AMPHIPOD NEWSLETTER

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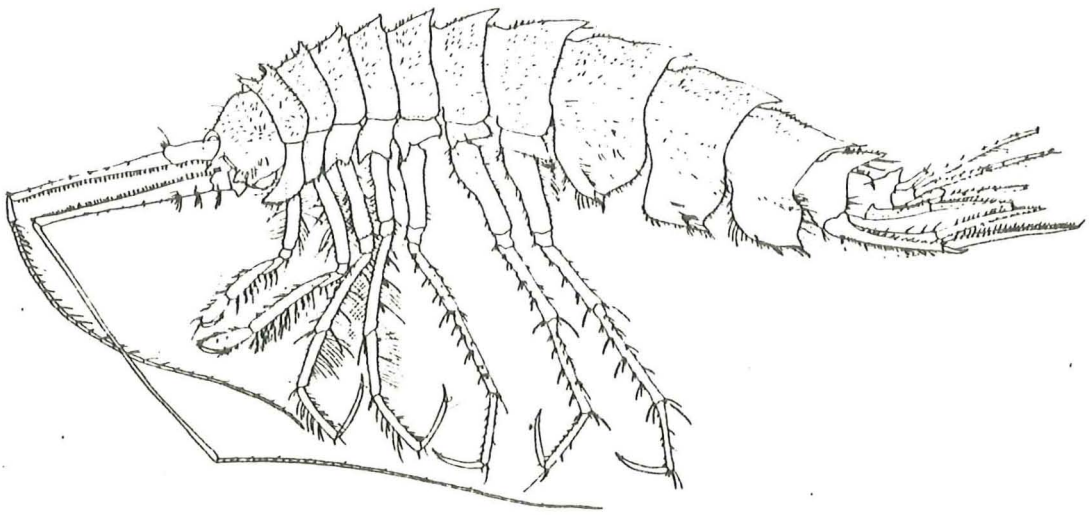

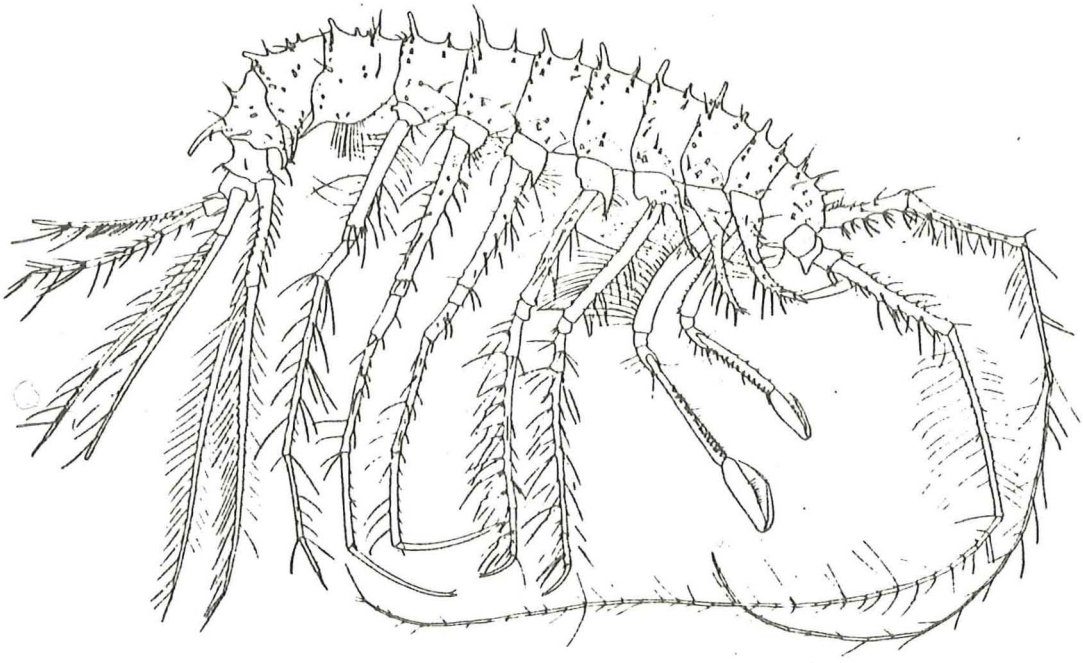

EDITED BY: *Wim Vader, Tromsø Museum*
PRODUCED BY: *Les Watling, University of Maine*

This issue of the Amphipod Newsletter has been put together in Maine. I would like to thank all who sent me either reprints or lists of papers for inclusion in the bibliography. I'm also very grateful to our Librarian, Mrs. Louise Dean who diligently checked each incoming journal issue for articles of interest. Ms. M. Bostwick and Ms. Lois Lane typed this issue after a courageous struggle with the handwriting of Wim Vader and myself.

This issue's cover is courtesy of M.H. Thurston. More cover illustions would be greatly appreciated.

Judging from the responses received, those of you who receive your newsletter by air mail were the beneficiaries of reasonably rapid mail service. We now have 291 subscribers and the postage for the last issue was 420 dollars. Please keep the contributions and subscription money flowing to your regional editors. Also, not too much information has come my way for the "news" section. Let me urge the regional editors to canvas their members sometime around next July or August for news. Also, we don't hear much of the research activities of Asian and South American workers. Send me a synopsis!

I would like to draw your attention also to a notice in this issue concerning a new society (The Crustacean Society) for all workers throughout the world interested in any aspect of crustacean biology. The Society will publish a journal (to be edited by Dr. Arthur Humes, Marine Biological Laboratory, Woods Hole, MA 02543) beginning Jan-Feb 1981. If you have a manuscript, or plans for one, please send your idea or manuscript to Dr. Humes. I hope you will also be sufficiently interested in this society to join in its activities, and especially to nominate people as officers in forthcoming years.

We have to report a change in our staff of regional editors. Dr. Akira Taniguchi, although describing himself modestly in a recent letter as 'a mere layman in amphipod studies' has proved to be a most professional regional editor, and in fact, much of the present organization is based on his efficient examples. The new regional editor to Japan will be Dr. Hiroshi Morino.

Wim Vader will be in Bodega Bay until June and back at his permanent address in Tromso from mid-August. He is still very much interested in records of amphipod associations, especially those involving the anemones, Crustacea, echinoderms, molluscs and brachiopods.

Les Watling

25 May 1980

FIFTH INTERNATIONAL COLLOQUIUM ON GAMMARUS AND NIPHARGUS AND THIRD INTERNATIONAL SYMPOSIUM ON GROUNDWATER ECOLOGY LODZ - CZĘSTOCHOWA, POLAND - SEPTEMBER 1980

November 1979

2nd Circular Letter

Dear Colleagues,

We would like to inform you that we received above 50 responses from 16 countries to the 1st Circular Letter concerning our next meeting in Poland in 1980.

1. Some 35 papers were proposed. The responses show the interest for biogeography, ecology, physiology, population dynamics and systematics. Out of the topics for the informal discussion sessions the following were suggested by at least three respondents: a/ amphipod phylogeny and taxonomy, b/ subterranean fauna and diluvial glaciations, c/ terminology for groundwater ecology, d/ methods of sampling and of quantitative estimation of the production. We will arrange the discussion sessions for the above mentioned topics during the conference. For several other topics proposed by single persons we suggest the separate session where the authors of the proposals can provoke the discussion. The meeting of the so-called "Niphargus - groups" will be also scheduled.

2. The conference will last from 4th till 10th or 11th of September 1980: from Thursday till Wednesday or Thursday. A detailed schedule will be sent in next circular letters.

3. According to the suggestions of Blacksburg we have tried to find the possibility of printing the papers of our meeting in one of Polish international journals. We are happy to inform you that such a possibility does exist in Polskie Archiwum Hydrobiologii, that publishes in English, French and German. If you wish to publish your paper that will be presented at our conference in one monothematic volume of this journal, please, announce this wish along with at least provisional title not later than January 31st, 1980, both to K. Jazdzewski and to the following address:

Doc. dr habil. Ewa Kamler, Polskie Archiwum Hydrobiologii, Redakcja, Instytut Ekologii P.A.N., Dziekanów Leśny, 05-150 LOMIANKI, POLAND. In that case you will receive the form with rules and regulations for preparation the manuscripts that will be collected during the conference.

4. If you wish to have a letter of invitation, please, contact K. Jazdzewski, proposing at the same time its desirable formula.

5. Please, bear in mind that the deadline for sending abstracts is April 30, 1980. Titles without abstracts will not be accepted. Abstracts /in English, French or German/ should be written on one side of a single page. Abstracts should include: title in capital letters, name of author and affiliation, double-spaced text with free margins: 40 mm from the left, 15 mm from the right, 20 mm from top and from bottom. Abstracts should be sent to K. Jazdzewski.

6. We would like to recall you the account where the registration fee / 35 US $ prior to March 31, 1980; 40 US $ after that date / should be prepaid: Bank Hanlowy, ul. Traugutta 7/9, 00-067 Warszawa, R-k nr 342 - 1516-787, for: Min. N. Sz. W. T., Uniwersytet Lódzki, Komitet Organizacyjny V Int. Coll. Gammarus.

7. A 3rd Circular Letter will be mailed in April 1980. Included will be information on housing and conference accomodations and details on the programme and on the travel.

With regards

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Zaklad Zoologii Ogolnej U.L.
ul. S. Banacha 12/16
90-237 Lódź, POLAND

P R E L I M I N A R Y A P P L I C A T I O N

for printing the paper in Polskie Archiwum Hydrobiologii

I wish to publish my paper that will be presented at the Vth Int. Coll. Gammarus/Niphargus and IIIrd Int. Symp. Groundw. Ecol. - in Polskie Archiwum Hydrobiologii.

The /provisional/ title of the paper is following:

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NAME .....

ADDRESS .....

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The /provisional/ title of the paper is following:

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News from Colleagues

Kathy Conlan: is working with E.L. Bousfield on west coast (Canada) amphipods, with emphasis on Corophioidea.

Eamonn Twomey: I am working for my doctoral thesis on Caprellids under the supervision of Dr. A.A. Myers. I hope to investigate population dynamics, behavioural ecology, systematics and functional morphology and have already commenced work with the scanning electron microscope. I would be interested to hear from others with similar interests.

Jean-Claude Dauvin: I work on dynamics of populations of Amphipoda-Ampeliscidae and dynamics of benthic ecosystems.

John J. Dickinson: As of April 1 will be doing a postdoc with E.L. Bousfield. During my stay in Woods Hole, I put together two reports on the gammarideans of the Middle Atlantic Bight and Georges Bank (U.S. east coast). They will be published in the NMFS Technical Reports Series.

Jeff Hughes: am presently writing a paper on Dogielinotus loguax Barnard from the Washington (State of, U.S.A.) coast.

Alan Myers: I have recently returned to Cork after six months in the South West Pacific, principally in Fiji where I collected gammarideans from coral reef and mangrove biotopes. I also collected in Western Samoa, Niue Island, Tonga, the New Hebrides and Solomon Islands. My aim is to produce a handbook for the identification of Fijian amphipods as my sponsors at the Institutte of Marine Resources in Suva have indicated that this would be of great help to them, and then follow it up with a broader study of S.W. Pacific gammarideans. Work also continues on Lembos with many new species, especially from the Pacific Islands and Australia, but also from elsewhere, still waiting on my shelves to be described. I am also working on Grandidierella from the Pacific and from the Gulf of Mexico, Aora from Australia and New Zealand, Leptocheirus from the Gulf of Mexico and Erichthonius world wide. Several interesting Irish amphipods are under study by myself and Dave McGarth, and of course my work on Mediterranean Isaeidae and Ischyroceridae for Vol. 2 of "The Amphipoda of the Mediterranean" continues.

James T. Carlton: My research interests are the biogeography, history, ecology and biology of marine and estuarine invertebrates accidentally transported by man around the world (via commercial oysters, shipping, algae with fisheries products, and other means). My doctoral dissertation at the University of California, Davis, considered the large exotic fauna (150+ species) on the Pacific coast of North America, including at least thirteen introduced species of bay-dwelling amphipods. I am currently devoting a large portion of my studies at W.H.O.I. to investigations of the non-native invertebrates of the Atlantic coast from Newfoundland to Cape Hatteras. An early stimulus for my work was E.L. Bousfield's recognition of Orchestia chiliensis in San Francisco Bay (earlier described as O. enigmatica Bousfield & Carlton, 1967), a remarkable beach-hopper probably introduced in shingle ballast from Chile.

P.M. Taylor: I am working towards my Ph.D. studying the ionic regulation of Corophium curvispinum var. devium (Wundsch). I am also interested in the distribution of this species throughout the British Isles and Europe.

Traudl Krapp-Schickel: I've always been working at home (because of our 3 children), financially supported by research councils, and furnished with the necessary literature by my husband (Curator of Arthropoda at the Museum in Bonn), who also brought home my mail addressed to the museum. The new director of the Bonn Museum does not want me to receive mail via the museum, as I "do not belong to the museum". Please therefore write to our home address (see Address Changes), or if writing to a home address is impractical for you, send the mail to my husband and me together (Drs. F. & G. Krapp, Museum A. Koenig, Adenauerallee 150-164, D-53 Bonn, FRG).

Philippe Laval: I have just finished a review on hyperiid associations with gelatinous zooplankton, which was invited by the editor of "Oceanography and Marine Biology, Annual Review". It should be published in Volume 18, 1980.

REQUEST FOR INFORMATION

I am anxious to examine specimens of, and related to, the lysiannassid genera, Thoriella, Chevreuxiella and Danaella. Material already available suggests the presence of several undescribed species, strong sexual dimorphism radical morphological changes during growth and bizarre adaptations to a bathypelagic existence. I shall be most grateful for the loan of any collections. Even single specimens will help.

Michael Thurston
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I am currently investigating the life cycle and general ecology of the supralittotal talitrid amphipod, Orchestia traskiana, in the Pacific Northwest U.S.A. Except for D.E. Bowers' (1964) work on Orchestoidea in California, most studies on the ecology of algal wrack fauna have been conducted in Northern Europe. Noteworthy are the investigations of Remmert, Strenzke, Backlund, Durkop, Dahl and Bock. If anyone has any further information regarding the population dynamics, physiological ecology and competitive interactions of algal wrack fauna, I would be most interested in hearing about it. Also, has anyone speculated on the energetic interactions between the supralittoral wrack environment and the subtidal? Despite the fact that it derives its nutritional base from the marine environment, one generally gets the impression that the wrack ecosystem is somewhat isolated from the strictly marine environment, being populated by essentially "semi-terrestrial" and terrestrial species. The progressive decay and eventual breakdown of algal drift, together with the fecal products of the wrack inhabitants, results in bottom layers that have the appearance of forest humus. Supralittoral amphipods appear to play an important role in this process. If this material is eventually washed into deeper water by the tides, it could prove to be an important energy source for subtidal benthic deposit feeders. If anyone has any ideas, suggestions or information regarding any of the points I have mentioned above, please contact me at the following address:

Helmut Koch
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The Population Dynamics of an Intertidal Sandy-Beach Amphipod from the Washington Coast, by Jeffrey E. Hughes, M.S. Thesis, University of Washington, 1978

1. The amphipod Dogielinotus loquax Barnard (1967), a recently-described member of Pacific Northwest coastal infauna, is found in shallow sands within the mid-to-upper intertidal zone, where it often occurs in a relatively narrow band. It shares this habitat with only a few other macro-invertebrates.

2. A population of D. loquax was sampled from May, 1975 through August, 1976, in the vicinity of Ocean City-Ocean Shores, Washington. A stratified random sampling scheme was usually employed, and a total of three beach stations examined.

3. D. loquax is a mobile herbivore-detritovore that maintains an association with the relatively food-rich upper swash zone by way of its strong swimming and burrowing capabilities. A principal food source is the surf diatom Chaetoceros armatum. Behavior related to food resource availability was discussed as principally limiting the distribution of D. loquax in the intertidal.

4. A sustained segregation by size or sex was not noticed on the studied beaches.

5. D. loquax is an iteroparous species, with an average sex ratio of 1:1. Mean fecundity ranges from 8 to 32 eggs, depending on gravid female body length. Duration of egg development is strongly temperature-dependent, varying from 55 days at 8°C to 14 days at 20°C.

6. The size structure of the D. loquax population was monitored, using a leg segment as the measurement variable. A bivoltine reproductive cycle was exhibited: a generation recruited in spring produced in summer a generation that overwintered and would reproduce in the following spring.

7. The timing of peaks in reproductive activity (relative proportion of gravid females) and the entry of cohorts into the population was largely influenced by temperature-dependent rates of naturation and egg development.

8. Growth of cohort members recruited in spring and summer, 1976, was estimated by the probability paper method. Cohort mean specific growth rates generally decreased with increasing amphipod body size. The intial growth of the earliest-recruited cohort may have been retarded by the relatively lower temperature of April-May.

9. Abundance estimates for the spring recruitment (summer genreation) indicated a relatively rapid numerical decline from July through August, 1976 (approx. 5% per day). Most of this mortality occurred before the amphipod had reached its maximal size. Recruitment to the 1976-1977 overwintering generation had commenced by this time.

10. Sources of mortality were discussed. Predation by shorebirds, particularly sanderling (Crocethia alba) was implicated as especially influential in the decline of the summer generation.

Ecology of Parathemisto libellula and P. Pacifica (Amphipoda:Hyperiidea) in Alaskan Coastal Waters by Bruce L. Wing, Ph.D. Thesis, University of Alaska, 1976.

The planktonic amphipods Parathemisto libellula and P. pacifica coexist in coastal waters from southeastern Alaska (56°N) to the southeastern Chukchi Sea (70°N). Observations on distribution, reproductive cycles, diets, metabolism, and starvation tolerance contribute to understanding this case of congeneric coexistence.

Samples were collected monthly from September 1969 to October 1970 in southeastern Alaska, from May to September 1969 in the southeastern Bering Sea, and in September-October 1970 in the southeastern Chukchi Sea. Respiratory metabolism and starvation tolerance were studied in winter-caught amphipods from southeastern Alaska.

Both species consistently occurred above 300 m in southeastern Alaska. In the southeastern Bering Sea, their distributions were separate, with P. libellula restricted to an area where summer bottom temperatures were less than 8.0°C. The P. pacifica found in the Chukchi Sea were probably expatriated from the Bering Sea.

In southeastern Alaska, P. libellula has a 1-year cycle. Broods are released in early May. Juveniles initially live in the surface 50 m, but by late June (at a size of 10 mm) they migrate vertically. By late October they have a daytime depth of 200-300 m. Males mature in late winter at 19-21 mm and females 21-25 mm.

In southeastern Alaska, P. pacifica reproduces throughout the year with a strong peak in early May. Juveniles initially live in the surface 50 m. Adults and subadults migrate vertically to a daytime depth of 100-200 m. Summer growth is rapid, and maturity is attained in 6-8 weeks at a size of 4.5-6.5 mm. Generation time lengthens in winter to 8-12 weeks, and size at maturity increases to 6.0-7.0 mm. Diets of the two amphipods are similar. About half the food items were calanoid copepods, and 30% were compound-eyed crustaceans (primarily euphausiids and amphipods). Parathemisto pacifica were more cannibalistic than P. libellula.

The temperature coefficient (Q_{10}) for respiratory metalobism of P. libellula is 3-5 at temperatures below 5.0°C, and near 2 at temperatures above 10.0°C. At 7.5°C, the respiration rates for animals tested had a bimodal distribution--not all animals changed their metabolism at the same rate and/or temperature.

Respiration rate-weight relationships are not affected by temperature. Respiration rates are inversely correlated with salinity between 30.7‰ and 32.4‰. This relationship may serve to maintain a constant metabolic rate during vertical migration.

The Q_{10} for respiratory metabolism of P. pacifica is near 2 at temperatures below 5.0°C; thus, P. pacifica cannot lower metabolic requirements during the winter as well as P. libellula.

Parathemisto libellula endured starvation for 56 days and P. pacifica for 36 days at 6-7°C.

Annual cycles of temperature and food in Alaskan coastal waters impose conditions outside optimum physiological ranges but within the tolerance of both species. Temperatures above 8.0°C may impose higher metabolic demands upon P. libellula than can be fully supported by the available food. Winter food may be inadequate for the metabolism of P. pacifica. Parathemisto libellula is better adapted to winters than P. pacifica, and P. pacifica better adapted to summers than P. libellula; consequently, in either time of year neither deominates long enough to exclude the other.

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BIBLIOGRAPHY

As usual, Claude De Broyer, Ireida Greze and Jan Stock have again sent lists of references. We are also very grateful to those of your who have sent reprints of their recent papers to Les or to me. Nevertheless, I fear that the bibliography this time will be more incomplete than usually: please let me know if you spot any omissions.

The review of Jenzen's innovative keys to the Danish amphipods and Lincoln's monumental work on the British Gammaroidae have to wait to A.N. 13.

Dr. Greze writes that the title of the journal of the 'Institute of Biology of the South Seas' published by 'Neukova dumke' from 1980 has been changed from 'Biologiye morya' to 'Ecologiye morye'. This is a very welcome change, since the journal of the 'Institute of Biology of the Far Eastern Seas' in Vlodivovtete also was, and still is, called "Biologiye morye'.

I add a copy of a recent note in J. Paleontol. 53, 1979, 761 by Louis S. Kornicker on the use of question marks in taxonomic literature, and invite your comments. I am afraid I have not been very consistent in this regard on the bibliography of A.N., though my use has been closest to the AMNH guidelines.
(W. VADER)

THE QUESTION MARK IN TAXONOMIC LITERATURE

LOUIS S. KORNICKER
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The precise meaning of a question mark when used in conjunction with the name of a taxon often cannot be determined by the reader of taxonomic literature unless the publication containing the literature has regulations concerning the use of the question mark, and unless these regulations are known to the reader. As an example, I have listed in Table 1 conventions used by three different publications. As shown in the table, the conventions agree in some instances but disagree in others. An extreme example is the placement of the question mark in "?*Spirifer grimesi* Hall," which specifies that the entire assignment is questionable in two of the publications, and that the generic assignment is questionable in the third publication. If a publication containing taxonomic literature has no rules concerning the use of the question mark, the reader may have no way of knowing the intent of the author's use of it. Therefore, either the placement of the question mark used in conjunction with taxonomic names should be standardized, or publications containing taxonomic literature should formulate regulations concerning the question mark, and these should be readily available to both author and readers.

TABLE 1—Suggested position of the question mark when used with the name of a taxon in three publications.

	USGS[a]	AMNH[b]	NMNH[c]
Species questionably assigned to genus	*Spirifer*? *grimesi* Hall	?*Spirifer grimesi* Hall	*Spirifer*? *grimesi* Hall
Species doubtful, but assigned to correct genus	*Spirifer grimesi* Hall?	*Spirifer* ?*grimesi* Hall	*Spirifer grimesi*? Hall
Entire assignment doubtful	?*Spirifer grimesi* Hall	? *Spirifer grimesi* Hall	?*Spirifer grimesi* Hall

[a] Suggestions to Authors of the Reports of the United States Geological Survey, 6th Edition, 1978, by Elna E. Bishop, Edwin B. Eckel, and Others; John E. Eric, Coordinator. U.S. Government Printing Office, Washington, D.C.
[b] Style Sheet for the Scientific Serial Publications of The American Museum of Natural History, 2nd Edition, Revised, 1953, by Ruth Tyler. The American Museum of Natural History, New York.
[c] Smithsonian Style Manual, 1973, Anonymous. Smithsonian Institution Press, City of Washington.

MANUSCRIPT RECEIVED SEPTEMBER 2, 1978
The Smithsonian Institution contributed $75.00 in support of this article.

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BARNARD, J.L. 1979. Revision of American species of the marine amphipod genus Paraphoxus (Gammaridae: Phoxocephalidae). Proc. Biol. Soc. Washington 92(2):368-379. [Metharpinia Schellenberg, revised, 3 spp.; Microphoxus J.L. Barnard, revised (includes Metharpinia comuta Schellenberg); Rhepoxynius n. gen. (type sp: Pontharpinia epistoma Shoemaker), 12 spp.; Foxiphalus n. gen. (type sp: Pontharpinia obtusidens Alderman), 4 spp.; Grandifoxus n. gen. (type sp: Phoxus grandis Stimpson), 3 spp.; Eyakia n. gen. (type sp: Parharpinia calcarata Gurjanova), 4 spp.; Eobrolgus n. gen. (type sp: Paraphoxus spinosus Holmes), ?2 spp.].

BARNARD, J.L., AND M.M. DRUMMOND. 1979. Gammaridean Amphipoda of Australia, Part IV. Smithson. Contrib. Zool. 269:1-69. [PLATYISCHNOPIDAE, n. fam. (type gen: Platyischnopus Stebbing); Key to eastern hemisphere genera of Platyischnopidae; Platyischnopus mam n. sp.; Tomituka n. gen. (type and only sp: T. doowi n. sp.); Yurrokus n. gen. (type and only sp: Y.cooroo n. sp.); Tittakunara n. gen. (type and only sp: T. katoa n. sp.); Indischnopus n. gen. (type sp: Platyischnopus herdmani), 2 spp.; Indischnopus capensis (K.H. Barnard), n. comb. UROTHOIDAE; key to Australian sp. of Urothoides; Urothoides kurrawa n. sp. U. waminoa n. sp.; U. makoo n. sp.; U. tondea, n. sp.; U. odernae n. sp.; U. mammarta n. sp.; U. mabingi n. sp.].

BARNES, R.S.K., A. WILLIAMS, C. LITTLE, AND A.E. DOREY. 1979. An ecological study of the Swanpool, Falmouth. IV. Population fluctuations of some dominant macrofauna. pp. 177-197. In, Jeffries, R.L., and A.J. Davey (ed.) Ecological Processes in Coastal Environments, Blackwell Scientific Publications. [Gammarus chevreuxi populations varied widely over a 4 1/2 year period, but no seasonality observed].

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BOLOGNARI, A., M.T. ALBANESE CARMIGNANI and A. CONTINI. 1978. The question regarding the positive reaction to RNA in the proteic yolk. Riv. Biol. norm. Pathol. 4, 73-80. (I do not know in which language this paper was written. It deals in part with Orchestia gammarellus).

BORODICH, N.D., 1979. Gmelinoides fasciatus (Stebbing) (Amphipoda, Gammaridae) in the Kuibyshev Water Reservoir). Zool. Zh., 58(6):920-921 (in Russian).

BOROWSKY, B. 1980. Factors that affect juvenile emergence in Gammarus palustris (Bousfield 1969). J. exp. mar. Biol. Ecol. 42:213-223. ["In the laboratory, hatched juveniles of the amphipod Gammarus palustris emerged from the female's brood pouch at increased rates when the mother was pipetted, fed on mussel meat, or was immersed after a period of exposure to the air"].

BOTTON, M.L. 1979. Effects of sewage sludge on the benthic invertebrate community of the inshore New York Bight. Est. Coastl. Mar. Sci. 8:169-180.

BOUSFIELD, E.L. 1979. A revised classification and phylogeny of amphipod crustaceans. Trans. Royal Soc. Canada, Ser. IV, 16:343-391. [Superfamily Phoxocephaloidea Sars, n. status; UROTHOIDAE, n. fam. (type genus: Urothoe Dana); Superfamily Lysianassoidea Dana, n. status; Superfam. Pontoporeioidea Sars, n. status; TYPHLOGAMMARIDAE, n. fam. (=Gammaroidean family group 2, Bousfield 1977, type genus: Typhlogammarus Schäferna); GAMMAROPOREIIDAE, n. fam. (=Gammaroidean family group 10, Bousfield 1977; type genus: Gammaroporeia n. gen., type sp: Micruropus alaskensis Bousfield and Hubbard); Superfam. Eusiroidea Stebbing, n. status; Superfam. Oedicerotoidea Lilljeborg, n. status; Superfam. Leucothoidea Dana, n. status; Superfam. Stegocephaloidea Dana, n. status; Superfam. Synopioidea Dana, n. status; Superfam. Pardaliscoidea Boeck, n. status, Superfam. Liljeborgoidea Stebbing, n. status; Superfam. Dexaminoidea Leach, n. status; Superfam. Ampeliscoidea Bate, n. status; table giving family members of superfamilies on p. 378-379].

BOUSFIELD, E.L. 1979. The amphipod Superfamily Gammaroidea in the northeastern Pacific region: systematics and distributional ecology. Bull. Biol. Soc. Washington 3: 297-357. [Key to gammaroidean families of the North Pacific Rim region; Lagunogammarus Sket, n. status; key to sp. from N. Pacific Rim region; key to genera of MESOGAMMARIDAE; Paramesogammarus, n. gen. (type sp: P. americanus n. sp.); key to genera of ANISOGAMMARIDAE: Anisogammarus Derzhavin, revised; Eogammarus Birstein, revised; key to species of Eogammarus; Eogammarus psammophilus n. sp.; Eogammarus oclairi n. sp. (includes Anisogammarus confervicolus Shoemaker (part) and Bousfield (part); Barrowgammarus n. gen. (type sp: Anisogammarus macginitiei Shoemaker); Locustogammarus n. gen. (type sp: Gammarus locustoides Brandt) 4 spp.; key to species of Locustogammarus; Locustogammarus levingsi n. sp. Spinulogammarus Tzvetkova, n. status; key to species of Spinulogammarus; Spasskogammarus n. gen. (type sp: Spasskogammarus spasski Bulycheva), 2 spp; key to species of Spasskogammarus; Spasskogammarus tzvetkovae, n. sp.; Jesogammarus n. gen. (type sp: Anisogammarus jesoensis Schellenberg): Annanogammarus n. gen. (type sp: Gammarus annandalei Tattersall); Ramellogammarus n. gen. (type sp: Gammarus ramellus Weckel), 4 spp.; key to species of Ramellogammarus; Ramellogammarus vancouverensis n. sp.;

Carineogammarus n. gen. (type sp: Eogammarus makarovi Bulycheva; Gammaroporeia Bousfield 1979, diagnosed.]

BOUSFIELD, E.L. 1979. Talitroidean amphipod crustaceans from the North American Pacific coast, systematics and distributional ecology. XIV Pac. Sc. Congr., Khabarovsk, Aug. 1979. Abstract 5 pp (The abstract maps the distribution of 47 species in 12 genera and 6 families over 9 faunal districts.)

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BRUNEL, P. 1979. Seasonal changes of daily vertical migrations in a supra-benthic cold-layer shelf community over mud in the Gulf of St. Lawrence. Pp. 383-390 in E. Naylor & R.G. Hartnell (ed.). Cyclic phenomena in marine plants and animals. Pergamon Press, Oxford & New York.

BULNHEIM, M.P. 1979. Comparative studies on the physiological ecology of five euryhaline Gammarus species. Oecologia 44: 80-86.

BUSHUEVA, I.V. 1978. A new amphipod species (Amphipoda, Gammaridea) from the Davis Sea (eastern Antarctic). Zool. Zh. 57: 450-453. (In Russian). [Acanthonotozomella pushkini n. sp.].

CAINE, E.A. 1979. Population structures of two species of caprellid amphipods (Crustacea). J. exp. mar. Biol. Ecol. 40: 103-114.

CAMMEN, L. 1979. The macro-infauna of a North Carolina salt marsh. Amer. Midl. Nat. 102: 244-253.

CECCALDI, M.J. 1978. La nutrition des Crustacés. Oceanis 4: 55-62. (Not seen).

COLEMAN, N., W. CUFF, M. DRUMMOND & J.D. KUDENOV. 1978. A quantitative survey of the macrobenthos of Western Port, Victoria. Aust. J. Mar. Freshwater Res. 29: 445-466.

COLES, S.M. 1979. Benthic microalgal populations on intertidal sediments and their role as precursors to salt marsh development. pp. 25-42. In, Jeffries, R.L., and A.J. Davy (ed.) Ecological Processes in Coastal Environments, Blackwell Scientific Publications. [Corophium volutator reported to have consumed 50,000 diatoms per individual in 12 hours!]

CRAWFORD, D.M. & D.C. TARTER. 1979. Observations on the life history of the freshwater amphipod Crangonyx forbesi in a spring-fed cistern in West Virginia, U.S.A. Am. Midl. Nat. 101: 320-325.

DAHL, E. 1979. Deep-sea carrion feeding amphipods. Evolutionary patterns in niche adaptation. Oikos 33: 167-175.

DAHL, E. 1979. Amphipoda Gammaridea from the Deep Norwegian Sea. A Preliminary Report. Sarsia. 64 (1-2): 57-59. (The amphipod fauna has a low diversity: about 30 spp. found).

DAMKAER, C.C. & D.M. DAMKAER. 1979. Henrik Krøyer's publications on pelagic marine Copepoda (1838-1849). Trans. Am. phil. Soc. 69-6, 1-48 (A good biography on pp. 4-9).

DEXTER, D.M. 1979. Community structure and seasonal variation in intertidal Panamanian sandy beaches. Est. Coast. Mar. Sci. 9: 543-558. [Most amphipods were collected on Pacific side with Rudilemboides sp., Paraphoxus obtusidens and a Platyischnopus sp. the most abundant].

DICKSON, G.W. 1979. The importance of cave mud sediments in food preference, growth and mortality of the troglobitic amphipod crustacean Crangonyx antennatus Packard (Crangonyctidae). Crustaceana 36(2): 129-139.

DORGELO, J. 1978. Intraspecific osmoregulatory comparison in Gammarus pulex (Crustacea: Amphipoda). Verh. Internat. Vereim. Limnol. 20: 2573-2578.

DOWNER, D.F., and D.H. STEELE. 1979. Some aspects of the biology of Amphiporeia lawrenciana Shoemaker (Crustacea, Amphipoda) in Newfoundland waters. Can. J. Zool. 57(1): 257-263.

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DRIDI, M.S. 1977. Recherches écologiques sur les milieux lagunaires du Nord de la Tunisie. Unpubl. Diss., Univ. Tunis. 88 pp. (Not seen. "Regular sampling provided biological and ecological data of the most prominant species: Gammarus muensibilis, G. aequicauda and Idotea viridis.")

DUCRUET, J. 1976. Attraction et reconnaissance sexuelle chez les Crustacés (Mise au point bibliographique). Bull. Soc. Hist. nat. Afr. Nord. 60: 57-80.

FELLER, R.J., G.L. TAGHON, E.D. GALLAGHER, G.E. KENNY, and P.A. JUMARS. 1979. Immunological methods for food web analysis in a soft-bottom benthic community. Mar. Biol. 54: 61-74.

FENCHEL, T.M. and S. KOLDING. 1979. Habitat selection and distribution patterns of five species of the amphipod genus Gammarus. Oikos 33: 316-322.

FENWICK, G.D. 1978. Plankton swarms and their predators at the Snares Islands. N.Z. J. mar. Freshw. Res. 12: 223-229 (Hyperiid amphipods are eaten by fish and by birds (petrals, gulls).

FISH, J.D. & A. MILLS. 1979. The reproductive biology of Corophium volutator and C. arenarium (Crustacea: Amphipoda). J. mar. biol. Ass. U.K. 59(2): 355-368.

FRIEND, J.A. 1979. Two new terrestrial species of Talitrus (Amphipoda: Talitridae) from Tasmania. Pap. Proc. Roy. Soc. Tasmania 113: 85-98. [T. vulgaris n. sp.; T. angulosus n. sp.; key to subgenus Keratroides].

FRYER, G. AND D. FORSHAW. 1979. The freshwater Crustacea of the island of Rhum (Innèr Hebrides) - a faunistic and ecological survey. Biol. J. Linn. Soc. 11, 333-367.

GEE, J.H.R. 1979. A comparison of gravimetric and photographic methods of stream substrate analysis in a study of benthos micro-distribution. Oikos. 33: 74-79.

GEORGE, R.Y. 1979. Behavioral and metabolic adaptations of polar and deep-sea crustaceans: a hypothesis concerning physiological basis for evolution of cold adapted crustaceans. Bull. Biol. Soc. Washington 3: 283-296. [Eurythenes grillus exhibited extreme stenothermy].

GIGINYAK, Yu.S. 1978. (Fecundity of some crustacean species in the sublittoral zone of the Davis Sea (the Antarctic)). Okeanologiya. 18: 537-541 (In Russian). Deals with i.e. Orchomene corimonus, Paramoera walkeri, Cheirimedon legueri, Prostebbingia gracilis and Panoploea joubini, collected during winter by the 16th Soviet Antarctic Expedition. A relation between the absolute fecundity and the size-weight indices of the mean sublittoral Crustacea has been determined and expressed in the term of equations. A method is suggested for determining the number of broods in some amphipods and isopods).

GLENNON, T.A. 1979. Description of the male of Amphiporeia gigantea Bousfield (Amphipoda, Haustoriidae). Crustaceana 37(3): 304-310.

GOOCH, J.L. & S.W. HETRICK. 1979. The relation of genetic structure to environmental structure: Gammarus minus in a Karst area. Evolution 33: 192-206.

GOPHEN, MOSHE. 1979. Population density, migration and food composition of Echinogammarus veneris (Heller) in Lake Kinneret (Israel). Hydrobiol. 66: 99-104.

GREER, G.L. & P.G. FUTER. 1979. Distribution of amphipods and isopods trapped from the water column in the vicinity of the Kraft Mill at Port Mellen, British Columbia. Fish. mar. Serv. techn. Rept. 909, 21 pp.

GREZE, I.I. 1977. Amphipoda of the Black Sea and their Biology. Nauk. Dumka., Kiev, 156 pp. (In Russian). [Lists 111 species of amphipods from the Black Sea; reviews literature on biology of amphipods, including topics such as amphipods as prey items of fishes; discusses in detail population characteristics of 10 species].

GRIFFITHS, CH. L. 1979. A redescription of the kelp curler Ampithoe humeralis (Crustacea, Amphipoda) from South Africa and its relationships to Macropisthopous. Ann. S. Afr. Mus. 79(5): 131-138. (Macropisthopous is reduced to a junior synonym of Ampithoe).

GUPTA, A. P. (ed.). 1979. Arthropod phylogeny. Von Nostrand Reinhold Co., New York and London, 711 pp. (Not seen. The many contributions in this volume have not been indexed separately).

HAGER, R.P. & R.A. CROKER. 1979. Macroinfauna of Northern New England marine sand. IV. Infaunal ecology of Amphiporeia virginiana Shoemaker, 1933. (Crustacea: Amphipoda). Can. J. Zool. 57: 1511-1513.

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HARBISON, G.R. & L.P. MADIN. 1979. Diving - a new view of plankton biology. Oceanus 22: 18-27. (With data on hyperiid biology).

HERBST, G.N., D.P. WESTON, and J.G. LORMAN. 1979. The distributional response of amphipod and decapod crustaceans to a sharp thermal front north of Cape Hatteras, North Carolina. Bull. Biol. Soc. Washington 3: 188-213.

HIRAYAMA, A. & T. KIKUCHI. 1979. The first record of Melita appendiculata (Say) 1818. (Crustacea: Amphipoda) from Japan. Publs. Amakusa mar. biol. Lab. 5: 67-77.

HOLSINGER, J.R. 1978. New and unusual subterranean amphipod crustaceans from an artesian well in Texas, U.S.A. Ann. Meeting Am. Soc. Zool. 18: 674.

HUGHES, R.G. 1979. The dispersal and dispersion of some epizoites of the hydroid Nemertesia antennina (L.). J. mar. biol. Ass. U.K. 59: 879-887. (Describes work on Ericthonius brasiliensis, Pseudoprotella phasma and Corophium sextoni).

ICELY, J.D. and J.A. NOTT. 1979. The general morphology and fine structure of the antennary gland of Corophium volutator (Amphipoda: Crustacea). J. mar. biol. Ass. U.K. 59: 745-755.

INOUE, H. 1979. The significance of variations in dorsal body markings of Orchestia platensis Krŏyer (Amphipoda, Talitridae). Proc. Jap. Soc. Syst. Zool. 16: 23-32.

JANSSEN, H., M. SCHEEPMAKER, M. v. COUWELAAR, and S. PINKSTER. 1979. Biology and distribution of Gammarus aequicauda and G. insensibilis (Crustacea: Amphipoda) in the lagoon system of Bages-Sigean (France). Bijdr. tot Dierkunde 49: 42-70.

JEWETT, S.C. and G.C. POWELL. 1979. Summer food of the sculpins Myoxocephalus spp and Hemilepidotus jordani, near Kodiak Island, Alaska. Mar. Sci. Communications 5: 315-331. (Ampelisca macrocephala contributed 52% of the diet).

JOHN, P.A. 1978. Fecundity of the amphipod Melita zeylanica Stebbing in a monsoonal lake. Comp. Physiol. Ecol. 3: 249-252. (Not seen).

JUDY, R.D. 1979. The acute toxicity of copper to Gammarus fasciatus, a fresh water amphipod. Bull. environm. Contam. Toxicol. 21: 219-224.

KAMENSKAYA, O.E. 1978. (Quantitative distribution of deep-sea amphipods (Amphipoda: Crustacea) in the Pacific Ocean). Trudy Inst. oceanol. Akad. Nauk USSR 113: 22-27 (In Russian). (The quantitative distribution of an ecological group of deep-sea amphipods is given. From 1000-2000 m depth, the amphipod biomass gradually decreases from 0.170 to 0.037 g/m^2 in the abyssal the biomass fluctuates from 0.037 to 0.002 g/m^2, but in the ultra abyssal it increases to 0.011 g/m^2. The density decreases with increasing depth, while both biomass and density decrease toward the open ocean. The effect of the trophic factor on the quantitative distribution of deep-sea amphipods is discussed).

KAMIMIRA, Y. 1979. Ecological studies of macrofauna on a sandy beach of Hakodate, Japan. 2. Distribution of peracarids and the factors influencing their distribution. Bull. Fac. Fish. Hokkaido Univ. 30: 133-143.

KARAMAN, G.S. 1977. Contribution to the knowledge of the Amphipoda. 69. Revision of the Echinogammarus, genera-complex (fam. Gammaridae). Archiv bioloških Nauka Beogr. 27 (1975), 69-92. (In this paper the author synonymizes the following genera with Echinogammarus: Chaetogammarus, Homoeogammarus, Marinogammarus, Ostiogammarus, Parchomogammarus, and Pectenogammarus. Also the European species of Eulimnogammarus (E. anisogammarus, E. macrocarpus, E. obtusatus, E. toletanus) are removed to Echinogammarus. Comatogammarus is considered to be a synonym of Sarothrogammarus, and Rhipidogammarus of Neogammarus. Thus the following genera are retained: Echinogammarus, Eulimnogammarus, Fontogammarus, Longigammarus, Neogammarus and Sarothrogammarus. Sarothrogammarus contiguus n. sp. is named and Echinogammarus planicrurus redescribed).

KARAMAN, G.S. 1978. Amphipoda from Skoder Lake and its drainage system. Cerh. int. Ver. Limnol. 20: 2579-2583.

KARAMAN, G.S. 1978. Contribution to the knowledge of the Amphipoda 97. On three interesting species, Crangonyx floridanus Bous. 1963, C. parvimanus (Hol. 1903) and Orchestia tiberiadis Lar. 1883. Glas. Republ. Zaroda Zašt. Prirode. Prirodnjačkeg Muzeja Titograd II: 65-73. (Of these 3 species C. floridanus and Melita parvimanus are probably synonymous with C. pseudogracilis, while O. tiberiadis is a senior synonmy of O. kosswigi Ruffo).

KARAMAN, G.S. 1979. Contribution to the knowledge of the Amphipoda 92. Bogidiella chappuisi Ruffo 1952 and its variability with remarks to some other species (fam. Gammaridae). Poljoprivveda i Šumarstro 25: 17-30. (B. minotaurus and probably also B. balearica are junior synonyms of B. chappuisi. B. skopljensis is discussed and an amended diagnosis of Bogidiella provided).

KARAMAN, G.S. 1979. Contribution to the knowledge of the Amphipoda 93. New records of some Gammaridean Amphipoda from the Mediterranean Sea. Poljeprivreda i Šumarstvo 25: 47-67. (Deals with 28 Gammaridae s. l. Cheirocratus robustus is synonymized with C. sundevalli. Gammarellus carinatus is probably identical with G. angulosus. Elasmopus rapax serricatus and Megaluropus agilis massiliensis are given specific rank and other forms of E. rapax are discussed.

KARAMAN, G.S. 1979. Stenocorophium bowmani, a new genus and species of the Family Corophiidae from the Palau Islands (Crustacea: Amphipoda). Proc. Biol. Soc. Washington 92(3): 580-588.

KARAMAN, G.S. 1979. Two new species of the genus Idunella Sars, 1895 (Crustacea: Amphipoda) with remarks on the other species. (Contribution to the knowledge of the Amphipoda 94). Proc. Biol. Soc. Washington 92(1): 75-83. [Idunella bowenae n. sp., I. nagatai n. sp. (=I. chilkensis Nagata 1965), key to species of Idunella].

KARAMAN, G.S., and J.L. BARNARD. 1979. Classificatory revisions in Gammaridean Amphipoda (Crustacea), Part I. Proc. Biol. Soc. Washington 92(1): 106-165. [ACANTHONOTOZOMATIDAE and PARAMPHITHOIDAE (evidently combined but not formally defined): Acanthonotozoma Boeck, n. syn. (includes Panoploeopsis Kunkel); Cypsiphimedia stegosaura (Griffiths), n. comb.; Epimeria Costa, n. syn. (includes Subepimeria Bellan-Santini); Epimeriella Walker, n. syn. (includes Eclysis K.H. Barnard); Iphimedia Rathke, n. syn. (includes Panoploea Thomson and Iphimediopsis Della Valle); Iphimediella Chevreux, n. syn. (includes Pariphimediella Schellenberg and Pseudiphimediella Schellenberg); Labriphimedia K.H. Barnard, n. syn. (includes Maoriphimedia Hurley). PLEUSTIDAE: Arctopleustes glabricauda (Dunbar), n. comb.; Dactylopleustes n. gen. (type and only sp: Parapleustes

echinoicus Tzvetkova); Tepidopleustes n. gen. (type sp: Parapleustes barnardi Ledoyer); Parapleustes corniger (Shoemaker) n. comb.; Parapleustes? euacanthoides (Gurjanova) n. comb.; Parapleustes gagarae (Gurjanova) n. comb. EUSIRIDAE: Paracalliopiella Tzvetkova and Kudrjaschov, n. syn. (includes Callaska J.L. Barnard). LILJEBORGIIDAE: Idunella Sars, n. syn. (includes Ronconoides Ledoyer). AMPITHOIDAE: Pseudoamphithoides Ortiz, n. syn. (includes Amphyllodomus Just). GAMMARIDAE: Pontogammarus - group defined; key to gammarid genera in Pontocaspian Basin; Baku n. gen. (type and only sp: Pontogammarus paradoxus Derzhavin); Cephalogammarus n. gen. (type and only sp: Gammarus macrocephalus Sars); Kuzmelina n. gen. (type and only sp: Gmelina kusnezowi Sowinsky); Lanceogammarus n. gen. (type and only sp: Gammarus andrussowi Sars); Turcogammarus n. gen. (type sp: Obesogammarus turcarum Stock), 2 spp.; Yogmelina n. gen. (type sp. Gmelina pusilla Sars), 5 spp.; Yogmelina limana n. sp. (= Gmelina pusilla Carausu, non Sars); Sandro, n. gen. (type and only sp: Austroniphargus starmuhlneri Ruffo); Anopogammarus Derzhavin, revised, 2 spp.; Tadzocrangonyx n. gen. (type sp: Crangonyx schizurus Birstein), 2 spp.; Eogammarus Birstein, n. syn. (includes Spinulogammarus Tzvetkova); Amisogammarus Derzhavin (does not include Eogammarus Birstein, Spinulogammarus Tzvetkova); Eriopisa Stebbing, revised (includes only E. elongata (Bruzelius)); Psammogammarus Karman, revised (includes 6 species); Victoriopisa n. gen. (type sp: Niphargus chilkensis Chilton), 3 spp.; Giniphargus n. gen. (type and only sp. Niphargus pulchellus Sayce); Pygocrangonyx n. gen. (type and only sp: Metacrangonyx remyi Balazuc and Ruffo); Dulichiella Stout, revived (includes D. appendiculata (Say, 1818) and at least 4 others); Quadrivisio bousfieldi n. sp.; key to Quadrivisio; Nainaloa n. gen. (type and only sp: Melita latimerus Bonsfield); Gammarella Bate, n. syn. (includes Nuuanu J. L. Barnard and Cottesloe J.L. Barnard); Tabatzius McKinney and Barnard, emended; Tabatzius muelleri (Ortiz), n. comb., n. syn. (includes T. copillius McKinney and Barnard); Afridiella n. gen. (type and only sp: Bogidiella somala Ruffo); key to genera of "bogidiellids."]

KARAMAN, G. and S. RUFFO. ?1979. (Gammarus balcanicus Schäferno in the Italian fauna (Crustacea, Amphipoda)). Atti Mem. Accad. Agricolt. Sci. Lett. Verona. Ser. 6. 29: 77-90 (In Italian. Extensive description).

KENNEDY, G.Y. 1979. Pigments of marine invertebrates. Adv. mar. Biol. 16: 309-381 (Crustacea pp. 335-342).

KHALAF, G. and M. TARHET. 1978. Un problème d'actualité: revue de traveux recénts en matière d'utilisations des substrats artificiels pour l'échantillenage des macroinvertébrés des eaux courantes. Bull. Ecol. 9: 29-38 (Not seen).

KOLDING, S. and T.M. FENCHEL. 1979. Coexistence and life cycle characteristics of the five species of the amphipod genus Gammarus. Oikos 33: 323-327.

KOSTALOS, M.S. 1979. Life history and ecology of Gammarus minus Say (Amphipoda, Gammaridae). Crustaceana 37(2): 113-122.

KRAFT, K.J. 1979. Pontoporeia hoyi distribution along the Keweenaw shore of Lake Superior, Michigan, U.S.A., affected by copper tailings. J. Great Lakes Res. 5: 28-35.

KRAPP-SCHICKEL, G. 1979. Die Formengruppe um Apherusa bispinosa (Bate) (Calliopiidae, Amphipoda). Boll. Mus. Cir. Stor. Nat. Verona 5 (1978): 581-592 (An extensive discussion on the validity of A. chiereghinii (probably not specifically distinct from A. bispinosa). (Also description of A. vexatrix n. sp. from several Mediterranean localities.)

Last Minute Additions

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THE CRUSTACEAN SOCIETY

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The Crustacean Society, a formal society organized to enhance information exchange among those interested in the study of any aspect of the biology of Crustacea, was initiated at the American Society of Zoologists' meeting in Tampa in December, 1979. One of the Society's goals will be the prompt publication of member's shorter manuscripts dealing with any aspect of crustacean biology.

A Council has been established to organize Society activities and has appointed working committees in the following areas: constitution, finance, membership, nominations, programs, and publication. Charter members, those joining in 1980, will vote on a constitution and officers later in 1980, and officers will be installed during our first business meeting to be scheduled during the ASZ meeting in Seattle in December, 1980.

The Society will seek to meet with the ASZ at its future meetings, and will sponsor contributed paper sessions, workshops, and symposia dealing with aspects of crustacean biology. The Society hopes to cosponsor the ASZ's Division of Invertebrate Zoology contributed paper sessions on crustaceans at Seattle, and, if possible, to sponsor a workshop on functional morphology of Crustacea at the Seattle meeting.

MEMBERSHIP

Membership in the Society is open to anyone interested in Crustacea. There are no prerequisites. Annual membership categories and dues are as follows:

Regular, North America	$25.00
Regular, other than North America	$30.00
Student	$12.50
Founding (1980 only)	$100.00
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Memberships include subscriptions to the Society's journal, to be initiated in 1981. Payment should be in U.S. currency only, by check, bank draft in dollars, or international money order.

FOUNDING MEMBERS

One of the biggest problems facing the Society in its first year is its lack of assets. Recognizing this, the Council has established a special membership category, Founding Member, for 1980 only. Dues for Founding Members will be $100 in 1980, at the regular rate thereafter. The Council urges those who can do so to become Founding Members.

CHARTER MEMBERS

Please note that Charter Members, all those joining the Society in 1980, are being asked to support the Society for this year without receiving the Society's journal. Memberships for 1981 and thereafter will include a subscription to the journal.