INA NEWSLETTER

proceedings of the

INTERNATIONAL NANNOPLANKTON ASSOCIATION

volume 4 number 2 November 1982

Editorial Committee

S.E. van Heck
Dierenselaan 10
2573 KH Den Haag
The Netherlands

Secretary / Treasurer

A.J.T. Romein
Instituut voor Aardwetenschappen
Budapestlaan 4
Postbus 80.021
3508 TA Utrecht

Bank account:
55.53.90.101 Algemene Bank Nederland
Postal account (post giro): 4198913

+ +

CONTENTS

General information p.60
Announcement p.61
INA questionnaires 1981: late arrivals p.61
Finances p.62-63
Meeting p.63
The Cretaceous / Tertiary boundary: announcement p.63-64
Bibliography and taxa of calcareous nannoplankton p.65-96
S.E. van Heck
Information 1 and 2 p.96
Review: A stratigraphical index of calcareous nannofossils p.97
Tortolithus gen. nov. CRUX and new combinations of Mesozoic calcareous nannofossils from England p.98-101
J.A. Crux, G.B. Hamilton, A.R. Lord & R.J. Taylor
Validation of *Blackites trochos* : L.M. Bybell p.101
The Maurice Black collection of coccolith material in the Sedgwick Museum, Cambridge, England: A.W. Medd p.102-103
Helicosphaera mediterranea MÜLLER 1981, and its stratigraphical importance in the Lower Miocene: M. Baldi-Beke p.104-106
New members, changes of address, expulsions p.107-109

NOTE!!!

SALES OFFICE

Separate issues of the INA Newsletter can be obtained from the Secretary/Treasurer. Price per issue is: - for non-members Dfl. 25,-
- for members Dfl 17,50

\+ +

MAILING POLICY

Recent issues shall be mailed by surface mail for countries inside Europe, by airmail or SAL for countries outside Europe. Back-issues shall be mailed by surface mail, unless the extra costs for airmail are paid to the Treasurer.

\+ +

MEMBERSHIP

Applications for membership of the International Nannoplankton Association should be directed to the Secretary/Treasurer. Annual dues: Dfl 35,-

\+ +

NEXT ISSUE

Contributions for the next issue of the INA Newsletter should be received before March 1982. Please send your contributions to: The editor of the INA Newsletter, S.E. van Heck (Address: see front page).

\+ +

COPY RIGHT

All parts of the INA Newsletter are allowed to be reproduced for scientific purposes. The source and authors should be clearly mentioned in case of non-private use.

\+ +

INFORMATION FOR CONTRIBUTORS:

Manuscripts should not exceed four pages. They are being reproduced in the INA Newsletter without being re-typed. Hence, the authors are entirely responsible for the contents and quality of their contributions. Manuscripts of poor quality can be refused by the Editor.
Format: Manuscripts should be typed on A4 (this format); a blank margin of at least 2,5 cm (1 inch) should border the upper, the left, and the right side of each page, and the margin along the lower side should be 3,5 cm (1,5 inch). DO NOT USE DOUBLE SPACING, as this takes up too much space!

ATTENTION!!!

ANNOUNCEMENT

Starting with the next issue, Dr. John Steinmetz will take over the 'Bibliography and taxa'. Shirley van Heck will remain editor of the INA Newsletter. This means that from now on the following persons are in charge, and you are requested to direct yourself to:

Ton Romein for financial and administrative matters
Shirley van Heck for contributions to the Newsletter and in general matters concerning the Newsletter
Katharina Perch-Nielsen for general matters concerning INA
and to John Steinmetz for matters concerning the bibliography and taxa.

So please, send your reprints to:

Dr. John C. Steinmetz
Marathon Oil Company
P.O. Box 269, Littleton
Colorado 80160
U.S.A.

I N A

QUESTIONNAIRE I 1981 cont.

compiled by K.Perch-Nielsen
okt.1982

(see also INA Newsletter 4/1)

		Biology, Calcification	Recent and Pleistocene	Neogene	Paleogene	Late Cretaceous	Early Cretaceous	Jurassic	Pre-Jurassic	Calcareous dinoflagellates	Calcareous nannofossils/-plankton	Siliceous " (D = diatoms)	Biostratigraphy	(Paleo) ecology	Taxonomy	Biogeography	Evolution	Stable isotopes	Trace elements	Diagenesis	Sedimentology (N = nannofacies)	Worldwide	N.America	S.& M. America	Europe	Asia, Australia, New Zealand	Africa	Atlantic	Pacific	Indian Ocean	Gulf of Mexico	Mediterranean	Full time calc.nannofossils	% time calc.nannofossils/-plankton
C.LEBENZON	CND				●	●	●	●	●		●		●										●		●	●									10
H.MANIVIT	F				●	●	●	●			●		●	●		●				●	N				●			●							80
A.W.MEDD	UK										●		●		●	●	●					●													10
T.L.MOORKENS	D				●	●					●	D	●	●											●		●	●				●			10
R.W.MORIN	USA																																		
S.F.PERCIVAL	USA		●	●	●	●	●	●			●		●									●											●		
S.A.ROOT	USA			●	●	●	●				●		●									●											●		
O.VAROL	TU		●	●	●	●	●	●			●	●	●	●	●											●			●	●		●	●		

FINANCES

Credits and debits in the period November 1980 - November 1982.

Credit, 1-11-80: Hfl. 2.295.--

Out:	14-11-80	Hfl. 132,--	Printing coasts of back issues
	17-11-80	Hfl. 133,--	Volume 2-2, mailing costs
	4-12-80	Hfl. 1.175,--	Volume 2-2, printing costs
	22- 4-81	Hfl. 195,--	Volume 3-1, mailing costs
	28- 4-81	Hfl. 1.100,--	Volume 3-1, printing costs
	8- 5-81	Hfl. 117,--	Printing costs of back issues
	6-11-81	Hfl. 1.291,--	Volume 3-2, printing costs
	7-12-81	Hfl. 226,--	Volume 3-2, mailing costs
	21- 4-82	Hfl. 2.491,--	Volume 4-1, printing costs+ back issues
	22- 4-82	Hfl. 250,--	Volume 4-2, mailing costs
		Hfl. 7.110,--	

In: Dues Hfl. 6.548,--

Credit, 1-11-82: Hfl. 1.733,--

In Stock:	Volume 1-1:	1 copy	Volume 3-1:	10 copies
	" 1-2:	2 copies	" 3-2:	20 "
	" 2-1:	2 copies	" 4-1:	20 "
	" 2-2:	1 copy		

Members, 1-11-82: 189

As can be seen from this overview, the financial situation of INA is bad; the present issue had even to be partly financed with a loan by Katharina Perch-Nielsen. This near bankruptcy is the result of rapidly increasing printing-, mailing- and banking-costs, and sluggish, often wrong payments and non-payments. The situation is even worse than suggested above, as our mailing facilities (via the State University, Utrecht) will come to an end this year due to budget-cuts.

IN ORDER TO CONTINUE THE EDITION OF THE NEWSLETTER A RISE OF THE DUES FOR 1983 TO Hfl. 35,-- IS INEVITABLE. The price of separate numbers of the newsletter is raised to Hfl. 17,50 for members, and to Hfl. 25,- for non-members.

Members who prefer to pay their dues by cheque are urgently requested to increase the amount of Hfl. 35,-- with Hfl. 6,50 for banking-costs (= 15 U.S.dollars).

If you wish to stay a member of INA and to receive the newsletter in 1983, PAY YOUR DUES BEFORE DECEMBER 31; sluggish payers and defaulters will be EXPELLED!

The Treasurer.

MEETING

Under the auspices of
- the R.C.M.N.S. Working Groups on stable isotopes and on marine microfossils and biostratigraphy,
- the International Nannoplankton Association,

a meeting will be held in Utrecht, the Netherlands from March 21-25, 1983, entitled "RECONSTRUCTION OF MARINE PALEOENVIRONMENTS; PRINCIPLES AND METHODS". The subject of the meeting will be the evaluation of methods used in the reconstruction of marine paleoenvironments. Specific topics to be discussed during the meeting are Neogene microfossil distribution patterns in the Mediterranean, and the comparison of the Neogene record with Pleistocene and Recent data from the Mediterranean and adjacent areas. In addition to plenary discussions to be introduced by talks of about one hour by invited speakers, special round-table discussions will be organized by the R.C.M.N.S. Working Groups and the International Nannoplankton association.

In connection with the meeting a 1½ day excursion to the type locality of the Maastrichtian will be organized.

INA members who are interested in participating in the meeting are requested to write as soon as possible to the Secretary of the Department of Stratigraphy/Micropaleontology, Budapestlaan 4, 3508 TA Utrecht, the Netherlands.

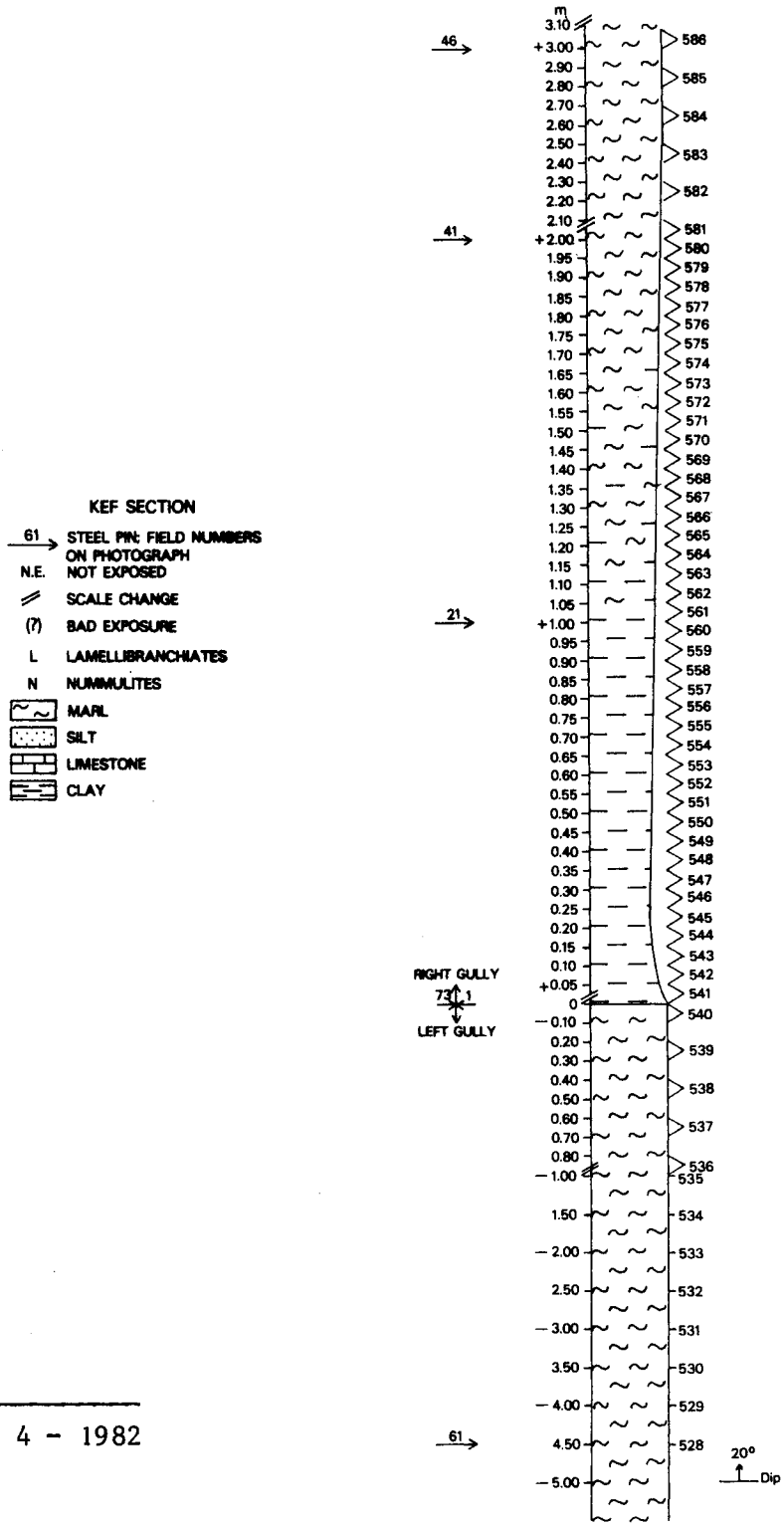
The secretary.

THE CRETACEOUS/TERTIARY BOUNDARY

Sponsored by the I.U.G.S. Working Group on the C/T-boundary, the State University of Utrecht and the Netherlands Organization for the advancement of Pure Research (Z.W.O.), the boundary sequence near El Kef (Tunisia), the world's least incomplete boundary sequence was sampled in great detail in September, 1982, by A. Romein (Utrecht),

J. Smit (Amsterdam) and G.P. Lohmann (Woodshole). The details on the litho-, chemo- and biostratigraphy of the sequence will soon be published. INA members who are interested in this interval can send requests for material (1 chip of each sample)from the Kef-section to G.J. van 't Veld, Budapestlaan 4, 3508 TA Utrecht, the Netherlands.

The Secretary.



BIBLIOGRAPHY AND TAXA OF CALCAREOUS NANNOPLANKTON

Compiled by Shirley E. van Heck

Again, I have come across a number of combinations that have been assigned to the wrong authors in the Newsletter (see also under Comments).

Ahmuellerella regularis (GORKA 1957) was first introduced by REINHARDT & GORKA 1967 instead of VERBEEK 1977 (A3-4, B11).

Chiastozygus trabeculatus (GORKA 1957) was first introduced by RISATTI 1973 (A134-3, B86) instead of SHUMENKO 1976 (A44-1, B43).

Cyclococcolithus robustus (BRAMLETTE & SULLIVAN 1961) was first introduced by LOCKER 1973 (A127-4, B87) instead of MÜLLER 1974 (A90-1, B60).

Helicosphaera lophota (BRAMLETTE & SULLIVAN 1961) was first introduced by LOCKER 1973 (A127-4, B89) instead of JAFAR & MARTINI 1975 (A59-1, B53).

Transversopontis ocellatus (BRAMLETTE & SULLIVAN 1961) was first introduced by LOCKER 1973 (A127-4, B93) instead of SHERWOOD 1974 (A93-9, B64).

Zygodiscus xenotus (STOVER 1966) was first introduced by RISATTI 1973 (A134-3, B94) instead of HILL 1976 (A9-3, B26).

The reference A4-9 (BYBELL,L.M., 1977) should be discarded. The correct version, BYBELL,L.M. & GOVONI,D.L., 1977 (A110-5) has been included in vol.3(2).

The English translation of publication nr. A69-1 (Shumenko & Ushakova, 1980), has appeared in : Doklady Earth Sc. Sect., vol.251 (1982), pp. 191-193.

With this issue, the gap between the INDEX of LOEBLICH & TAPPAN and our Newsletter should be filled more or less. From this point on, John Steinmetz takes over the bibliography and taxa. Although I would still be happy to receive your reprints, for the bibliography you are requested to send your reprints and comments to:

Dr. John C. Steinmetz
Marathon Oil Company
P.O. Box 269, Littleton
Colorado 80160
U.S.A.

A142

1	ALLEMANN,F. & PETERS,T. 1972 The ophiolite - radiolarite belt of the North-Oman mountains -Eclogae Geol. Helv., vol.65, pp.657-697, 1 pl., 12 figs.	strat. CRET.M. Asia.W.
2	AMEZIEUX,J. 1972 Association de nannofossiles calcaires du Jurassique d'Aquitaine et du Bassin Parisien (France). -In: Colloque sur les methodes et tendances de la stratigraphie, Fr., B.R.G.M. Mem. no.77, vol.1, pp.143-151, 4 tbs.	strat. JURA. Europe.W.
3	ANDERSON,T.F. & STEINMETZ,J.C. 1981 Isotopic and biostratigraphical records of calcareous nannofossils in a Pleistocene core. -Nature, vol.294, pp.741-744, 1 fig., 1 tb.	QUAT. ECOL. isotopes
4	ARAFA,A.A. 1982 Calcareous nannofossils from the Kareem Formation (Middle Miocene), Gulf of Suez area, Egypt. -N. Jb. Geol. Paläont., Mh.8, pp.449-455, 4 figs.	strat(syst) TERT.U. Africa.N.
5	BALDI-BEKE,M. 1972 The nannoplankton of the Upper Eocene Bryozoan and Buda Marls. -Acta Geol. Acad. Sci. Hung., vol.16, pp.211-228, 4 pls., 1 tb., 3 figs.	strat(syst) TERT.L. Europe.E.
6	BECKMANN,J.P., BOLLI,H., KLEBOTH,P. & PROTO DECIMA,F. 1982 Micropaleontology and biostratigraphy of the Campanian to Paleocene of the Monte Giglio, Bergamo Province, Italy. -Mem. Sci. Geol., vol.35, pp.91-172, 15 pls., 15 figs.	strat. CRET.U. TERT.L. Europe.W.
7	BERGER,W.H. 1972 Deep sea carbonates: dissolution facies and age-depth constancy. -Nature, vol.236, pp.392-395, 4 figs., 2 tbs.	DIAG. TERT.QUAT.
8	BERGER,W.H. & RAD,U.von 1972 Cretaceous and Cenozoic sediments from the Atlantic Ocean. -In: Hayes,D.E., Pimm,A.C. et al., Init. Rep. DSDP, vol.14, pp.787-954, 48 pls., 59 figs., 11 tbs., 5 app.	SEDIM. DIAG.
9	BERGGREN,W.A. 1972 A Cenozoic time-scale, -some implications for regional geology and paleobiogeography. -Lethaia, vol.5, pp.195-215, 10 figs.	strat. TERT.QUAT. ECOL.
10	BERNIER,P., BUSSON,G., ENAY,R. & NOEL,D. 1972 Les calcaires bitumineux d'Armailles, formation laminée du Kimméridgien de la région de Belley (Ain) et leur conditions de dépôt. -C.R. Acad. Sc. Paris, vol.274, pp.2925-2938, 1 pl.	(syst) JURA.U. Europe.W. SEDIM.
11	BEST,G. & MÜLLER,C. 1972 Nannoplankton-Lagen in Unter-Miozän von Frankfurt am Main. -Senckenb. Leth., vol.53(1/2), pp.103-117, 3 pls.	strat.syst. TERT.U. Europe.W.

A143

1	BLACK,M. 1972 British Lower Cretaceous coccoliths. I. Gault Clay, part 1. -Palaeontogr. Soc. (Monogr.), pp.1-48, pls.1-16, 38 figs., 2 tbs.	syst. MORPH.TECHN. CRET.L. Europe.W.
2	BLACK,M. 1972 Crystal development in Discoasteraceae and Braarudosphaeraceae (planktonic algae). -Palaeontology, vol.15, pp.476-489, pls.87-96, 2 figs.	syst. MORPH.
3	BLACKWELDER,P.L. 1982 Gulf Stream warm core rings - coccolithophore community structure. -Abstr. with Progr., Geol. Soc. Amer., vol.14(7), p.444.	abstr. RECENT. Atlantic ECOL.
4	BLANK,R.G. & ELLIS,C.H. 1982 The probable range concept applied to the biostratigraphy of marine microfossils. -J. of Geol., vol.90, pp.415-433, 10 figs., 3 tbs.	TECHN.
5	BLECHSCHMIDT,G., CITA,M.B., MAZZEI,R. et al. 1982 Stratigraphy of the western Mediterranean and southern Calabrian ridges, eastern Mediterranean. -Mar. Micropal., vol.7(2), pp.101-134, 4 pls., 10 figs.	strat(syst) TERT.U QUAT. Mediterr.
6	BOMBIŢĂ,G., GHEŢA,N., IVA,M. & OLTEANU,R. 1975 Eocène moyen-supérieur et Oligocène inférieur des environs de Cluj. -14th Eur. Micropal. Coll., Romania 1975; Micropaleontological guide to the Mesozoic and Tertiary of the Romanian Carpathians. Excursion P, pp.163-173, 5 figs.	strat.syst. TERT.L. Europe.E.
7	BOMBIŢĂ,G. & RUSU,A. 1981 New data on the Eocene / Oligocene boundary in the Romanian Carpathians. -Palaeogeogr., -climatol., -ecol., vol.36, pp.213-222, 2 figs.	strat. TERT.L. Europe.E.
8	BONNEFOUS,J. 1972 Geology of the quartzitic "Gargaf Formation" in the Sirte Basin, Libya. -Bull. Centre Rech. Pau, SNPA, vol.6(2), pp.225-261, 7 pls., 1 tb.	strat(syst) CRET. Africa.N.
9	BORSETTI,A.M. & CATI,F. 1972 Il nannoplancton calcareo vivente nel Tirreno centro-meridionale. -Giorn. Geol., ser.2a, vol.38, pp.395-452, pls.39-57, 1 tb.	syst. RECENT Mediterr.
10	BRAND,L.E. 1982 Genetic variability and spatial patterns of genetic differentiation in the reproductive rates of the marine coccolithophores Emiliania huxleyi and Gephyrocapsa oceanica. -Limnol. Oceanogr., vol.27(2), pp.236-245, 5 figs., 2 tbs.	RECENT BIOL.

A144

1	BRATU,E. & GHEŢA,N. 1972 Zonarea depozitelor în facies de Şotrile ale Paleocen-Eocenului (Carpaţii Orientali), pe baza foraminiferelor planctonice şi a nannoplanctonului calcaros. (Zonation of the Paleocene - Eocene deposits of the Şotrile Facies (Eastern Carpathians) on the basis of the planktonic foraminifera and of the calcareous nannoplankton.) -Stud. Cerç. geol. geofiz. geogr., ser. geol., vol.17(2) pp.323-334, 5 pls., 2 figs. (In Romanian with Engl. abstr.)	strat(syst) TERT.L. Europe.E.
2	BUKRY,D. 1972 Coccolith stratigraphy Leg 11 Deep Sea Drilling Project. -In: Hollister,C.D., Ewing,J.L., et al., Init. Rep. DSDP, vol.11, pp.475-482, 1 fig., 3 tbs.	strat. JURA.U;CRET. TERT.QUAT. Atlantic.CN.
3	BUKRY,D. 1972 Further comments of coccolith stratigraphy, Leg 12, Deep Sea Drilling Project. -In: Laughton,A.S., Berggren,W.A., et al., Init. Rep. DSDP, vol.12, pp.1071-1083, 1 fig., 3 tbs.	strat. CRET.U. TERT.QUAT. Atlantic.N.
4	BUKRY,D. 1972 Coccolith stratigraphy - Leg 14, Deep Sea Drilling Project. In: Hayes,D.E., Pimm,A.C. et al., Init. Rep. DSDP, vol.14, pp.487-494, 1 fig., 1 tb.	strat. CRET.M.U. TERT.QUAT. Atlantic.CN.
5	BUKRY,D. 1972 Miocene to Pleistocene calcareous nannoplankton zonation of the ocean basins. -Int. Geol. Congr., Abstr., no.24, pp.534-535.	abstr.strat. TERT.U;QUAT. Atlantic. Pacific.
6	BÜRKI,P.M., DENT GLASSER,L.S. & SMITH,D.N. 1982 Surface coatings on ancient coccoliths. -Nature, vol.297, pp.145-147, 3 figs.	DIAG.
7	BURNS,D.A. 1972 Discoasters in Holocene sediments, southwest Pacific Ocean. -Mar. Geol., vol.12, pp.301-306, 2 figs.	strat. QUAT. Pacific.S.
8	BYBELL,L.M. 1980 Paleogene calcareous nannofossils of Alabama and Georgia. -Abstr. with progr., Geol. Soc. Amer., vol.12(7), p.397.	abstr.strat. TERT.L. America.N.
9	BYBELL,L.M. & GARTNER,S. 1972 Provincialism among mid-Eocene calcareous nannofossils. -Micropal., vol.18(3), pp.319-336, 5 pls.	strat.syst. TERT.L. America.N. ECOL.
10	BYBELL,L.M. & POORE,R.Z. 1981 Calcareous nannofossil and planktic foraminiferal biostratigraphy of Pliocene and Pleistocene Atlantic coastal plain deposits. -Abstr. with Progr., Geol. Soc. Amer., vol.13(1), p.3.	abstr. strat. TERT.U. America.N.

A145

1	BYSTRICKA,H. & GERTHOFFEROVA,H. 1972 Kalk-nannoplankton aus dem Paläozän des Myjava-Hügellandes. -Geol. Zbornik-Geol. Carp., vol.23, pp.151-172, 11 pls.	strat.syst. TERT.L. Europe.E.
2	CATI,F. & BORSETTI,A.M. 1972 Nuovo nomo per un discoasteride del Miocene delle Marche. -Giorn. Geol., ser.2, vol.38, p.373.	syst. TERT.U.
3	CATI,F. & BORSETTI,A.M. 1982 Calcareous nannoplankton biostratigraphy of the Vrica section (Calcabria, southern Italy). -Giorn. Geol., Ann. Mus. Geol. Bologna, ser.2a, vol.43(2) (1979), pp.365-384, pls.41-42, 3 figs.	strat.syst. TERT.U. QUAT. Europe.W. *C-1
4	CAVELIER,C. 1972 L'âge Priabonien supérieur de la "zone à Ericsonia subdisticha" (Nanno-plancton) en Italie et l'attribution des Latdorf Schichten allemands à l'Eocène supérieur. -Bull. BRGM, 2nd ser., sect.4, no.1, pp.15-24.	strat. TERT.L. Europe.W.
5	ČEPEK,P. & KEMPER,E. 1981 Der Blättertonstein des nordwestdeutschen Barrême und die Bedeutung des Nannoplanktons für die fein laminierten, anoxisch entstandenen Gesteine. -Geol. Jb., Ser. A, vol.58, pp.3-13, 2 pls.	(syst) CRET.L. Europe.W. SEDIM. ECOL.
6	CHI,W.R. 1981 Calcareous nannoplankton from the sediments of the Liuchiuhsu, southwestern Taiwan. -Proc. Geol. Soc. China, no.24, pp.141-147, 1 pl., 1 fig., 1 tb.	strat(syst) TERT.U;QUAT. Asia.E. ECOL.
7	CHI,W.R. & HUANG,H.M. 1981 Nannobiostratigraphy and paleoenvironments of the Late Neogene sediments and their tectonic implications in the Miaoli area, Taiwan. -Petr. Geol. Taiwan, no.18, pp.111-129, 2 pls., 7 figs., 3 tbs.	strat.(syst) TERT.U. QUAT. Asia.E. ECOL.
8	CHI,W.R., NAMSON,J. & SUPPE,J. 1981 Stratigraphic record of plate interactions on the coastal range of eastern Taiwan. -Mem. Geol. Soc. China, no.4, pp.155-194, 5 pls., 11 figs., 3 tbs.	strat(syst) TERT.U. QUAT. Asia.E.
9	CLOCCHIATTI,M. 1972 Remarques sur quelques rhabdolithes de Méditerranée. -Cah. Micropal., ser.2, no.9 (1971), pp.1-8, 3 pls., 1 tb.	syst. MORPH.
10	CLOCCHIATTI,M. 1972 Utilisation des nannofossiles calcaires en stratigraphie; importance des remaniements. -In: Colloque sur les methodes et tendances de la stratigraphie; Fr., BRGM, Mem. no.77, vol.1, pp.189-193, 1 tb.	strat. CRET.U. TERT.U. Africa.N.

A146

1	CLOCCHIATTI,M. & JERCOVIC,L. 1972 Cruciplacolithus tenuiforatus, nouvelle espèce de Coccolithophoride du Miocène d'Algérie et de Yougoslavie. -Cah. Micropal., ser.2, no.2, (1970), pp.1-6, 2 pls., 2 tbs.	strat.syst. TERT.U. Africa.N. Europe.E.
2	COUVERING,J.A.van, AUBRY,M.P., BERGGREN,W.A.et al. 1981 The terminal Eocene event and the Polish connection. -Palaeogeogr., -climatol., -ecol., vol.36, pp.321-362, 1 pl., 12 figs., 2 tbs.	strat. TERT.L. Europe.E. ECOL.
3	CRUX,J.A. 1982 Upper Cretaceous (Cenomanian to Campanian) calcareous nannofossils. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., pp.81-135, 10 pls., 5 figs., 3 tbs.	strat.syst. CRET.M.U. Europe.W. ECOL. EVOL.
4	CRUX,J.A. & LORD,A.R. 1982 Discussion. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., pp.168-173.	strat. overview
5	DEAN,W.E., GARDNER,J.V., JANSA,L.F. et al. 1977 Cyclic sedimentation along the continental margin of northwest Africa. -In: Lancelot,Y., Seibold,E. et al., Init. Rep. DSDP, vol.41, pp.965-989, 1 pl., 19 figs., 2 tbs.	(syst) CRET.U. TERT.QUAT. Atlantic.CN. SEDIM.DIAG.
6	DEFLANDRE,G. 1972 Commentaires sur la systématique et la nomenclature des nannofossiles calcaires, V. A propos du genre Cyclococcolithus KAMPTNER. Cah. Micropal., ser.2, no.7 (1970), pp.1-15.	syst.
7	DEFLANDRE,G. & DEFLANDRE-RIGAUD,M. 1972 Commentaires sur la systématique et la nomenclature des nannofossiles calcaires, II. A propos d'un mémoire de 1954, III. Genèse d'un chaos remèdes, IV. Introductions des séries 17 et 20 du F.M.C. -Cah. Micropal., ser.2, no.5 (1970), pp.1-17.	syst.
8	DEGENS,E.T. & ROSS,D.A. 1972 Chronology of the Black Sea over the last 25000 years. -Chem. Geol., vol.10, pp.1-16, 12 figs., 1 tb.	(syst)SEDIM QUAT. Mediterr.
9	DERES,F. & ACHERITEGUY,J. 1972 Contribution à l'étude des Nannoconidés dans le Crétacé inférieur du Bassin d'Aquitaine. -In: Colloque sur les methodes et tendances de la stratigraphie, Fr., BRGM, Mem., no.77, vol.1, pp.153-159, 2 pls., 4 figs., 2 tbs.	strat(syst) CRET.L.M. Europe.W. ECOL. MORPH.
10	DOEVEN,P.H., GRADSTEIN,F.M., JACKSON,A. et al. 1982 A quantitative nannofossil range chart. -Micropal., vol.28(1), pp.85-92, 4 figs.	strat.TECHN. CRET.M.U. Atlantic.N.

A147

1	EASTON,A.J., JOSLIN,I.E., KEMPE,D.R.C. & HANCOCK,J.M. 1982 Metasomatic alteration of pelagic ooze on spreading ocean ridges. -Mar. Geol., vol.48, pp.M1-M6, 2 figs.	DIAG.
2	EDWARDS,A.R. 1972 Calcareous nannoplankton from Opoitian (Pliocene) Gauss normal strata in Mangaopari stream. -N.Z. J. Geol. Geophys., vol.15, pp.172-176, 1 tb.	TERT.U. Australasia ECOL.
3	FEINBERG,H., HOYEZ,B. & LAHONDERE,J.C. 1982 Nouvelles données biostratigraphiques sur le Numidien de l'Algérie et du Maroc. -Cah. Micropal., no.3, 1981, pp.93-99, 2 pls., 3 figs.	strat. TERT. Africa.N.
4	FICHTINGER-SCHEPMAN, A.M.J. 1980 Structural studies on the polysaccharide associated with the coccoliths of the alga Emiliania huxleyi (LOHMANN) KAMPTNER. -Thesis, Univ. Utrecht, 91 pp.	RECENT BIOL. (syst) *C-2
5	FICHTINGER-SCHEPMAN,A.M.J., KAMERLING,J.P. et al. 1981 Structural analysis of acidic oligosaccharides derived from the methylated, acidic polysaccharide associated with coccoliths of Emiliania huxleyi (LOHMANN) KAMPTNER. -Carbohydr. Res., vol.86, pp.215-226, 2 figs., 2 tbs.	RECENT BIOL.
6	FORCHHEIMER,S. 1972 Scanning electron microscope studies of Cretaceous coccoliths from the Köpingsberg borehole no.1 S.E. Sweden. -Sver. Geol. Unders., Ser.C, nr.668, vol.65(14), pp.1-141, 27 pls.	strat.syst. CRET.L.M. Europe.W. *C-3
7	FURRAZOLA-BERMÚDEZ,G. & KREISEL,K. 1972 Discoasteridos y braarudosferidos de la Formacion Universidad (Eoceno Inferior) de Cuba. -Minist. Minería, combust., metalurg., Publ. Espec. no.6, 51 pp., 4 pls., 6 figs.	strat.syst. TERT.L. America.C.
8	GARTNER,S. 1972 Late Pleistocene calcareous nannofossils in the Caribbean and their interoceanic correlation. -Palaeogeogr., -climatol., -ecol., vol.12, pp.169-191, 2 pls.	strat.syst. QUAT. ECOL.
9	GARTNER,S. & GENTILE,R. 1972 Problematic Pennsylvanian coccoliths from Missouri. -Micropal., vol.18(4), pp.401-404, 1 pl.	syst. PRE-JURA. America.N.
10	GARTNER,S. & LIDZ,B. 1972 Reworking and apparent reworking of Neogene fossil plankton. -Micropal., vol.18(1), pp.115-118.	strat. TERT.U;QUAT. TECHN.
11	GAYET,M. 1982 Considérations relatives à la paléoécologie du gisement Cénomanien de Laveiras (Portugal). -Bull. Mus. Natn. Hist. Nat., Paris, ser.4, vol.3, sect.C, no.4 (1981), pp.311-315, 1 pl.	strat(syst) CRET.M. Europe.W.

A148

1	GEITZENAUER,K.R. 1972 The Pleistocene calcareous nannoplankton of the subantarctic Pacific Ocean. -Deep-Sea Res., vol.19, pp.45-61, 1 pl., 8 figs.	strat.syst. QUAT. Pacific.S. ECOL.
2	GEITZENAUER,K.R. & HUDDLESTUN,P. 1972 An Upper Pliocene Pleistocene calcareous nannoplankton flora from a subantarctic Pacific deep-sea core. -Micropal., vol.18, pp.405-409, 1 pl., 2 figs.	strat.syst. TERT.U QUAT. Pacific.S.
3	GÉRY,B., FEINBERG,H., LORENZ,C. & MAGNÉ,J. 1981 Définition d'une série-type de l' "Oligo-Miocène kabyle" anténappes dans le Djebel Aïssa-Mimoun (Grande Kabylie, Algérie). -C.R. Acad. Sc. Peris, Ser.2, vol.292, pp.1529-1532, 3 figs. 3 tbs.	strat. TERT. Africa.N.
4	GHEŢA,N. 1982 Comments on the genus Cyclicargolithus BUKRY. -Rev. Roum. Géol., Géophys. et Géogr., Géol., vol.26, pp.93-96, 1 pl.	syst. TERT.
5	GHEŢA,N. 1982 A new species of the calcareous nannoplankton genus Helicosphaera KAMPTNER. -Dări de seamă ale şedinţelor, Inst. geol. geofiz., vol.67 (3) (1979-1980), 3.Paleont., pp.123-125, 1 pl., 1 fig.	strat.syst. TERT. Europe.E.
6	GHEŢA,N. & BRATU,E. 1982 Asupra prezenţei paleocenului în depresiunea Getică la sud de creasta Cozia-Ghiţu. (On the presence of the Paleocene in the Getic depression south of the Cozia-Ghiţu ridge). -Dări de seamă ale şedinţelor Inst. geol. geofiz. vol.66 (1979), 4. Strat., pp.131-137, 2 figs. (In Romanian with English summary).	strat. TERT.L. Europe.E.
7	GHEŢA,N. & POPESCU,G. 1975 Middle Miocene at Giurgeşti. -14th Eur. Micropal. Coll., Romania 1975; Micropaleontological guide to the Mesozoic and Tertiary of the Romanian Carpathians, Excursion O, pp.159-162, 1 fig.	strat. TERT.U. Europe.E.
8	GIBSON,T.G., ANDREWS,G.W., BYBELL, L.M. et al. 1980 Geology of the Oak Grove core, Pt.2: Biostratigraphy of the Tertiary strata of the core. -Virginia Div. Min. Resources, Publ. 20, pt.2, pp.14-30, 7 figs.	strat. TERT.L. America.N.
9	GIBSON,T.G. & BYBELL,L.M. 1981 Facies changes in the Hatchetigbee Formation in Alabama - Georgia and the Wilcox - Claiborne Group unconformity. -Gulf Coast Assoc. Geol. Soc., Transa. 31st Ann. Mtg., pp.301-306, 3 figs.	strat. TERT.L. America.N.

A149

1	GRÜN,W., KITTLER,G., LAUER,G., PAPP,A. et al. 1972 Studien in der Unterkreide des Wienerwaldes. -Jb. Geol. B.-A., vol.115, pp.103-186, 35 pls., 12 figs., 11 tbs.	strat.syst. CRET. Europe.W.
2	HAMILTON,G.B. 1982 Triassic and Jurassic calcareous nannofossils. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., pp.17-39, 4 pls., 4 figs., 2 tbs.	strat.syst. PRE-JURA. JURA. Europe.W. ECOL.
3	HAMILTON,G.B. & HOJJATZADEH,M. 1982 Cenozoic calcareous nannofossils - a reconnaissance. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., pp.136-167, 5 pls., 4 figs., 4 tbs.	strat.syst. TERT.QUAT. Europe.W. ECOL.
4	HANZLÍKOVÁ,E., KRHOVSKÝ,J. & ŠVÁBENICKÁ,L. 1982 Calcareous nannoplankton from the type locality of the Frýdek Formation (Lower Maastrichtian). -Sbor. Geol. Věd., Paleont., vol.25, pp.127-155, 12 pls., 1 fig., 1 tb.	strat.syst. CRET.U. Europe.E.
5	HAQ,B.U. 1972 Rates of evolution in Cenozoic calcareous nannoplankton. -Jb. Geol. B.-A., Sonderb. 19, pp.30-31.	abstr. TERT. ECOL.
6	HAY,W.W. 1972 Probabilistic stratigraphy. -Eclogae Geol. Helv., vol.65, pp.255-266, 5 figs., 1 tb.	strat. TECHN.
7	HAYES,D.E., PIMM,A.C. et al. 1972 Site Reports. -In: Hayes,D.E., Pimm,A.C. et al., Init. Rep. DSDP, vol.14, pp.15-338.	strat. CRET.M.U. TERT.QUAT. Atlantic CN.
8	HECK,S.E.van 1982 Bibliography and taxa of calcareous nannoplankton. -INA Newsl., vol.4(1), pp.7-50.	BIBL. syst.
9	HEIMDAL,B.R. 1982 Validation of the names of some species of Zygosphaera KAMPTNER. -INA Newsl., vol.4(1), pp.52-56, 1 tb.	syst. RECENT
10	HERNGREEN,G.F.W., RANDRIANASOLO,A. & VERBEEK,J.W. 1982 Micropaleontology of Albian to Danian strata in Madagascar. -Micropal., vol.28(1), pp.97-109, 2 pls., 3 figs., 3 tbs.	strat. CRET.MU; TERT.L. Africa.
11	HESTER,N.C. & RISATTI,J.B. 1972 Nannoplankton biostratigraphy and sedimentary petrology of a facies sequence crossing the Campanian - Maastrichtian boundary in Central Alabama. -Transa. Gulf Coast Assoc. Geol. Soc., vol.22, pp.289-304, 1 pl., 8 figs., 1 tb.	strat(syst) CRET.U. America.N.

A150

1	HODSON,F. & WEST,I.M. 1972 Holocene deposits of Fawley, Hampshire, and the development of Southampton water. -Proc. Geol. Assoc., vol.83, pp.421-441, 2 pls., 8 figs., 5 tbs.	strat(syst) QUAT. Europe.W. ECOL.
2	HOFFMANN,N. 1972 Coccolithen aus der Kreide und dem Paläogen des nördlichen Mitteleuropas. -Geologie, vol.21(73), pp.1-121, 19 pls.	strat.syst. CRET.M.U. TERT.L. Europe.W.
3	HOFFMANN,N. 1972 Elektronenoptische Untersuchungen an Coccolithineen aus der Kreide und dem Paläogen des nördlichen Mitteleuropas. -Hall. Jb. f. Mitteldt. Erdg., vol.11, pp.41-60, pls.3-7, 1 fig.	syst. CRET.M.U. TERT.L. Europe.W.
4	HOLLISTER,C.D., EWING,J.L. et al. 1972 Site Reports. -In: Hollister,C.D., Ewing,J.L., et al., Init. Rep. DSDP, vol.11, pp.9-364.	strat. JURA.MU;CRET. TERT.QUAT. Atlantic.CN.
5	HONJO,S., MANGANINI,S.J. & COLE,J.J. 1982 Sedimentation of biogenic matter in the deep oceans. -Deep-Sea Res., vol.29(5A), pp.609-625, 6 figs., 5 tbs.	SEDIM. oceans.
6	HORNIBROOK,N. de B. 1972 Globoconusa daubjergensis (Foraminifera) at the base of the stratotype of the Teurian stage, New Zealand. -N.Z. J. Geol. Geophys., vol.15, pp.178-181, 4 figs., 1 tb.	(strat) TERT.L. Australasia.
7	HORNIBROOK,N. de B., SCOTT,G.H. & EDWARDS,A.R. 1972 Biostratigraphic notes and faunal lists. -In: Bowen,F.E. & Skinner,D.N.B.: Geological interpretation of Ngawha deep drillhole, Karkohe, Northland (N15), New Zealand; N.Z. J. Geol. Geophys., vol.15, pp.129-139.	strat. TERT.L. Australasia
8	HUANG,T.C. 1980 Calcareous nannofossils from the slate terrane west of Yakou, southern cross-island highway. -Petr. Geol. Taiwan, no.17, pp.59-74, 3 pls., 5 figs., 2 tbs.	strat(syst) TERT. Asia.E.
9	HUANG,T.C. & TING,J.S. 1981 (Calcareous nannofossil biostratigraphy of the Late Neogene shallow marine deposits in Taiwan.) -Ti-Chih, vol.3, pp.105-119, 2 pls., 5 figs. (In Chinese, with English abstract)	strat(syst) TERT.U;QUAT. Asia.E.
10	HUH,J.M. & SMITH,C.I. 1972 Coccoliths and related calcareous nannofossils from the Upper Cretaceous Fencepost Limestone of northwestern Kansas. -Mich. Univ. Mus. Paleont. Contr., vol.24, pp.17-22, 2 pls.	syst. CRET.M. America.N.

A151

1	HULBURT,E.M. & CORWIN,N. 1972 A note on the phytoplankton distribution in the offshore water of the eastern and central Gulf of Mexico. -Carib. J. Sci., vol.12, pp.29-38, 4 figs., 2 tbs.	RECENT Atlantic.C. ECOL.
2	IACCARINO,S. & RIO,D. 1972 Nannoplancton calcareo e foraminiferi della serie di Viano (Val Tresinaro - Appennino settentrionale). -Riv. Ital. Paleont., vol.78, pp.641-678, 3 pls., 3 figs., 1 tb.	strat.syst. TERT.L. Europe.W.
3	JENDRZEJEWSKI,J.P. & ZARILLO,G.A. 1972 Late Pleistocene paleotemperature oscillations defined by silicoflagellate changes in a subantarctic deep-sea core. -Deep-Sea Res., vol.19, pp.327-329, 2 figs.	QUAT. Pacific.S. ECOL.
4	JOSSEN,J.A. 1982 Les nannofossiles calcaires de Priabona. -Rev. Paléobiol., vol.1(1), pp.39-51, 4 pls., 3 figs.	strat(syst) TERT.L. Europe.W.
5	KLAVENESS,D. 1972 Coccolithus huxleyi (LOHMANN) KAMPTNER. 1.Morphological investigations on the vegetative cell and the process of coccolith formation. -Protistologica, vol.8, pp.335-346, 17 figs.	RECENT. BIOL.
6	KLAVENESS,D. 1972 Coccolithus huxleyi (LOHMANN) KAMPTNER. II. The flagellate cell, aberrant cell types, vegetative propagation and life cycles. -Br. phycol. Bull., vol.7, pp.309-318, 17 figs.	RECENT BIOL.
7	KÖTHE,A. 1981 Kalkiges Nannoplankton aus dem Unter-Hauterivium bis Unter-Barremium der Tongrube Moorberg/Sarstedt (Unter-Kreide, N.W. Deutschland). -Mitt. geol. Inst. Univ. Hannover, vol.21, pp.1-95, 10 pls. 56 figs., 7 tbs.	strat.syst. CRET.L. Europe.W. ECOL.
8	KRHOVSKÝ,J. 1981 Mikrobiostratigrafické korelace vnějších jednotek flyšového pásma a vliv eustatických změn na jejich paleogeografický vývoj.(Microbiostratigraphic correlations in the outer flysch units of the southern Moravia and influence of the eustacy on their palaeogeographical development.) -Zemni plyn a Nafta, vol.26(4), pp.665-688 + 955-975, 10 pls 2 figs. (In Czech, with English summary).	strat(syst) TERT.L. Europe.E. ECOL.
9	KUHN,J.A. 1972 Stratigraphisch-micropaläontologische Untersuchungen in der äusseren Einsiedler Schuppenzone und im Wägitaler Flysch A und W des Sihlsees (Kt. Schwyz). -Eclogae Geol. Helv., vol.65, pp.485-553, 8 pls., 18 figs.	strat. CRET.U. TERT.L. Europe.W.

A152

1	KUHRY,B. 1972 Stratigraphy and micropaleontology of the Lower Cretaceous in the subbetic south of Caravaca (province of Murcia, SE. Spain) I & II. -Ned. Akad. Wet., Proc. Ser. B, vol.75, pp.193-222, 6 figs., 3 tbs.	strat. CRET.L.M. Europe.W.
2	KÜPPER,H. & STRADNER,H. 1972 Review of calcareous nannoplankton investigations. -Jb. Geol. B.-A., Sonderb. 19, pp.132-137, 1 pl., 1 tb.	(syst) overview
3	LAUGHTON,A.S., BERGGREN,W.A. et al. 1972 Shipboard Site Reports. -In: Laughton,A.S., Berggren,W.A. et al., Init. Rep. DSDP, vol.12, pp.1-901.	strat. CRET.M.U. TERT.QUAT. Atlantic.N.
4	LEHOTAYOVA,R. 1972 Electron microscopic investigation of calcareous nannoflora from Neogene pelites in Slovakia. -Jb. Geol. B.-A., Sonderb. 19, pp.46-47.	abstr. strat. TERT.U. Europe.E.
5	LEZAUD,L. 1972 Nannofossiles calcaires du Paleocène et de l'Eocène. -In: Colloque sur les methodes et tendances de la stratigraphie, Fr., BRGM Mem. no.77, vol.1, pp.175-179.	strat. TERT.L.
6	LLOYD,R.M. & HSÜ,K.J. 1972 Stable isotope investigations of sediments from the Joides III Cruise to the South Atlantic. -Sedimentology, vol.19, pp.45-58, 8 figs., 1 tb.	TERT.L. Atlantic.S. ECOL. isotopes.
7	LOHMANN,G.P. 1981 Stages in the oceanographic evolution of the Late Miocene Pacific indicated by calcareous nannoplankton. -Abstr. with Progr., Geol. Soc. Amer., vol.13(7), p.498.	abstr. TERT.U. Pacific. ECOL.
8	LOHMANN,G.P. & CARLSON,J.J. 1981 Oceanographic significance of Pacific Late Miocene calcareous nannoplankton. -Marine Micropal., vol.6, pp.553-579, 2 pls., 17 figs., 4 tbs., 1 app.	syst. TERT.U. Pacific. ECOL.
9	LORD,A.R. 1982 A stratigraphical index of calcareous nannofossils. -British Micropal. Soc., Publ: Ellis Horwood Ltd. (book), 192 pp., 27 pls.	strat.syst. overview *C-4
10	LORD,A.R. & HAMILTON,G.B. 1982 Palaeozoic calcareous nannofossils. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., p.16.	PRE-JURA

A153

1	LORD,A.R. & TAYLOR,R.J. 1982 Introduction. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., pp.7-10.	general
2	LOWRIE,W., ALVAREZ,W., NAPOLEONE,G. et al. 1982 Paleogene magnetic stratigraphy in Umbrian pelagic carbonate rocks: the Contessa sections, Gubbio. - Geol. Soc. Amer. Bull., vol.93, pp.414-432, 15 figs.,1 tb.	strat. TERT.L. Europe.W.
3	McDOUGALL,J.C. 1972 Carbonate variations in slope sediments Kaipara, New Zealand. -N.Z. J. Geol. Geophys., vol.15, pp.558-571, 6 figs., 4 tbs.	SEDIM(syst) QUAT. Pacific.S.
4	McINTYRE,A. & RUDDIMAN,W.F. 1972 Northeast Atlantic Post-Eemian paleooceanography: a predictive analogue of the future. -Quat. Res., vol.2, pp.350-354, 4 figs., 1 tb.	QUAT. Atlantic.N. ECOL.
5	McINTYRE,A., RUDDIMAN,W.F. & JANTZEN,R. 1972 Southward penetrations of the north Atlantic polar front: faunal and floral evidence of large-scale water mass movements over the last 225,000 years. -Deep-Sea Res., vol.19, pp.61-77, 8 figs., 1 tb.	QUAT. Atlantic.N. ECOL.
6	McKEEL,D.R. & LIPPS,J.H. 1972 Calcareous plankton from the Tertiary of Oregon. -Palaeogeogr., -climatol., -ecol., vol.12, pp.75-93, 3 figs., 1 tb.	strat. TERT.L. America.N.
7	McKENZIE,J.A., HE,Q., PERCH-NIELSEN,K. & HSÜ,K.J. 1982 Carbon-isotope stratigraphy of lowermost Tertiary pelagic sediments: an indication for a drastic decrease in photosynthesis after the Cretaceous - Tertiary boundary. -I.A.S. 3rd Eur. Mtg., Copenhagen 1982, abstr., pp.120-121, 1 fig.	abstr. (strat) CRET.TERT. boundary ECOL.
8	MAGNÉ,J., PERCH-NIELSEN,K. & FEINBERG,H. 1982 La limite Eocène/Oligocène dans les séries à facies pelagique du Nord de l'Algérie et du Maroc. -9e Réunion Ann. Sci. de la Terre, Paris 1982; ed: Soc. Géol. Fr., p.394, 1 fig.	strat. TERT.L. Africa.N.
9	MALMGREN,B.A. & HAQ,B.U. 1982 Assessment of quantitative techniques in paleobiogeography. -Mar. Micropal., vol.7, pp.213-236, 14 figs., 12 tbs.	TECHN. TERT.U. Atlantic.
10	MANIVIT,H. 1972 Les nannofossiles du Crétacé (Aptien - Turonien inclus). -In: Colloque sur les methodes et tendances de la stratigraphie.Fr., BRGM, Mem. no.77, vol.1, pp.165-169.	strat. CRET.M. Europe.W.

A154

1	MARTINI,E. 1981 Upper Eocene and Lower Oligocene calcareous nannoplankton from the fore-Sudetic Monocline. -Bull. Acad. Polon. Sci., Sér. Sci. de la Terre, vol.29(1), pp.45-50, + 4 pls.	strat.syst. TERT.L. Europe.E. ECOL.
2	MARTINI,E. 1981 Calcareous nannoplankton in the Paleogene beds of the Szczecin borehole. -Bull. Acad. Polon. Sci., Sér. Sci. de la Terre, vol.29(1), pp.51-57, + 4 pls., 1 tb.	strat.(syst) TERT.L. Europe.E. ECOL.
3	MARTINI,E. & MÜLLER,C. 1972 Nannoplankton aus dem nördlichen Arabischen Meer. -Meteor Forsch. Ergebn., ser.C, no.10, pp.63-74, 3 pls., 3 figs.	syst. QUAT.RECENT Indian Oc.
4	MATHUR,Y.K. 1980 Calcareous nannoplankton from Neill Island, Andaman, India. -Geosci. J., vol.1(2), pp.35-39, 1 pl.	strat(syst) TERT.U. Asia.E.
5	MATHUR,Y.K. & MATHUR,K. 1980 Barail (Laisong) palynofossils and Late Oligocene nannofossils from the Andaman Island, India. -Geosci. J., vol.1(2), pp.51-66, 1 pl.	strat.(syst) TERT.L. Asia.E.
6	MIHAJLOVIĆ,D. 1981 Gornje Kredna krečnjačka nanoflora iz Ljiga i okoline. (Upper Cretaceous calcareous nannoflora from Ljig and its surroundings.) -C.R. Séances Soc. Serbe Géol. (1980), pp.81-86, + 2 pls., 1 tb. (In Russian, with English abstract.)	strat(syst) CRET.U. Europe.E.
7	MIKKELSEN,N. & PERCH-NIELSEN,K. 1982 15. Calcareous nannofossils. -In: Olausson,E.: The Pleistocene / Holocene boundary in south-western Sweden; Sver. Geol. Unders., ser.c, nr.794, Avhand. och Uppsats., vol.76(7), pp.178-186, 2 figs.	strat. QUAT. Europe.W.
8	MILLER,K.G., GRADSTEIN,F.M. & BERGGREN,W.A. 1982 Late Cretaceous to Early Tertiary agglutinated benthic foraminifera in the Labrador Sea. -Micropal., vol.28(1), pp.1-30, 3 pls., 8 figs., 5 tbs.	(strat) TERT.L. Atlantic.N.
9	MOSHKOVITZ,S. 1972 Biostratigraphy of the genus Nannoconus in the Lower Cretaceous sediments of the subsurface: Ashqelon - Helez area, Central Israel. -Isr. J. Earth-Sci., vol.21, pp.1-28, 3 pls., 12 figs., 2 tbs., 2 app.	strat.syst. CRET.L.M. Asia.SW.
10	MOURIER,T., LAMOTTE,D.F.de & FEINBERG,H. 1982 Etapes de la structuration tertiaire des zones internes rifaines dans la chaînon des Bokoya (Rif central, Maroc). -C.R. Acad. Sc. Paris, Sér.II, vol.294, pp.1147-1150, 2 figs.	strat. TERT. Africa.N.

A155

1	MÜLLER,C. 1972 Kalkiges Nannoplankton aus Tiefseekernen des Ionischen Meers. -Meteor Forsch. Ergebn., Ser.C, no.10, pp.75-95, 6 pls., 2 figs.	strat.syst. QUAT. Mediterr.
2	NISHIDA,S. 1977 Late Cenozoic calcareous nannoplankton biostratigraphy in Japan. -In: Saito,T. & Ujiie,H.: Proc. 1st Int. Congr. on Pacific Neogene stratigraphy (1976), pp.376-378, 2 figs.	strat. TERT.U. QUAT. Pacific.N.
3	NOEL,D. 1972 Eléments de morphologie comparée: Gartnerago BUKRY 1969 et Kamptnerius DEFLANDRE 1959 (Coccolithes Crétacés). -Cah. Micropal., Ser.3, no.4, Arch. Orig. Centre Docum. CNRS no.501, 10 pp. + 3 pls., 1 fig., 2 tbs.	syst. CRET.M.U. MORPH.
4	NOEL,D. 1972 Les nannofossiles calcaires; utilisation et stratigraphie. -In: Colloque sur les methodes et tendances de la stratigraphie. Fr., BRGM Mem. no.77, vol.1, pp.137-142.	overview
5	NOEL,D. 1972 Les nannofossiles du Crétacé superieur, aperçu des problèmes actuels posés par l'utilisation stratigraphique de ce groupe. -In: Colloque sur les methodes et tendances de la stratigraphie, Fr., BRGM Mem. no.77, vol.1, pp.171-173.	strat. CRET.U. Europe.W.
6	NURY,D. & TOURAINE,F. 1972 Recherche de nannoplancton dans l'Oligocène de Sud-Est Francais. -C.R. Acad. Sc., vol.274, pp.2863-2866.	strat. TERT.L. Europe.W.
7	PERCH-NIELSEN,K. 1972 Remarks on Late Cretaceous to Pleistocene coccoliths from the North Atlantic. -In: Laughton,A.S., Berggren,W.A. et al., Init. Rep. DSDP, vol.12, pp.1003-1069, 22 pls., 1 fig., 6 tbs.	strat.syst. CRET.U. TERT.QUAT. Atlantic.N.
8	PERCH-NIELSEN,K. 1972 Les nannofossiles calcaires de la limite Crétacé-Tertiaire. -In: Colloque sur les methodes et tendances de la stratigraphie. Fr., BRGM Mem no.77, vol.1, pp.181-188, 2 figs., 2 tbs.	strat. CRET.U. TERT.L.
9	PERCH-NIELSEN,K. 1981 Les coccolithes du Paléocène près de El Kef, Tunisie, et leurs ancêtres. -Cah. Micropal., 1981, nr.3, pp.7-23, 3 pls., 5 figs., 2 tbs.	strat.syst. TERT.L. Africa.N. EVOL.

A156

1	PERCH-NIELSEN,K. 1981 Nouvelles observations sur les nannofossiles calcaires à la limite Crétacé - Tertiaire près de El Kef (Tunisie). -Cah. Micropal., 1981, nr.3, pp.25-36, 3 pls., 2 figs.	strat.syst. CRET.U. TERT.L. Africa.N.
2	PERCH-NIELSEN,K. 1982 Maastrichtian coccoliths in the Danian: survivors or reworked "dead bodies"? -I.A.S. 3rd Eur. Mtg., Copenhagen 1982, abstr. p.122.	abstr.strat. isotopes CRET.TERT. boundary.
3	PIMM,A.C., BURROUGHS,R.H. & BUNCE,E.T. 1972 Oligocene sediments near Chain Ridge, northwest Indian Ocean: structural implications. -Mar. Geol., vol.13, pp.M14-M18, 4 figs.	strat. TERT. QUAT. Indian Oc.
4	PFLAUMANN,U. & ČEPEK,P. 1982 13. Cretaceous foraminiferal and nannoplankton biostratigraphy and paleoecology along the West African continental margin. -In: Rad,U. von, Hinz,K. et al., Geology of the Northwest African continental margin; pp.309-353, 9 figs., 3 tbs.	strat. CRET. Atlantic.CN. ECOL. DIAG.
5	POORE,R.Z. 1981 Late Miocene biogeography and paleoclimatology of the central North Atlantic. -Mar. Micropal., vol.6, pp.599-616, 8 figs., 3 tbs., 4 app.	strat. TERT.U. Atlantic.N. ECOL.
6	POPESCU,B., BOMBITA,G., RUSU,A., IVA,M. et al. 1978 The Eocene of the Cluj-Huedin area. -Dări de seamă ale şedinţelor Inst. geol. geofiz., vol.64 (1976-1977). 4.Strat., pp.295-357, 24 pls., 7 figs.	strat(syst) TERT.L. Europe.E.
7	POPESCU,B., BRATU,E., GHEŢA,N. & POPESCU,D. 1976 Contribuţii la cunoaşterea stratigrafiei formaţiunilor Paleogene dintre Olt şi Olăneşti (depresiunea Getică). (Contributions to the knowledge of the stratigraphy of the Paleogene formations between Olt and Olăneşti (Getic depression).) -Dări de seamă ale şedinţelor Inst. geol. geofiz., vol.62, (1974-1975). 4.Strat., pp.265-278, 2 pls., 1 tb. (In Romanian with English summary)	strat. CRET.U. TERT. Europe.E.
8	POPESCU,B. & GHEŢA,N. 1972 Nannoplanctonul calcaros din orizontul marnelor cu briozoare de la vest de Cluj (bazinul Transilvaniei). (Calcareous nannoplankton from the Bryozoan Marl Horizon west of Cluj (Transylvanian Basin).) -Dări de seamă ale şedinţelor, Inst. geol. geofiz., vol.58 (1971). 3.Paleont., pp.129-140, 3 pls., 1 fig., 1 tb.	strat.syst. TERT.L. Europe.E.
9	QUADROS,L.P.de & GOMIDE,J. 1972 Nanofósseis calcários na plataforma continental do Brasil. -B. téc. Petrobras, Rio de Janeiro, vol.15(4), pp.339-354, 12 figs.	strat. CRET.M.U. TERT. America.S.

A157

1	RAMSAY,A.T.S. 1972 Aspects of the distribution of fossil species of calcareous nannoplankton in North America and Caribbean sediments. -Nature, vol.236, pp.67-70, 6 figs., 1 tb.	strat. TERT.L. Atlantic.CN. America.N. ECOL.
2	REINHARDT,P. 1972 Coccolithen. Kalkiges Plankton seit Jahrmillionen. -Die neue Brehm-Bücherei, A.Ziemsen Verlag. 99 pp., 188 figs	overview syst. BIOL.ECOL.
3	ROMEIN,A.J.T. 1982 The Cretaceous / Tertiary boundary: an astronomic or a sedimentary problem? -I.A.S. 3rd Eur. Mtg., Copenhagen, pp.123-127, 2 figs.	strat. CRET.TERT. boundary. Africa.N. isotopes
4	ROOD,A.P. & BARNARD,T. 1972 On Jurassic coccoliths: Stephanolithion, Diadozygus and related genera. -Eclogae Geol. Helv., vol.65(2), pp.327-342, 2 pls.	strat.syst. JURA.CRET.L. Europe.W. EVOL.
5	ROTH,P.H. & THIERSTEIN,H. 1972 Calcareous nannoplankton: Leg 14 of the Deep Sea Drilling Project. -In: Hayes,D.E., Pimm,A.C. et al., Init. Rep. DSDP, vol.14, pp.421-485, 16 pls., 2 figs., 16 tbs.	strat.syst. CRET.M.U. TERT.QUAT. Atlantic.CN. DIAG.ECOL.
6	SADEK,A. 1972 Nannofossils from the Middle-Upper Eocene strata of Egypt. -Jb. Geol. B.-A., Sonderband 19, pp.107-131, 2 pls., 1 fig.	strat.syst. TERT.L. Africa.N.
7	SCHOLLE,P.A. & KLING,S.A. 1972 Southern British Honduras: lagoonal coccolith ooze. -J. Sed. Petr., vol.42, pp.195-204, 5 figs.	(syst)ECOL. QUAT. Atlantic.C.
8	SHERWOOD,R.W. & LEVIN,H.L. 1972 A closer look at Trochoaster simplex KLUMPP. -J. Paleont., vol.46, pp.591-594, 1 pl.	syst. TERT.L.
9	SIESSER,W.G. 1982 Cretaceous calcareous nannoplankton in South Africa. -J. Paleont., vol.56(2), pp.335-350, 10 figs.	strat.syst. CRET.U. Africa. ECOL.
10	SIKES,C.S. & WILBUR,K.M. 1982 Functions of coccolith formation. -Limnol. & Oceanogr., vol.27(1), pp.18-26, 3 figs., 2 tbs.	RECENT BIOL.
11	SMITH,L.A. 1972 Calcareous nannofossils and their utility in the Joides Deep Sea Drilling Program. -Geosc. & Man, vol.4, pp.134-135.	abstr. overview
12	SNYDER,S.W., MÜLLER,C., TOWNSEND,H.A. & MILLER,K.G. 1982 Eocene - Oligocene boundary at Site 549, DSDP Leg 80: foraminiferal, nannoplankton, and paleomagnetic analysis. -Abstr. with Progr., Geol. Soc. Amer., vol.14(7), p.621.	abstr. strat. TERT.L. Atlantic.N.

A158

1	TANGEN,K., BRAND,L.E., BLACKWELDER,P.L. et al. 1982 Thoracosphaera heimii (LOHMANN) KAMPTNER is a Dinophyte: observations on its morphology and life cycle. -Mar. Micropal., vol.7(3), pp.193-212, 6 pls., 1 fig.	syst. RECENT BIOL. MORPH.
2	TAPPAN,H. & LOEBLICH,A.R. 1972 Fluctuating rates of protistan evolution, diversification, and extinction. -24th Int. Geol. Congr., sect.7, pp.205-213, 6 figs.	ECOL.
3	TAYLOR,R.J. 1982 Lower Cretaceous (Ryazanian to Albian) calcareous nannofossils. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., pp.40-80, 8 pls., 4 figs., 2 tbs.	strat.syst. CRET.L.M. Europe.W. ECOL.
4	TAYLOR,R.J. & HAMILTON,G.B. 1982 Techniques. -In: Lord,A.R.: A stratigraphical index of calcareous nannofossils; British Micropal. Soc., pp.11-15, 1 fig.	TECHN.
5	THRONDSEN,J. 1972 Coccolithophorids from the Caribbean Sea. -Norw. J. Bot., vol.19, pp.51-60, 32 figs.	syst.ECOL. RECENT. Atlantic.C.
6	VAROL,O. 1982 Calcareous nannofossils from the Antalya Basin, Turkey. -N. Jb. Geol. Paläont., Mh. 4, 1982, pp.244-256, 6 figs.	strat.syst. TERT.U. Asia SW.
7	VILA,J.M. & FEINBERG,H. 1982 Les discordances successives à la terminaison sud-est de la Cordillère centrale dominicaine: un enregistrement du calendrier tectonique d'Hispaniola (Grandes Antilles). -Bull. Soc. Geol. France, vol.24(1), pp.153-156, 2 figs.	strat. TERT. America.C.
8	WARREN,A.D. & NEWELL,J.H. 1981 Calcareous plankton biostratigraphy of the type Bastendorff Formation, southwest Oregon. -Geol. Soc. Amer., Spec. Pap. 184, pp.105-112, 4 figs.,	strat. TERT.L. America.N.
9	WEAVER,F.M. & WISE,S.W. 1972 Chertification phenomena in antarctic and pacific deep-sea sediments - a scanning electron microscope / x-ray diffraction study. -Transa. Gulf Coast Assoc. Geol. Soc., 22nd Ann Conv.,p.222	abstr. DIAG. CRET.U; TERT. Pacific.C.
10	WERLE,K.J. & WORSLEY,T.R. 1982 Early Miocene nannofossil biostratigraphy. -Abstr. with Progr., Geol. Soc. Amer., vol.14(1-2), pp.94-95.	abstr. strat. TERT.U.

A159

1 WESSELY,G., SCHREIBER,S. & FUCHS,R. 1981 strat.
Lithofazies und Mikrostratigraphie der Mittel- und Oberkreide des Molasseuntergrundes im östlichen Oberösterreich. CRET.U.
-Jb. Geol. B.-A., vol.124(1), pp.175-281, 20 pls., 5 figs., 1 encl. Europe.W.

2 WILCOXON,J.A. 1972 strat.
Calcareous nannoplankton ranges, Deep Sea Drilling Project. JURA.U;CRET.
-In: Hollister,C.D., Ewing,J.L. et al., Init. Rep. DSDP, TERT.QUAT.
vol.11, pp.459-473, 1 fig., 10 tbs. Atlantic.CN.

3 WILCOXON,J.A. 1972 strat.syst.
Upper Jurassic - Lower Cretaceous calcareous nannoplankton JURA.U.
from the western North Atlantic Basin. CRET.L.M.
-In: Hollister,C.D., Ewing,J.L. et al., Init. Rep. DSDP, Atlantic.CN.
vol.11, pp.427-457, 12 pls.

4 WINTER,A. 1982 DIAG.
Post-depositional shape modification in Red Sea coccoliths. QUAT.
-Micropal., vol.28(3), pp.319-323, 1 pl., 1 fig. Indian Oc.

5 WISE,S.W. & KELTS,K.R. 1972 (syst)
Inferred diagenetic history of a weakly silicified deep TERT.L.
sea chalk. Atlantic.S.
-Transa. Gulf Coast Assoc. Geol. Soc., vol.22, pp.177-203, DIAG.
6 pls. SEDIM.

6 WORSLEY,T.R. & CRECELIUS,E. 1972 strat.
Paleogene calcareous nannofossils from the Olympic TERT.L.
Peninsula, Washington. America.N.
-Geol. Soc. Amer., Bull., vol.83, pp.2859-2862, 2 figs.

7 YARTSEVA,M.V. & ZHMUR,S.I. 1972 strat.
Zonal'noye raschleneniye paleotsena platformennoy chasti TERT.L.
Ukraini. (Zonal subdivision of Paleocene in the Ukraine Russia
Platform).
-Akad. Nauk SSSR Sokl., vol.205, pp.439-442.
(In Russian, with English abstract).

8 ZEIGHAMPOUR,M.R. 1981 strat(syst)
Biozonation du Crétacé (Albien - Santonien) a partir des CRET.M.U.
coccolithes des craies de Haute-Normandie (France). Europe.W.
-Rev. Micropal., vol.24(3), pp.172-186, 3 pls., 4 figs.

9 ZHONG,S.L. 1982 strat.syst.
(Neogene calcareous nannofossils from the Huangliu TERT.U.
Formation of the Yinggehai Basin, south China Sea). Asia.E.
-Acta Palaeont. Sinica, vol.21(2), pp.191-201 + 3 pls.
(In Chinese, with English summary).

A160 other titles

1 DROOGER,M.M. 1982 TECHN.
Quantitative range chart analysis
-Utrecht Micropal. Bull., vol.26, 227 pp., 3 pls., 32 figs.

2 HARPER,C.W. 1981
Inferring succession of fossils in time: the need for a quantitative and statistical approach.
-J. of Paleont., vol.55(2), pp.442-452, 4 figs.

3 MOORE,T.C. & ROMINE,K. 1981
In search of biostratigraphic resolution.
-In: Warme,J.E., Douglas,R.G. & Winterer,E.L.: The Deep Sea Drilling Project: a decade of progress; S.E.P.M. Spec. Publ. no.32, pp.317-334, 17 figs.

4 RIEDEL,W.R. 1973
Cenozoic planktonic micropaleontology and biostratigraphy.
-Ann. Rev. Earth Plan. Sci., vol.1, pp.241-268, 3 tbs.

5 RIEDEL,W.R. 1981
DSDP biostratigraphy in retrospect and prospect.
-In: Warme,J.E., Douglas,R.G. & Winterer,E.L.: The Deep Sea Drilling Project: a decade of progress; S.E.P.M. Spec. Publ. no.32, pp.253-315, 5 figs., 1 tb.

6 RIZZI,A. 1979 TECHN.
Osservazioni al microscopio elettronico a scansione (S.E.M.) : metodi di studio e tecniche di preparazione.
-Riv. Ital. Paleont., vol.85(1), pp.267-276, pls.17,18

7 SIESSER,W.G. 1981
Christian Gottfried Ehrenberg: founder of Micropaleontology.
-Centauros, vol.25, pp.166-188, 3 figs.

8 SOUTHAM,J.R. & HAY,W.W. 1975
A dynamic model of biogeneous pelagic sedimentation.
-9th Int. Congr. Sed., (Nice, France), pp.177-187, 3 figs.

9 SOUTHAM,J.R., HAY,W.W. & WORSLEY,T.R. 1975 strat. TECHN.
Quantitative formulation of reliability in stratigraphic correlation.
-Science, vol.188, pp.357-359, 1 fig., 2 tbs.

10 THRONDSEN,J. 1979
Light microscopy versus electron microscopy in systematic and taxonomic identification of unicellular algae.
-Acta Bot. Fennica, vol.110, pp.38-40.

B96

Actinozygus fragilis ROOD & BARNARD 1972; p.334, pl.2, fig. 9; England, L.Oxfordian. A157-4

Anthosphaera meteora MÜLLER 1972; pp.92,93, pl.4, fig.9; Ionian Sea (Mediterr.), Recent. A155-1

Astrionis WILCOXON 1972; p.430. Type species: Astrionis segmentis WILCOXON 1972. A159-3

Astrionis segmentis WILCOXON 1972; p.430, pl.11, fig.2; Atlantic (DSDP Site 105), L.Albian. Type species of Astrionis. A159-3

Bidiscus bifrons BLACK 1972; pp.24,25, pl.1, fig.2; England, Albian (L.Gault). A143-1

Bidiscus bramlettei BLACK 1972; p.25, pl.1, fig.3; England, Albian (U. Gault). A143-1

Bidiscus canthus WILCOXON 1972; pp.430,431, pl.6, fig.5; Atlantic (DSDP Site 105), Hauterivian . A159-3

Bidiscus hintonensis BLACK 1972; pp.25,26, pl.1, fig.6; England, L. Cenomanian. A143-1

Bipodorhabdus brooksii (BUKRY 1969) CRUX 1982; p.114, (ex Amphizygus). A146-3
Invalid ICBN Art. 33.2 *C-5

Biscutum concavum HUH 1972; In: Huh,J.M. & Smith,C.I., p.21, pl.2, fig.9; Kansas (U.S.A.), Turonian. A150-10

Braarudosphaera cheloma BYBELL & GARTNER 1972; p.324, pl.1, figs.5,6; Alabama (U.S.A.), Eocene. A144-9

Braarudosphaera irregularis BYBELL & GARTNER 1972; p.324, pl.1, figs.3,4; Alabama (U.S.A.), Eocene. A144-9

Braarudosphaera obtusa (STRADNER 1963) LAUER 1972; In: Grün,W., Kittler,G. et al., p.170, (ex Micrantholithus). A149-1

Braarudosphaera orthia BYBELL & GARTNER 1972; p.324, pl.1, figs.7,8,11,12; Alabama (U.S.A.), Eocene. A144-9

Broinsonia dempta FORCHHEIMER 1972; p.24, pl.2, fig.6; Sweden, Cenomanian. A147-6 *C-3

Broinsonia lacunosa FORCHHEIMER 1972; pp.25,26, pl.2, fig.1; Sweden, Aptian. A147-6 *C-3

Calyptrolithina HEIMDAL 1982; pp.53,54. Type species: Zygosphaera divergens HALLDAL & MARKALI 1955. A149-9

Calyptrolithina divergens (HALLDAL & MARKALI 1955) HEIMDAL 1982; p.54. (ex Zygosphaera). Type species of Calyptrolithina . A149,9

B97

Calyptrolithina divergens (HALLDAL & MARKALI 1955) HEIMDAL 1982 f. tuberosa (HEIMDAL 1980) HEIMDAL 1982; p.54 (ex Zygosphaera divergens f. tuberosa). A149-9

Chiastozygus octiformis KÖTHE 1981; pp.20,21, pl.2, fig.2; Germany, U.Hauterivian. A151-7

Chiastozygus tripes KÖTHE 1981; p.22, pl.3, fig.5; Germany, U.Hauterivian. A151-7

Cleistorhabdus BLACK 1972; p.36. Type species: Cleistorhabdus williamsii BLACK 1972. A143-1

Cleistorhabdus williamsii BLACK 1972; p.36, pl.14, fig.1; England, Albian (U.Gault). Type species of Cleistorhabdus. A143-1

Coccolithus gelidus GEITZENAUER 1972; In: Geitzenauer,K.R. & Huddlestun,P., p.407, pl.1, fig.5; S. Pacific, U.Pliocene A148-2

Corollithion acutum THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.438, pl.2, figs.1-6; Atlantic N (DSDP Site 136), U.Aptian. A157-5

Corollithion geometricum (GORKA 1957) HOFFMANN 1972; pp.50,51. (ex Discolithus). Combination had already been introduced by MANIVIT 1971. A150-3

Crepidolithus burwellensis BLACK 1972; p.29, pl.3, fig.1; England, Albian (U.Gault). A143-1

Cretarhabdella spectabilis BLACK 1972; pp.47,48, pl.16, fig.1; England, Albian (L.Gault). A143-1

Cretarhabdus actinosus (STOVER 1966) FORCHHEIMER 1972; p.49 (ex Coccolithus). A147-6 *C-6

Cretarhabdus biseriatus FORCHHEIMER 1972; p.50, pl.19, fig.5; Sweden, Albian. A147-6 *C-3

Cretarhabdus octoperforatus FORCHHEIMER 1972; pp.51,52, pl.20, fig.1; Sweden, Albian. A147-6 *C-3

Cretarhabdus tulbingensis LAUER 1972; In: Grün,W., Kittler, G. et al., p.158, pl.24, fig.10; Austria, Aptian - Albian. A149-1

Crucidiscus LAUER 1972; In: Grün,W., Kittler,G. et al., p.156. Type species: Crucidiscus andrusovi LAUER 1972. A149-1

Crucidiscus andrusovi LAUER 1972; In: Grün,W., Kittler,G. et al., p.156, pl.25, fig.1; Austria, Aptian - Albian. Type species of Crucidiscus. A149-1

Cruciellipsis chiastia (WORSLEY 1971) THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.437 (ex Helenea). Invalid ICBN Art.33.2. A157-5

B98

Cruciplacolithus cuvillieri (MANIVIT 1966) WILCOXON 1972; p.431 (ex Coccolithus). A159-3

Cruciplacolithus neohelis (McINTYRE & BE 1967) REINHARDT 1972; p.89 (ex Coccolithus). A157-2

Cruciplacolithus tenuiforatus CLOCCHIATTI & JERCOVIC 1972; pp.2-5, pl.1, fig.1; Algeria, U.Miocene. A146-1

Cyclicargolithus hesslandii (HAQ 1966) GHETA 1982; p.93 (ex Ericsonia). A148-4

Cyclicargolithus hillae (BUKRY & PERCIVAL 1971) GHETA 1982; p.93 (ex Reticulofenestra). A148-4

Cyclococcolithina floridana (ROTH & HAY 1967) ROTH & THIERSTEIN 1972; p.436 (ex Coccolithus). A157-5

Cyclococcolithus clockiradialis HUH 1972; In: Huh,J.M. & Smith,C.I., p.21, pl.2, fig.5; Kansas (U.S.A.), Turonian. A150-10

Diadorhombus horrelli ROOD & BARNARD 1972; pp.337,338, pl.2, fig.12; England, Callovian. A157-4

Diadorhombus octocostata ROOD & BARNARD 1972; p.337, pl.2, fig.11; England, Callovian. A157-4

Diadozygus escovillensis ROOD & BARNARD 1972; p.335, pl.2, fig.4; France, Callovian. A157-4

Diadozygus langii ROOD & BARNARD 1972; p.334, pl.2, fig.1; England, Liassic. A157-4

Dictyococcites scissurus (HAY, MOHLER & WADE 1966) BOMBITA et al. 1975; p.167 (ex Reticulofenestra). A143-6
Invalid ICBN Art. 33.2.

Discoaster anconitanus CATI & BORSETTI 1972; nom. nov. pro Discoaster stradneri CATI & BORSETTI 1970 non MARTINI 1961; p.373. A145-2

Discoaster asteriscus FURRAZOLA & ITURRALDE 1972; In: Furrazola - Bermudezi,G. & Kreisel,K., p.29, pl.2, fig.1; Cuba, L.Eocene. A147-7

Discoaster? atlanticus WILCOXON 1972; p.431, pl.6, fig.3; Atlantic (DSDP Site 105), Barremian. A159-3

Discoaster borroi FURRAZOLA & KREISEL 1972; pp.30,31, pl.2, fig.4; Cuba, L.Eocene. A147-7

Discoaster circularis FURRAZOLA & KREISEL 1972; p.31, pl.1, fig.6; Cuba, L.Eocene. A147-7

B99

Flabellites oblonga (BUKRY 1969) CRUX 1982; p.110 (ex Watznaueria). Invalid ICBN Art. 33.2.	A146-3 *C-5
Gartnerago costatum (GARTNER 1968) FORCHHEIMER 1972; pp.27, 28 (ex Arkhangelskiella). Combination had already been introduced by BUKRY 1969.	A147-6
Gartnerago diversum THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., pp.436-437, pl.15, figs.9,11-15; Atlantic C.(DSDP Site 144), Santonian / Coniacian.	A157-5
Gartnerago obliquum (STRADNER 1963) FORCHHEIMER 1972; p.28 (ex Arkhangelskiella). Combination had already been introduced by REINHARDT 1970.	A147-6
Gartnerago porolatum (BUKRY 1969) FORCHHEIMER 1972; pp.28,29 (ex Gartnerago costatum ssp.).	A147-6
Gartnerago striatum (STRADNER 1963) FORCHHEIMER 1972; p.29 (ex Arkhangelskiella).	A147-6
Gephyrocapsa huxleyi (LOHMANN 1902) REINHARDT 1972; p.89 (ex Pontosphaera).	A157-2
Glaukolithus elegans (GARTNER 1968) THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.437 (ex Zygodiscus).	A157-5
Grantarhabdus bukryi BLACK 1972; p.43, pl.11, fig.1; England, Albian (U. Gault).	A143-1
Grantarhabdus punctatus BLACK 1972; p.44, pl.11, fig.7; England, Albian (L.Gault).	A143-1
Grantarhabdus unicornis (STOVER 1966) BLACK 1972; p.44 (ex Cretarhabdus).	A143-1
Hayesites bulbus THIERSTEIN 1972; In: Roth,P.H. & Thierstein ,H., p.438, pl.2, figs.20-23; Atlantic N. (DSDP Site 136) U.Aptian.	A157-5
Helicolithus bifarius (BUKRY 1969) CRUX 1982; p.116 (ex Chiastozygus). Invalid ICBN Art. 33.2.	A146-3 *C-5
Helicolithus stillatus FORCHHEIMER 1972; p.48, pl.11, fig.3; Sweden, Hauterivian.	A147-6 *C-3
Helicopontosphaera hyalina (GAARDER 1970) MÜLLER 1972; p.91 (ex Helicosphaera).	A155-1 *C-7
Helicopontosphaera obliqua (BRAMLETTE & WILCOXON 1967) ROTH & THIERSTEIN 1972; p.436 (ex Helicosphaera).	A157-5 *C-8
Helicosphaera transylvanica GHETA 1982; pp.123-124, pl.1, figs.8-10; Romania, L.Miocene.	A148-5

B100 Heliorthus litterarius (GORKA 1957) BYSTRICKA & GERTHOFFEROVA 1972; p.170 (ex Discolithus). A145-1

Hemipodorhabdus biforatus BLACK 1972; p.37, pl.10, fig.6; England, Albian (U.Gault). A143-1

Heteromarginatus bugensis (GORKA 1963) CRUX 1982; p.118 (ex Discolithus). A146-3
Invalid ICBN Art.33.2. *C-5

Kamptnerius pertusus FORCHHEIMER 1972; p.30, pl.5, figs.1,2; Sweden, Albian. A147-6 *C-3

Lithastrinus orbiculatus (FORCHHEIMER 1972) CRUX 1982; p.124 (ex Polycyclolithus). A146-3
Invalid ICBN Art.33.2. *C-5

Lithastrinus planus (STOVER 1966) CRUX 1982; p.124 (ex Radiolithus). A146-3
Invalid ICBN Art. 33.2.
Combination had already been introduced by LYUL'EVA 1967.

Lithastrinus septenarius FORCHHEIMER 1972; pp.53,54, pl.24, fig.1; Sweden, Aptian. A147-6 *C-3

Lithraphidites alatus THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.438, pl.3, figs.1-4; Atlantic C.(DSDP Site 137), Cenomanian. A157-5

Lucianorhabdus arcuatus FORCHHEIMER 1972; pp.69,70, pl.10, fig.5; Sweden, Albian. A147-6 *C-3

Lucianorhabdus quadrifidus FORCHHEIMER 1972; pp.70,71, pl.10 fig.3: Sweden, Albian. A147-6 *C-3

Margolatus FORCHHEIMER 1972; p.35. Type species: Margolatus manivitae FORCHHEIMER 1972. A147-6

Margolatus manivitae FORCHHEIMER 1972; pp.35,36, pl.14, fig.6; Sweden, Hauterivian. Type species of Margolatus. A147-6 *C-3

Markalius sulcatus FORCHHEIMER 1972; pp.36,37, pl.8, fig.5; Sweden, Barremian. A147-6 *C-3

Marthasterites duplex FORCHHEIMER 1972; p.71, pl.8, fig.1; Sweden, Albian. A147-6 *C-3

Micrantholithus altus BYBELL & GARTNER 1972; p.325, pl.2, figs.1-2; Alabama (U.S.A.), Eocene. A144-9

Micrantholithus silesiensis MARTINI 1981; p.48, pl.4, figs. 9,10; Poland, U.Eocene. A154-1

Microstaurus pusillus BLACK 1972; p.46, pl.15, fig.1; England, Albian (U.Gault). A143-1

B101

Micula cubiformis FORCHHEIMER 1972; pp.54,55, pl.25, fig.5; Sweden, Aptian.	A147-6 *C-3
Neocrepidolithus cruciatus (PERCH-NIELSEN 1979) PERCH-NIELSEN 1981; p.36 (ex Crepidolithus).	A156-1
Octocyclus BLACK 1972; p.38. Type species: Octocyclus magnus BLACK 1972.	A143-1
Octocyclus magnus BLACK 1972; p.38, pl.8, fig.5; England, Albian (U.Gault). Type species of Octocyclus.	A143-1
Oolithotus fragilis (LOHMANN 1912) MARTINI & MÜLLER 1972; p.67 (ex Coccolithophora).	A154-3 *C-9
Oolithotus fragilis (LOHMANN 1912) REINHARDT 1972; p.89 (ex Coccolithophora).	A157-2 *C-9
Paleococcolithus GARTNER & GENTILE 1972; p.404. Type species : Paleococcolithus missouriensis GARTNER & GENTILE 1972.	A147-9
Paleococcolithus missouriensis GARTNER & GENTILE 1972; p.404 pl.1, fig.2, Missouri (U.S.A.), Carboniferous (Pennsylv.).	A147-9
Parhabdolithus boletiformis BLACK 1972; pp.29,30, pl.4, fig.2; England, Albian (L.Gault).	A143-1
Parhabdolithus infinitus (WORSLEY 1971) THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.437 (ex Mitosia).	A157-5
Parhabdolithus judithae BLACK 1972; pp.30,31, pl.4, fig.4; England, Albian (U.Gault).	A143-1
Parhabdolithus plebeius (PERCH-NIELSEN 1968) CRUX 1982; p.124 (ex Rhagodiscus). Invalid ICBN Art. 33.2.	A146-3 *C-5
Parhabdolithus reniformis (PERCH-NIELSEN 1973) CRUX 1982; p.124 (ex Rhagodiscus). Invalid ICBN Art. 33.2.	A146-3 *C-5
Pemma balium BYBELL & GARTNER 1972; p.328, pl.4, figs.7,8; Alabama (U.S.A.), Eocene.	A144-9
Pemma serratum (CHANG 1969) BYBELL & GARTNER 1972; p.330 (ex Micrantholithus).	A144-9
Pemma stradneri (CHANG 1969) BYBELL & GARTNER 1972; pp.330, 332 (ex Micrantholithus). Combination had already been introduced by PERCH-NIELSEN 1971.	A144-9
Pentaster BYBELL & GARTNER 1972; p.332. Type species: Pentaster lisboensis BYBELL & GARTNER 1972.	A144-9

B102	Pentaster lisboensis BYBELL & GARTNER 1972; p.332, pl.4, figs.10-14; Alabama (U.S.A.), Eocene. Type species of Pentaster.	A144-9
	Periphyllophora bijugata (DEFLANDRE 1954) REINHARDT 1972; p.89 (ex Zygolithus).	A157-2
	Podorhabdus decorus (DEFLANDRE 1954) THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., pp.437, 438 (ex Rhabdolithus).	A157-5
	Podorhabdus fusiformis BLACK 1972; pp.34,35, pl.7, fig.3; England, L.Cenomanian.	A143-1
	Podorhabdus gracilis BLACK 1972; p.35, pl.13, fig.4; England, Albian (U.Gault).	A143-1
	Podorhabdus octinarius WILCOXON 1972; p.431, pl.3, fig.8; Atlantic (DSDP Site 105), Oxfordian.	A159-3
	Polycyclolithaceae FORCHHEIMER 1972 (family); p.53.	A147-6
	Polycyclolithus floralis (STRADNER 1962) FORCHHEIMER 1972; p.57 (ex Lithastrinus).	A147-6
	Polycyclolithus orbiculatus FORCHHEIMER 1972; pp.57,58, pl.27, fig.5; Sweden, Albian.	A147-6 *C-3
	Polypodorhabdus hansmanii (BUKRY 1969) BLACK 1972; pp.42,43 (ex Cretarhabdus crenulatus ssp.).	A143-1
	Pontosphaera anisotrema (KAMPTNER 1955) VAROL 1982; p.253, (ex Coccolithites). Combination had already been introduced by BACKMAN, 1980.	A158-6
	Pontosphaera callosa (MARTINI 1969) VAROL 1982; p.253 (ex Discolithina).	A158-6
	Pontosphaera distincta (BRAMLETTE & SULLIVAN 1961) ROTH & THIERSTEIN 1972; p.436 (ex Discolithus).	A157-5 *C-10
	Pontosphaera ribosa (KAMPTNER 1967) MARTINI & MÜLLER 1972; p.68 (ex Discolithus).	A154-3
	Pontosphaera rimosa (BRAMLETTE & SULLIVAN 1961) ROTH & THIERSTEIN 1972; p.436 (ex Discolithus).	A157-5 *C-11
	Reinhardtites fenestratus (WORSLEY 1971) THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.437 (ex Arkhangelskiella).	A157-5
	Repagulum FORCHHEIMER 1972; p.38. Type species: Discolithus parvidentatus DEFLANDRE & FERT 1954.	A147-6
	Repagulum parvidentatum (DEFLANDRE & FERT 1954) FORCHHEIMER 1972; pp.38,39 (ex Discolithus). Type species of Repagulum.	A147-6

B103 Retecapsoideae BLACK 1972 (subfamily); p.39. A143-1

Reticulofenestra abisecta (MÜLLER 1971) ROTH & THIERSTEIN 1972; p.436 (ex Coccolithus). A157-5

Reticulofenestra francofurtana BEST & MÜLLER 1972; pp.107, 108, pl.1, fig.1; Germany, L.Miocene. A142-11

Rucinolithus irregularis THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.438, pl.2, figs.10-14; Atlantic N.(DSDP Site 136), U.Aptian. A157-5

Sphaerocalyptra gracillima (KAMPTNER 1941) THRONDSEN 1972; p.54 (ex Calyptrosphaera). A158-5
Invalid ICBN Art. 33.2.

Staurolithites quadriarcullus (NOEL 1965) WILCOXON 1972; p.431 (ex Discolithus). A159-3

Stephanolithion hexum ROOD & BARNARD 1972; p.329, pl.1, fig.3; France, Callovian. A157-4

Stephanolithion speciosum DEFLANDRE 1954 var. octum ROOD & BARNARD 1972; p.330, pl.1, fig.2; France, Callovian. A157-4

Stradnerlithus minutus (ROOD, HAY & BARNARD 1971) HAMILTON 1982; p.34 (ex Diadorhombus). A149-2
Invalid ICBN Art. 33.2. *C-5

Tegumentum THIERSTEIN 1972; In: Roth,P.H. & Thierstein,H., p.437. Type species: Tegumentum stradneri THIERSTEIN 1972. A157-5

Tegumentum stradneri THIERSTEIN 1972; In: Roth, P.H. & Thierstein,H., p.437, pl.1, fig.7; Atlantic C.(DSDP Site 137), Cenomanian. Type species of Tegumentum. A157-5

Thoracosphaera sinensis ZHONG 1982; pp.198,200, pl.2, fig.7; Hainan (S.China), U.Miocene. A159-9

Thoracosphaerales TANGEN 1982 (order); p.210. A158-1

Tranolithus skoglundii FORCHHEIMER 1972; pp.61,62, pl.17, fig.5; Sweden, Hauterivian. A147-6 *C-3

Tremalithus umbilicus (LEVIN 1965) REINHARDT 1972; p.89 (ex Coccolithus). A157-2

Tretosestrum WILCOXON 1972; p.430. Type species: Tretosestrum perforatus WILCOXON 1972. A159-3

Tretosestrum perforatus WILCOXON 1972; p.430, pl.11, fig.6; Atlantic (DSDP Site 105), Albian. Type species of Tretosestrum. A159-3

Trochoaster martinii BEST & MÜLLER 1972; p.108, pl.2, fig.8; Germany, L.Miocene. A142-11

B104 Umbilicosphaera lordii VAROL 1982; pp.248,251, fig.4(5); Turkey, Pliocene (NN 15). A158-6

Umbilicosphaera petaliformis VAROL 1982; p.251, fig.4(7); Turkey, Pliocene (NN 15). A158-6

Umbilicosphaera rotula (KAMPTNER 1948) VAROL 1982; p.251 (ex Tremalithus). A158-6

Vagalapilla alata FORCHHEIMER 1972; pp.62,63, pl.22, fig.5; Sweden, Aptian. A147-6 *C-3

Vagalapilla coroniformis FORCHHEIMER 1972; pp.63,64, pl.21, fig.4; Sweden, Hauterivian. A147-6 *C-3

Vagalapilla partita FORCHHEIMER 1972; pp.64,65, pl.21, fig.1 Sweden, Albian. A147-6 *C-3

Vagalapilla solida FORCHHEIMER 1972; p.66, pl.23, fig.1; Sweden, Albian. A147-6 *C-3

Vekshinella bochotnicae (GORKA 1957) HANZLIKOVA et al. 1982; pp.143,144 (ex Discolithus). A149-4
Combination had already been introduced by VERBEEK 1977.

Vekshinella matalosa (STOVER 1966) HANZLIKOVA et al. 1982; pp.145,149 (ex Coccolithus). A149-4

Zygodiscus bussonii (NOEL 1957) WILCOXON 1972; p.431 (ex Zygolithus) A159-3
Combination had already been introduced by MANIVIT 1971.

Zygodiscus inclinatus FORCHHEIMER 1972; pp.68,69, pl.3, fig.6; Sweden, Cenomanian. A147-6 *C-3

Zygodiscus plaxis WILCOXON 1972; p.431, pl.8, fig.1; Atlantic(DSDP Site 105), Hauterivian / Valanginian. A159-3

Zygodiscus riegleri LAUER 1972; In: Grün,W., Kittler,G. et al., p.162, pl.27, fig.1; Austria, Campanian. A149-1

Zygodiscus salillum (NOEL 1965) WILCOXON 1972; p.431 (ex Discolithus). A159-3

Zygosphaera bannockii (BORSETTI & CATI 1976) HEIMDAL 1982; p.53 (ex Sphaerocalyptra). A149-9

Zygosphaera marsilii (BORSETTI & CATI 1976) HEIMDAL 1982; p.53 (ex Sphaerocalyptra). A149-9

Species names in alphabethical order

abisecta, Reticulofenestra
actinosus, Cretarhabdus
acutum, Corollithion
alata, Vagalapilla
alatus, Lithraphidites
altus, Micrantholithus
anconitanus, Discoaster
andrusovi, Crucidiscus
anisotrema, Pontosphaera
arcuatus, Lucianorhabdus
asteriscus, Discoaster
atlanticus, Discoaster?
balium, Pemma
bannockii, Zygosphaera
bifarius, Helicolithus *
biforatus, Hemipodorhabdus
bifrons, Bidiscus
bijugata, Periphyllophora
biseriatus, Cretarhabdus
bochotnicae, Vekshinella
boletiformis, Parhabdolithus
borroi, Discoaster
bramlettei, Bidiscus
brooksii, Bipodorhabdus*
bugensis, Heteromarginatus*
bukryi, Grantarhabdus
bulbus, Hayesites
burwellensis, Crepidolithus
bussonii, Zygodiscus
callosa, Pontosphaera
canthus, Bidiscus
cheloma, Braarudosphaera
chiastia, Cruciellipsis*
circularis, Discoaster
clockiradialis, Cyclococcolithus
concavum, Biscutum
coroniformis, Vagalapilla
costatum, Gartnerago
cruciatus, Neocrepidolithus
cubiformis, Micula
cuvillieri, Cruciplacolithus
decorus, Podorhabdus
dempta, Broinsonia
distincta, Pontosphaera
divergens, Calyptrolithina
divergens, f.tuberosa, Calyptrolithina
diversum, Gartnerago
duplex, Marthasterites
elegans, Glaukolithus
escovillensis, Diadozygus
fenestratus, Reinhardtites
floralis, Polycyclolithus
floridana, Cyclococcolithina
fragilis, Actinozygus
fragilis, Oolithotus
francofurtana, Reticulofenestra
fusiformis, Podorhabdus
gelidus, Coccolithus
geometricum, Corollithion
gracilis, Podorhabdus
gracillima, Sphaerocalyptra*
hansmanii, Polypodorhabdus
hesslandii, Cyclicargolithus
hexum, Stephanolithion
hillae, Cyclicargolithus
hintonensis, Bidiscus
horrelli, Diadorhombus
huxleyi, Gephyrocapsa
hyalina, Helicopontosphaera
inclinatus, Zygodiscus
infinitus, Parhabdolithus
irregularis, Braarudosphaera
irregularis, Rucinolithus
judithae, Parhabdolithus
lacunosa, Broinsonia
langii, Diadozygus
lisboensis, Pentaster
litterarius, Heliorthus
lordii, Umbilicosphaera
magnus, Octocyclus
manivitae, Margolatus
marsilii, Zygosphaera
martinii, Trochoaster
matalosa, Vekshinella
meteora, Anthosphaera
minutus, Stradnerlithus*
missouriensis, Paleococcolithus
neohelis, Cruciplacolithus
obliqua, Helicopontosphaera
obliquum, Gartnerago
oblonga, Flabellites*
obtusa, Braarudosphaera
octiformis, Chiastozygus
octinarius, Podorhabdus
octocostata, Diadorhombus
octoperforatus, Cretarhabdus
orbiculatus, Lithastrinus*
orbiculatus, Polycyclolithus
orthia, Braarudosphaera
partita, Vagalapilla
parvidentatum, Repagulum
perforatus, Tretosestrum
pertusus, Kamptnerius
petaliformis, Umbilicosphaera
planus, Lithastrinus
plaxis, Zygodiscus
plebeius, Parhabdolithus*
porolatum, Gartnerago
punctatus, Grantarhabdus

---

pusillus, Microstaurus
quadriarcullus, Staurolithites
quadrifidus, Lucianorhabdus
reniformis, Parhabdolithus*
ribosa, Pontosphaera
riegleri, Zygodiscus
rimosa, Pontosphaera
rotula, Umbilicosphaera
salillum, Zygodiscus
scissurus, Dictyococcites*
segmentis, Astrionis
septenarius, Lithastrinus
serratum, Pemma
silesiensis, Micrantholithus
sinensis, Thoracosphaera
skoglundii, Tranolithus
solida, Vagalapilla
speciosum var. octum, Stephanolithion
spectabilis, Cretarhabdella
stillatus, Helicolithus
stradneri, Pemma
stradneri, Tegumentum
striatum, Gartnerago
sulcatus, Markalius
tenuiforatus, Cruciplacolithus
transylvanica, Helicosphaera
tripes, Chiastozygus
tulbingensis, Cretarhabdus
umbilicus, Tremalithus
unicornis, Grantarhabdus
williamsii, Cleistorhabdus

New genus names

Astrionis
Calyptrolithina
Cleistorhabdus
Crucidiscus
Margolatus
Octocyclus
Paleococcolithus
Pentaster
Repagulum
Tegumentum
Tretosestrum

New super-generic names

Polycyclolithaceae, Retecapsoideae, Thoracosphaerales

* : invalid

+ +

COMMENTS

1 - A145-3 : The date on the reprint read 1980, which was corrected with ink into 1981. However, on the back the printing date reads 1982.

2 - A147-4 : Several of the chapters of this thesis have been published separately: see A54-6, A121-1 and A147-5.

3 - A147-6 : One must be aware that the age determinations of the specimens are not reliable: the presence of Micula staurophora amongst others indicates that at least part of the assemblage must be younger than Hauterivian - Cenomanian.

4 - A152-9 : See for the individual chapters: Crux, Crux & Lord, Hamilton, Hamilton & Hojjatzadeh, Lord & Hamilton, Lord & Taylor, Taylor, Taylor & Hamilton.
See also the review on p.97.

5 - A146-3, B96, B99, B100, B101; A149-2, B103 : These combinations are validated in the publication on pp.98 - 101.

6 - A147-6, B97 : This combination appeared in a previous issue (A134-3, B86) as introduced by RISATTI 1973, which is incorrect.

7 - A155-1, B99 : This combination appeared in a previous issue (A123-3, B89) as introduced by HAQ 1973, which is incorrect.

8 - A157-5, B99 : This combination appeared in a previous issue (A123-3, B89) as introduced by HAQ 1973, which is incorrect.

9 - A154-3, B101; B157-2, B101 : Both authors published this combination in 1973. The publication of Martini & Müller is from October, but in Reinhardt's publication no month is mentioned. The odds are, that Reinhardt's publication was the earlier, but to make sure, I shall write to the publisher, and inform you if it was later.

This combination appeared in a previous issue (A5-8, B16) as introduced by OKADA & McINTYRE 1977, which is incorrect.

10 A157-5, B102 : This combination appeared in a previous issue (A116-6, B91) as introduced by BURNS 1973, which is incorrect. An earlier introduction by RAMSAY 1971, was invalid.

11 A157-5, B102 : see vol.3(2), p.51.

* * *

INFORMATION 1.

In a reaction to the review I have written of his book (see next page), Dr. A.R. Lord informs me that the price of the book, if purchased from Ellis Horwood Ltd. (Market Cross House, Cooper Street, Chichester, West Sussex PO 19 1EB, England) is £25 !.
But if you join the British Micropalaeontological Society then there is a members' discount of 40%, and the book comes down to £15. Membership of the B.M.S. is £3 inside Europe, for which you receive the new 'Journal of Micropalaeontology' as well as discount on publications.

Applications for the B.M.S. can be sent to:
Dr. R.H. Bate
Treasurer, British Micropalaeontological Society
Department of Palaeontology
British Museum (Natural History)
Cromwell Road
LONDON SW7 5BD , Great Britain.

* * *

INFORMATION 2.

Thierry Moorkens sent the following note, referring to his publication: CEPEK,P. & MOORKENS,T., 1979 (A32-5);

In the 'post - *Nephrolithus frequens*' interval, *Micula murus* was found, including a long branched variety of that species which shows a good resemblance to *M. prinsii* of Perch-Nielsen, suggesting that the Maastrichtian stratotype includes at its top the strata just preceeding the Cretaceous terminal event.

REVIEW

LORD, A.R. (ed.): A stratigraphical index of calcareous nannofossils.
- British Micropalaeontological Society Series.
Published by Ellis Horwood Ltd.
192 pp., 27 pls. £30,-.

Contents:

Introduction - A.R. Lord & R.J. Taylor
1- Techniques - R.J. Taylor & G.B. Hamilton
2- Palaeozoic calcareous nannofossils - A.R. Lord & G.B. Hamilton
3- Triassic and Jurassic calcareous nannofossils - G.B. Hamilton
4- Lower Cretaceous (Ryazanian to Albian) calcareous nannofossils - R.J. Taylor
5- Upper Cretaceous (Cenomanian to Campanian) calcareous nannofossils - J.A. Crux
6- Cenozoic calcareous nannofossils - a reconnaissance - G.B. Hamilton & M. Hojjatzadeh
7- Discussion - J.A. Crux & A.R. Lord
Reference List
Taxonomic index
General index

The title of this book strongly suggests that it contains an introduction to a worldwide nannofossil stratigraphy. After glancing through its 192 pages one may soon feel a little disappointed, because instead of such a bread scope, the book deals almost exclusively with British stratigraphy, based on British material. Combined with the high price for a relatively low number of pages, this may make the book less attractive for many colleagues.

Yet, a closer look gives a different impression. Extensive reference to and discussion of work of authors outside Britain, compensate partly for the geographically restricted character of the book. This makes it attractive for anybody working with Mesozoic nannoplankton in particular, less attention being paid to the Cenozoic. The plates are of the same good quality we already know of the College in London. They comprise 380 electron micrographs and 240 light micrographs, which all together form a good illustration of most relevant species. The tables are clear and easy to read, as is the case with most of the text.

There are some minor shortcomings as well. Systematics have been reduced to a minimum, as this is outside the scope of the book. The result is however, that all of the new combinations that are introduced, are invalid. The two indexes in the back are very handy, but a taxonomic index is easier to apply if also the species names are listed in alphabethical order.

Concluding, apart from some minor points, it is a thorough piece of work, put together in a smart looking volume. It seems indispensable for people working on British material, but also of great value for people outside Britain. Unfortunately, the high price will probably prove too high a barrier for most individuals.

S.v.H.

Tortolithus gen. nov. Crux and new combinations of Mesozoic calcareous nannofossil from England.

J.A. Crux, G.B. Hamilton, A.R. Lord and R.J. Taylor.

The format of the recently published 'Stratigraphical Index of Calcareous Nannofossils' (Lord (Ed.) 1982) did not permit the formal inclusion of new taxonomy. We therefore take this early opportunity to validate certain new combinations and to include the description of the new genus Tortolithus Crux.

Bipodorhabdus brooksii (Bukry 1969) comb. nov. Crux

1969 Amphizygus brooksii brooksii Bukry, p.47, pl.25, figs.1-3.
1970 Bipodorhabdus tesselatus Noël, pp.50-52, pl.13, figs.7,8; pl.14, figs.1-4; pl.15, fig.1; Text fig.10.
1971 Reinhardtites brooksii (Bukry); Reinhardt, p.21, Text figs.5,6.
1982 Bipodorhabdus brooksii (Bukry); Crux, p.114, pl.5.2, fig.10.

Flabellites oblonga (Bukry 1969) comb. nov. Crux

1969 Watznaueria oblonga Bukry, p.33, pl.11, figs.8-10.
1982 Flabellites oblonga (Bukry); Crux, p.110, pl.5.1, fig.11; pl.5.8, fig.1.

Helicolithus bifarius (Bukry 1969) comb. nov. Crux

1969 Chiastozygus bifarius Bukry, p.49, pl.26, figs.10-12.
1970 Eiffellithus anceps (Gorka); Hoffmann, p.850, pl.1, figs.3,4.
1982 Helicolithus bifarius (Bukry); Crux, p.116, pl.5.3, figs.6,10.

Heteromarginatus bugensis (Gorka 1963) comb. nov. Crux

1963 Discolithus bugensis Gorka, p.12, pl.2, figs.4,5.
1982 Heteromarginatus bugensis (Gorka); Crux, p.118, pl.5.4, fig.20; pl.5.9, fig.4.

Parhabdolithus plebeius (Perch-Nielsen 1968) comb. nov. Crux

1968 Rhagodiscus plebeius Perch-Nielsen, p.44-45, pl.7, figs.2-6.
1968 Rhagodiscus bispiralis Perch-Nielsen, p.45-46, pl.7, fig.7.
1969 Parhabdolithus granulatus Stover; Bukry, p.53, pl.30, figs.4-7.
1976 Parhabdolithus melanoarachnion Hill, p.148, pl.10, figs.16-21.
1982 Parhabdolithus plebeius (Perch-Nielsen); Crux, p.124, pl.5.6, fig.6.

Parhabdolithus reniformis (Perch-Nielsen 1973) comb. nov. Crux

1973 Rhagodiscus reniformis Perch-Nielsen, p.323, pl.3, figs.2,4,6; pl.10, figs.45,46.
1976 Nephrolithus frequens Gorka emend Perch-Nielsen; Verbeek, p.145, pl.3, fig.6.
1982 Parhabdolithus reniformis (Perch-Nielsen); Crux, p.124, pl.5.6, fig.4.

Staurolithites coroniformis (Forchheimer 1972) comb. nov. Taylor

1972 Vagalapilla coroniformis Forchheimer, p.63, pl.XXI, figs.3-5.
1978 Staurolithites coroniformis (Forchheimer); Taylor, p.199.

Stradnerlithus minutus (Rood, Hay and Barnard 1971) comb. nov. Hamilton

1971 Diadorhombus minutus Rood, Hay and Barnard, p.258, pl.II, fig.6.
1982 Stradnerlithus minutus (Rood, Hay and Barnard); Hamilton, p.34, pl.3.2, fig.10.

Remarks: Original illustration of holotype shows a reversed image; illustration of Hamilton (1982) is correct.

Zygodiscus noelae (Rood, Hay and Barnard 1971) comb. nov. Taylor

1971 Zeugrhabdotus noeli Rood, Hay and Barnard, p.252-253, pl.1, fig.4.
1978 Zygodiscus noeli (Rood, Hay and Barnard); Taylor, p.200.
1982 Zygodiscus noeli (Rood, Hay and Barnard) Taylor 1978; Hamilton, p.32, pl.3.1, fig.11.
1982 Zygodiscus noeli (Rood, Hay and Barnard) Taylor 1978; Taylor, p.66, pl.4.4, figs.2,3.
1982 Zygodiscus noelae (Rood, Hay and Barnard) Taylor 1978; Crux, p.112, pl.5.1, fig.18.

Remarks: Original illustration of holotype shows a reversed image; illustration given by Hamilton (1982) is correct.

Genus Lithastrinus Stradner, 1962

Remarks: The genus Lithastrinus was erected by Stradner for a group of circular calcareous nannofossils with 6 to 11 wall-forming elements and a central diaphragm structure composed of the same number of calcite plates. He placed two species floralis and grilli in Lithastrinus. In 1966 Stover erected two further genera, Eprolithus and Radiolithus, and distinguished the former (which included L. floralis) from Lithastrinus by its possession of a conspicuous axial opening divided by a central plate. Radiolithus was distinguished from the two other genera by its U-shaped cross-section. Forchheimer (1968) described Polycyclolithus which included forms with a ring-like shape and few elements around a central hole. Finally, Black (1973, p.103) erected the genus Rhombogyrus which was diagnosed as "Eprolithaceae with a diaphragm of imbricating rhombohedral plates in a proximal position."

The genus Lithastrinus is used here to include all forms belonging to this group of species. Stover's separation of Eprolithus from Lithastrinus is thought to be unnecessary, as the two genera are linked by a continuous series of variations between the two extreme forms. Radiolithus is not used because the type species R. planus is thought to be closely related to members of the genus Lithastrinus, which do not have the U-shaped cross-section characteristic of the genus Radiolithus. Polycyclolithus is considered a junior synonym of Lithastrinus. Rhombogyrus is synonymous with Radiolithus; Black's distinction of the two genera based on the structure of the central diaphragm is not considered useful because the appearance of this structure is altered by differences in preservation.

Lithastrinus orbiculatus (Forchheimer 1972) comb. nov. Crux

1972 Polycyclolithus orbiculatus Forchheimer, pp.57-58, pl.27, figs.5-6.
1973 Eprolithus apertior Black, pp.100-101, pl.33, figs.7,9,10, Text figs. 48,49.
1973 Rhombogyrus stellatus Black, p.104, pl.32, figs.5-7.
1982 Lithastrinus orbiculatus (Forchheimer); Crux, p.124, pl.5.6, figs.18,19.

Genus Tortolithus gen. nov. Crux

Diagnosis: A coccolith with an outer rim of large imbricating elements; the central area has a median suture, aligned parallel with the long axis of the elliptical coccolith, and around the suture lie approximately the same number of elements as in the rim in an imbricate relationship.

Remarks: This genus is possibly ancestral to Tertiary genera and species; it has a similar construction to Discolithus phaseolus Black and Barnes, 1961. The latter differs in having more than one cycle of imbricating elements in its central area.

Type species: Tortolithus caistorensis sp. nov. Crux.

Tortolithus caistorensis sp. nov. Crux

Diagnosis: A species of Tortolithus with 12 to 20 elements in its outer rim.
Derivatio nomenis: from the type locality of Caistor St. Edmund.
Figured: Crux 1982, pl.5.4, fig.17.
Holotype: Negative No. UCL-1018-9.
Type level and locality: mucronata Zone, Campanian. Caistor St. Edmund, Norfolk.

Other species:

Tortolithus furlongii (Bukry) comb. nov. Crux

1969 Discolithina? furlongii Bukry, pp.45-46, pl.24, fig.1

Tortolithus hallii (Bukry) comb. nov. Crux

1969 Discolithina? hallii Bukry, p.46, pl.24, fig.2-4.

Tortolithus pagei (Bukry) comb. nov. Crux

1969 Discolithina? pagei Bukry, p.46, pl.24, figs.5-6.

References

BLACK,M.(1973): British Lower Cretaceous Coccoliths. 1 Gault Clay. Palaeontogr. Soc. (Monogr.) (2), 127, (Publ. No. 537).
BLACK,M. & BARNES,B.(1961): Coccoliths and Discoasters from the floor of the South Atlantic Ocean. J. r. micro. soc., 80, 137-147.
BUKRY,D.(1969): Upper Cretaceous Coccoliths from Texas and Europe. Paleont. contr. Univ. Kans., Art.51 (Protista 2), 1-79.
CRUX,J.A.(1982): Upper Cretaceous (Cenomanian-Campanian) calcareous nannofossils. in Lord,A.R. (Ed.). A Stratigraphical Index of Calcareous Nannofossils, 81-135. Ellis Horwood Ltd., Chichester.
FORCHHEIMER,S.(1972): Scanning electron microscope studies of Cretaceous coccoliths from the Köpingsberg Borehole No.1, S.E. Sweden. Sver. geol. Unders. Afh., Ser.C, no.668, Årsbok 65, No.14, 1-141.
GÓRKA,H.(1963): Coccolithophoridés, Dinoflagelles, Hystrichosphaeridés et Microfossiles Incertae sedis du Crétacé Supérieur du Pologne. Acta palaeont. pol., 8, 3-90.
HAMILTON,G.B.(1982): Triassic and Jurassic calcareous nannofossils. in Lord,A.R. (Ed.). A Stratigraphical Index of Calcareous Nannofossils, 17-39. Ellis Horwood Ltd., Chichester.
HILL,M.E.(1976): Lower Cretaceous Calcareous Nannofossils from Texas and Oklahoma. Palaeontographica, Abt.B, 156, 103-179.

HOFFMANN,N.(1970): Coccolithineen aus der Weissen Schreibkreide (Unter-Maestricht) von Jasmund auf Rügen. Geologie, *19*, 846-879.

NOEL,D.(1970): Coccolithes Crétacés: La Craie Campanienne du Bassin de Paris. *Ed. Cent. Natl. Rech. Sci. (Paris)*, 1-129.

PERCH-NIELSEN,K.(1968): Der Feinbau und die klassifikation der Coccolithen aus dem Maastrichtien von Dänemark. *Biol. Skr. Danske Vidensk. Selsk.* *16*, 1-96.

PERCH-NIELSEN,K.(1973): Neue Coccolithen aus dem Maastrichtien von Dänemark, Madagaskar und Ägypten. *Bull. geol. Soc. Denmark*, *22*, 306-333.

ROOD,A.P., HAY,W.W. & BARNARD,T.(1971): Electron Microscope Studies of Oxford Clay Coccoliths. *Eclogae Geologicae Helveticae*, *64*, 245-272.

REINHARDT,P.(1971): Synopsis der Gattungen und Arten der Mesozoischen Coccolithen und anderer kalkiger Nannofossilien (Teil III). *Freiberger Forschhft., Paläont.*, *C267*, 19-41.

STOVER,L.E.(1966): Cretaceous coccoliths and associated nannofossils from France and the Netherlands. *Micropaleontology*, *12*, 133-167.

TAYLOR,R.J.(1978): The distribution of calcareous nannofossils in the Speeton Clay (Lower Cretaceous) of Yorkshire. *Proc. Yorks. Geol. Soc.*, *42*, 195-209.

TAYLOR,R.J.(1982): Lower Cretaceous (Ryazanian to Albian) calcareous nannofossils. *in* Lord,A.R. (Ed.). *A Stratigraphical Index of Calcareous Nannofossils*, 40-80. Ellis Horwood Ltd., Chichester.

VERBEEK,J.W.(1976): Upper Cretaceous calcareous nannoplankton zonation in a composite section near El Kef, Tunisia. I and II. *Proc. Kon. Ned. Akad. van Weten.*, B. *79*, 129-148.

+ +

VALIDATION OF BLACKITES TROCHOS

by L. M. Bybell

It has been brought to my attention that the name *Blackites trochos* Bybell (1975, p.230, pl.6) is invalid because no holotype was designated. The specimen illustrated om Plate 6, Figure 3, is herewith designated the holotype for *Blackites trochos*.

Ref.

Bybell, L. M., 1975. Middle Eocene calcareous nannofossils at Little Stave Creek, Alabama. Tulane Studies in Geology and Paleontology, v. 11 (4), pp.177-252.

The Maurice Black Collection of Coccolith material in the Sedgwick Museum, Cambridge, England

by A W Medd

The death of Maurice Black in November 1973 tragically prevented the completion of his intention to monograph the coccoliths of the English Lower Cretaceous.

The first paper on this major task, based on twenty years of study on this material, appeared in 1972 with the publication of British Lower Cretaceous Coccoliths I Gault Clay, Part 1 in the Palaeontographical Society Monographs. Alas, even this volume was unfinished before his death. The final part (Part 3) was published posthumously and without the palaeontological and stratigraphical conclusions that he intended to include.

Volume II of these monographs would subsequently have appeared and would have covered the Speeton Clay of Yorkshire and the Sutterby Marl of Lincolnshire.

Those workers fortunate enough to use the published species of M Black marvel at the quality of the electron micrographs which he obtained. He published the preparation technique in Part 1 of the monograph (mentioned above), but what he omitted to mention was the time element given to the preparation of the samples. He had enormous patience, being prepared to wait for months and even years in order to obtain complete disaggregation of the coccolith-clay mixtures in aqueous suspension, without affecting the coccoliths themselves. It is improbable that such patience, and hence results, will be obtained in the future to the same extent.

The writer feels that it is of some importance to Mesozoic coccolith workers to comment on the state and availability of the M Black material. The M Black collection of coccolith samples, prepared suspensions, optical micrograph smear slides, electron micrographs and manuscript notes is in the Sedgwick Museum, Cambridge. There they have been curated under the direction of one of the Museum Curators, Dr. C.L. Forbes. M Black's widow, has given valuable assistance in its arrangement.

The Sedgwick Museum, Downing Street, Cambridge is one of the major geological collections in the United Kingdom. It is open to the public and its reserve collections are available for examination to serious students. For further information on any aspect of its collections, including the M Black collection of coccolith material, consult Dr. C.L. Forbes.

It should be noted that the Museum has fully documented this collection with data processing onto computer files. A series of catalogues are available for consultation. The primary index is a list of his sample localities. Secondary files of the electron micrographs (retaining the original numbers and prefixed with the letter P) and taxonomic data have also been created. Thus a search for any one of these variables will yield information on the others. In addition, the location in the Sedgwick Museum Collections of his electron micrographs are given. In summary, the

samples cited by Black in his publications are stored in the Museum; most (but not all) of the prepared suspensions are also present; the electron micrographs (in the form of glass photographic plates) are stored in locality order, as Black originally arranged them.

Finally it should be noted that the M Black Collection contains a large amount of coccolith material from elsewhere in the geological column, including many species from the Challenger 338 site in the South Atlantic.

BIBLIOGRAPHY

A complete list of the papers published by Black on Coccoliths is to be found in Black (1975, p. 129).

BLACK, M. 1975. British Lower Cretaceous Coccoliths. I. Gault Clay. Palaeontogr. Soc. (Monogr.): (3), 113-142, pl. 34.

HELICOSPHAERA MEDITERRANEA Müller,1981, AND ITS STRATIGRAPHICAL IMPORTANCE IN THE LOWER MIOCENE

M.Báldi-Beke,Hungarian Geological Institut,Népstadion ut 14,Budapest, Hungary

Helicosphaera mediterranea Müller,1981

1979 Helicopontosphaera cf.sellii Bukry & Bramlette -- Báldi-Beke & Nagymarosy,p.56.

1980 Helicopontosphaera cf.sellii Bukry & Bramlette -- Báldi-Beke,p.171, Pl.2:4,Pl.4:11,12,13,16,19,20.

1980 Helicopontosphaera cf.sellii Bukry & Bramlette -- Nagymarosy,p.235, Pl.4:1,Pl.5:3-6.

1981 Helicosphaera mediterranea n.sp. -- Müller,p.428,Pl.1:13,14.

1981 Helicosphaera crouchii n.sp. -- Bukry,p.462,Pl.4:13-16,Pl.5:1-4.

1981 Helicosphaera transylvanica n.sp. -- Gheta,Pl.1:1-10,manuscript

Recently,three new species of Lower Miocene Helicosphaera were described:

2.3.1981 : H.mediterranea

9.1981 : H.crouchii

?.198? : H.transylvanica (only manuscript available)

They are all characterised by two large opening separated by a bridge subparallel to the minor axis of the ellipse.The bridge is optically continuous with the proximal part of the central area.The two latter species are here regarded as junior synonyms of H.mediterranea.The form mentioned from Hungary as H.sp.cf.H.sellii by Báldi-Beke & Nagymarosy was checked by Bukry in 1977 and found to be identical with his later H.crouchii and thus now

H.mediterranea.

H.mediterranea is widely distributed,being recorded from the Lower Miocene of the Tethys (Greece,Corsica,DSDP Site 372) and the Paratethys areas (Romania,Hungary,Austria,Switzerland).Müller (1981) found it at the type locality of the Burdigalian (NN 2,very rare,and NN 3,more common) in the Aquitaine Basin and Bukry (1981) reported it from CN2/CN4 of the Pacific Coast of California,onshore and on the Continental Borderland aswell as at DSDP Site 469 (Leg 63).

The ranges given for H.mediterranea and its junior synonyms are shown in Figure 1.In the Carpathian Basin,its range goes considerably higher up than in the Mediterranean and the Pacific occurrences.The Carpathian Oligocene/ Miocene -- Paleogene/Neogene boundary was only defined on the basis of HOS (highest occurrence surface) and it would be useful to look out for some LOS (lowest occurrence surface) and take them into consideration,too.

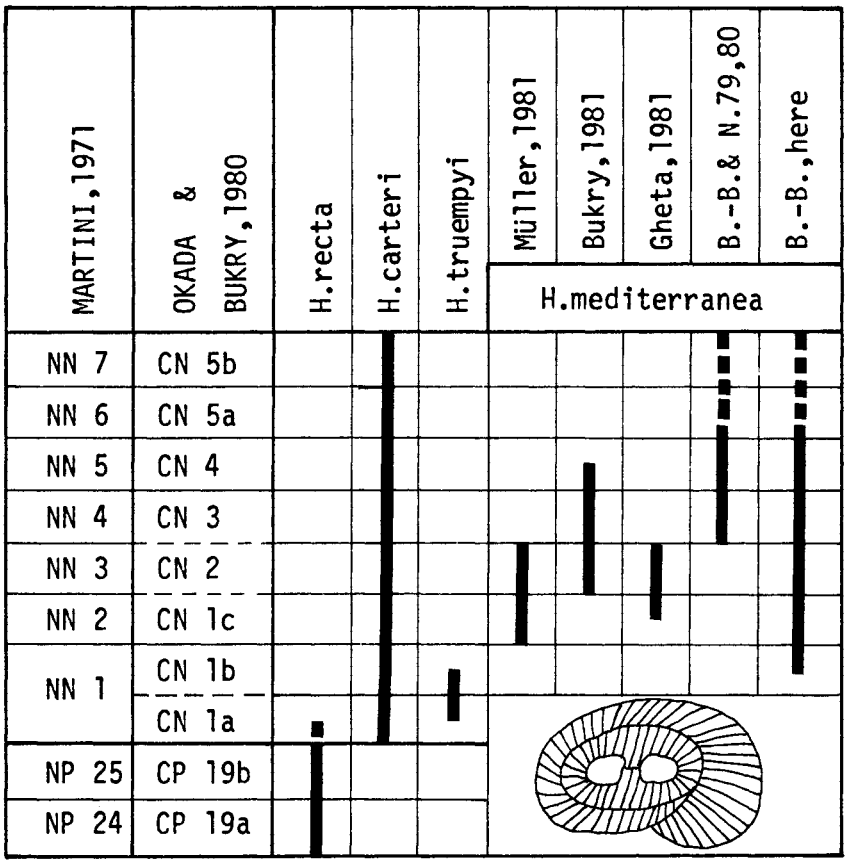


Fig.1 Distribution of some species of Helicosphaera near the Oligocene/ Miocene boundary

The LOS of H.carteri seems to be close to the NP 25/NN 1 boundary and the LOS of H.mediterranea a little later in NN 1.The LOS and the HOS of the seemingly shortlived H.trümpyi Biolzi & Perch-Nielsen (1982) also falls within the lower part of NN 1.

The presence or absence of the stratigraphically important forms is often controlled ecologically.The helicosphaerids are neither purely oceanic nor typical nearshore forms and this fact increases their usefulness.

References

Báldi-Beke,M.1980. A Börzsöny hegységi andezit fekvójében található üledékek nannoplanktonja.Földtani Közlöny 110/2:159-179.Hungarian with english abstr.

Báldi-Beke,M. & Nagymarosy,A. 1979. On the position of the Ottnangian and Karpatian regional stages in the Tertiary Nannoplankton Zonation. Ann. Géol.Pays Helléniques,Hors Série Fasc.1:51-60.

Biolzi,M. & Perch-Nielsen,K. 1982. Helicosphaera truempyi ,a new Early Miocene calcareous nannofossil.Eclogae geol.Helv.75/1:171-175.

Bukry,D. 1981. Pacific coast coccolith stratigraphy between Point Conception and Cabo Corrientes,Deep Sea Drilling Project Leg 63. Initial Rep.DSDP vol.63:445-471.

Gheta,N. 1981 (?) . A new species of the calcareous nannoplankton genus Helicosphaera Kamptner. Dari de Seama Inst.Geol.Geof.LXVII/3.Manuscript.

Martini,E. 1971. Standard Tertiary and Quaternary Calcareous Nannofoplankton Zonation. Proc.II Planktonic Conf.Rome,2:739-785.

Müller,C. 1981. Beschreibung neuer Helicosphaera-Arten aus dem Miozän und Revision biostratigraphischer Reichweiten einiger neogener Nannoplankton-Arten. Senck.Lethaea 3,3/6:427-435.

Nagymarosy,A. 1980. A magyarországi bádenien korrelációja nannoplankton alapján. Földtani Közlöny 110/2:206-245.Hungarian with english abstr.

Okada,H. & Bukry,D. 1980. Supplementary modification and introduction of code numbers to the low-latitude coccolith biostratigraphic zonation. Marine Micropal.5:321-325.

NEW MEMBERS

Dr. P.J. Bigg
Gearhart Geodata Services Ltd.
Howe Moss Drive
Kirkhill Industrial Estate
Dyce, Aberdeen AB2 OGL
U.K.

Lilian Svabenicka
Ustredni Ustav Geologicky
Malostranske NA'M 19
118 21 Praha 1
C.S.S.R.

Ming Jung Jiang
Robertson Research Inc.
16730 Hedgecroft, Suite 306
Houston, Texas 77060
U.S.A.

Amos Winter
University of Capetown
Marine Geology
Rondebosch 1100
South Africa

Shell Development Co.
Bellaire Research Center,
Library
P.O. Box 481
Houston, Texas 77001
U.S.A.

Sherwood W.Wise Jr.
Dept. Geology
Florida State University
Tallahassee, Florida
U.S.A.

CHANGES OF ADDRESSES

Dr. C. Kapellos
Maraven S.A.
Apartado 829
Caracas 101
Venezuela

Mohamed Mahmoud
Dept. of Geology
Faculty of Science
University of Science
Tanta
Egypt

Dr. H. Keupp
Institut für Geologie
Ruhr-Universität
Postfach 102148
D-4630, Bochum
B.R.D.

P.L. Miller
Chevron U.S.A. Inc.
P.O. Box 8100
Concord, CA 94542
U.S.A.

Dr. T. Moorkens
c/o Deminex, E.323,
Stratigraphy
Dorotheenstrasse 1
D-4300, Essen 1
B.R.D.

Dr. C.C. Smith
Tenneco Oil Company
P.O. Box 2888
126 North Point Drive
Houston, Texas 77001
U.S.A.

Kyoichi Nagata
c/o Japex
5-5 Midorigaoka
3-Chome, Hamuramachi
Nishitamagun
Tokyo
Japan

R.E. Norris
Dept. of Biology
University of Natal
P.O. Box 375
Pietermaritzburg, Natal
South Africa

Dr. L.A. Smith
Texas Christian University
Box 30798
Fort Worth, Texas 76129
U.S.A.

Dr. J.C. Steinmetz
Marathon Oil
Denver Research Center
P.O. Box 269
Littleton, Colorado 80160
U.S.A.

EXPULSIONS (defaulters)

Bundesanstalt für Geowiss.
und Rohstoffe, Bibliothek
Postfach 51 01 53
3000 Hannover 51
B.R.D.

Dr. A.G. Carlos
Suite 408 Orchard Bldg.
1 Grange Road
Singapore 0923
Singapore

Date Bank and Library
Bureau of Energy Development
Merritt Road, Fort Bonifacio
Metro Manilla
Philippines

Adi Priyadi Kadar
Pal.Lab.Geol.Res.Dev.Center
Jln. Diponegoro 57
Bandung
Indonesia

Kaigai Publications Ltd.
P.O. Box 5020
Tokyo, 100-31
Japan

Dr. P. Cepek
Bundesanstalt für Geowiss.
Stilleweg 2
D-3000 Hannover
B.R.D.

Dr. J. Charollais
Lab. Géologie et Paléontologie
13 Rue Maraîchers
CH-1211 Genève 4
Switzerland

Dr. P.C. Silva
Herbarium, Dept.Botany
University of California
Berkeley, CA 94720
U.S.A.

Dr. R. Taylor
Dept. Geology
University College
Gower Street
London WC1E 6BT
U.K.

James W. Valentine
Dept.Geological Sciences
University of California
Santa Barbara, CA 93106
U.S.A.

Dr. J.A. Kostecki
Lamont Doherty Geol.Obs.
Palisades, N.Y.10964
U.S.A.

Roberto Mazzei
Ist.Geol.Pal.
Via S.Maria 53
56100 Pisa
Italy

D. Reimers
Geol.Dept.University
of SW Louisiana
U.S.L., Box 44530
Lafayette, LA 10504
U.S.A.

Dr. W.P.S. Ventress
c/o Chevron U.S.A. Inc.
1111 Tulane Ave.
New Orleans, Louisiana 70112
U.S.A.

Dr. J.G. Verdenius
Institutt for Kontinental Sokkel-
undersøkelser
Hakon Magnussons gt. 1B
7000 Trondheim
Norway

R.R. Wilk
Geology Dept., Univ. Melbourne
Parkville, Victoria
Australia 3052
