

Zeitschrift: Archives des sciences [1948-1980]

Herausgeber: Société de Physique et d'Histoire Naturelle de Genève

Band: 28 (1975)

Heft: 2

Artikel: Report on the consultant group on calcareous nannoplankton : Kiel, September 5-7, 1974

Autor: Noël, Denise / Perch-Nielsen, Katharina

DOI: <https://doi.org/10.5169/seals-739802>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 08.08.2025

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

REPORT ON THE CONSULTANT GROUP
ON CALCAREOUS NANNOPLANKTON,
KIEL, September 5-7, 1974

by

Denise NOËL and Katharina PERCH-NIELSEN

The consultant group on calcareous nannoplankton was open to all workers in this field wishing to attend. Topics discussed included a review of the recommendations made by the "Round table on calcareous nannoplankton" in Rome (1970), methods of study, species concepts, evolutionary trends, diagenetical effects and nannofacies, stratigraphical correlations from the Jurassic to the Cenozoic including also probabilistic stratigraphy, biogeographic and ecological aspects of recent and fossil coccolith communities, the need for a "Coccolith Committee" and the formulation of recommendations for future work.

The purpose of the meeting was twofold. While it should present an opportunity to discuss different problems and to formulate approaches it should, by presenting "the state of the art", also serve as a seminar for colleagues who have recently joined this field.

The discussion of the above mentioned topics was requested by a number of colleagues who had answered a questionnaire about what should be discussed at the meeting. From the same questionnaire a list of addresses and a table of "Who does what and where" (geographical area and stratigraphical interval) were compiled for the almost 100 out of 130 workers approached.

List of Participants

K. PERCH-NIELSEN, Chairperson	A. EHRLICH
D. NOËL, Vice-chairperson	K. R. GAARDER
M. BALDI-BEKE	S. GARTNER
J. BARRIER	W. GRÜN
C. BOULOUARD	B. U. HAQ
P. CEPEK	W. W. HAY
F. DERES	B. HEIMDAL

S. IACCARINO	F. PROTO DECIMA
G. LAUER	D. RIO
H. MANIVIT	P. H. ROTH
M. MELGUEN	C. SAMTLEBEN
N. MIKKELSEN	W. G. SIESSER
R. MOREL	W. SISSINGH
S. MOSHKOVITZ	J. STEINMETZ
S. NISHIDA	J. Van STUIJVENBERG
R. E. NORRIS	H. THIERSTEIN
J. PAVSIČ	S. WISE
B. PRINS	T. WORSLEY

1. *Recommendations made by the "Round Table on Calcareous nannoplankton" in Rome*

See Recommendations (9).

2. *Methods of study :*

Besides the already widely known preparation methods currently in use, a new and easy technique to observe the same specimen under light (LM) and scanning electronmicroscope (SEM) was presented by S. MOSHKOVITZ¹

The method was demonstrated at the meeting.

3. *Species concepts :*

The topic about species concepts was approached from a biologist and a palaeontologist's point of view. For the palaeontologist the morphological species concept still seems to be the only applicable one despite the recent contributions and progress made by biologists.

Our knowledge about the biology of coccolithophorids and related forms, specially their life cycles and their ability of forming coccoliths, is still very limited. Although this influences the species concept of the living forms, it is of no immediate consequence for coccolith stratigraphy, since only the coccoliths are preserved and dimorphous or polymorphous coccospores leave parallel ranges.

Calcareous nannofossils include coccolithophorids *s. str.* (coccoliths on, or likely to have been covering a cell) and many other minute calcareous bodies (nannoliths or fasciculiths, sphenoliths and discoasters) of unknown origin. In relation to this it was drawn to the attention of the palaeontologists by R. NORRIS, that some dinoflagellates and/or other phytoplankton groups form comparable calcareous bodies.

¹ Paper published in the *Israel J. earth Science*.

4. Evolutionary lineages :

Obviously the best way of biostratigraphical subdivision is the application of an evolutionary lineage. Only few evolutionary studies have been published so far (*Chiasmolithus*, *Helicopontosphaera*, *Sphenolithus*). The following new lineages of morphological groups from the Cretaceous were proposed by G. LAUER (*Arkhangel-skellaceae*)¹ and W. SISSINGH² (*Micula*) and discussed by the group. These two examples illustrate the utility of such studies for high resolution stratigraphy.

5a. Dissolution and diagenesis of coccolith assemblages :

Clearly this topic is in fashion for the moment. There were several talks at this symposium already which have dealt with it and where the micropalaeontologist became a sedimentologist or the other way round. Certainly and hopefully we will be more careful in describing new species and in evaluating assemblages in the future. We have long known that the coccoliths found in the sediments represent only a fraction of what was present in the photic zone but rarely were aware just how bad it was.

5b. Nannofacies :

Besides the study of nannofossils in smear slides, their examination *in situ* was stressed. This so called nannofacies study can provide interesting data: 1) from a petrographical point of view to find out environment of deposition by the observation of all constituents of a sediment in their mutual arrangement and their relative importance in the rock composition. For example in samples of DSDP (leg 1) smear slides show only a few *Nannoconus* whereas rock surfaces show that they are in fact abundant. 2) From a stratigraphical point of view study of nannofacies can be useful for hard limestones.

6. Stratigraphic correlations :

There seemed very little interest to discuss correlations between the quite well established nannoplankton zonations in the Tertiary. This is only partly true for the Cretaceous where zonation is still less reliable and for the Jurassic where zonation is only attempted yet. Here it was stressed that more precise information should be given about the age of a studied sample (means of dating).

In view of the "probabilistic stratigraphy" now practised and the fact that the DSDP volumes informations on nannofossils are used as base, it was discussed that it would be better to have a more uniform input in the computer than the one currently produced by shipboard nannofossil persons. For this purpose, a list of

¹ Paper published here, in addendum.

² Paper published in the *Proceed. of the Royal Academy of Amsterdam*.

Cretaceous taxa, one for Paleogene and one for Neogene forms were discussed. A list of jurassic species was started. The presence or absence of these species should always be noted. The forms chosen—the number being limited by the possible input in the computer—should provide the possibility of a detailed zonation and furnish paleobiogeographical informations. It was stressed that also "background noise", long-ranging species be noted, since they are the only ones present in high latitudes.

7a. Ecological aspects of coccolith communities :

In the discussion of ecological aspects of modern coccolithophores it was established that the distribution of coccolithophores seems most clearly limited by temperature. Composition and diversity of assemblages also are influenced primarily by temperature, although other criteria cannot be ruled out principally because of a lack of adequate data.

7b. Paleobiogeography :

Studies in paleobiogeography were found to be fraught with several problems. Foremost among these are the difficulty of ascertaining polymorphism among fossil forms, and bias introduced into the sedimentary record by prolific versus sparse coccolith producers. Other important considerations enumerated are difficulties resulting from a non-uniform taxonomy (including variable quality of published data), imprecise stratigraphy for the level under consideration, and the effects of post depositional processes.

8. Coccolith committee :

Clearly the CC appointed at the Round table on calcareous nannoplankton in Rome 1970 has not functioned the way it was intended. However the CC was active in organizing the consulting group meeting for the III Planktonic Conference; in preparing a new address list of coccolith workers and a new inventory of who does what and where (which both will be distributed to workers who replied to the questionnaire).

The continuation of a CC could not be justified because most persons attending did not feel free to undertake additional time consuming tasks. Therefore a secretary was elected (Dr. S. GARTNER, RSMAS, 4600 Rickenbacker Causeway, Miami, Florida 33149, U.S.A.). He can be contacted if needed, particularly to arrange a new coccolith meeting.

9. Recommendations of the Consultant group on Calcareous Nannoplankton :

1. The recommendations regarding the description of new taxa made at the II Planktonic Conference in Rome are strongly reemphasized. Whenever

feasible, however, holotypes described by SEM should be preserved, now that methods to do so are available.

2. We recommend that researchers carefully consider and further investigate the effects of dissolution and diagenesis in their work. In doing so they are also urged to clearly state their criteria.

3. The few existing studies on paleobiogeography and evolutionary trends are very useful. We strongly recommend that more attention be given to these fields.

4. We recommend that in future the shipboard nannofossil paleontologists for DSDP/IPOD etc., prepare a checklist (range charts) of at least all species on the included lists for every drill site. Information about frequency of the species and preservation of the assemblage being noted also.

5. We recommend that DSDP material studied prior to the inception of the above scheme and in which checklists are lacking, be restudied. Such restudy should be encouraged in order to extract from existing samples all possible paleobiologic and paleooceanographic information that could be obtained within the framework of the present state of the art.

6. We strongly recommend that more complete information about the age assignment (fossil group, etc.) of a sample studied for coccoliths from land-sections, be given.

NANNOPLANKTON WORKERS' ADDRESSES

ACHERITEGUY, Jean

Centre de recherche S.N.P.A.
Av. du Président P.-Angot
64 Pau
(France)

BARRIER, Jeannine

Institute of Geological Sciences
Exhibition Road
South Kensington
London S.W. 7
(G.B.)

BALDIBEKE, M.

Hung. Geol. Inst.
1143 Budapest
Nepstadion ut. 14
(Hungary)

BENGHEZAL, R.

Laboratoire de la SNREPAL
Boîte postale 105
Alger
(Algeria)

BARBIERI, F.

Dept. of Geology
University of Parma
1, via Kennedy
43100 Parma
(Italie)

BENIČ, J.

Dept. of Geology and Paleontology
Faculty of Science
University of Zagreb
41000 Zagreb
Soc. Revolucije 8/II
(Yugoslavia)

BOALCHT, G. T.

The Laboratory
Citadel Hill
Plymouth
Devon
(G.B.)

BORSETTI, A. M.

Laboratorio di Geologia Marina C.N.R.
Via Zamboni, 65
40127 *Bologna*
(Italia)

BOUDREAUX, J. E.

Texaco Inc.
P.O. Box 60252
New Orleans
Louisiana 70160
(U.S.A.)

BRAMLETTE, M. N.

University of California
P.O. Box 1529
Scripps Institution of Oceanography
La Jolla
California 92037
(U.S.A.)

BUKRY, David

U.S. Geological Survey
P.O. Box 271
La Jolla
California 92037
(U.S.A.)

BURNS

N.Z. Oceanographic Institute
P.O. Box 8009
Wellington
(New Zealand)

CARLOS, A. G.

Roy M. Huffington, Inc.
P.O. Box 92
Queen Street
Singapore 7
(Indonesia)

CATI, F.

Instituto di Geologia
Via Zamboni n° 67
40127 *Bologna*
(Italia)

ČEPEK, P.

Bundesanstalt für Bodenforschung
D. 3000 *Hannover*
Stilleveg 2
(Fed. Rep. of Germany)

CLOCCHIATTI, M.

Laboratoire de Géologie
Muséum national d'Histoire naturelle
61, rue Buffon
75005 *Paris*
(France)

COOPER, W. W.

Gulf Research and Development Company
Houston Technical Service Center
P.O. Box 36506
Houston
Texas 77036
(U.S.A.)

DERES, F.

Centre de recherche S.N.P.A.
Av. du Président P.-Angot
64 *Pau*
(France)

DOWNS, N. S.

West Midland Forensic Science Laboratory
Priory House
Gooch Street North
Birmingham B13 0EZ
(England)

EDWARDS, A. R.

N.Z. Geological Survey
Dept. of Scientific and Industrial Research
P.O. Box 30368
Lower Hutt
(New Zealand)

- EHRLICH, Aline**
Geological Survey of Israel
Malkhei Israel Str. 30
Jerusalem
(Israel)
- ELLIOTT, H. E.**
Chevron Oil Co.
New Orleans
Louisiana
(U.S.A.)
- EVERETT, Robert W.**
Texaco MC.
6511 General Diaz
New Orleans
Louisiana 70124
(U.S.A.)
- FARINACCI, Anna**
Instituto di Geologia e Paleontologia
Dell'Università degli studi
Piazzale delle Scienze
00100 Roma
(Italie)
- FINCH, E. M.**
BP Research Centre
Sunbury on Thames
Middlesex
(England)
- FONSECA, Beatriz**
Universidade de Lisboa
Faculdade de Ciencias
Museum e Laboratorio Mineralogico e
Geologico
Lisboa
(Portugal)
- FORCHHEIMER, Sylvia**
Geological Survey of Sweden
S-10504 Stockholm 50
(Frescati) (Sweden)
- FORTUIN, A. A.**
Institut voor Aardwetenschappen
Vrije Universiteit
De Boelelaan
1085 Amsterdam
(Pays-Bas)
- FRITTS, Paul**
California State University
Dept. of Geological Sciences
Long Beach
California 90840
(U.S.A.)
- GAARDER, Karen**
Institute for marin Biologi,
avd B.
P.B. 1069,
Blindern
Oslo 3
(Norway)
- GARTNER, Stephen**
R.S.M.A.S.
4600 Rickenbacker Causeway
Miami
Florida 33149
(U.S.A.)
- GAYRAL, P.**
Laboratoire de Biologie cellulaire et de
Botanique
39, rue Desmoulux
Caen
(France)
- GRÜN, Walter**
Osterreichische Mineralölverwaltung AG
Ressort Geologie
Hint. Zollamtsstrasse 17
A-1030 Wien
(Austria)
- GUPTHA, M. V. S.**
Natcond Institute of Oceanography
Dona Paula
Caranzalem (Goa) 403301
(India)

HAQ, B.

Woods Hole Oceanographic Institution
Woods Hole
Massachusetts 02543
(U.S.A.)

HAY, William W.

Rosenstiel School of Marine and Atmospheric Science
4600 Rickenbacker Causeway
Miami
Florida 33149
(U.S.A.)

HEIMDAL, Berit

Institut of Biology and Geology
University of Tromsö
P.O. Box 790
9001 *Tromsö*
(Norway)

HEKEL, H.

Geological Survey of Queensland
2 Edward Street
Brisbane 4000
(Australia)

HOFFMANN, Norbert

Geol. Institut u. Geiseltalmuseum
Halle
Domplatz 5
(G.D.R.)

HOGANSON, John W.

Union Oil and Gas Division
Gulf Region Union Oil Company of California
900 Executive Plaza West
Houston
Texas 77027
(U.S.A.)

HONJO, Susumu

Woods Hole Oceanographic Institution
Woods Hole
Massachusetts 02543
(U.S.A.)

IACCARINO, Silvia

Dept. of Geology
University of Parma
1, via Kennedy
43100 *Parma*
(Italy)

JAIN, K. P.

Birbal Sahni Institute of Palaeobotany
Lucknow (U.P.)
(India)

JAFAR, S. A.

Institut und Museum für Geologie u.
Paläontologie der Universität
Sigwartstr. 10
D-74 *Tübingen*
(Fed. Rep. of Germany)

JERKOVIĆ, Lazar

Prirodno Matematicki Fakultet
Marsala Tita 11411
Sarajevo
(Yugoslavia)

KERDANY, M. T.

Box 5226
Aramco
Dhahran
(Saudi Arabia)

KI HONG CHANG

Dept. of Geology
Kyungpook University
Daegu
(Korea)

KLING, Stanley A.

Scripps Institution of Oceanography
P.O. Box 1529
La Jolla
California 92037
(U.S.A.)

KOSTECKI, John A.

Lamont-Doherty Geological Observatory
Palisades
New York 10964
(U.S.A.)

LAUER, G.

Shell Research K.S.E.P.L.
Volmerlaan 6
Rijswijk
(Holland)

LEADBEATER, B. S. C.

University of Birmingham
Dept. of Botany
P.O. Box 363
Birmingham B15 2TT
(G.B.)

LEBENZON, Carol

Oil Geology Research Institute
103 Toamnei Street
Bucharest 9
(Romania)

LEBLANC Arthur

Gulf R. and D., HTSC
P.O. Box 36506
Houston
Texas 77036
(U.S.A.)

LEFORT, Françoise

Laboratoire de Cryptogamie et Ecologie
Végétale
Faculté des Sciences
35031 *Rennes Cedex*
(France)

LEVIN, Harold

Dept. of Earth Sciences
Box 1169
Washington University
St. Louis
Missouri 63130
(U.S.A.)

LIPPS, Jere H.

Dept. of Geology
University of California
Davis
California 95616
(U.S.A.)

LOEBLICH, A. R., Jr.

Dept. of Geology
University of California
Los Angeles
California 90024
(U.S.A.)

LOEBLICH-TAPPAN, H.

Dept. of Geology
University of California
Los Angeles
California 90024
(U.S.A.)

LOCKER, G.

Museum für Naturkunde
Humboldt Universität zu Berlin
DDR 104 *Berlin*
Invalidenstrasse 43

McDOUGALL, Kristin

Union Oil Co. of California
9645 SO Santa Fe Springs Rd.
Santa Fe
California 90670
(U.S.A.)

MCINTYRE, A.

Lamont Geological Observatory of
Columbia University
Palisades
New York 10964
(U.S.A.)

MALUMIAN, Norberto

Universidad de Buenos Aires
Ciudad Universitaria
Dto. Geología
Pabellón 2
Núñez
(Argentina)

MANIVIT, Hélène

Laboratoire de Micropaléontologie
B.R.G.M. B.P. 6009
45018 *Orléans Cedex*
(France)

MARTINI, P.

Geologisch-Paleontologisches Institut
6 Frankfurt am Main
Senckenberg Anlage 32
(Fed. Rep. of Germany)

MEDD, Alan

Institute of Geological Sciences
Ring Road
Halton
Leeds LS15 8TQ
(G.B.)

MELGUEN, Marthe

Centre Océanologique de Bretagne
B.P. 337
29273 Brest
(France)

MICHAEL, Fouad Y.

Atlantic Richfield Company
Geological Science Group
Executive Plaza
P.O. Box 2819
Dallas
Texas 75221
(U.S.A.)

MIKKELSEN, Naja

Institut of historical geology and paleontology
Oster Voldgade 10
1350 Copenhagen
(Denmark)

MOORKENS, Thierry

Deutsche Texaco AG
D 3101 Wietze
Nienburgerstr. 20
(West Germany)

MOREL, René

Institut de Géologie
Faculté des Sciences
Perolles
CH-1700 Fribourg
(Switzerland)

MOSHKOVITZ, S.

Geological survey
30, Malkhei Israel Street
Jerusalem
(Israel)

MÜLLER, Clara

Geologisch-Paleontologisches Institut
6 Frankfurt am Main
Senckenberg Anlage 32
(Fed. Rep. of Germany)

NARASIMHAN, T.

Dept. of Applied Geology
Indian School of Mines
Dhanbad 826004
Bihar
(India)

NISHADA, Shiro

Dept. of Earth Sciences
Nara University of Education
Takabatake-Cho
Nara 630
(Japan)

Noël, Denise

Laboratoire de Géologie
Muséum national d'Histoire naturelle
61, rue Buffon,
75005 Paris
(France)

OKADA, H.

Lamont Doherty Geological Observatory
University of Columbia
Palisades
New York 10960
(U.S.A.)

PAASCHE, E.

Universitetet i Oslo
Institut for Marinbidogi ig. Limnologi
Avd. Marin Botanikk
P.B. 1069
Blindern
Oslo 3
(Norway)

PAVSIC, Jernej I.

Katedra za Geologijo in Paleontologijo
Askerceva 12
61000 Ljubljana
(Yugoslavia)

PERCH-NIELSEN, K.

Eidg. Technische Hochschule Zürich
Geologisches Institut
Soneggstrasse 5
CH-8006 Zürich
(Switzerland)

POORE, Dick

Dept. of Geological Sciences
Brown University
Providence
Rhode Island 02912
(U.S.A.)

PRINS, B.

S.I.P.M.
Carel van Bylandtlaan 30
The Hague
(The Netherlands)
Correspondence address:
Beatrixlaan 81
Moerkapelle
(The Netherlands)

PROTO DECIMA, Franca

Istituto di Geologia dell'Università
Via Giotto 20
Padova
(Italia)

RIO, O.

Istituto di Geologia dell'Università di
Parma
Micropaleontologia
Via Kennedy, 1
Parma
(Italia)

RISATTI, James B.

Department of Geology
University of Illinois
Urbana
Illinois 6L801
(U.S.A.)

ROMEIN

Geologisch Instituut
Oude Gracht 320
Utrecht
(The Netherlands)

ROTH, Peter H.

Scripps Institution of Oceanography
Geological Research Division
P.O. Box 1529
La Jolla
California 92037
(U.S.A.)

SAN MIGUEL ARRIBAS, Maria

Alcalé 76
Madrid 9
(Espagne)

ST LEU, Mircea

Oil Geology Research Institute
103 Toamnei St.
Bucharest
(Romania)

SAMTLEBEN, Christian

Kiel Geologische Institut
Olshausenstraße 40-60
Kiel
(W. Germany)

SAYAR, Cazibe

I.T.U. Maden Fakültesi
Tatbiki Jeoloji Kursuru
Tevsikiye
Istanbul
(Turkey)

SCHMIDT, R. R.

Gelogisch Institut
Oude Gracht 320
Utrecht
(The Netherlands)

SHAFIK, Samir

The University of Adelaide
Adelaide B.P.O. Box 4980
(South Australia 5001)

SHERMAN, D. K.

Biostratigraphic Laboratory
Texaco Inc.
3350 Wilshire Blvd.
Los Angeles
Calif. 90010
(U.S.A.)

SHERWOOD, Ronald W.

Amoco Production Company
P.O. Box 50879
New Orleans
Louisiana 70150
(U.S.A.)

SIESSER, W. G.

Department of Geology
University of *Cape Town*
Rondebosch 7700
(South Africa)

SINGH, Pratap.

Geology Division
I.P.E. O.N.G. Commission
Kaulagarh Road
Dehra Dun 248195
(India)

SISSINGH, W.

Shell U.K. Exploration and Production
Co. Ltd.
SEPE/33
Shell Centre
Belvedere Road
London S.E.1
(England)

SMITH, Charles C.

Phillips Petroleum Company
Research and Development
132 RB 1
Bartlesville
Oklahoma 74004
(U.S.A.)

SMITH, Lee A.

Esso Production Research-European
213 Cours Victor-Hugo
33321 *Begles*
(France)

STEINMETZ, John

School of Marine and Atmospheric Science
University of Miami
10 Rickenbacker Cause Way
Miami
Florida 33149
(U.S.A.)

STRADNER, Herbert

Geologische Bundesanstalt
Rasumofskygasse 23
Vienna III
A. 1031 (Austria)

STUIJVENBERG, van Ian

Geologisches Institut
Sahlistrasse 6
3012 *Bern*
(Switzerland)

THIERSTEIN, H. R.

Lamont Doherty Geological Observatory
Columbia University
Palisades
New York 10964
(U.S.A.)

VERDENIUS, J. P.

C.F.P. Laboratoire central
114 cours Gallieni
33400 *Talence*
(France)

VERBEEK, J. W.

Geologisch Instituut
Oude Gracht 320
Utrecht
(The Netherlands)

WARREN, A. D.

Mobil Oil Corporation E.S.C.
P.O. Box 900
Dallas
Texas 75221
(U.S.A.)

WILBUR, Karl

Zoology Dept.
Duke University
Durham
North Carolina 27706
(U.S.A.)

WILCOXON, James A.

11526 Sorrento Valley Road
Suite G
San Diego
California 92121
(U.S.A.)

WISE, S. W.

Dept. of Geology
Florida State University
Tallahassee
Florida 32306
(U.S.A.)

WRAY, J.

Marathon Oil Research
Littleton
Colorado 80120
(U.S.A.)

WORSLEY, T. R.

Dept. of Oceanography
University of Washington
Seattle
Washington 98105
(U.S.A.)

This list and the inventory of "who does what and where" below have been compiled by D. NOËL from the replies to the questionnaire sent to all the known nannoplankton workers. They were displayed during the conference in Kiel to be rectified and improved.

COUNTRY	RECENT	QUATERNARY		TERTIARY		CRETACEOUS		JURASSIC		ANTE-JURASSIC
		UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	
AFRICA	Cepek	Cepek Deres Everett	Cepek Deres Everett	Haq Kerdany Martini Prins	Haq Kerdany Martini Perch-Nielsen Prins Shafik Siesser	Acheriteguy Benghezal Cepek Deres	Grün	Acheriteguy Benghezal Cepek Deres	Deres	
AMERICA (north)		Boudreux	Boudreux	Boudreux	Boudreux	Acheriteguy Barbieri	Acheriteguy	Acheriteguy	Acheriteguy	
						Deres Everett Gartner Haq	Deres Everett Gartner Haq	Cepek Cooper Deres Everett	Deres Everett	
						Hoganson Ki Hong-Chang Kling Le Blanc	Hoganson Ki Hong-Chang Kling Le Blanc	Kling Le Blanc	Kling Le Blanc	

Levin	Lipps	Levin	Martini	Martini	Michael	Michael
	Martini		Michael	Michael		
Poore	Poore	Poore	Rissatti			
Sherman	Sherman	Sherwood	Sissingh	Sissingh	Smith, Ch.	Smith, Ch.
			Smith, Ch.	Smith, Ch.		
Smith, Ch.	Smith, Ch.	Smith, Ch.	Smith, L.	Smith, L.		
Smith, L.	Smith, L.	Smith, L.	Steinmetz	Steinmetz		
Steinmetz	Steinmetz	Warren	Warren	Warren		
Warren	Warren	Wray	Wray	Wray		
Wilbur	Wray					
AMERICA (south)		Deres	Deres	Deres	Acheriteguy	
				Haq	Deres	
			Malumian	Malumian	Haq	
			Smith, L.	Smith, L.	Malumian	
			Warren	Warren	Smith	
					Thierstein	
ASIA		Carlos	Carlos	Ehrlich	Ehrlich	
		Haq	Haq	Jain		
		Jafar	Jafar		Kerdany	
			Ki Hong-Chang			
			Moshkovitz	Lauer	Moshkovitz	Moshkovitz

Haq	Haq	Haq	Grün	Grün	Grün	Grün
Iaccarino	Iaccarino	Iaccarino	Iaccarino	Jafar	Hay	Hay
Jafar	Jafar	Jafar	Jafar	Jafar	Jafar	Jafar
Jerkovič	Ki Hong-Chang	Ki Hong-Chang				
Lebenzon	Lebenzon	Lebenzon	Le Blanc	Le Blanc	Le Blanc	Le Blanc
Le Blanc	Le Blanc	Le Blanc	Lileva	Lileva	Lileva	Lileva
Lileva	Lileva	Lileva	Locker	Locker	Locker	Locker
Locker	Locker	Locker	Manivit	Manivit	Manivit	Manivit
Martini	Martini	Martini	Martini	Martini	Martini	Martini
Martini	Martini	Martini	Mikkelsen	Moorlangs	Noël	Noël
Müller	Müller	Müller	Moorkens	Moorkens	Pavšič	Pavšič
Müller	Müller	Müller	Morel	Morel	Perch-Nielsen	Perch-Nielsen
Müller	Müller	Müller	Musyloo	Musyloo	Perch-Nielsen	Perch-Nielsen
Poore	Poore	Poore	Noël	Noël	Noël	Noël
Prins	Prins	Prins	Pavšič	Pavšič	Pavšič	Pavšič
Rio	Rio	Rio	Perch-Nielsen	Perch-Nielsen	Perch-Nielsen	Perch-Nielsen
San Miguel	San Miguel	San Miguel	Proto-Decima	Proto-Decima	Prins	Prins
Rio	Rio	Rio	Rio	Rio	Rio	Rio
Schmidt	Schmidt	Schmidt	St. Leu	St. Leu	Sissingh	Sissingh
					Smith, Ch.	Sissingh, Ch.
						Sayar
						Sissingh

COUNTRY	RECENT	QUATERNARY	UPPER	TERTIARY		CRETACEOUS		JURASSIC		ANTE-JURASSIC
				LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	
EUROPE (<i>cont.</i>)		Smith, L.	Smith, L. Steinmetz Stradner	Smith, L. Steinmetz Stradner	Smith, L. Stradner					
			Stuijvenberg	Stuijvenberg	Stuijvenberg	Thierstein	Thierstein	Verdenius	Verdenius	Verdenius
				Verbeek	Verbeek	Wilcoxon	Wilcoxon	Wilcoxon	Worsley	Worsley
OCEANIA			Deres Edwards Smith, L.	Deres Edwards Lipps Smith, L. Wilcoxon	Deres Edwards	Deres Edwards	Deres Edwards			
AUSTRALIA	Hekel	Hekel		Hekel	Hekel		Deres	Deres	Noël	
				Poore Shafik	Poore Shafik		Perch-Nielsen	Shafik		
					Smith, L.		Smith, L.	Smith, L.	Thierstein	
ANTARCTIC OCEAN	Boalch Burns	Burns Edwards		Burns Edwards	Burns Edwards		Burns	Burns	Burns	Burns
				Haq						

	McIntyre Wise	McIntyre Müller Wise		Wise Worsley		Wise	Wise
ATLANTIC OCEAN	Boalch Cepek	Cepek Clocchiatti	Barbieri	Cepek	Cepek	Cepek	Cepek
	Gaarder	Gartner	Elliott Fonseca	Gartner	Gartner	Gartner	Gartner
	Gayral	Haq Hay	Fonseca	Haq Hay	Haq Hay	Haq Hay	Haq Hay
	Heimdal Honjo Leadbeater Lefort Martini	Martini Melguen Müller	Gartner	Haq Hay	Haq Hay	Haq Hay	Haq Hay
		Martini Melguen Müller	Gartner	Haq Hay	Haq Hay	Haq Hay	Haq Hay
	Okada	Okada Perch-Nielsen	Haq Hay	Haq Hay	Haq Hay	Haq Hay	Haq Hay
		Roth Samtleben	Perch-Nielsen Poore	Perch-Nielsen Poore	Perch-Nielsen Poore	Perch-Nielsen Poore	Perch-Nielsen Poore
	Samtleben	Roth Samtleben	Roth Samtleben	Roth Samtleben	Roth Samtleben	Roth Samtleben	Roth Samtleben
		Smith, Ch. Thierstein	Smith, Ch. Steinmetz				
	Thierstein	Thierstein	Thierstein	Thierstein	Thierstein	Thierstein	Thierstein

COUNTRY	RECENT	QUATERNARY	UPPER	TERTIARY	CRETAEOUS	UPPER	JURASSIC	LOWER	ANTE-JURASSIC
ATLANTIC OCEAN (con.)	Ushakova Wilbur	Ushakova	Ushakova	Worsley					
ARCTIC OCEAN	Boalch		Deres Hay	Deres					
	Martini	Martini	Martini	Martini					
INDIAN OCEAN	Cepek	Cepek Clocchiatti	Gartner Gupta Haq McIntyre Müller	Clocchiatti Dmitrienko Gartner	Clocchiatti	Gartner	Gartner		
	Gupta								
	McIntyre								
	Okada								
		Proto-Decima	Roth	Proto-Decima	Müller Narasimhan	Narasimhan	Narasimhan		
				Roth	Roth	Roth	Roth	Proto-Decima	
					Steinmetz Thierstein Ushakova Wilcoxon	Shumenko Thierstein Ushakova Wilcoxon	Steinmetz Thierstein	Thierstein	
MEDITERRANEAN SEA	Boalch Borsetti				Worsley				

	Clocchiatti	Deres Fonseca	Deres Fonseca	Deres
Gaarder		Gartner	Gartner	
Gayral	Haq		Haq	
Honjo Jerkovič		Jerkovič		
Lefort	Le Blanc	Le Blanc	Le Blanc	Le Blanc
Martini	Martini	Martini	Martini	Martini
	Moshkovitz			
	Müller			
		Poore	Poore	
		Steinmetz	Steinmetz	
		Stradner		
		Ushakova	Ushakova	
<hr/>				
PACIFIC OCEAN				
	Burns	Barbieri Burns	Burns	Burns
		Dmitrienko		
	Edwards	Edwards	Edwards	Edwards
		Elliott		
	Ellis	Ellis		
	Gartner	Gartner		Gartner
	Haq	Haq		
	Hay	Hay		
	Hekel	Hekel		Hekel
Honjo				
McIntyre	McIntyre	Lipps		
Martini	Martini	Martini		Martini
	Melgen	Melgen		

