellaria had been copied and is available in Vienna. Similarly Dr. Vitiello said he had over 1,500 references on Nematoda. Dr. Persoone stressed the importance of new researchers writing to the experts so that work was not duplicated.

A most useful point was brought up by Dr. Golubic who said that when the bibliographies were printed it would be better to print them on one side of the paper only and of a certain width only so that these could be pasted onto filing cards.

Finally, another topic of great importance was raised, that of type collections. It was stressed how important it was for authors to state exactly where type collections are held. Dr. Den Hartog suggested that an accurate description of the type locality is of equal importance. Dr. Higgins appealed for "spare animals" which could be used for teaching purposes *e.g.*, Gnathostomulids, which students had little opportunity to see.

In summary, therefore, the main recommendations from this European meeting were:

- (1) Bibliographies of and keys to as many taxa as can be obtained are to be published in *PSAMMONALIA* at some future date.
- (2) The location of type specimens and type locality and the availability of paratypes should be stated in systematic publications.
- (3) If possible, experts in certain taxa should maintain preserved specimens, which could be used for teaching purposes.

IBP Productivity Group Conference on Benthos Methodology - Under the chairmanship of Professor D. J. Crisp, F.R.S., the U.K. productivity group has been preparing a handbook of benthos methodology. The primary aim of the handbook is to provide details of acceptable methods which could be used by small institutions.

A draft of the handbook had been prepared by the U.K. committee (D. J. Crisp, N. A. Holme, A. McIntyre, N. S. and J. K. Jones, I. Rees, J. Corlett and F. Round). At Arcachon the draft was discussed in detail and for this discussion H. L. Sanders, K. Banse, J. Pearce, G. Thorson were present as advisors. In addition any interested workers were welcomed and some 15 participants from the Arcachon symposium attended in this capacity.

The handbook covers the design of sampling programmes, position fixing, physical and chemical properties of the medium, collection of samples, treatment and sorting of samples, energy flow measurements and data processing and presentation. The treatment is extremely comprehensive and will prove of great value in meiobenthic research.

It would be impractical to cover all the points discussed in detail. However, some general points might be worth mentioning.

For analysis of the grain size distribution of the sediment wet sieving on the U. S. pattern screens with a phi log plot of the data seemed the most acceptable method. Pore size analysis could probably be best made by using techniques of epoxy embedding sediments, such as reported by Dr. Williams at the Arcachon meeting.

Accurate assessment of the organic content of the sediment was felt to be impossible using the methods at present available. The development of new techniques would therefore be a necessary step forward. As a compromise wet oxidation of sediment after the addition of dilute hydrochloric acid and sodium fluoride was recommended.

Sampling methods for the meiofauna were covered in detail by Dr. McIntyre. Multiple core samples were considered the best, with subsampling from grab samples as a much inferior second best. As yet multiple core meiofauna samplers were not well developed.

Methods of treatment of the meiofaunal samples covered a variety of fields ranging from elutriation, heat, ice and centrifugation; all being quoted in detail. It was pointed out that Professor Zinn had made a comparison of the relative efficiency of these methods and a reference to this paper was requested. As aids to studying the meiofauna, vital stains such as Rose bengal or Bismark brown were recommended.

The final section dealt with energy flow measurements with detailed methods described. Dr. Round described methods of estimating the epipsammic flora of sand, such as sonication for 10 minutes followed by direct counting of aliquots. The epipellic flora (those moving on and in the surface sediments) can be assessed by placing 2 x 2 tissues on the sediment surface (in a petri dish) and removing the tissues the following day. The tissues are preserved in 3 ml 40% glycerol in Lugol's Iodine and small pieces of tissue can be counted under the microscope.

It is hoped that the Handbook will be published in 1969 and I am sure it will be a valuable aid in benthos research.

--J. S. Gray

Use of Glass Beads as Coverslip Supports.

Identification of free-living nematodes and other meiobenthic organisms requires that specimens be mounted on microscope slides often using glycerine or other suitable liquid media as a mountant. Use of liquid media for this purpose, especially when permanent mounts are made, necessitates a coverslip support to keep the weight of the coverslip from distorting the specimens.

Short lengths of glass rod have largely been preferred to pieces of broken coverslip for this purpose, since the former are readily obtained in a greater assortment of diameter sizes from drawn glass rods. A varied assortment of rods is imperative since it is desirable to select rods that will bear most of the weight of the coverslip while allowing sufficient contact between the coverslip and the specimen to prevent the latter from drifting. Hence, the diameter of the rods will vary with that of the specimens.

Capstick (1956, *Nature* 177(4,515): 896-897) has proposed use of nickle-chromium wire of known diameter which eliminates some of the guess work in selecting support of appropriate diameter. However, both glass rods and wire have the time-consuming disadvantage of having to be cut into useable lengths. This disadvantage can be eliminated by using glass beads such as those manufactured for use in "light-reflective-paint". Beads from such a source have the additional advantages of being presorted as to size, available in diameters of 1 μ to 1 mm, and relatively inexpensive.

In the United States, beads of this type, as well as catalogues and price lists, may be obtained from Microbeads Division, Cataphote Corporation, Jackson 5, Mississippi. In Europe: Ballotini Manufacturing Co., Ltd., Barnsley, Yorkshire, England.
--W. Duane Hope.

Propylene Phenoxetol -- A New Narcotizing Method in Benthic Research.

During the past several years, the Biotic Census Section of the Systematics-Ecology Program, Marine Biological Laboratory, Woods Hole, Massachusetts, has been successful in using propylene phenoxetol (2-hydroxyethyl phenyl ether) as a narcotizing agent. Although propylene phenoxetol has been used in many specific ways, depending upon the taxa involved, the Biotic Census Section has subjected its benthic samples to a 0.015% emulsion (1.5 parts of propylene phenoxetol to 10,000 parts of seawater). After 15-30 minutes polychaetes, crustaceans and soft-bodied invertebrates are sufficiently relaxed. Bivalves, gastropods and fishes require 1-2 hours for complete relaxation or 30 minutes in a double strength relaxant medium.

Preliminary studies suggest that this narcotization agent may prove highly useful in meiobenthic research. Propylene phenoxetol may be obtained in the USA from the Goldschmidt Chemical Corporation, 153 Waverly Place, New York, New York; and in Europe from Nipa Laboratories Treforest Industrial Est., Pontypridd, Glam., Wales, UK, and

Associéte Sitca, 107 Rue de Pames, Paris XVII^e, France.

For further reference see: Owen, G. 1955. The use of propylene phenoxetol as a relaxing agent. Nature 175: p. 434.

--C. McKay.

New Oxygen Probe for Sand.

Dr. B.-O. Jansson has informed us that his portable oxygen probe measures oxygen availability, which is biologically more relevant than percentage, and can be bought for 630 Swedish Kronar (\$120.00). Inquiries should be directed to Dr. Jansson (Askö Laboratory, P. O. Box 28, Trosa, Sweden).

Financial Report -- Association of Meiobenthologists.

Amount contributed, 1968	\$ 83.00
Cost of Issue No. 5	-54.00
Balance for Issue No. 6	<u>29.00</u>
Estimated cost of Issue No. 6	-85.00
Estimated deficit	\$ <u>56.00</u>

We are most grateful for the generous response from the recipients of *PSAMMONALIA* but our needs exceed the amount donated. If we are to remain effective we must appeal again to those who have not contributed and are capable of doing so. By necessity, we are extending this appeal to graduate students as well as senior scientists. The amount of \$2.00 is humbly solicited. (Checks payable to: Association of Meiobenthologists and mail to Dr. Hope).

Meiobenthologists to Meet at 139th Annual Meeting of the American Association for The Advancement of Science, Dallas, Texas, December 28, 1968.

An informal meeting of meiobenthologists has been suggested for the forthcoming AAAS meetings. An announcement of the time and place of this meeting will be posted in the American Society of Zoologists' Book Lounge, Baker Hotel, Lounge Room. We will try to meet Saturday afternoon, December 28.

Appeal for Specimens -- Desmoscolecoida (Nematoda).

Father R. W. Timm is currently undertaking a revision of the super-family Desmoscolecoida (Nematoda) and has asked that specimens of this taxa be sent to him

by those who have them to spare. Father Timm is on temporary leave from Notre Dame College in Dacca, East Pakistan to teach and conduct research in the Department of Nematology, University of California, Davis, California, USA. Specimens should be sent to him at the California address.

Errata -- PSAMMONALIA No. 5.

- p. 16 Enckell, Pehr Henrik
- p. 17 Gomoiu, Marian T.
- p. 21 Schmidt, Peter
Tardigrada; Ecology
- p. 23 Williams, Robert
Ostracoda, Nematoda; Systematics, ecology
Oceanographic Laboratory
78 Craighall Road
Edinburgh 6, Scotland

Williams, Roger
Systematics, biology; Ostracoda
Research Assistant
Paleontological Institute
Department of Geology
University of Kansas
Lawrence, Kansas 66044, USA.

Changes of Address.

JONES, GILBERT F.
General interest; Nematoda
Research Associate
Allan Hancock Foundation
University of Southern California
Los Angeles, California 90007, USA.

MCGINTY, M. MAXINE
Systematics, physiology,
ecology, Tardigrada
Graduate Student
Virginia Institute of Marine Science,
Gloucester Point, Virginia 23062, USA.

STERRER, W.
Turbellaria and
Gnathosomulidae
Department of Zoology
University of North Carolina
205 Wilson Hall
Chapel Hill, North Carolina,
27514, USA.

WESTHEIDE, W.
Systematics, morphology,
life history, develop-
ment, etc; Polychaeta,
Archiannelida; Ecology
of interstitial sand
fauna.
II. Zoologisches Institut und
Museum der Universitat
Berlinerstrasse 28
34 Göttingen, Germany

New Members.

AKYÜZ, E. K.
Administration
Chief, Biological Data Section
FAO
Via della Termedi Caracalla
Rome, ITALY

AYYAKKANNU, K.
Interstitial ecology
Marine Biological Station
Portonovo, Madras State, INDIA

BENARD, F.
Instrumentation
Laboratoire Maritime
14 Luc-sur-Mer, FRANCE

BODIN, P.
Antennes de la S.M.E.
C.R.E.O. Allée des Tamains
17, La Rochelle, FRANCE

BRATTSTRÖM, HANS
Administration
Professor
University of Bergen Biological Station
Espregrend
N-5065 Blomsterdalen, NORWAY.

BRUNET, P.
Station Marine d'Endoume
Rue Batterie-des Lions
Marseille (7^e), FRANCE

COOK, DAVID G.
Oligochaeta: Systematics and
Ecology
Research Associate
Systematics-Ecology Program
Marine Biological Laboratory
Woods Hole, Massachusetts 02543, USA.

DEN HARTOG, C.
Estuarine benthology
Rijksherbarium, Schelpenkade 6
Leiden, HOLLAND

DOW, DAVID
Graduate Student
Department of Zoology
University of Georgia
Athens, Georgia 30601, USA.

EGLOFF, DAVID A.
Ecology; Harpacticoida
Asst. Professor Biology
Department of Biology
Oberlin College
Oberlin, Ohio 44074, USA.

FEDER, HOWARD M.
Ecology & general interests
Biology Department
Hartnell College
Salinas, California 93901, USA.

FENCHEL, ANN
Rotifera; Systematics and
ecology
Marine Biological Laboratory
University of Copenhagen
3000 Helsingør, DENMARK

FENCHEL, TOM
Ciliate protozoans;
Systematics & ecology
Marine Biological Laboratory
University of Copenhagen
3000 Helsingør, DENMARK

GALHANO, JOSÉ (MME)
Isopoda, Copepoda, Nematoda
Rua Felicidade. Brown
71 71 Porto, PORTUGAL

HARTUG, EIKE
Systematics-ecology; Ciliata
Graduate Student
II. Zoologisches Institut der
Universität
Berlinerstrasse 28
34 Göttingen, WEST GERMANY

McKAY, CHARLES
Student
Department of Biology
Northeastern University
Boston, Massachusetts 02115, USA.

McINTYRE, ALASDAIR D.
Food chain studies and
general benthology
Department of Agriculture and
Fisheries of Scotland
Marine Laboratory, P. O. Box 101
Aberdeen AB98DB, SCOTLAND

PARKER, ROBERT H.
Associate Professor of Biology
Department of Biology
Texas Christian University
Fort Worth, Texas 76129, USA.

PERSOONE, G.
Ecology; pollution of benthos
Université de l'Etat
Laboratoire d'Ecologie
Gand, BELGIUM

RANKIN, JOHN S., JR.
Ecology of Antarctic benthos
Professor
University of Connecticut
Marine Research Laboratory
Noank, Connecticut 06268, USA.

REINECK, H. E.
Worm burrows & biological
disturbance of sediment
Forschungsanstalt für Meeres
Geologie und Meeres-Biologie
Senckenberg
294 Wilhelmshaven, GERMANY

RICE, MARY E.
Sipuncula; development, systematics,
morphology ecology of Sipunculids
Department of Invertebrate Zoology
Museum of Natural History
Smithsonian Institution
Washington, D. C. 20560, USA.

SCHRÖM, HEINRICH
Gastrotricha
Institut für krebsforschung
Universität
IX Borschkegasse 8a
1090 Wien, AUSTRIA

SCHILKE, KARL
Turbellaria; systematics and ecology
Student
II. Zoologisches Institut
Berlinerstrasse 28
34 Göttingen, WEST GERMANY

SOYER, J.
Harpacticoids, copepoda;
systematics and ecology
Maitre-Assistant
Université de Paris
Laboratoire Arago
66 Banyuls-sur-Mer (Pyr.--Orles)
FRANCE

TEUCHERT, GERTRAUD
Gastrotricha (Macrodasyoidea),
development, systematics and
life history
II. Zoologisches Institut
Berlinerstrasse 28
34 Göttingen, GERMANY

VITIELLO, P.
Nematodes
Station Marine d'Endoume
Rue Batterie-des-Lions
Marseille (7^e), FRANCE

WRIGHT, K. A.
(Comparative and functional)
Fine structure of inverte-
brates, especially helminths.
Department of Parasitology
School of Hygiene
University of Toronto
Toronto, Ontario, CANADA

VENUGOPALAN, V. K.
Physiological-ecology
Reader in Marine Biology
Marine Biological Station
Portonovo, South Arcut Dr.,
Madras State, INDIA

ZIMMER, RUSSEL L.
Morphology-reproduction;
lophophorates
Department of Biological Sciences
University of Southern California
Los Angeles, California 90007, USA.

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Recent literature.

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