

GEOLOGICAL
SURVEY
OF
CANADA

DEPARTMENT OF ENERGY,
MINES AND RESOURCES

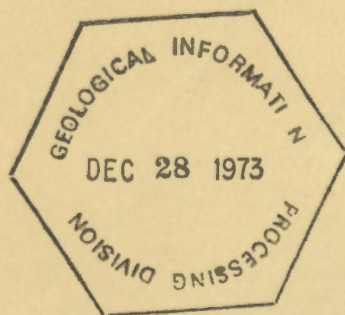
This document was produced
by scanning the original publication.

Ce document est le produit d'une
numérisation par balayage
de la publication originale.

PAPER 73-42

FOSSIL DINOFLAGELLATES:
INDEX TO GENERA AND SPECIES

J. K. Lentin and G. L. Williams





**GEOLOGICAL SURVEY
OF CANADA**

PAPER 73-42

**FOSSIL DINOFLAGELLATES:
INDEX TO GENERA AND SPECIES**

J. K. Lentin and G. L. Williams

DEPARTMENT OF ENERGY, MINES AND RESOURCES

©Crown Copyrights reserved
Available by mail from *Information Canada*, Ottawa

from the Geological Survey of Canada
601 Booth St., Ottawa

and

Information Canada bookshops in

HALIFAX - 1687 Barrington Street
MONTREAL - 640 St. Catherine Street W.
OTTAWA - 171 Slater Street
TORONTO - 221 Yonge Street
WINNIPEG - 393 Portage Avenue
VANCOUVER - 800 Granville Street

or through your bookseller

Price: \$2.00

Catalogue No. M44-73-42

Price subject to change without notice

Information Canada
Ottawa
1973

CONTENTS

	Page
Abstract	iv
Introduction	1
Acknowledgements	5
Index to Genera and Species	7
References	145
Appendix	173

ABSTRACT

This publication objectively lists all taxa of fossil dinoflagellates at and below the generic rank published before March 1, 1973. The index is arranged alphabetically and includes 292 genera, 1328 species, 127 subspecies, and 3 varieties. One hundred and eleven new combinations are proposed, as well as 5 new names as *nomina substituta* for junior homonyms, 6 new species, and 92 changes of taxonomic status. New definitions for subspecies and varieties, as used in palynologic nomenclature, are proposed.

RÉSUMÉ

Dans cette publication, les auteurs dressent une liste objective de tous les taxons de dinoflagellés fossiles de l'ordre générique ou inférieurs à cet ordre publié avant le 1^{er} mars 1973. C'est un index alphabétique qui comprend 292 genres, 1,326 espèces, 127 sous-espèces et 3 variantes. Ils proposent cent neuf nouvelles combinaisons, ainsi que 5 nouveaux noms comme *nomina substituta* pour les homonymes de rang inférieur, 6 nouvelles espèces et 92 changements de statuts taxonomiques. Ils proposent de nouvelles définitions pour les sous-espèces et variantes telles qu'employées en nomenclature palynologique.

FOSSIL DINOFLAGELLATES: INDEX TO GENERA AND SPECIES

INTRODUCTION

Dinoflagellates (from the Greek *deinos*-terrible and the Latin *flagellum*-small whip) are unicellular protists, which are enclosed in a cellular covering, the *amphiesma*. They have a size range of 5-2000 microns. Dinoflagellates have a varied habitat. The vast majority form an important constituent of the marine phytoplankton, being a vital link in the food chain and second in importance to the diatoms as producers of organic matter. Others are marine psammophytes, brackish or fresh water dwellers, parasites or symbionts.

Most dinoflagellates are autotrophic (synthesizing organic compounds from inorganic substances and containing chlorophyll like the green plants); others are heterotrophic (being devoid of chromatophores and feeding like animals by ingesting their food since they do not have the ability to synthesize organic compounds from inorganic compounds). Since a preponderance of species are autotrophic, dinoflagellates are regarded by botanists as plants constituting the Class Dinophyceae within the Division Pyrrhophyta of the algae.

Many dinoflagellates exhibit a complex life cycle including a vegetative stage popularly known as the motile stage, and an encysted stage. In the encysted stage the organic wall of the dinocyst (the term *dinocyst* denotes a dinoflagellate resting cyst), being extremely resistant, is readily preserved in the fossil record. The wall surrounding the vegetative stage by contrast is readily broken down into discrete components and is rarely, if ever, preserved. Unquestionable fossil dinocysts have been recorded from sediments of Silurian age. They are common in marine sediments of Permian to Recent age and are being recorded increasingly from fresh water sediments. This index lists only fossil dinocyst taxa of generic or lower rank. Extant genera and species, and hence all species which are not known to have an encysted stage, have been omitted.

Although dinoflagellates have been described both as animals under the International Code of Zoological Nomenclature and as plants under the International Code of Botanical Nomenclature, we have followed current practice among most systema-

Original manuscript submitted: September 19, 1973

Final version approved for publication:

Authors' addresses: J.K.L., Robertson Research, Calgary, Canada
G.L.W., Atlantic Geoscience Centre - GSC,
Dartmouth, Nova Scotia, Canada

tists in considering dinoflagellates under the ICBN, using the most recent edition (Stafleu *et al.*, 1972). However, clear and explicit answers to all the nomenclatural questions we encountered during the preparation of this work were not to be found in the Code. Although we have sought guidance from more experienced systematists, we accept sole responsibility for the interpretations presented.

Inevitably, synonymy has posed problems in the compilation of this index. When an author considers a specific name to be a junior synonym and publishes the name in synonymy, it is according to the ICBN a superfluous name. However, the Code does not require that other authors accept a proposed synonymy. Accordingly some authors will ignore the junior synonym status of a name and continue to use it and some will use the senior synonym.

The compilation of this index is meant in part to help elucidate some of the current nomenclatural problems and standardize usage; however, the main aim is to list species in their present generic assignments. The last valid transfer is subjectively accepted, except in a few cases which are noted. As a result, invalid transfers such as those proposed in Davey *et al.*, 1966 will not be listed.

The compilation of generic and specific lists is not new to plankton studies; most comparable to the present work is the "Bibliography and Index of Fossil Dinoflagellates and Acritarchs" by Downie and Sarjeant, 1964 [1965]. Other significant works include Loeblich and Loeblich, 1966 which has been subsequently updated, e.g. 1968, 1969, 1970 and Norris and Sarjeant, 1965.

Since the publication of the Downie and Sarjeant Index, the number of fossil dinoflagellate genera has more than doubled and the number of species has increased enormously. In addition to the many new species, reassignment of species to other genera (in some cases, to several different genera) has created a situation that makes it a monumental task to keep track of fossil species.

Within this index the genera are arranged in alphabetical order, and the species and the subspecies are presented in similar fashion within the genera and species respectively. For simplicity the initial of the generic name is not repeated before each species, but the species names are indented so that no confusion will result from this omission. This technique is acceptable under Article 33, paragraphs 1-2 of the ICBN which states in part, "combinations (are) definitely indicated ... by the arrangement of the epithets in a list headed by the name of the genus".

The species list includes the author, date, page number, plate and figure number for each species which remains within the original generic assignment. For species which have

been assigned to the genus by later transfers the author, date and page number of the last valid transfer are also listed and the citation of the original description is included in parentheses. If a species has been re-assigned from the genus under which it is listed, the specific name is given in quotation marks and its current generic assignment is listed. The age appearing with each specific name is that of the type material. Every attempt has been made to cross reference all infrageneric taxa which have been included within two or more genera.

Within the index are comments on some taxonomic problems which have arisen within the literature. One of the more significant of these taxonomic problems is the creation of what may be called a "hollow" genus. This occurs when an individual transfers the type of a genus to another genus without attending to the remaining species within the genus. For example, Brideaux, 1971, p.86, correctly transfers the type of the genus *Astrocyta* (*A. cretacea*) to *?Lejeunia*. In this provisional assignment he failed to transfer *A. kozlowskii* (Gorka, 1963) Davey, 1970 and *A. tricuspis* (O. Wetzel, 1933a) Davey, 1970. These species will not automatically return to their original designations (i.e. *A. kozlowskii* to *Lejeunia* and *A. tricuspis* to *Peridinium*). They are rather left hanging in a "hollow" genus, a genus with no type species. In cases such as this we have had to decide whether to reject or accept the transfer of the type of the genus. Where the retention of the "hollow" genus cannot be justified all remaining species have been transferred, in part provisionally, to other genera. The transferring of the type of a genus to another genus, in effect, creates a junior synonym of the genus whose type has been transferred. Care must be taken in the matter of priority in such cases.

A similar situation is created if an author states (not by inference) that one generic name is a junior synonym of another, but applies the senior name to only the type species of the junior name. In such cases we have combined all remaining specific names with the senior generic synonym.

It is not within the scope of this work to pass judgement on the taxonomic work of other authors. This is meant to be an objective compilation of generic and specific names. However, for it to be useful, some matters have had to be subjectively interpreted. This has been particularly evident at the infraspecific level in connection with the indiscriminate use of the terms subspecies, varietas and forma. All these taxa are acceptable under the ICBN. It appears, however, that many authors have used the terms without any concept of their meaning.

The varietas was the only sub-division of the species which was recognized by Linnaeus in his earliest taxonomic work. Consequently those varietates created by early taxonomists were a potpourri of many individual variants. Due to the resulting

confusion, the term *varietas* tended to be rejected by both animal and plant taxonomists. Indeed there is no provision for its use within the International Code of Zoological Nomenclature (ICZN).

In accordance with the ICBN, Article 4, the subordinate ranks below the species level are listed in descending order as follows: Subspecies, *Varietas*, *Subvarietas*, *Forma*, and *Subforma*. No attempt is made within the ICBN to define these terms with relationship to the species. Therefore, we have considered it necessary to define these terms with reference to their use in palynology.

The subspecies: *Any form which falls within the circumscription of a species, compares well with the type of that species, but possesses a particular feature or features which separates it slightly from that of the typical subspecies of that species (that is, differences not significant enough for the creation of a separate species).*

In terms of nomenclature, each species automatically has a subspecies with the same name and type. For example *Deflandrea phosphoritica* Eisenack, 1938 automatically has a subspecies *Deflandrea phosphoritica*, subsp. *phosphoritica* Eisenack, 1938 although it did not appear in print until Cookson and Eisenack, 1961b, p.39 used the name (erroneously attributed to Cookson and Eisenack by Downie and Sarjeant, 1964 [1965], p.109). Subspecies are not listed herein unless they are referred to in the literature.

The varietas: *Any form which falls within the circumscription of a species and a subspecies thereof, but possesses particular characteristics which may separate it slightly from the typical variety of that subspecies.*

The taxonomic level of the *varietas* should have extremely limited usage in palynology. It is considered that due to variations in macerating techniques and in preservation, morphological differences seen below the subspecies level may be the result of outside influences. Indeed a point is reached when further subdivision of taxa based on microscopic fossils is without palynological value.

The subvarietas and forma: The use of taxonomic ranks below the variety level is considered herein to be superfluous in palynology and should be avoided. It must be understood that these ranks are nomenclaturally valid; however, the characteristics which generally separate them from superior ranks (i.e. genetic make-up, chromosomal structure, chlorophyll composition, etc.) are not available for study where we are dealing solely with the preservable hard parts.

Because of the frequent use of the terms *varietas* and *forma* (the latter particularly by Vozzhennikova, 1967) in a way which does not fall within the above definitions, we consider it necessary, for the sake of continuity, to raise the infra-

specific taxa previously described, to the varietas and subspecies levels defined herein, thus creating a "*stat. nov.*" or *status novus*.

A further problem arising from the use of infraspecific taxa occurs when transfer of a species to a different genus is effected and the author making the transfer neglects to also transfer any or all of the subspecies which have been named. Subspecies and varietates do not transfer automatically when the species is transferred to another genus; they must be separately transferred in accordance with Article 33, paragraph 4 of the ICBN (F.A. Stafleu, personal communication). Therefore all infraspecific taxa which have not been correctly transferred are herein transferred accordingly.

Definition of the taxonomic terms used herein are as follows:

- ICBN* - International Code of Botanical Nomenclature.
ICZN - International Code of Zoological Nomenclature.
comb. nov. - (*combinatus novus*) A new combination of names not previously published.
jr. syn. - Junior synonym.
nom. nov. - (*nomen novum*) A new name selected as a *nom. subst.* for a junior homonym.
nom. nud. - (*nomen nudum*) A name which fails to meet the requirements of the ICBN for valid publication, therefore having no status in nomenclature.
nom. null. - (*nomen nullum*) A name involving unintentional alteration of the spelling of a previously published name.
nom. subst. - (*nomen substitutum*) Replacement name for a junior homonym.
nom. van. - (*nomen vanum*) Invalid, intentional alteration of the spelling of a previously published name.
sp. nov. - (*species nova*) New species. Defined within the limitations of the ICBN.
stat. nov. - (*status novus*) The change of the taxonomic level of a taxon.

Acknowledgements

The authors wish to thank A.R. Loeblich, Jr., A. Traverse, J.M. Schopf and F.A. Stafleu for their kind and time consuming responses to letters of inquiry concerning interpretation of the ICBN; D. Wall, W.R. Evitt, M.S. Barss and V.J. Williams for the

monumental task of proof reading. Also a special note of thanks to Bill Evitt and Dave Wall for making numerous invaluable suggestions which have greatly improved the layout of the index, for drawing our attention to several errors and inconsistencies and for providing us with otherwise unobtainable papers, F. MacAusland who typed the manuscript not once, but twice, and Mary Horne, summer student from St. Mary's University Geology Department.

Finally, we are grateful to the Geological Survey of Canada and Robertson Research (N.A) Ltd. who shared the expense of this venture.

INDEX TO GENERA AND SPECIES

ACANTHAULAX Sarjeant, 1968, p.227 (*nom. subst. pro Acanthogonyaulax* Sarjeant, 1966b, p.132).

acanthosphaera (Sarjeant, 1961a, p.94-95, pl.13, fig.14; text-fig.4) Sarjeant, 1968, p.227. Early Oxfordian; formerly *Gonyaulax*.

paliuros (Sarjeant, 1962a, p.260, pl.1, fig.7; text-fig.5) Sarjeant, 1968, p.228-229. Oxfordian; formerly *Gonyaulax*.

?*spinosissima* (Deflandre, 1938b, p.179, pl.9, fig.11) Sarjeant, 1972, p.22. Late Jurassic; formerly *Palaeoperidinium* and *Palaeohystrichophora*.

**venusta* (Klement, 1960, p.44-45, pl.5, fig.10-13; text-fig.22) Sarjeant, 1968, p.227. Middle Oxfordian to Kimmeridgian; formerly *Gonyaulax*. Transfer of this species to *Gonyaulacysta* by Dodekova 1971, p.11 is herein rejected.

ACANTHOGONYAULAX Sarjeant, 1966b, p.132. *non Acanthogonyaulax* Kofoid, 1911. See *Acanthaulax*.

ACHOMOSPHERA Evitt, 1963, p.163.

alcicornu (Eisenack, 1954, p.65, pl.10, fig.1-2; text-fig.5) Davey and Williams, 1966a, p.50. Oligocene; formerly *Hystrichosphaeridium*.

cambra Sah *et al.*, 1970, p.144, pl.1, fig.3. Late Cretaceous.

convexa Sah *et al.*, 1970, p.145-146, pl.1, fig.12-13. Late Cretaceous.

delicata Sah *et al.*, 1970, p.144-145, pl.1, fig.4-5. Late Cretaceous.

globata Sah *et al.*, 1970, p.145, pl.1, fig.10-11. Late Cretaceous.

grallaeforme (Brosius, 1963, p.42, pl.5, fig.3; text-fig.2) Davey and Williams, 1969, p.4. Oligocene; formerly *Hystrichosphaeridium*.

hirundo (Eisenack, 1958, p.404-405, pl.24, fig.12) Davey and Williams, 1969, p.4. Early Cretaceous; formerly *Hystrichosphaeridium*.

hyperacantha (Deflandre & Cookson, 1955, p.264-265, pl.6, fig.7) Davey and Williams, 1969, p.4. Miocene; formerly *Hystrichosphaera*.

*type species of the genus.

ACHOMOSPHAERA (cont'd)

- neptuni* (Eisenack, 1958, p.399, pl.26, fig.7-8; text fig.8)
Davey and Williams, 1966a, p.51-52, pl.3, fig.7; pl.9, fig.11.
Early Cretaceous; formerly *Baltisphaeridium*.
- operculata* Sah et al., 1970, p.144, pl.1, fig.1-2. Late
Cretaceous.
- **ramulifera* (Deflandre, 1937b, p.74, pl.14, fig.5-6; pl.17, fig.10)
Evitt, 1963, p.163. Late Cretaceous; formerly
Hystriosphæridium and *Baltisphaeridium*.
- subsp. *perforata* (Davey & Williams, 1966a) *stat. nov.*
1966a *Achomosphaera ramulifera* (Deflandre) Evitt var.
perforata Davey and Williams, p.50, pl.5, fig.1,5. Early
Eocene.
- robusta* Sah et al., 1970, p.145, pl.1, fig.6-7. Late
Cretaceous.
- sagena* Davey and Williams, 1966a, p.51, pl.2, fig.1-2.
Cenomanian.
- triangulata* (Gerlach, 1961, p.194-195, pl.29, fig.1) Davey and
Williams, 1969, p.4. Miocene; formerly *Baltisphaeridium*.
- tridactylites* (Valensi, 1955a, p.37, fig.10) Deflandre and
Sarjeant, 1970, p.1. Cretaceous; formerly *Hystriochokolpoma*,
Hystriosphæridium and *Baltisphaeridium*.
- valianta* Sah et al., 1970, p.145, pl.1, fig.8-9. Late
Cretaceous.

ACTINISCUS (Ehrenberg, 1840, as a subgenus of *Dictyochoa*) Ehrenberg,
1843, p.103, raised to generic rank.

- ?*discus* Ehrenberg, 1854, pl.21, fig.49. Pliocene. (No description
given.)
- elegans* (Ehrenberg) Ehrenberg, 1854, pl.22, fig.31. Pliocene.
- heptagonus* (Ehrenberg) Ehrenberg, 1854, pl.20, fig.49. Pliocene.
- **pentasterias* (Ehrenberg) Ehrenberg, 1854, pl.18, fig.61; pl.19,
fig.45; pl.33 (XVII), fig.1 = *Dictyochoa* (*Actiniscus*)
pentasterias Ehrenberg, 1840, p.111, 149; fixed as type of the
genus by Downie and Sarjeant, 1964 [1965], p.82. Pliocene.

ACTINISCUS (cont'd)

?*rota* Ehrenberg, 1854, pl.21, fig.50. Pliocene. (No description given.)

sexfurcatus Ehrenberg, 1854, pl.35, fig.15. Recent. (No description given.)

sirius Ehrenberg, 1854, pl.33, fig.1. Miocene. (No description given.)

?*stella* (Ehrenberg) Ehrenberg, 1854, pl.22, fig.52. Pliocene.

tetrasterias Ehrenberg, 1854, pl.28, fig.62. Miocene. (No description given.)

ACTINOTHECA Cookson and Eisenack, 1960a, p.9.

**aphroditae* Cookson and Eisenack, 1960a, p.9, pl.2, fig.19-20. Turonian.

ornata Cookson and Eisenack, 1970a, p.147, pl.13, fig.1-2. Senonian.

ADNATOSPHAERIDIUM Williams and Downie, 1966c, p.215.

aemulum (Deflandre, 1938b, p.187-189, pl.9, fig.12; pl.10, fig.5-8; pl.11, fig.1-7) Williams and Downie, 1969, p.17. Oxfordian; formerly *Hystriosphæridium* and *Cannosphæropsis*.

subsp. *integrum* (Cookson & Eisenack, 1958, p.47, pl.7, fig.6-7) Eisenack and Kjellström, 1971a, p.45. Late Jurassic.

apiculatum (Cookson & Eisenack, 1960b) *comb. nov.*
1960b *Cannosphæropsis apiculata* Cookson and Eisenack, p.254, pl.39, fig.15. probably Tithonian.

?*capilatum* De Coninck, 1969, p.39, pl.11, fig.9-14, 21-24. Early Eocene.

caulleryi (Deflandre, 1938b, p.189, pl.11, fig.2-3) Williams and Downie, 1969, p.17. Oxfordian; formerly *Hystriosphæridium* and *Cannosphæropsis*.

chonetum (Cookson & Eisenack, 1962b, p.493, pl.4, fig.8-10) Davey, 1969a, p.171. Late Albian-Cenomanian; formerly *Cannosphæropsis*.

ADNATOSPHAERIDIUM (cont'd)

filamentosum (Cookson & Eisenack, 1958, p.47, pl.7, fig.8-9; pl.8, fig.1-3) Williams and Downie, 1969, p.17. Middle-Late Jurassic; formerly *Cannosphaeropsis*.

filiferum (Cookson & Eisenack, 1958, p.46, pl.7, fig.4) Williams and Downie, 1969, p.17. Turonian-Early Maastrichtian; formerly *Cannosphaeropsis*.

hunickenii Archangelsky, 1969b, p.201,203, pl.5, fig.5-7. Eocene.

multispinosum Williams and Downie, 1966c, p.216, pl.24, fig.5; text-fig.57. Early Eocene.

?*patulum* Williams and Downie, 1966c, p.217, pl.24, fig.2; text-fig.58. Early Eocene.

paucispinum (Klement, 1960, p.72, pl.10, fig.9) Gitmez and Sarjeant, 1972, p.234. Late Oxfordian; formerly *Cannosphaeropsis*.

perforata (Alberti, 1961, p.37, pl.9, fig.14) Riley and Sarjeant, 1972, p.3. ?Callovian; formerly *Cannosphaeropsis*.

reticulense (Pastiels, 1948, p.49, pl.5, fig.7-10) De Coninck, 1969, p.40. Early Eocene; formerly *Cannosphaeropsis*.

**vittatum* Williams and Downie, 1966c, p.215, pl.24, fig.3,7; text-fig.56. Early Eocene.

AIORA Cookson and Eisenack, 1960a, p.9.

**fenestrata* (Deflandre & Cookson, 1955, p.283, pl.3, fig.2; text-fig.43) Cookson and Eisenack, 1960a, p.9. Turonian-Santonian; formerly *Cannosphaeropsis*.

AIREIANA Cookson and Eisenack, 1965a, p.127.

**verrucosa* Cookson and Eisenack, 1965a, p.127, pl.14, fig.11-13. Late Eocene

ALBERTIA Vozzhennikova, 1967, p.150-151.

curvicornis Vozzhennikova, 1967, p.151, pl.74, fig.1-4. Campanian.

ALBERTIA (cont'd)

**recticornis* Vozzhennikova, 1967, p.151-152, pl.77, fig.1-4; pl.78, fig.1-3; pl.79, fig.1-2. Turonian.

AMPHIDIADEMA Cookson and Eisenack, 1960a, p.4.

**denticulata* Cookson and Eisenack, 1960a, p.4, pl.1, fig.11. Senonian.

AMPHIDINIUM Claparede and Lachmann, 1859, p.276. Modern Genus.

"*mitratum*" (Vozzhennikova, 1967) NOW ?*Dinogymnium*.

**operculatum* Claparede and Lachmann, 1859, (modern species).

"*sibiricum*" (Vozzhennikova, 1965) *nom. nud.* (no type figured).

AMPHOROSPHAERIDIUM Davey, 1969c, p.30.

**fenestratum* Davey, 1969c, p.30-32, pl.1, fig.6; pl.2, fig.2,4; pl.3, fig.1-3. Campanian-Maastrichtian.

subsp. *dividum* (Davey, 1969c) *stat. nov.*

1969c *Amphorosphaeridium fenestratum* var. *dividum*

Davey, p.32-33, pl.2, fig.5-6; text-fig.2. Campanian-Maastrichtian.

latitubulum Davey, 1969c, p.33-34, pl.4, fig.2,7; text-fig.1, no.4. Campanian-Maastrichtian.

multibrevum Davey, 1969c, p.34-35, pl.3, fig.5-6; pl.4, fig.1; text-fig.1, no.3. Campanian-Maastrichtian.

AMPHORULA Dodekova, 1969, p.19.

**metaelliptica* Dodekova, 1969, p.20, pl.4, fig.1-3. Tithonian.

"*ANHYSTRICHOSPHAERIDIUM*" Deflandre in West, 1961, p.452 *nom. nud.*
No diagnosis given.

ANTHOSPHAERIDIUM Cookson and Eisenack, 1968, p.115.

ANTHOSPHAERIDIUM (cont'd)

**convolvuloides* Cookson and Eisenack, 1968, p.115, fig.4A-D.
Santonian-Earliest Campanian.

APTEA Eisenack, 1958, p.393.

**polymorpha* Eisenack, 1958, p.394, pl.22, fig.5-12; pl.24, fig.5.
Early Cretaceous.

rugulosa Clarke and Verdier, 1967, p.57-58, pl.12, fig.5-6; text-
fig.23. Santonian.

APTEODINIUM Eisenack, 1958, p.385.

"*ciliatum*" (Gocht, 1959, p.65, pl.8, fig.5-6) Jr. Syn. of
Trichodinium castaneum according to Clarke and Verdier, 1967,
p.19.

conjunctum Eisenack and Cookson, 1960, p.5, pl.1, fig.7-8.
Aptian.

cribrosum Cookson and Eisenack, 1968, p.112, fig.1L.
Santonian-Earliest Campanian.

grande Cookson and Hughes, 1964, p.52, pl.6, fig.8-9. Late
Albian-Early Cenomanian.

**granulatum* Eisenack, 1958, p.386, pl.23, fig.8-14. Aptian.

maculatum Eisenack and Cookson, 1960, p.4, pl.2, fig.1. Albian.

reticulatum Singh, 1971, p.312, pl.47, fig.1-4. Late Albian.

spiridoides Benedek, 1972, p.5, pl.2, fig.1; pl.15, fig.1-6.
Middle Oligocene.

tamboviensis Vozzhennikova, 1967, p.61, pl.41, fig.1. Barremian.

tuberculatum Cookson and Eisenack, 1970a, p.146-147, pl.12, fig.14.
Senonian.

AQUADULCUM Harland and Sarjeant, 1970, p.220-221.

myalupensis (Churchill & Sarjeant, 1963, p.38-40, fig.5,22-23)
Harland and Sarjeant, 1970, p.221-222. Holocene; formerly
Palaeohystrichophora.

AQUADULCUM (cont'd)

piki (Churchill & Sarjeant, 1963, p.40-41, fig.6,24) Harland and Sarjeant, 1970, p.222. Holocene; formerly *Palaeohystrichophora*.

**serpens* Harland and Sarjeant, 1970, p.221, pl.21, fig.7-8; text-fig.5. Holocene.

?*yanchepense* Harland and Sarjeant, 1970, p.222-223, pl.22, fig.3. Holocene.

ARCHEOTECTATUM Habib, 1972, p.375-376.

**sarjeanti* Habib, 1972, p.376, pl.5, fig.3-4. Oxfordian-Kimmeridgian.

AREOLIGERA Lejeune-Carpentier, 1938, p.164. *emend.*
Williams and Downie, 1966c, p.227-228.

biramum Maier, 1959, p.304, pl.29, fig.2. Oligocene.

?*cassicula* Drugg, 1970b, p.811, fig.2B; 3A-B. Early Eocene.

coronata (O.Wetzel, 1933b, p.41, pl.4, fig.17) Lejeune-Carpentier, 1938, p.168. Senonian; formerly *Hystrichosphaeridium*.

"*danicum*" (W.Wetzel, 1952) NOW *Cleistosphaeridium*.

dermatica Maier, 1959, p.305, pl.29, fig.3. Oligocene.

galea (Maier, 1959, p.306, pl.29, fig.4) Davey *et al.*, 1969, p.15. Oligocene; formerly *Galea*.

lychnea (Maier, 1959, p.310, pl.30, fig.6) Davey *et al.*, 1969, p.15. Miocene; formerly *Galea*.

medusettiiformis (O.Wetzel, 1933b, p.41, pl.4, fig.19) Lejeune-Carpentier, 1938, p.169. Senonian; formerly *Hystrichosphaera*.

rhizopodiphora (O.Wetzel, 1933b, p.41, pl.4, fig.18) Lejeune-Carpentier, 1938, p.169. Senonian; formerly *Hystrichosphaera*.

**senonensis* Lejeune-Carpentier, 1938, p.164-166, text-fig.1-3. Senonian.

AREOLIGERA (cont'd)

tenuicapillata (O.Wetzel, 1933b, p.42, pl.4, fig.20-22) Lejeune-Carpentier, 1938, p.167. Senonian; formerly *Hystrichosphaera*.

subsp. *irregularis* (O.Wetzel, 1933b) *stat. nov.*
1933b *Hystrichosphaera tenuicapillata* forma *irregularis*
O. Wetzel, p.42, pl.4, fig.20. (This species and forma were transferred to *Areoligera* by Lejeune-Carpentier 1938, p.167.) Senonian.

subsp. *pinopallina* (O.Wetzel, 1933b) *stat. nov.*
1933b *Hystrichosphaera tenuicapillata* forma *pinopallina*
O. Wetzel, p.42-43, pl.4, fig.22. (This species and forma were transferred to *Areoligera* by Lejeune-Carpentier, 1938, p.167.) Senonian.

turbilineata (O.Wetzel, 1933b, p.42, pl.4, fig.21) Lejeune-Carpentier, 1938, p.167. Senonian; formerly *Hystrichosphaera*.

twistringensis (Maier, 1959, p.308-309, pl.30, fig.3-4) Davey *et al.*, 1969, p.15. Oligocene; formerly *Galea* and *Baltisphaeridium*.

volata Drugg, 1967, p.21, pl.3, fig.11-13; pl.9, fig.4. Danian.

AREOSPHAERIDIUM Eaton, 1971, p.357-358.

arcuatum Eaton, 1971, p.360-361, pl.3, fig.1-9; text-fig.4-5. Middle Eocene.

**diktyoplokus* (Klumpp, 1953, p.392, pl.18, fig.3-7) Eaton, 1971 p.358-359. Eocene; formerly *Hystrichosphaeridium* and *Cordosphaeridium*.

subsp. *latum* (Klumpp, 1953) *comb. nov.*
1953 *Hystrichosphaeridium diktyoplokus* subsp. *latum*
Klumpp, p.392, pl.18, fig.18-19. Eocene.

multicornutum Eaton, 1971, p.363-364, pl.4, fig.1-7; text-fig.6. Middle Eocene.

ARPYLORUS Calandra, 1964, p.4114.

**antiquus* Calandra, 1964, p.4114, fig.1-3. Silurian.

ARTEMISIOCYSTA Benedek, 1972, p.49.

ARTEMISIOCYSTA (cont'd)

**cladodichotoma* Benedek, 1972, p.49, pl.12, fig.8; text-fig.23.
Middle-Late Oligocene.

ASCODINIUM Cookson and Eisenack, 1960a, p.5.

**acrophorum* Cookson and Eisenack, 1960a, p.5, pl.1, fig.19-20.
Late Albian-Cenomanian.

"*hialinum*" Baltes, 1963, p.585, *nom. nud.* (Holotype not designated by Baltes.)

lordi Cookson and Eisenack, 1968, p.112, fig.1, I-K. Santonian-Earliest Campanian.

ovalis Cookson and Eisenack, 1970a, p.145, pl.13, fig.8. Albian-Cenomanian.

parvum (Cookson & Eisenack, 1958, p.28, pl.4, fig.12-13) Cookson and Eisenack, 1960a, p.5. Late Albian-Cenomanian; formerly *Deflandrea*.

pontis-mariae (Deflandre, 1936b, p.167, pl.2, fig.7-9) Deflandre, 1966, p.3. Senonian?; formerly *Gymmodinium* and *Deflandrea*.

"*scabrosum*" (Cookson & Hughes, 1964) NOW *Ovoidinium*.

serratum Cookson and Eisenack, 1960a, p.5, pl.1, fig.21-22.
Cenomanian.

stagonoides Benedek, 1972, p.10, pl.2, fig.12; text-fig.5.
Late Oligocene.

?*trendalli* Cookson and Eisenack, 1970a, p.145-146, pl.12, fig.5-6.
Albian-Cenomanian.

"*verrucosum*" (Cookson & Hughes, 1964) NOW *Ovoidinium*.

ASTROCYSTA Davey, 1970, p.359.

When Davey, 1970, erected the genus *Astrocyta* he correctly transferred *Palaeoperidinium cretaceum* (Pocock) to *Astrocyta* as the type of the genus. However, Brideaux, 1971, p.86, transferred *P. cretaceum* to ?*Lejeunia*. This as the last valid transfer, creates a superfluous genus by removing the type of *Astrocyta*. Norris and Hedlund, 1972, p.51-52 demonstrated that the excystment aperture in *Astrocyta cretacea* was a transapical suture. Kjellström, 1972, p.467 emended *Lejeunia* (Gerlach) to take into account the precingular archeopyle in the type species, *L. hyalina*. This automatically excludes the species *cretacea* from the genus

ASTROCYSTA (cont'd)

Lejeunia. Accordingly the genus *Astrocyta* should be retained and the transfer of the type to ?*Lejeunia* by Brideaux, 1971, is herein rejected.

**cretacea* (Pocock, 1962, p.80, pl.14, fig.219-221) Davey, 1970, p.359. Barremian; formerly *Palaeoperidinium* and *Lejeunia*.

kozłowskii (Gorka, 1963, p.41, pl.5, fig.4) Davey, 1970, p.360. Late Maastrichtian; formerly *Lejeunia*.

tricuspis (O.Wetzel, 1933a, p.166, pl.2, fig.14) Davey, 1970, p.360. Senonian; formerly *Peridinium* and *Lejeunia*.

AUSTRALIELLA Vozzhennikova, 1967, p.129-130.

Some species indicated by Vozzhennikova as being assigned to *Australiella* were not correctly transferred. These transfers are effected herein.

bondarenki Vozzhennikova, 1967, p.130-131, pl.59, fig.1a-b; pl.60, fig.2. Santonian.

chetiensis Vozzhennikova, 1967, p.131, pl.60, fig.1a-b. Santonian.

cooksoniae (Alberti, 1959b, p.97, pl.9, fig.1-6) Vozzhennikova, 1967, p.132. Late Senonian; formerly *Deflandrea*.

granulifera (Manum, 1963, p.61, pl.3, fig.5-9) Vozzhennikova, 1967, p.132-133. Senonian; formerly *Deflandrea*.

subsp. *tenuis* (Davey, 1970) *comb. nov., stat. nov.*
1970 *Deflandrea granulifera* var. *tenuis* Davey,
p.340-341, pl.2, fig.1. Albian.

micracantha (Cookson & Eisenack, 1960a) *comb. nov.*
1960a *Deflandrea micracantha* Cookson and Eisenack
p.3, pl.1, fig.9. Campanian.

spectabilis (Alberti, 1959b) *comb. nov.*
1959b *Deflandrea spectabilis* Alberti, p.99, pl.9,
fig.7-8. Late Senonian.

**tripartita* (Cookson & Eisenack, 1960a, p.2, pl.1, fig.10)
Vozzhennikova, 1967, p.134-135. Senonian; formerly *Deflandrea*.

verrucosa (Manum, 1963) *comb. nov.*
1963 *Deflandrea verrucosa* Manum, p.60, pl.3, fig.1-4.
Middle Cretaceous.

AUSTRALIELLA (cont'd)

victoriensis (Cookson & Manum, 1964) *comb. nov.*
1964 *Deflandrea victoriensis* Cookson and Manum,
p.522, pl.76, fig.1-8. Senonian.

BATIACASPHAERA Drugg, 1970b, p.813.

baculata Drugg, 1970b, p.814, fig.6F. Late Eocene.

**compta* Drugg, 1970b, p.813-814, fig.6A-E; 7A-B. Late Eocene.

BELODINIUM Cookson and Eisenack, 1960b, p.249.

**dysculum* Cookson and Eisenack, 1960b, p.250, pl.37, fig.14;
pl.39, fig.10. probably Tithonian.

BICARINELLUM Deflandre, 1948, p.212.

**castaninum* Deflandre, 1948, p.212, fig.28-31,34. Middle Eocene.

BIECHELERELLA Deflandre, 1948, p.209-210.

**jurassica* Deflandre, 1948, p.210-211, text-fig.26-27.
Late Jurassic.

BIORBIFERA Habib, 1972, p.377.

**johnewingi* Habib, 1972, p.377-378, pl.10, fig.2-3. Earliest
Cretaceous.

BROOMEA Cookson and Eisenack, 1958, p.41.

exigua Alberti, 1961, p.26, pl.5, fig.14. Early Hauterivian.

gochti Alberti, 1961, p.27, pl.5, fig.8-10, ?16. Valanginian.

jaegeri Alberti, 1961, p.26, pl.5, fig.1-7. Late Barremian.

?*longicornuta* Alberti, 1961, p.27, pl.5, fig.18-21; pl.6, fig.1-2.
Late Hauterivian-Late Barremian.

micropoda Eisenack and Cookson, 1960, p.7, pl.2, fig.8-9. Albian.

BROOMEA (cont'd)

pellifera Alberti, 1961, p.26, pl.5, fig.11-13. Late Barremian-
Early Aptian.

**ramosa* Cookson and Eisenack, 1958, p.41, pl.6, fig.6-8. Middle
to Late Jurassic.

seelandica Lange, 1969, p.113-114, pl.2, fig.10; pl.3, fig.3.
Danian.

simplex Cookson and Eisenack, 1958, p.42, pl.6, fig.9. Late
Jurassic.

?*tricornoides* Alberti, 1961, p.28, pl.5, fig.17. Late
Hauterivian.

BULBODINIUM O. Wetzel, 1960, p.82. Klement, 1961, p.489-492,
concluded that one species was referable to *Scriniodium* and
the remaining were species of *Deflandrea*. However, he did not
effect any transfers.

altipetax O. Wetzel, 1960, p.83, pl.1, fig.3,5,9. Senonian.

oistoides O. Wetzel, 1960, p.83-84, pl.1, fig.6-7. Senonian.

**seitzi* O. Wetzel, 1960, p.82-83, pl.1, fig.1-2,4,8,10-13.
Senonian.

CALCICARPINUM Deflandre, 1948, p.216.

**tetraedricum* Deflandre, 1948, p.216,218, text-fig.35-37. Eocene.

CALCIGONELLUM Deflandre, 1948, p.206.

**infula* Deflandre, 1948, p.206, fig.13-18. Late Miocene.

CALCIODINELLUM Deflandre, 1947b, p.1781-1782.

**operosum* Deflandre, 1947b, p.1781-1782, fig.1-6. Late Miocene.

CALCIOGRANELLUM Deflandre, 1948, p.204.

**limbatum* Deflandre, 1948, p.204, fig.10-12. Late Miocene.

CALCIPTERELLUM Deflandre, 1948, p.207.

**colomi* Deflandre, 1948, p.208, fig.19-21. Late Miocene.

CALCISPHAERELLUM Deflandre, 1948, p.215.

**flosculus* Deflandre, 1948, p.215-216, text-fig.32-33.
Oxfordian.

CALIGODINIUM Drugg, 1970b, p.814-815.

aceras (Manum & Cookson, 1964) *comb. nov.*
1964 *Kalyptea aceras* Manum and Cookson
p.27-28, pl.6, fig.9-11. Cenomanian.

**amiculum* Drugg, 1970b, p.815, fig.8A-B; 9A-E. Danian.

CALLAIOSPHAERIDIUM Davey and Williams, 1966b, p.103.

Hexasphaera Clarke and Verdier, 1967, is a Jr. Syn. of this
genus. See Clarke *et al.*, 1968, p.181.

**asymmetricum* (Deflandre & Courtville, 1939, p.100, pl.4, fig.1-2)
Davey and Williams, 1966b, p.104. Senonian; formerly
Hystriosphæridium.

CANNINGIA Cookson and Eisenack, 1960b, p.251.

aspera Singh, 1971, p.322, pl.50, fig.1. Middle Albian.

circularis Cookson and Eisenack, 1971, p.219, pl.8, fig.6.
Middle Cretaceous.

colliveri Cookson and Eisenack, 1960b, p.251, pl.38, fig.3-4.
Aptian.

granulata Morgenroth, 1966a, p.12, pl.2, fig.10. Early Eocene.

hirtella (Alberti, 1961, p.28, pl.4, fig.20) Millioud, 1969,
p.425. Valanginian-Hauterivian; formerly *Circulodinium*.

minor Cookson and Hughes, 1964, p.43, pl.8, fig.1-3,5. Late
Albian-Early Cenomanian.

**reticulata* Cookson and Eisenack, 1960b, p.251, pl.38, fig.1-2.
Tithonian.

CANNINGIA (cont'd)

ringnesii Manum and Cookson, 1964, p.15, pl.2, fig.10.
Campanian-Maastrichtian.

rotundata Cookson and Eisenack, 1961a, p.72, pl.12, fig.1-5.
Senonian.

scabrosa Cookson and Eisenack, 1970a, p.146, pl.12, fig.14.
Senonian.

senonica Clarke and Verdier, 1967, p.20-21, pl.1, fig.12-14;
text-fig.7. Santonian.

CANNINGINOPSIS Cookson and Eisenack, 1962b, p.488.

**denticulata* Cookson and Eisenack, 1962b, p.488, pl.1, fig.16-19;
text-fig.2. Albian-Cenomanian.

ovalis Vozzhennikova, 1967, p.99, pl.40, fig.1a-b; 2a-b.
Paleocene-Eocene.

CANNOSPHAEROPSIS O. Wetzel, 1933b, p.6 emend. Williams and Downie,
1966c, p.222.

"*aemula*" (Deflandre, 1938b) NOW *Adnatosphaeridium*.

"*apiculata*" (Cookson & Eisenack, 1960b) NOW *Adnatosphaeridium*.

"*caulleryi*" (Deflandre, 1938b) NOW *Adnatosphaeridium*.

"*choneta*" (Cookson & Eisenack, 1962b) NOW *Adnatosphaeridium*.

densa Cookson and Eisenack, 1962b, p.493, pl.4, fig.1-3. Late
Albian-Cenomanian.

densiradiata Cookson and Eisenack, 1962b, p.493, pl.4, fig.5-7.
Cenomanian.

elegantula Drugg, 1967, p.25, pl.4, fig.17. Danian.

"*fenestrata*" (Deflandre & Cookson, 1955) NOW *Aiora*.

"*filamentosa*" (Cookson & Eisenack, 1958) NOW *Adnatosphaeridium*.

"*filifera*" (Cookson & Eisenack, 1958) NOW *Adnatosphaeridium*.

CANNOSPHAEROPSIS (cont'd)

hyperacantha Cookson and Eisenack, 1960a, p.9, pl.2, fig.14-15.
Campanian.

mirabilis Cookson and Eisenack, 1958, p.48, pl.8, fig.3-5.
Late Jurassic.

"*paucispina*" (Klement, 1960) NOW *Adnatosphaeridium*.

"*perforata*" (Alberti, 1961) NOW *Adnatosphaeridium*.

peridictya Eisenack and Cookson, 1960, p.8, pl.3, fig.5-6.
Late Albian-Cenomanian.

"*philippoti*" (Deflandre, 1947a) NOW *Nematosphaeropsis*.

pulchra Alberti, 1961, p.37, pl.10, fig.5. Coniacian.

pusulosa Morgenroth, 1966b, p.8, pl.2, fig.6. Early
Oligocene.

"*reticulensis*" (Pastiels, 1948) NOW *Adnatosphaeridium*.

robusta Morgenroth, 1966a, p.19, pl.4, fig.1. Early Eocene.

scaffoldi (Baksi, 1962, p.17, pl.2, fig.25) Downie and Sarjeant,
1964 [1965], p.101. Eocene; formerly *Hystriichosphaeridium*.

"*speciosa*" (Alberti, 1961) NOW *Polystephanephorus*.

tutulosa Cookson and Eisenack, 1960a, p.8, pl.2, fig.12-13.
Cenomanian.

"*urnaformis*" (Cookson, 1953) NOW *Polystephanephorus*.

"*ursulae*" (Morgenroth, 1966a) NOW *Membranilarnacia*.

**utinensis* O. Wetzel, 1933b, p.6, pl.3, fig.9-17; text-fig.12.
Senonian.

CANTULODINIUM Alberti, 1961, p.23.

protuberatum Wall, 1965a, p.160, pl.4, fig.14-20; pl.8, fig.8.
Pliensbachian-Toarcian (Lias)

**speciosum* Alberti, 1961, p.23, pl.3, fig.20-23; pl.12, fig.3.
Valanginian.

CARPODINIUM Cookson and Eisenack, 1962b, p.489.

**granulatum* Cookson and Eisenack, 1962b, p.489, pl.1, fig.6-10.
Albian.

obliquicostatum Cookson and Hughes, 1964, p.48, pl.6, fig.1-6.
Late Albian-Early Cenomanian.

CASSICULOSPHAERIDIA Davey, 1969a, p.141.

**reticulata* Davey, 1969a, p.142, pl.3, fig.7; pl.4, fig.3.
Cenomanian.

CASSIDIUM Drugg, 1967, p.22.

**fragilis* (Harris, 1965, p.97, pl.27, fig.4-5) Drugg, 1967, p.22.
Early Eocene; formerly *Ovoidites*, a pollen genus to which this
species was originally, erroneously assigned.

CATILLOPSIS Drugg, 1970b, p.821. Questionable affinity.

**abdita* Drugg, 1970b, p.821, fig.17D-F; 18A-C; 19A-B.
Early Eocene.

CAUCA Davey and Verdier, 1971, p.14.

**parva* (Alberti, 1961, p.16, pl.9, fig.1-4) Davey and Verdier,
1971, p.14-15. Early Aptian-Albian; formerly *Hystriochodinium*.

CERATIOPSIS Vozzhennikova, 1963, p.181.

diebeli (Alberti, 1959b, p.99, pl.9, fig.18-21) Vozzhennikova,
1967, p.159. Late Senonian-Paleocene; formerly *Deflandrea*.

subsp. *brevicornis* Vozzhennikova, 1967, p.160, *nom. nud.*
(described but not figured).

**leptoderma* Vozzhennikova, 1963, p.180, text-fig.8. Paleocene.

markovi Vozzhennikova, 1967, p.159, pl.119, fig.5,7; pl.120,
fig.1-4. Paleocene-Eocene.

CERATIUM Schrank, 1793, p.34. (Modern genus, all fossil forms
transferred to ?*Palaeocystodinium*.)

CERATOCORYS Stein, 1883; Modern Genus - All fossil forms transferred to *Microdinium*.

CERATOCYSTIDIOPSIS Deflandre, 1937b, p.89.

"*incerta*" (Deflandre-Rigaud, 1954) NOW *Odontochitinopsis*.

"*ludbrookii*" (Cookson & Eisenack, 1958) NOW *Endoceratium*.

"*molesta*" (Deflandre, 1937b) NOW *Odontochitinopsis*.

**simplex* Deflandre, 1937b, p.89-90, pl.17, fig.1. Late Cretaceous.

CERODINIUM Vozzhennikova, 1963, p.181.

balticum Vozzhennikova, 1967, p.154, pl.117, fig.2a-b. Eocene.

**sibiricum* Vozzhennikova, 1963, p.181, text-fig.9-10. Paleocene-Eocene.

CHATANGIELLA Vozzhennikova, 1967, p.128-129.

**nigra* Vozzhennikova, 1967, p.129, pl.56, fig.1-4; pl.57, fig.1-4; pl.58, fig.1-4. Santonian.

"*CHELINOCYSTA*" Sarjeant, 1967a, p.327, *nom. nud.*

No diagnosis given. See Clarke *et al.*, 1968, p.182 for discussion.

CHIROPTERIDIUM Gocht, 1960, p.221.

aspinatum (Gerlach, 1961, p.199, pl.29, fig.7-8) Brosius, 1963, p.48. Middle Oligocene; formerly *Membranophoridium*.

dispersum Gocht, 1960, p.227, pl.18, fig.1-16; text-fig.16-27. Middle Oligocene.

inornatum Drugg, 1970b, p.811-812, fig.3C-F. Danian.

?*korykum* (Maier, 1959) *comb. nov.*

1959 *Galea koryka* Maier, p.310, pl.30, fig.7-8. Middle Miocene.

**Lobospinosum* (Gocht in Weiler, 1956, p.138, pl.12, fig.1-3; text-fig.8) Gocht, 1960, p.222. Middle Oligocene; formerly *Baltisphaeridium* and *Hystriichosphaeridium*.

CHIROPTERIDIUM (cont'd)

mespilanum (Maier, 1959) *comb. nov.*

1959 *Galea mespilana* Maier, p.306-307, pl.29, fig.5-6.
Middle Oligocene-Middle Miocene.

partispinatum (Gerlach, 1961, p.201, pl.29, fig.6) Brosius,
1963, p.48. Middle-Late Oligocene; formerly
Membranophoridium.

CHLAMYDOPHORELLA Cookson and Eisenack, 1958, p.56.

apiculata Cookson and Eisenack, 1970a, p.150-151, pl.13, fig.3.
Albian-Cenomanian.

discreta Clarke and Verdier, 1967, p.24, pl.2, fig.9-10; text-
fig.9. Cenomanian.

grossa Manum and Cookson, 1964, p.17, pl.5, fig.1-2. Cenomanian.

lagena Cookson and Eisenack, 1970a, p.151, pl.12, fig.15.
Albian-Cenomanian.

largissima Singh, 1971, p.378, pl.67, fig.5-6. Middle Albian.

membranoidea Vozzhennikova, 1967, p.114-115, pl.48, fig.1-10.
Late Jurassic.

**nyei* Cookson and Eisenack, 1958, p.56, pl.11, fig.1-3. Aptian-
Turonian.

tabulata Singh, 1971, p.379, pl.67, fig.7. Middle Albian.

urna Cookson and Eisenack, 1960a, p.10, pl.3, fig.7. Late
Albian-Cenomanian.

wallala Cookson and Eisenack, 1960b, p.255, pl.38, fig.13;
pl.39, fig.11. Oxfordian to Early Kimmeridgian.

CHONESPHAERA Klumpp, 1953, p.395. Questionable affinity.

**incerta* Klumpp, 1953, p.395, pl.19, fig.9. Eocene.

CHYTROEISPHERIDIA (Sarjeant, 1962a, p.492) Downie and Sarjeant,
1964 [1965], p.102 emend. Pocock, 1972, p.99-100.

cariacoensis Wall, 1967, p.113, pl.16, fig.13-14. Quaternary.

**chytroides* (Sarjeant, 1962a, p.493, pl.70, fig.13,16) Downie
and Sarjeant, 1964 [1965], p.103.

CHYTROEISPHAERIDIA (cont'd)

dictydia Sarjeant, 1972, p.41, pl.3, fig.3; pl.6, fig.6.
Bathonian-Callovian.

euteiches Davey, 1969a, p.141, pl.3, fig.8-9. Cenomanian.

mantelli Gitmez and Sarjeant, 1972, p.186, pl.1, fig.3-4; pl.12,
fig.3. Early Kimmeridgian.

pococki Sarjeant, 1968, p.182, pl.1, fig.13. Late Callovian.

reticulata Davey, 1969b, p.14, pl.4, fig.3-4,6. Campanian-
Maastrichtian.

scabrata Pocock, 1972, p.100, pl.27, fig.23-25. Late Bajocian.

simplica Wall, 1965b, p.308, text-fig.7,20. Modern.

variabilis Pocock, 1972, p.100, pl.23, fig.14-16. Late
Bajocian.

"CIRCULODINIUM" Alberti, 1961, Jr. Syn. of *Canningia*. See Millioud,
1969, p.425, where the type of the genus *Circulodinium*
(*C. hirtellum*) is transferred to *Canningia*. *C. deflandrei*
is a Jr. Syn. of *Cyclonephelium distinctum*.

CIRRIFERA Cookson and Eisenack, 1960a, p.10.

**unilateralis* Cookson and Eisenack, 1960a, p.10, pl.3, fig.8.
Late Albian-Cenomanian.

CLADOPYXIDIUM McLean, 1972, p.862.

**septatum* McLean, 1972, p.862-863, pl.1, fig.1-3,5-8,10-12.
Paleocene.

CLATHROCTENOCYSTIS Wiggins, 1972, p.302-303.

**elegans* Wiggins, 1972, p.303-304, text-fig.3, pl.2 & 3.
Neocomian, probably Valanginian or Early Hauterivian.

CLEISTOSPHAERIDIUM Davey *et al.*, 1966, p.166.

?*aciculare* Davey, 1969a, p.158, pl.6, fig.11-12. Cenomanian.
Brideaux, 1971, p.93-94 states that *C. ?aciculare* is a partial
synonym of *Cleistosphaeridium multispinosum* (Singh)
Brideaux, 1971.

CLEISTOSPHAERIDIUM (cont'd)

- actinocoronatum* Benedek, 1972, p.34, pl.12, fig.13; text-fig.13.
Middle-Late Oligocene.
- "*ancoriferum*" (Cookson & Eisenack, 1960a, p.8, pl.2, fig.11).
Considered to be a Jr. Syn. of *C. huguonioti* by Clarke and
Verdier, 1967, p.54.
- armatum* (Deflandre, 1937b, p.76, pl.16, fig.6-7) Davey, 1969a,
p.153. Late Senonian; formerly *Baltisphaeridium*.
- "*ashdodense*" [Rossignol, 1962, p.132, pl.2, fig.2 (first figured
in Rossignol, 1961, pl.1, fig.9)]. Considered by Wall, 1967,
p.109, to be a Jr. Syn. of *Lingulodinium machaerophorum*.
Formerly *Hystriosphæridium* and *Baltisphaeridium*.
- bergmanni* Archangelsky, 1969a, p.414, pl.2, fig.8,11. Eocene.
- ?*danicum* (W.Wetzel, 1952, p.396, pl.A, fig.5; text-fig.8) Davey
et al., 1969, p.15. Paleocene; formerly *Baltisphaeridium*,
Hystriosphæridium and *Areoligera*.
- disjunctum* Davey *et al.*, 1966, p.169, pl.11, fig.9. Early Eocene.
- **diversispinosum* Davey *et al.*, 1966, p.167, pl.10, fig.7. Early
Eocene.
- echinoides* (Maier, 1959, p.318, pl.32, fig.5-6) Davey *et al.*,
1969, p.15. Oligocene; formerly *Baltisphaeridium* and
Hystriosphæridium.
- ehrenbergi* (Deflandre, 1947c, text-fig.1, no.5) Davey *et al.*,
1969, p.16. Oxfordian; formerly *Baltisphaeridium* and
Hystriosphæridium.
- ?*flexuosum* Davey *et al.*, 1966, p.169, pl.2, fig.5. Cenomanian.
- "*heteracanthum*" (Deflandre & Cookson, 1955) NOW
Heterosphæridium.
- huguonioti* (Valensi, 1955a, p.38, text-fig.2a) Davey, 1969a,
p.135. Late Cretaceous; formerly *Hystriosphæridium* and
Baltisphaeridium.
- subsp. *pertusum* (Davey, 1969a) *stat. nov.*
1969a *Cleistosphæridium huguonioti* var. *pertusum*
Davey, p.156, pl.7, fig.6-7,9. Cenomanian.

CLEISTOSPHAERIDIUM (cont'd)

leve (Maier, 1959, p.308, pl.30, fig.1-2) Davey *et al.*, 1969, p.16. Oligocene-Miocene; formerly *Galea* and *Baltisphaeridium*.

lumectum (Sarjeant, 1960, p.139, pl.6, fig.1) Davey *et al.*, 1969, p.16. Late Oxfordian; formerly *Baltisphaeridium*.

multifurcatum (Deflandre, 1937b, p.76, pl.16, fig.1-3) Davey *et al.*, 1969, p.16. Late Cretaceous; formerly *Hystrichosphaeridium* and *Baltisphaeridium*.

multispinosum (Singh, 1964, p.141, pl.20, fig.1-2) Brideaux, 1971, p.93. Middle Albian-Early Cenomanian; formerly *Baltisphaeridium*.

oligacanthum (W.Wetzel, 1952, p.402, pl.A, fig.8; text-fig.21-22) Davey *et al.*, 1969, p.16. Paleocene; formerly *Hystrichosphaeridium* and *Baltisphaeridium*.

subsp. *complanatum* (W.Wetzel, 1952) *comb. nov.*

1952 *Hystrichosphaeridium oligacanthum* subsp. *complanatum*
W. Wetzel, p.404-405, pl.A, fig.11a-b.

subsp. *granulatum* (W.Wetzel, 1952) *comb. nov.*

1952 *Hystrichosphaeridium oligacanthum* subsp. *granulatum*
W. Wetzel, p.404, text-fig.25.

subsp. *stella* (W.Wetzel, 1952) *comb. nov.*

1952 *Hystrichosphaeridium oligacanthum* subsp. *stella*
W. Wetzel, p.403, pl.A, fig.4; text-fig.23.

subsp. *velatum* (W.Wetzel, 1952) *comb. nov.*

1952 *Hystrichosphaeridium oligacanthum* subsp. *velatum*
W. Wetzel, p.403-404, pl.A, fig.7; text-fig.24.

parvum Davey, 1969a, p.157, pl.7, fig.11-12. Cenomanian.

patagonicum Archangelsky, 1969b, p.200-201, pl.3, fig.9-10.
Eocene.

pectiniforme (Gerlach, 1961, p.195, pl.28, fig.14; text-fig.18)
Davey *et al.*, 1969, p.16. Oligocene; formerly *Baltisphaeridium*.

"*pilosum*" (Ehrenberg, 1843) NOW *Tenua*.

polyacanthum Gitmez, 1970, p.284-286, pl.12, fig.10; text-fig.22.
Basal Kimmeridgian.

polytrichum (Valensi, 1947, p.818, text-fig.4) Davey *et al.*, 1969, p.16. Late Bathonian; formerly *Baltisphaeridium* and *Hystrichosphaeridium*.

CLEISTOSPHAERIDIUM (cont'd)

polypes (Cookson & Eisenack, 1962b, p.491, pl.4, fig.11-13)
Davey, 1969a, p.154, pl.6, fig.7-8. Albian-Cenomanian;
formerly *Hystrichosphaeridium recurvatum* var. *polypes*.

subsp. *clavulum* (Davey, 1969a) *stat. nov.*
1969a *Cleistosphaeridium polypes* var. *clavulum*
Davey, p.154, pl.6, fig.9-10. Cenomanian.

?*spiralisetum* (deWit, 1943, p.383, text-fig.2,11) Davey *et al.*,
1969, p.16. Late Cretaceous; formerly *Hystrichosphaeridium*
and *Baltisphaeridium*.

tiara (Klumpp, 1953, p.390, pl.17, fig.8-10) Davey *et al.*, 1969,
p.16. Eocene; formerly *Baltisphaeridium*, *Hystrichosphaeridium*
and *Cordosphaeridium*.

tribuliferum (Sarjeant, 1962a, p.487, pl.70, fig.4; text-fig.6c-7)
Davey *et al.*, 1969, p.16. Oxfordian; formerly
Baltisphaeridium.

COBRICOSPHAERIDIUM Harland and Sarjeant, 1970, p.216-217.

**hebes* Harland and Sarjeant, 1970, p.217-218, pl.21, fig.1-2;
text-fig.2. Holocene.

spiniiferum Harland and Sarjeant, 1970, p.218-219, pl.21, fig.1,3;
text-fig.3. Holocene.

subsp. *elegans* Harland and Sarjeant, 1970, p.219-220, pl.21,
fig.4-5; text-fig.4. Holocene.

subsp. *spiniiferum* Harland and Sarjeant, 1970, p.218-219,
pl.21, fig.1,3; text-fig.3. Holocene.

"CODONIA" Cookson and Eisenack, 1960a, p.11. Junior homonym of
Codonia, Huebner, 1823. SEE *Codoniella*.

CODONIELLA Cookson and Eisenack, 1961a, p.75. (*nom. subst. pro*
Codonia Cookson & Eisenack, 1960a *non* Huebner, 1823)

**campanulata* (Cookson & Eisenack, 1960a, p.11, pl.3, fig.1-3)
Downie and Sarjeant, 1964 [1965], p.103. Santonian.

COMETODINIUM Deflandre and Courteville, 1939, p.98.

**obscurum* Deflandre and Courteville, 1939, p.99, pl.2, fig.1.
Turonian.

CONIFERATIUM Burgess, 1971, p.80-81.

**frontierensis* Burgess, 1971, p.81, pl.1, fig.6,9; text-fig.13.
Albian-Earliest Cenomanian.

CONOSPHERIDIUM Cookson and Eisenack, 1969, p.5.

The genus *Conosphaeridium* was erected by Cookson and Eisenack, 1969, p.5, with *Hystriichosphaeridium striatoconus* (Deflandre & Cookson, 1955) as the type of the genus. However, Sarjeant, 1969, p.14, transferred *H. striatoconus* to ?*Litosphaeridium* thus making *Conosphaeridium* a superfluous genus. The transfer of Sarjeant, 1969, is herein rejected and *Conosphaeridium* retained as a separate genus.

**striatoconus* (Deflandre & Cookson, 1955, p.275, pl.2, fig.10)
Cookson and Eisenack, 1969, p.5. Albian-Cenomanian;
formerly *Baltisphaeridium* and *Hystriichosphaeridium*.

tubulosum Cookson and Eisenack, 1969, p.5-6, pl.2, fig.D-F.
Albian-Cenomanian.

COOKSONIELLA Vozzhennikova, 1967, p.183.

?*damasii* (Lejeune-Carpentier, 1942) *comb. nov.*
1942 *Peridinium damasii* Lejeune-Carpentier
p.185-186, fig.10. Senonian.

manumi Vozzhennikova, 1967, p.184-185, pl.107, fig.1-4.
Turonian-Campanian.

?*paleocenica* (Cookson & Eisenack, 1965c) *comb. nov.*
1965c *Peridinium paleocenicum* Cookson and Eisenack, 1965c
p.142-143, pl.19, fig.1-4. Middle Paleocene.

scheii (Manum, 1963) *comb. nov.*
1963 *Deflandrea scheii* Manum, p.56-58, pl.1, fig.1-16;
text-fig.1. Middle Cretaceous.

**virgri* Vozzhennikova, 1967, p.185, pl.59, fig.2; pl.79, fig.3;
pl.107, fig.1; pl.109, fig.1-2; pl.110, fig.2-3.
Turonian-Santonian.

CORDOSPHAERIDIUM Eisenack, 1963b, p.261 emend. Davey, 1969c, p.35.

"*axialis*" (Eisenack, 1965) NOW *Lanternosphaeridium*.

biarmatum Morgenroth, 1966a, p.21, pl.4, fig.6-7. Early Eocene.

"*bipolare*" (Cookson & Eisenack, 1965b) NOW *Lanternosphaeridium*.

callosum Morgenroth, 1966a, p.21, pl.4, fig.8-10. Early Eocene.

cantharellum (Brosius, 1963, p.41, pl.6, fig.1) Gocht, 1969, p.45. Late Oligocene; formerly *Hystriichosphaeridium*.

capricornum Cookson and Eisenack, 1965a, p.128-129, pl.15, fig.1-9. Late Eocene.

"*centrocarpum*" (Deflandre & Cookson, 1955) NOW *Operculodinium*.

costatum (Davey & Williams, 1966b, p.62, pl.10, fig.4) Gorka, 1970, p.489-490. Oxfordian; formerly *Hystriichosphaeridium*.

cracenospinosum Davey and Williams, 1966b, p.87, pl.3, fig.4. Early Eocene.

"*diktyoplokus*" (Klumpp, 1953) NOW *Areosphaeridium*.

divergens (Eisenack, 1954, p.67, pl.9, fig.14) Eisenack, 1963b, p.262. Early Oligocene; formerly *Baltisphaeridium* and *Hystriichosphaeridium*.

eoinodes (Eisenack, 1958, p.402, pl.27, fig.3-4) Eisenack, 1963b, p.262. Late Aptian; formerly *Hystriichosphaeridium*.

?*erectum* (Manum & Cookson, 1964, p.14, pl.3, fig.5-6) Davey and Williams, 1969, p.6. Cretaceous; formerly *Hystriichosphaeridium*.

exilimum Davey and Williams, 1966b, p.87, pl.11, fig.2. Early Eocene.

?*fasciatum* Davey and Williams, 1966b, p.90, pl.7, fig.5-6. Early Barremian.

fibrospinosum Davey and Williams, 1966b, p.86, pl.5, fig.5. Early Eocene.

"*filosum*" (Wilson, 1967a) NOW *Turbiosphaera*.

floripes (Deflandre & Cookson, 1955, p.276, pl.7, fig.1-2,7) Eisenack, 1963b, p.262. Early Tertiary; formerly *Hystriichosphaeridium*.

CORDOSPHAERIDIUM (cont'd)

floripes (cont'd)

subsp. *breviradiatum* (Cookson & Eisenack, 1961b, p.44, pl.2, fig.10-11) Eisenack, 1963b, p.262. Late Eocene; formerly *Hystriichosphaeridium*.

funiculatum Morgenroth, 1966a, p.67, pl.9, fig.16; pl.12, fig.21. Early Eocene.

gracilis (Eisenack, 1954, p.66, pl.8, fig.17; pl.10, fig.3-8; pl.12, fig.7,21) Davey and Williams, 1966b, p.84. Oligocene.

inodes (Klumpp, 1953, p.391, pl.18, fig.1-2) Eisenack, 1963b, p.261. Late Eocene; formerly *Hystriichosphaeridium*.

subsp. *inodes* Klumpp, 1953, p.391, pl.18, fig.1-2. Late Eocene.

subsp. "*minimum*" (Morgenroth, 1966a) raised to specific rank by Benedek, 1972, p.25-26.

subsp. *minus* Morgenroth, 1966a, p.24, pl.5, fig.4-5. Early Eocene.

subsp. *robustum* Gocht, 1969, p.42, pl.2, fig.1-2. Eocene.

latispinosum Davey and Williams, 1966b, p.88, pl.5, fig.8. Early Eocene.

microtriaina (Klumpp, 1953, p.390, pl.17, fig.6-7) Eisenack, 1963b, p.263. Late Eocene; formerly *Hystriichosphaeridium*.

subsp. "*centrocarpum*" (Deflandre & Cookson, 1955) De Coninck, 1969, p.32. This designation is herein rejected. See *Operculodinium* Wall, 1967, p.110-111.

subsp. *nanum* (Rozen, 1965) *stat. nov.*
1965 *Cordosphaeridium microtriaina* var. *nanum* Rozen
p.311, pl.2, fig.7-8; text-fig.21. Late Eocene.

minimum (Morgenroth, 1966a, p.24, pl.5, fig.6-7) Benedek, 1972, p.25-26. Early Eocene; formerly *C. inodes* subsp. *minimum*.

multispinosum Davey and Williams, 1966b, p.89-90, pl.3, fig.6. Early Eocene.

palmatum (White) De Coninck, 1965, p.32. Late Cretaceous; formerly *Xanthidium*.

CORDOSPHAERIDIUM (cont'd)

solaster Morgenroth, 1966a, p.25, pl.5, fig.8-9. Early Eocene.

"*spinosum*" (White, 1842) NOW *Exochosphaeridium*.

tenuistriatum Heisecke, 1970, p.245, pl.7, fig.1; pl.12, fig.3-4.
Early Paleocene.

"*tiara*" (Klumpp, 1953) NOW *Cleistosphaeridium*.

uncinispinosum De Coninck, 1969, p.32-33, pl.9, fig.6-8.
Early Eocene.

xanthium Benedek, 1972, p.27-28, pl.9, fig.8; text-fig.9.
Middle-Late Oligocene.

CORNUDINIUM Pocock, 1972, p.93.

**stavelyense* Pocock, 1972, p.94, pl.24, fig.15-16. Late Bajocian.

CORONIFERA Cookson and Eisenack, 1958, p.45.

albertii Millioud, 1969, p.425-426, pl.1, fig.4. Late
Hauterivian.

**oceanica* Cookson and Eisenack, 1958, p.45, pl.12, fig.6. Albian.

CRIBROPERIDINIUM Neale and Sarjeant, 1962, p.443 emend.
Davey, 1969, p.125.

edwardsi (Cookson & Eisenack, 1958, p.32, pl.3, fig.5-6; text-
fig.7) Davey, 1969a, p.128. Albian-Early Turonian; formerly
Gonyaulax and *Gonyaulacysta*.

intricatum Davey, 1969a, p.125-128, pl.2, fig.1-3; text-fig.11-12.
Albian.

muderongensis (Cookson & Eisenack, 1958, p.32, pl.3, fig.3-4)
Davey, 1969a, p.128. Aptian; formerly *Gonyaulax*.

orthoceras (Eisenack, 1958, p.388, pl.21, fig.3-11; pl.24, fig.1)
Davey, 1969a, p.128-129. Aptian. Included in *C. edwardsi* by
Davey and Verdier, 1971, p.17, however correct citation was not
given. Included as *Gonyaulacysta orthoceras* by Singh, 1971,
p.307, and Dodekova, 1971, p.8. These transfers are herein
rejected on the basis of the morphology of this species which

CRIBROPERIDINIUM (cont'd)

orthoceras (cont'd)

conforms to that of the genus *Cribroperidinium*. Formerly *Gonyaulax*.

**sepimentum* Neale and Sarjeant, 1962, p.443, pl.19, fig.4; text-fig.3. Hauterivian.

ventriosum (O.Wetzel, 1933a) *comb. nov.*

1933a *Peridinium ventriosum* O. Wetzel
p.161-162, pl.2, fig.4-6; text-fig.1,8. Senonian;
formerly also *Palaeoperidinium*.

CRYPTARCAEODINIUM Deflandre, 1939, p.145 emend. Gitmez, 1970,
p.246.

**calcaratum* Deflandre, 1939, p.145, pl.6, fig.6 emend. Gitmez,
1970, p.246-248. Kimmeridgian.

CTENIDODINIUM Deflandre, 1938b, p.181 emend. Sarjeant, 1966b,
p.154.

combazi Dupin, 1968, p.2, pl.1, fig.1-6. Middle & Late
Bathonian.

continuum Gocht, 1970b, p.141-142, pl.26, fig.3; pl.27, fig.5;
pl.29, fig.1-2; pl.32, fig.15; pl.33, fig.8. Early Bathonian.

culmulum (Norris, 1965) *comb. nov.*

1965 *Gonyaulax culmula* Norris, p.793-795, fig.1-2,6-9.
Tithonian; also formerly *Dichadogonyaulax*.

elegantulum Millioud, 1969, p.427, pl.2, fig.1-3. Late
Hauterivian-Barremian.

**ornatum* (Eisenack, 1935, p.176, pl.4, fig.9-10) Deflandre, 1938b,
p.181. Oxfordian; formerly *Lithodinia jurassica* var. *ornata*.
The transfer of this species to *Gonyaulacysta* by Pocock, 1972,
p.87-88, is rejected herein on the basis of morphology. This
species has an epitrectal archeopyle (combination \overline{AP}) whilst
forms within *Gonyaulacysta* have a simple precingular archeopyle.
The apical "horn", a diagnostic feature of *Gonyaulacysta*, is
absent in this species.

pachydermum (Deflandre, 1938b, p.176, pl.7, fig.6-10; text-fig.7-10)
Gocht, 1970b, p.142-143. Oxfordian; formerly *Gonyaulax* and
Gonyaulacysta.

CTENIDODINIUM (cont'd)

panneum (Norris, 1965) *comb. nov.*

1965 *Leptodinium panneum* Norris, p.796-798,
fig.3,10-13. Kimmeridgian-Tithonian; formerly
Dichadogonyaulax.

schizoblattum (Norris, 1965) *comb. nov.*

1965 *Leptodinium schizoblattum* Norris, p.798-800, fig.4-5,14-17.
Late Tithonian; also formerly *Dichadogonyaulax*.

tenellum Deflandre, 1938b, p.182, pl.9, fig.9-10. Oxfordian.

CYCLODICTYON Cookson and Eisenack, 1958, p.58.

minor Pocock, 1972, p.101, pl.23, fig.10. Callovian.

**paradoxus* Cookson and Eisenack, 1958, p.58-59, pl.12, fig.1-2.
Cenomanian-Early Turonian.

CYCLONEPHELIUM Deflandre and Cookson, 1955, p.285. emend.
Williams and Downie, 1966c, p.223.

areolatum Cookson and Eisenack, 1960b, p.253, pl.38, fig.7-8.
Tithonian.

?*attadalicum* Cookson and Eisenack, 1962b, p.495, pl.5, fig.12-15.
Aptian-Albian.

clathromarginatum Cookson and Eisenack, 1962b, p.495, pl.6,
fig.1-4. Late Albian-Cenomanian.

**compactum* Deflandre and Cookson, 1955, p.285, pl.2, fig.11-13;
text-fig.44-46. Albian-Santonian.

densebarbatum Cookson and Eisenack, 1960b, p.253, pl.38, fig.10.
Tithonian.

distinctum Deflandre and Cookson, 1955, p.285-286, pl.2, fig.14;
text-fig.47-48. Senonian.

subsp. *brevispinatum* (Millioud, 1969) *stat. nov.*

1969 *Cyclonephelium distinctum* var. *brevispinatum* Millioud,
p.427-428, pl.1, fig.8-9. Late Hauterivian-Early Aptian.

divaricatum Williams and Downie, 1966c, p.223-224, pl.25, fig.1;
text-fig.60. Early Eocene.

CYCLONEPHELIUM (cont'd)

- eisenacki* Davey, 1969a, p.170, pl.8, fig.3-4; pl.9, fig.4; text-fig.16a-b. Albian.
- "*exuberans*" Deflandre and Cookson, 1955, p.285, *nom. nud.*
Since there was no description, no holotype designated and no figures given this is a *nomen nudum*.
- hughesi* Clarke and Verdier, 1967, p.21-22, pl.2, fig.6; text-fig.8. Cenomanian-Early Turonian.
- incultum* Morgenroth, 1966b, p.9, pl.2, fig.5. Early Oligocene.
- intricatum* Eaton, 1971, p.365, pl.4, fig.8-10. Middle Eocene.
- laciniiforme* Gerlach, 1961, p.206, pl.29, fig.4. Middle-Late Oligocene.
- lemniscatum* Stanley, 1965, p.229-230, pl.24, fig.1-6.
Paleocene.
- membraniphorum* Cookson and Eisenack, 1962b, p.495, pl.6, fig.8-14.
Albian-Cenomanian.
- ordinatum* Williams and Downie, 1966c, p.225-227, pl.25, fig.3;
text-fig.62. Early Eocene.
- "*pastielsi*" Deflandre and Cookson, 1955, p.285, *nom. nud.*
Since there was no description, no holotype designated and no figures given this is a *nomen nudum*.
- paucimarginatum* Cookson and Eisenack, 1962b, p.494, pl.6, fig.5-7.
?Late Albian-Cenomanian.
- paucispinum* Davey, 1969a, p.170, pl.9, fig.1-2. Cenomanian.
- reticulosum* Gerlach, 1961, p.204, pl.29, fig.2. Middle-Late Oligocene.
- retiintertextum* Cookson, 1965a, p.88, pl.11, fig.4. ?Senonian.
- semicirculatum* Morgenroth, 1966b, p.9-10, pl.2, fig.3-4.
Middle Oligocene.
- vannophorum* Davey, 1969a, p.168-170, pl.9, fig.3; pl.11,
fig.11-12; text-fig.16E. Cenomanian.
- variabile* Cookson and Eisenack, 1967a, p.134-135, pl.19, fig.9-11.
Paleocene.

CYCLONEPHELIUM (cont'd)

vitulare Cookson, 1965b, p.138-139, pl.24, fig.1-7. Paleocene.

CYCLOPSIELLA Drugg and Loeblich, 1967, p.188,190.

**elliptica* Drugg and Loeblich, 1967, p.190, pl.3, fig.1-6;
text-fig.7. Oligocene.

vieta Drugg and Loeblich, 1967, p.192,194, pl.3, fig.7-9;
text-fig.8. Oligocene.

CYSTIDIOPSIS Nagy, 1965, p.209. Questionable affinity.

**certus* Nagy, 1965, p.209-210, pl.5, fig.27-30. Middle Miocene.

"*CYSTODINIOPSIS*" Vozzhennikova, 1963, p.185, *nom. nud.*

See Loeblich and Loeblich, 1969, p.194. *C. "hyperxantha"*
NOW *Palaeocystodinium*.

DANEA Morgenroth, 1968, p.541-542.

**mutabilis* Morgenroth, 1968, p.542-544, pl.43, fig.5-9; pl.44,
fig.1-3. Danian.

DAPCODINIUM Evitt, 1961a, p.996.

**priscum* Evitt, 1961a, p.996-1001, pl.19, fig.1-14; text-fig.1-20.
Hettangian (Lias).

DEFLANDREA Eisenack, 1938, p.187, emend. Williams and Downie, 1966c,
p.231.

acribes Davey and Verdier, 1971, p.38-39, pl.2, fig.10,12.
Early Albian.

acuminata Cookson and Eisenack, 1958, p.27, pl.4, fig.5-8.
Cenomanian-Early Turonian.

acutula Wilson, 1967b, p.225-226, fig.11-12. ?Paleocene.

andromiensis Vozzhennikova, 1967, p.142-143, pl.71, fig.3-4;
pl.72, fig.1-2. Eocene.

antarctica Wilson, 1967a, p.58,60, fig.23-24,26-27. Erratics,
probably Eocene.

DEFLANDREA (cont'd)

arcuata Vozzhennikova, 1967, p.143-144, pl.66, fig.1; pl.68, fig.3a-b. Late Eocene-Early Oligocene.

armata Cookson and Eisenack, 1970a, p.142-143, pl.13, fig.9. Senonian.

asymmetrica Wilson, 1967a, p.62-63, fig.17-21. Erratics, probably Eocene.

"*asymmetrica*" (Davey & Verdier, 1971) NOW *Deflandrea daveyi*.

bakeri Deflandre and Cookson, 1955, p.251, pl.4, fig.1-2,4. Paleocene-Early Eocene.

balcattensis Cookson and Eisenack, 1969, p.3,5, fig.1B-F. Albian-Cenomanian.

balmei Cookson and Eisenack, 1962b, p.486, *nom. subst. pro Deflandrea minor* Cookson and Eisenack, 1960a, p.2, pl.1, fig.1-4. Late Turonian-Middle Senonian.

belfastensis Cookson and Eisenack, 1961a, p.71, pl.11, fig.4-6. Senonian.

campbellensis Wilson, 1967b, p.225, fig.2-3. Paleocene.

"*cineta*" (Cookson & Eisenack, 1958) NOW *Pocockia*.

"*conica*" Vozzhennikova, 1960, *nom. nud.* No description.

"*cooksoni*" (Alberti, 1959b) NOW *Australiella*.

cretacea Cookson, 1956, p.184-185, pl.1, fig.1-5. (non 6-7, which are now *Nelsoniella aceras*). Late Cretaceous.

cygniiformis Pothé de Baldis, 1966, p.221, pl.2, fig.C. Early Tertiary.

dakotaensis Stanley, 1965, p.217-218, pl.19, fig.1-3. Paleocene.

danica Lange, 1969, p.114-115, pl.1, fig.6. Danian.

dartmooria Cookson and Eisenack, 1965b, p.133-134, pl.16, fig.1-2; text-fig.1. Paleocene.

DEFLANDREA (cont'd)

daveyi nom. nov., nom. subst. pro. *D. asymmetrica* Davey and Verdier, 1971 (p.39-40, pl.2, fig.4,6 - Holotype fig.6)
non. *D. asymmetrica* Wilson, 1967a, p.62-63. Middle Albian.

delicata Baltes ex Lentin and Williams sp. nov.
1969 *Deflandrea delicata* (provisional designation) Baltes,
p.34, pl.1, fig.7; Holotype pl.1, fig.7. Early Eocene.

delineata Cookson and Eisenack, 1965c, p.140-141, pl.18, fig.3-5;
text-fig.1. Paleocene.

denticulata Alberti, 1959b, p.102-103, text-fig.1. Paleocene-
Early Eocene.

subsp. *minor* De Coninck, 1969, stat. nov.
1969 *Deflandrea denticulata* forma *minor*
p.16, pl.1, fig.16-17; pl.2, fig.1-2. Early Eocene.

depressa Morgenroth, 1966a, p.8, pl.1, fig.2. Early Eocene.

"*diebeli*" (Alberti, 1959b) NOW *Ceratiopsis*.

dilwynensis Cookson and Eisenack, 1965c, p.141, pl.18, fig.6-9.
Paleocene.

dissoluta Vozzhennikova, 1967, p.144, pl.73, fig.1-4. Eocene.

distincta Wilson, 1967a, p.63-64, fig.9-10. Erratics. Early
Tertiary.

echinoidea Cookson and Eisenack, 1960a, p.2, pl.1, fig.5-6.
Santonian-Campanian.

ectorugosa Archangelsky, 1969b, p.192, pl.1, fig.5-7. Late
Eocene.

endopapillata Archangelsky, 1969b, p.192-193, pl.1, fig.8-9;
pl.2, fig.3-4. Late Eocene.

eocenica Baltes ex Lentin and Williams sp. nov.
1969 *Deflandrea eocenica* (provisional designation) Baltes,
p.34, pl.5, fig.8-9; Holotype - fig.9. Early Eocene.

euthema Davey and Verdier, 1971, p.40, pl.3, fig.1-3.
Middle-Late Albian.

eyrensis Cookson and Eisenack, 1971, p.217-218, pl.7, fig.2-3.
Albian-Cenomanian.

DEFLANDREA (cont'd)

- ?*filigrana* Benedek, 1972, p.12-13, pl.4, fig.3. Middle Oligocene.
- foliacea* Eisenack and Cookson, 1960, p.2, pl.1, fig.3.
Turonian-Middle Senonian.
- fuegiensis* Menendez, 1965, p.8-9, pl.1, fig.1-3; pl.3, fig.16.
Late Cretaceous.
- galeata* (Lejeune-Carpentier, 1942) *comb. nov.*
1942 *Peridinium galeatum* Lejeune-Carpentier,
p.186-188, fig.15-20. Senonian.
- gambangensis* Cookson and Eisenack, 1970a, p.140, pl.11, fig.1-2.
Senonian.
- glabra* Cookson and Eisenack, 1969, p.3, fig.1A. Albian-
Cenomanian.
- globosa* Davey, 1970, p.344, pl.2, fig.3. Cenomanian.
- glomerata* Davey, 1970, p.343-344, pl.1, fig.7-9. Albian-
Cenomanian.
- granulata* Menendez, 1965, p.9-10, pl.1, fig.4. Eocene-Oligocene.
- "*granulifera*" (Manum, 1963) NOW *Australiella*.
- granulosa* Cookson and Eisenack, 1965a, p.122, pl.11, fig.8-9.
Late Eocene.
- heterophlycta* Deflandre and Cookson, 1955, p.249, pl.5, fig.6;
text-fig.5. Late Eocene.
- subsp. *pusulosa* (Rozen, 1965) *stat. nov.*
1965 *Deflandrea heterophlycta* forma *pusulosa* Rozen
p.293-294, pl.1, fig.3-4; text-fig.2. Late Eocene.
- hialina* Baltes ex Lentin and Williams *sp. nov.*
1969 *Deflandrea hialina* (provisional designation) Baltes,
p.34, pl.1, fig.3-4; Holotype - fig.4. Oligocene-Early Miocene.
- ingrami* Cookson and Eisenack, 1970a, p.143, pl.12, fig.7-9.
Senonian.
- irmoechinata* Heisecke, 1970, p.230, pl.1, fig.3; pl.2, fig.2-3.
Early Paleocene.

DEFLANDREA (cont'd)

- ?*kansana* (Tasch, 1964) *comb. nov.*
1964 *Peridinium kansanum* Tasch, p.196, pl.1, fig.1. Albian.
- korojonensis* Cookson and Eisenack, 1958, p.27-28, pl.4, fig.10-11.
Campanian-Early Maastrichtian.
- lata* Cookson and Eisenack, 1968, p.110, text-fig.1 A-C.
?Santonian-Earliest Campanian.
- leavigata* Malloy, 1972, p.64, pl.1, fig.1-7. Senonian.
- leptodermata* Cookson and Eisenack, 1965a, p.121-122, pl.11,
fig.6-7. Late Eocene.
- "*limpida*" Singh, 1971, p.359-361, pl.61, fig.1-12; text-fig.62.
Middle-Late Albian. This name is herein considered to
be a Jr. Syn. of *Spinidinium vestitum* Brideaux, 1972,
p.99-101.
- longispinosa* Wilson, 1968, p.59-60, fig.1-10. Paleocene or
Early Eocene.
- macmurdoensis* Wilson, 1967a, p.60-62, fig.11-16,22; text-fig.2a.
Erratics. Early Tertiary.
- macrocyta* Cookson and Eisenack, 1960a, p.3, pl.1, fig.7-8.
Campanian.
- madurensis* Cookson and Eisenack, 1970a, p.140, pl.11, fig.3-4.
Senonian.
- magna* Davey, 1970, p.342-343, pl.2, fig.6-8. Cenomanian.
- magnifica* Stanley, 1965, p.218-219, pl.20, fig.1-6. Paleocene.
- marumi* Cookson and Eisenack, 1970a, p.141-142, pl.11, fig.10-11.
Senonian.
- menendezii* Pathé de Baldis, 1966, p.223, pl.2, fig.A. Early
Tertiary.
- "*micracantha*" (Cookson & Eisenack, 1960a) NOW *Australiella*.
- microgranulata* Stanley, 1965, p.219, pl.19, fig.4-6. Paleocene.
- minor* Alberti, 1959b, p.98, pl.9, fig.9-11. Late Senonian.

DEFLANDREA (cont'd)

- "*minor*" (Cookson and Eisenack, 1960a) Jr. homonym of *D. minor* Alberti, 1959. NOW *D. balmei*.
- multispinosa* Cookson and Eisenack, 1970a, p.141, pl.11, fig.7-9. Albian-Cenomanian.
- nucula* Cookson and Eisenack, 1962b, p.486, pl.1, fig.13. Senonian.
- obliquipes* Deflandre and Cookson, 1955, p.252, pl.4, fig.6. Middle Paleocene-Early Eocene.
- obscura* Drugg, 1967, p.17, pl.2, fig.8-9; pl.9, fig.5. Maastrichtian-Danian.
- oebisfeldensis* Alberti, 1959b, p.95-96, pl.8, fig.10-13. Paleocene-Early Eocene.
- subsp. *angustata* (Vozzhennikova, 1967) *stat. nov.*
1967 *Deflandrea oebisfeldensis* forma *angustata*
Vozzhennikova, p.146-147, pl.72, fig.3-4. Eocene.
- subsp. *oebisfeldensis* Alberti, 1959b, p.95-96, pl.8, fig.10-13. Paleocene-Early Eocene.
- subsp. *ovalis* (Vozzhennikova, 1967) *stat. nov.*
1967 *Deflandrea oebisfeldensis* forma *ovalis*
Vozzhennikova, p.146, pl.71, fig.2. Eocene.
- pachyceros* Deflandre and Cookson, 1955, p.252, pl.4, fig.7. Late Paleocene-Early Eocene.
- pannucea* Stanley, 1965, p.220, pl.22, fig.1-4, 8-10. Paleocene.
- "*parva*" (Cookson & Eisenack, 1958) NOW *Ascodinium*.
- pellucida* (Deflandre & Cookson, 1955, p.251, pl.4, fig.3)
Cookson and Eisenack, 1958, p.27, pl.4, fig.9. Paleocene-Early Eocene; raised from *D. bakeri* forma *pellucida*.
- pentaradiata* Cookson and Eisenack, 1965c, p.139-140, pl.18, fig.1-2. Paleocene.
- perlucida* Alberti, 1959b, p.102, pl.9, fig.16-17. Late Barremian.
- **phosphoritica* Eisenack, 1938, p.187, text-fig.6. Late Eocene-Early Oligocene.

DEF LANDREA (cont'd)

**phosphoritica* (cont'd)

subsp. *australis* Cookson and Eisenack, 1961b, p.39-40, pl.1, fig.2-3. Eocene.

var. *lata* (Vozzhennikova, 1967) *stat. nov.*

1967 *Deflandrea phosphoritica australis* forma *lata* Vozzhennikova, p.142, pl.69, fig.5-6. Eocene-Early Oligocene.

subsp. *phosphoritica* Eisenack, 1938, p.187, text-fig.6. Late Eocene-Early Oligocene.

var. *attenuata* (Vozzhennikova, 1967) *stat. nov.*

1967 *Deflandrea phosphoritica phosphoritica* forma *attenuata* Vozzhennikova, p.140-141, pl.65, fig.2-4; pl.67, fig.2-4; pl.69, fig.4; pl.70, fig.1,4,6-7,10. Eocene-Early Oligocene.

var. *phosphoritica* Eisenack, 1938, p.187, text-fig.6. Late Eocene-Early Oligocene.

pilosa Davey, 1969b, p.9, pl.3, fig.2,5. Campanian-Maastrichtian.

pirmaensis Alberti, 1959b, p.100, pl.8, fig.1,5. Middle Turonian.

?*plea* (Tasch, 1964) *comb. nov.*

1964 ?*Peridinium pleum* Tasch, p.196, pl.1, fig.15. Albian.

"*pontis-mariae*" (Deflandre, 1936b) NOW *Ascodinium*.

rectangularis Cookson and Eisenack, 1962b, p.486, pl.1, fig.14-15. Late Turonian-Middle Senonian.

rhombovalis Cookson and Eisenack, 1970a, p.143, pl.12, fig.10-11. Late Albian-Senonian.

robusta Deflandre and Cookson, 1955, p.250, pl.4, fig.9. Eocene.

rotundata Eisenack and Cookson, 1960, p.2, pl.1, fig.1-2. Albian.

sagittula Drugg, 1970b, p.809-810, fig.1 A-C. Early Eocene.

"*scheii*" (Manum, 1963) NOW *Cooksoniella*.

DEFLANDREA (cont'd)

serratula Cookson and Eisenack, 1958, p.28, pl.4, fig.4.
Campanian-Early Maastrichtian.

speciosa Alberti, 1959b, p.97, pl.9, fig.12-13. Late Paleocene.

subsp. *glabra* (Gocht, 1969) *stat. nov.*

1969 *Deflandrea speciosa* forma *glabra* Gocht, p.10,
text-fig.3. Late Paleocene.

"*spectabilis*" (Alberti, 1959b) NOW *Australiella*.

spinosissima Cookson and Eisenack, 1970a, p.141, pl.11, fig.5-6.
Senonian.

spinulosa Alberti, 1959b, p.95, pl.8, fig.8-9. Middle-Late
Oligocene.

striata Drugg, 1967, p.18, pl.2, fig.13-14. Danian.

sverdrupiana Manum, 1963, p.59-60, pl.2, fig.6-15; text-fig.3.
Cenomanian.

?*tenera* Krutzsch, 1962, p.44, pl.11, fig.20-22; text-fig.1e.
Middle Eocene.

thomasi Cookson and Eisenack, 1961a, p.71-72, pl.11, fig.7-10.
Senonian.

"*tripartita*" (Cookson & Eisenack, 1960a) NOW *Australiella*.

ventriosa Alberti, 1959b, p.101, pl.9, fig.14-15. Early Aptian.

"*verrucosa*" (Manum, 1963) NOW *Australiella*.

"*victoriensis*" (Cookson & Manum, 1964) NOW *Australiella*.

wardenensis Williams and Downie, 1966c, p.233, pl.26, fig.5.
Early Eocene.

wellingtoniana Tasch, 1963, p.336, pl.1, fig.9. Early Permian.

wetzeli Morgenroth, 1966a, p.9, pl.1, fig.4-5. Early Eocene.

DEFLANDRIDIMUM Nagy, 1969, p.294.

**stellatum* Nagy, 1969, p.294, pl.2, fig.1,3-4,6. Middle Miocene.

DIACANTHUM Habib, 1972, p.376.

**hollisteri* Habib, 1972, p.376-377, pl.9, fig.1,3; pl.10, fig.1;
text-fig.2. probably Valanginian.

DIACROCANTHIDIUM Deflandre and Foucher, 1967, p.3. The type of
this genus "*D. echinulata*" was invalidly transferred from
Palaeostomocystis. See Loeblich and Loeblich, 1970b, p.200.

**echinulata* (Deflandre, 1937b, p.55, pl.11, fig.9) Loeblich and
Loeblich, 1970b, p.200. Late Cretaceous; formerly
Palaeostomocystis.

spinigerum De Coninck, 1969, p.43-44, pl.13, fig.11-13.

"*DICHADOGONYAULAX*" Sarjeant, 1966b, p.153, considered by the authors
to be a Jr. Syn. of *Ctenidodinium* and is made a superfluous
genus herein by the transfer of the type of the genus
(*D. culmulum*) and all species to *Ctenidodinium*.

DICONODINIUM Eisenack and Cookson, 1960, p.3.

arcticum Manum and Cookson, 1964, p.18-19, pl.6, fig.1-4.
Cenomanian.

caulleryi (Deflandre, 1935, p.229, pl.6, fig.4) Deflandre, 1966,
p.4. Senonian; formerly *Palaeoperidinium*.

dabendorfense (Alberti, 1961) *comb. nov.*
1961 *Gymnodinium dabendorfense* Alberti, p.5, pl.3, fig.4.
Valeangianian.

dispersum (Cookson & Eisenack, 1958, p.39, pl.10, fig.12,14)
Eisenack and Cookson, 1960, p.3. Albian-Cenomanian;
formerly *Palaeohystrichophora*.

?*fehmarrense* (Morgenroth, 1966a) *comb. nov.*
1966a *Gymnodinium fehmarrense* Morgenroth, p.4-5, pl.1, fig.1.
Early Eocene.

glabrum Eisenack and Cookson, 1960, p.3-4, pl.1, fig.11.
Late Albian-Cenomanian.

inequicornutum Baltes, 1971, p.5, pl.1, fig.8-12. Early Pliocene.

inflatum Eisenack and Cookson, 1960, p.4, pl.1, fig.12-13.
Late Albian-Cenomanian.

DICONODINIUM (cont'd)

minutum (Deflandre & Cookson, 1955, p.257, fig.4) Deflandre and Deflandre-Rigaud, 1966. Santonian; formerly *Palaeohystrichophora*.

**multispinum* (Deflandre & Cookson, 1955, p.257, pl.1, fig.5) Eisenack and Cookson, 1960, p.3. Santonian; formerly *Palaeohystrichophora*.

pelliferum (Cookson & Eisenack, 1958, p.38, pl.10, fig.11) Eisenack and Cookson, 1960, p.3. Albian; formerly *Palaeohystrichophora*.

pusillum Singh, 1971, p.383-384, pl.68, fig.5-8. Middle-Late Albian.

rhombiformis Vozzhennikova, 1967, p.50, pl.7, fig.1-4; pl.15, fig.5. Turonian.

tenuistriatum Eisenack and Cookson, 1960, p.4, pl.1, fig.14-16. Late Albian-Cenomanian.

ventriosum (Alberti, 1961) *comb. nov.*
1961 *Gymmodinium ventriosum* Alberti, p.5-6, pl.3, fig.5. Turonian.

DICTYOPYXIDIA Eisenack, 1961, p.316 (*nom. subst. pro Dictyopyxis* Cookson & Eisenack, 1960b).

**areolata* (Cookson & Eisenack, 1960b, p.255, pl.39, fig.12-14) Eisenack and Kjellström, 1971a, p.347. Oxfordian-Early Kimmeridgian.

circulata Clarke and Verdier, 1967, p.67-68, pl.1, fig.11; pl.2, fig.3; text-fig.28. Cenomanian-Santonian.

reticulata (Valensi, 1953) *comb. nov.*
1953 *Palaeoperidinium reticulatum* Valensi, p.28, pl.2, fig.4-5, 14,19; pl.13, fig.6; text-fig.2d. This species was transferred to the genus "*Dictyopyxis*" by Sarjeant, 1968, p.203. Bajocian.

"DICTYOPYXIS" Cookson and Eisenack, 1960b, p.255. *non Dictyopyxis* Ehrenberg - (a diatom.). SEE *Dictyopyxidida*.

DICTYOSPHAERIDIUM W. Wetzel, 1952, p.406.

**deflandrei* W. Wetzel, 1952, p.406, pl.A, fig.12. Late Cretaceous.

DINGODINIUM Cookson and Eisenack, 1958, p.39.

?*albertii* Sarjeant, 1966c, p.210-211, pl.21, fig.3; pl.23, fig.1. Early Barremian.

cerviculum Cookson and Eisenack, 1958, p.40, pl.1, fig.12-14. Late Neocomian-Aptian.

cooksonae Pocock, 1972, p.99, pl.23, fig.9; text-fig.16. Oxfordian-Kimmeridgian.

europaeum Eisenack, 1958, p.392-393, pl.24, fig.4. Late Aptian.

**jurassicum* Cookson and Eisenack, 1958, p.39, pl.1, fig.10-11. Late Jurassic.

DINOGYMNIUM Evitt *et al.*, 1967, p.4-8.

**acuminatum* Evitt *et al.*, 1967, p.8-16, pl.1. & 2; pl.3, fig.1-8,10,12,20; text-fig.11-23. Maastrichtian.

albertii Clarke and Verdier, 1967, p.33, pl.17, fig.3-4; text-fig.13. Santonian.

avellana (Lejeune-Carpentier, 1951, p.B-309, text-fig.3) Evitt *et al.*, 1967, p.16-17. Maastrichtian; formerly *Gymmodinium*.

cerviculum Cookson and Eisenack, 1970a, p.138, pl.10, fig.6. Senonian.

cretaceum (Deflandre, 1935, p.225, pl.5, fig.6-8; text-fig.4-5) Evitt *et al.*, 1967, p.17-18. ?Senonian; formerly *Gymmodinium*.

curvatum (Vozzhennikova, 1967) *comb. nov.*
1967 *Gymmodinium curvatum* Vozzhennikova, p.43, pl.1, fig.10-12; pl.4, fig.2-3. Senonian.

decorum (Deflandre, 1943, p.503, pl.17, fig.2; text-fig.8-9) Evitt *et al.*, 1967, p.18. Senonian; formerly *Gymmodinium*.

denticulatum (Alberti, 1961, p.5, pl.6, fig.2-3) Evitt *et al.*, 1967, p.18. Senonian; formerly *Gymmodinium*.

DINOGYMNIUM (cont'd)

digitus (Deflandre, 1935, p.225, text-fig.7-8) Evitt *et al.*, 1967, p.18-19. Senonian; formerly *Gymmodinium*.

subsp. *crassus* (Vozzhennikova, 1967) *comb. nov.*, *stat. nov.*
1967 *Gymmodinium digitus* var. *crassus* Vozzhennikova, p.44, pl.5, fig.3,9-10. Turonian.

euclaenis Cookson and Eisenack, 1970a, p.139, pl.10, fig.9-12. Senonian.

heterocostatum (Deflandre, 1935, p.225, text-fig.6) Evitt *et al.*, 1967, p.19-20. ?Senonian; formerly *Gymmodinium*.

subsp. *kolpaschevi* (Vozzhennikova, 1967) *comb. nov.*, *stat. nov.*
1967 *Gymmodinium heterocostatum* var. *kolpaschevi*
Vozzhennikova, p.45, pl.3, fig.5. Senonian.

hexagonum (Deflandre-Rigaud, 1954, p.58, text-fig.1-2) Evitt *et al.*, 1967, p.20. Campanian ? Maastrichtian; formerly *Gymmodinium*.

hyalinum (Vozzhennikova, 1967) *comb. nov.*
1967 *Gymmodinium hyalinum* Vozzhennikova, p.45, pl.1, fig.9; pl.2, fig.6; pl.3, fig.4; pl.5, fig.11. Senonian.

kasachstanicum (Vozzhennikova, 1967) *comb. nov.*
1967 *Gymmodinium kasachstanicum* Vozzhennikova, p.45-46, pl.2, fig.4a-b; pl.3, fig.9a-b. Campanian-Maastrichtian.

laticinctum (Deflandre, 1943, p.501, pl.17, fig.3; text-fig.11) Evitt *et al.*, 1967, p.20. ?Senonian; formerly *Gymmodinium*.

longicornis (Vozzhennikova, 1967) *comb. nov.*
1967 *Gymmodinium longicornis* Vozzhennikova, p.46, pl.1, fig.8; pl.3, fig.6; pl.4, fig.6a-b & 7. Senonian.

marthae (Deflandre, 1943, p.500, pl.17, fig.1; text-fig.1-4) Evitt *et al.*, 1967, p.21. Senonian; formerly *Gymmodinium*.

microgranulosum Clarke and Verdier, 1967, p.34-35, pl.5, fig.7-10; text-fig.14. Santonian.

mitratum (Vozzhennikova, 1967) *comb. nov.*
1967 *Amphidinium mitratum* Vozzhennikova, p.40, pl.1, fig.2. Turonian-Senonian.

muticum (Vozzhennikova, 1967) *comb. nov.*
1967 *Gymmodinium muticum* Vozzhennikova, p.46-47, pl.1, fig.6-7; pl.2, fig.9. Senonian.

DINOGYMNIUM (cont'd)

nelsonense (Cookson, 1956, p.183, pl.1, fig.8-11) Evitt *et al.*, 1967, p.21-23. Senonian; formerly *Gymmodinium*.

sibiricum (Vozzhennikova, 1967) *comb. nov.*

1967 *Gymmodinium sibiricum* Vozzhennikova, p.47-48, pl.2, fig.2-3-b; pl.3, fig.2-3. Senonian.

Since this species was a *nomen nudum* when first erected in 1963 its transfer to *Dinogymnium* by Evitt *et al.*, 1967, p.23, was invalid. The validation of the species by Vozzhennikova in 1967 in the genus *Gymmodinium* requires the present transfer.

sphaerocephalum (Vozzhennikova, 1967) *comb. nov.*

1967 *Gymmodinium sphaerocephalum* Vozzhennikova, p.48, pl.2, fig.7; pl.3, fig.1. Senonian.

subsp. *laevis* (Vozzhennikova, 1967) *comb. nov.*, *stat. nov.*

1967 *Gymmodinium sphaerocephalum* var. *laevis* Vozzhennikova, p.48, pl.1, fig.4; pl.2, fig.5. Senonian.

strombomorphum (Deflandre, 1943, p.501, pl.17, fig.4-6; text-fig.5-7) Evitt *et al.*, 1967, p.23. ?Senonian; formerly *Gymmodinium*.

undulosum Cookson and Eisenack, 1970a, p.138, pl.10, fig.3. Senonian.

vozhennikovae *nom. nov.*, *nom. subst. pro. Gymmodinium albertii* Vozzhennikova, 1967, p.41-42, pl.5, fig.7-8. Turonian. *non Dinogymnium albertii* Clarke and Verdier, 1967, p.33.

westralium (Cookson & Eisenack, 1958, p.25, pl.1, fig.9) Evitt *et al.*, 1967, p.23-24. Senonian; formerly *Gymmodinium*.

DINOPTERYGIUM Deflandre, 1935, p.231.

Oodnadattia Eisenack and Cookson, 1960, p.6, is a Jr. Syn. of this genus; see discussion in Norris and Sarjeant, 1965, p.44. Also Clarke and Verdier, 1967, p.36, listed the type of the genus *Oodnadattia*, *O. tuberculata* as a Junior Synonym of *Dinopterygium cladoides*.

**cladoides* Deflandre, 1935, p.231, pl.8, fig.6. Senonian.

cooksonii (Kimyai, 1966) *comb. nov.*

1966 *Oodnadattia cooksonii* Kimyai, p.471, pl.2, fig.21. Cenomanian.

"*perforatum*" (Clarke & Verdier, 1967) NOW *Pterodinium*.

"*tuberculatum*" (Eisenack & Cookson, 1960) Jr. Syn. of *D. cladoides*.

DIOXYA Cookson and Eisenack, 1958, p.59.

**armata* Cookson and Eisenack, 1958, p.59, pl.11, fig.11; text-fig.20. Albian.

villosa Eisenack and Cookson, 1960, p.10, pl.2, fig.15-16. Albian.

DIPHYES Cookson, 1965a, p.85 emend. Davey and Williams, 1966b, p.95-96.

appendicularis Cookson and Eisenack, 1970a, p.149, pl.13, fig.5. Senonian.

**colligerum* (Deflandre & Cookson, 1955, p.278, pl.7, fig.3) Cookson, 1965a, p.86-87. Early Eocene; formerly *Baltisphaeridium* and *Hystrichosphaeridium*.

?*monstruosum* (Tasch, 1964, p.195, pl.1, fig.12) Davey and Williams, 1969, p.7. Albian; formerly *Hystrichosphaeridium*.

"*nudum*" (Cookson, 1965a) NOW *Duosphaeridium*.

DIPLOFUSA Cookson and Eisenack, 1960a, p.10.

**gearlensis* Cookson and Eisenack, 1960a, p.10, pl.3, fig.10. Cenomanian.

"*DIPLOTESTA*" (Cookson & Eisenack, 1960b, non Brongniart, 1874) NOW *Wallodinium*.

DISPHAERIA Cookson and Eisenack, 1960a, p.11.

**macropyla* Cookson and Eisenack, 1960a, p.11, pl.3, fig.13-14. Turonian.

DISPHAEROGENA O. Wetzel, 1933b, p.51.

**carposphaeropsis* O. Wetzel, 1933b, p.51, pl.4, fig.34. Late Cretaceous.

"*DOIDYX*" Sarjeant, 1966c, p.205. Jr. Syn. of *Tenua*.

The type of this genus (*D. anaphrissa*) was transferred to the genus *Tenua* by Benedek, 1972, p.9-10. The emendation of the generic diagnosis of *Tenua* by Sarjeant, 1968, p.230-231 leaves no doubt that *Doidyx* is a Jr. Syn. of *Tenua*.

DOMASIELLA Eisenack, 1969, p.111. Questionable affinity.

**discophora* (Cookson & Eisenack, 1962b, p.492, pl.7, fig.17-21)
Loeblich and Loeblich, 1970, p.200. Aptian-Albian; formerly
Domasia, an acritarch.

DOROCYSTA Davey, 1970, p.358.

**litotes* Davey, 1970, p.358-359, pl.5, fig.6-7; text-fig.2A.
Cenomanian.

"*DRACODINIUM*" Gocht, 1955, p.87, Jr. Syn. of *Wetzeliella*.
Williams and Downie, 1966b, p.195, transferred *D. solidum* to
Wetzeliella subgenus *Wetzeliella* therein removing the type of
the genus and making *Dracodinium* a superfluous genus.

DUOSPHAERIDIUM Davey and Williams, 1966b, p.97.

**nudum* (Cookson, 1965a, p.87, pl.10, fig.1-4) Loeblich and
Loeblich, 1968, p.211. Late Eocene; formerly *Diphyes*.

rugosum Drugg, 1970b, p.816-817, fig.11A-C. Danian.

EGMONTODINIUM Gitmez and Sarjeant, 1972, p.228-229.

**polyplacophorum* Gitmez and Sarjeant, 1972, p.229-231, pl.8,
fig.1-4; pl.9, fig.3; pl.11, fig.5-6,8; text-fig.24.
Middle-Late Kimmeridgian.

EISENACKIA Deflandre and Cookson, 1955, p.258, emend. Sarjeant,
1966b, p.152. Diagnosis expanded but not emended by Davey,
1969b, p.3.

circumtabulata Drugg, 1967, p.15, pl.1, fig.12-13. Danian.

**crassitabulata* Deflandre and Cookson, 1955, p.258,261, pl.5,
fig.2; text-fig.6-16. Paleocene-Early Eocene.

ornata Cookson and Eisenack, 1965a, p.124, pl.13, fig.1-8.
Late Eocene.

scrobiculata Morgenroth, 1966a, p.12-13, pl.2, fig.12; pl.3,
fig.1. Early Eocene.

ELLIPSODINIUM Clarke and Verdier, 1967, p.68-69.

**rugulosum* Clarke and Verdier, 1967, p.69, pl.14, fig.4-6;
text-fig.29. Cenomanian-Santonian. The same species as
Chelinocysta lita, nom. nud. Sarjeant, 1967a, p.327.

ELLIPSOIDICTYUM Klement, 1960, p.78.

**cinctum* Klement, 1960, p.78-80, pl.6, fig.15-16; pl.7, fig.1-2;
text-fig.36-37. Middle Oxfordian.

EMSLANDIA Gerlach, 1961, p.171.

"*australiense*" NOW *Scriniodinium*. Invalidly transferred to
Emslandia by Nagy, 1965, p.202.

**emslandensis* Gerlach, 1961, p.172-173, pl.26, fig.13-14.
Middle Oligocene-Middle Miocene.

ENDOCERATIUM Vozzhennikova, 1965, p.89.

**ludbrooki* (Cookson & Eisenack, 1958, p.52, pl.5, fig.7-8)
Loeblich and Loeblich, 1966, p.93. Albian; formerly
Ceratocystidiopsis and *Pseudoceratium*.

"*perforatum*" Vozzhennikova, 1967, p.188, pl.112, fig.1a-b,3;
pl.113, fig.1, Jr. Syn. of *Xenascus ceratioides*, see Davey
and Verdier, 1971, p.27 and herein.

ENDOSCRINIUM (Klement, 1960) Vozzhennikova, 1967, p.174.

campanula (Gocht, 1959, p.61, pl.4, fig.6; pl.5, fig.1)
Vozzhennikova, 1967, p.175. Hauterivian; formerly
Scriniodinium.

eisenacki (Deflandre, 1938b, p.171, pl.6, fig.7-10; text-fig.3-4)
Gocht, 1970b, p.146-147. Oxfordian; formerly *Gonyaulax* and
Gonyaulacysta.

subsp. *oligodentata* (Cookson & Eisenack, 1958, p.30, pl.2,
fig.11) Gocht, 1970b, p.146. Late Jurassic.

**galeritum* (Deflandre, 1938b, p.167, pl.5, fig.7-9; text-fig.1)
Vozzhennikova, 1967, p.176. Oxfordian; formerly *Gymmodinium*
and *Scriniodinium*.

ENDOSCRINIUM (cont'd)

**galeritum* (cont'd)

subsp. *fornicatum* (Klement, 1960) *comb. nov.*
1960 *Scriniodinium galeritum* subsp. *fornicatum* Klement,
p.25-26, pl.1, fig.7-12. Middle Oxfordian.

subsp. *galeritum* (Klement) Vozzhennikova, 1967, p.176-177.
Oxfordian.

subsp. *reticulatum* (Klement, 1960) *comb. nov.*
1960 *Scriniodinium galeritum* subsp. *reticulatum* Klement,
p.26-27, pl.2, fig.1-2. Middle Oxfordian.

luridum (Deflandre, 1938b, p.166, pl.5, fig.4-6) Gocht, 1970b
p.144-146. Early Oxfordian; formerly *Scriniodinium* and
Gymmodinium.

oxfordianum (Sarjeant, 1962a, p.485, pl.69, fig.13-14)
Vozzhennikova, 1967, p.177. Oxfordian; formerly *Scriniodinium*.

subvallare (Sarjeant, 1962b) *comb. nov.*
1962b *Scriniodinium subvallare* Sarjeant, p.262-263, pl.1,
fig.10; text-fig.7. Late Oxfordian.

EOCLADOPYXIS Morgenroth, 1966a, p.7.

**peniculatum* Morgenroth, 1966a, p.7-8, pl.3, fig.2-3. Early Eocene.

EODINIA Eisenack, 1936, p.73.

**pachythea* Eisenack, 1936, p.73, text-fig.1-6. Callovian.

EOPSEUDOCERATIUM (Neale & Sarjeant, 1962) *stat. nov.*

1962 *Pseudoceratium* subgenus *Eopseudoceratium* Neale and
Sarjeant, p.446.

**gochti* Neale and Sarjeant, 1962, p.446-448, pl.20, fig.3-4;
text-fig.5. Late Hauterivian-Middle Barremian.

EPELIDOSPHAERIDIA Davey, 1969a, p.142.

**spinosa* (Cookson & Hughes, 1964, p.49, pl.8, fig.6-8) Davey,
1969a, p.143. Early Cenomanian; formerly *Palaeoperidinium*.

EPICEPHALOPYXIS Deflandre, 1935, p.234. Questionable affinity.

**adhaerens* Deflandre, 1935, p.234, pl.9, fig.5-6. Late Cretaceous.

"*indentata*" (Deflandre & Cookson, 1955) NOW *Paralecaniella*, which is questionably included in the Chlorophyta. See Cookson and Eisenack, 1970b, p.323.

"*spectabilis*" (Deflandre & Cookson, 1955) NOW *Wanaea*.

EPIPLOSPHAERA Klement, 1960, p.73.

areolata Klement, 1960, p.76-77, pl.8, fig.5-9. Early Kimmeridgian.

**bireticulata* Klement, 1960, p.74-75, pl.8, fig.1-4. Early Kimmeridgian.

reticulospinosa Klement, 1960, p.75-76, pl.8, fig.10-12. Early Kimmeridgian.

ERIKANIA Morgenroth, 1966a, p.27.

**dynamica* Morgenroth, 1966a, p.27-28, pl.6, fig.7-8. Early Eocene.

EVANSIA Pocock, 1972, p.95.

**granulata* Pocock, 1972, p.95, pl.24, fig.7; text-fig.12. Late Bajocian.

"*EVITTIA*" Pocock, 1972, p.93. Jr. Homonym of the acritarch genus *Evittia* Brito, 1967, p.477. See *Pocockia* nom. subst. herein.

EVITTODINIUM Deflandre, 1964, p.5030.

**giselae* Deflandre, 1964, p.5030, fig.1-5. Senonian.

EXOCHOSPHAERIDIUM Davey, et al., 1966, p.165.

bifidum (Clarke & Verdier, 1967, p.72, pl.17, fig.5-6; text-fig.30) Clarke, et al., 1968, p.182. Cenomanian-Campanian; formerly *Baltisphaeridium*.

EXOCHOSPHAERIDIUM (cont'd)

bifidum (cont'd)

subsp. *involutum* (Davey, 1969c) *stat. nov.*
1969c *Exochosphaeridium bifidum* var. *involutum* Davey, p.29,
pl.2, fig.1-3. Campanian-Maastrichtian.

palmatum (Deflandre & Courteville, 1939, p.101, pl.3, fig.1) Davey
et al., 1969, p.16. Late Cretaceous; formerly *Baltisphaeridium*
and *Hystrichosphaeridium*.

**phragmites* Davey *et al.*, 1966, p.165-166, pl.2, fig.8-10.
Cenomanian.

?*pseudhystrichodinium* (Deflandre, 1937b, p.73, pl.15, fig.3-4)
Davey, *et al.*, 1969, p.16-17. Late Cretaceous; formerly
Baltisphaeridium and *Hystrichosphaeridium*.

scitulum Singh, 1971, p.346-347, pl.57, fig.8-9. Middle Albian.

spinosum (White, 1842, p.237, pl.4, fig.6) Davey, 1969a, p.166.
Late Cretaceous; formerly *Xanthidium*, *Hystrichosphaeridium*,
Baltisphaeridium and *Cordosphaeridium*.

subsp. *deflandrei* (Lejeune-Carpentier, 1941) *stat. nov.*
1941 *Hystrichosphaeridium spinosum* var. *deflandrei*
Lejeune-Carpentier, p.84, fig.6-7.

striolatum (Deflandre, 1937b, p.72, pl.15, fig.1-2) Davey, 1969a,
p.164. Late Cretaceous; formerly *Hystrichosphaeridium* and
Baltisphaeridium.

subsp. *truncatum* (Davey, 1969a) *stat. nov.*
1969a *Exochosphaeridium striolatum* var. *truncatum* Davey,
p.164-166, pl.7, fig.1-3. Cenomanian.

"FAVILARNAX" Sarjeant, 1963a, p.720, Jr. Syn. of *Valensiella*. See
Sarjeant, 1964a, p.172-173, and Loeblich and Loeblich, 1966,
p.30.

FIBRADINIUM Morgenroth, 1968, p.537-538.

**annetorpense* Morgenroth, 1968, p.538, pl.42, fig.4-7; text-
fig.1-2. Danian.

FROMEA Cookson and Eisenack, 1958, p.55.

FROMEA (cont'd)

acambra Sah *et al.*, 1970, p.148, pl.2, fig.28. Late Cretaceous.

**amphora* Cookson and Eisenack, 1958, p.56, pl.5, fig.10-11.
Albian-Cenomanian.

"*elongata*" Beju, 1969, *nom. nud.*
privately circulated manuscript; not validly published.

warlinghamensis Gitmez and Sarjeant, 1972, p.188-189, pl.1,
fig.6,8; pl.9, fig.5-6. Kimmeridgian.

"GALEA" Maier, 1959, p.305. Jr. hom. of *Galea*, Meuschen,
1787. The type of the genus *Galea galea* was transferred to
Areoligera by Davey *et al.*, 1969, p.15. For present assignment
of other species of *Galea* refer to the Appendix.

GARDODINIUM Alberti, 1961, p.18.

albertii Neale and Sarjeant, 1962, p.445-446, pl.19, fig.6;
text-fig.4. Hauterivian.

deflandrei Clarke and Verdier, 1967, p.26-28, pl.3, fig.10-12;
text-fig.10. Cenomanian-Santonian.

**eisenacki* Alberti, 1961, p.18, pl.3, fig.8-13. Hauterivian-
Aptian.

elongatum Singh, 1971, p.381-383, pl.68, fig.3-4. Middle Albian.

pyriformis Vozzhennikova, 1967, p.179, pl.100, fig.1,4.
Barremian.

trabeculosum (Gocht, 1959, p.62, pl.4, fig.5) Alberti, 1961,
p.18. Hauterivian; formerly *Scriniodium*.

GEISELODINIUM Krutzsch, 1962, p.42.

eocenicum Krutzsch, 1962, p.44, pl.11, fig.17-19; text-fig.1d.
Middle Eocene.

**geiseltalense* Krutzsch, 1962, p.43, pl.11, fig.8-13; text-fig.1b.
Middle Eocene.

hallense Krutzsch, 1962, p.44, pl.11, fig.14-16; text-fig.1c.
Middle Eocene.

GEISELODINIUM (cont'd)

miocenicum Nagy, 1965, p.201, pl.1, fig.3; pl.2, fig.11.
Middle Miocene.

GILLINIA Cookson and Eisenack, 1960a, p.11-12.

**hymenophora* Cookson and Eisenack, 1960a, p.12, pl.3, fig.4-6;
text-fig.5. ?Turonian-Maastrichtian.

GINGINODINIUM Cookson and Eisenack, 1960a, p.7.

**spinulosum* Cookson and Eisenack, 1960a, p.7, pl.2, fig.9. Late
Albian-Cenomanian.

tabulatum Cookson and Eisenack, 1965c, p.143-144, pl.19, fig.5-8;
text-fig.3. Middle Paleocene.

GLENODINIUM Ehrenberg, 1837, p.174, (Modern genus and type species).

smrecyniense Woloszynska, 1928, (Modern species recorded by Macko,
1957, p.117, pl.A, fig.1; pl.73, fig.15-16. Miocene. Since the
detailed morphology of Macko's specimens is unknown, they are
retained in *Glenodinium* pending further examination).

GLOEODINIOPSIS Schopf, 1968, p.684.

**lamellosa* Schopf, 1968, p.684, pl.84, fig.2. Late Precambrian.

GLYPHANODINIUM Drugg, 1964, p.237-238.

**facetum* Drugg, 1964, p.238-239, fig.1-6. Danian.

GONIODOMA Stein, 1883, p.9,13,16,19,21. (Modern genus, fossil forms
have been transferred to *Heteraulacacysta*.)

GONYAULACYSTA Deflandre, 1964 ex Norris and Sarjeant, 1965, p.65
emend. Sarjeant, 1969, p.7-8.

aculeata (Klement, 1960, p.42, pl.5, fig.6-9; text-fig.21)
Sarjeant, 1969, p.8. Early Kimmeridgian; formerly *Gonyaulax*.

GONYAULACYSTA (cont'd)

- aichmetes* Sarjeant, 1966b, p.123-124, pl.13, fig.5-6; text-fig.30.
Late Barremian.
- aldorfensis* Gocht, 1970b, p.136-138, pl.30, fig.1-3; pl.31, fig.9-11; pl.32, fig.1-3; text-fig.5-9. Early Bathonian.
- ambigua* (Deflandre, 1939, p.144, pl.6, fig.2) Sarjeant, 1969, p.8. Kimmeridgian; formerly *Gonyaulax*.
- angulosa* Gitmez, 1970, p.252, pl.2, fig.4-5; text-fig.7a-b.
Basal Kimmeridgian.
- apionis* (Cookson & Eisenack, 1958, p.36, text-fig.3-4) Sarjeant, 1969, p.8. Albian; formerly *Gonyaulax*.
- "*areolata*" Sarjeant, 1961a, p.95. Erected as *Gonyaulax areolata*, which was a Jr. hom. The type was subsequently given the name *Gonyaulax scarburghensis* by Sarjeant, 1964c, p.472-473. This species is now in *Gonyaulacysta*.
- auctifica* Brideaux, 1971, p.82-83, pl.23, fig.40-41; text-fig.9a-b. Late Albian.
- axicerastes* Sarjeant, 1966b, p.114-116, pl.13, fig.11-12; text-fig.25. Middle Barremian.
- cassidata* (Eisenack & Cookson, 1960, p.3, pl.1, fig.5-6) Sarjeant, 1966b, p.125-126. Aptian-Cenomanian; formerly *Gonyaulax helicoidea* subsp. *cassidata*.
- canadensis* Pocock, 1972, p.89, pl.24, fig.1-2; text-fig.4.
Oxfordian-Kimmeridgian.
- cauda* Gitmez and Sarjeant, 1972, p.193-194, pl.2, fig.1-2,4-5.
Kimmeridgian.
- "*caytonensis*" (Sarjeant, 1959) NOW *Meiourogonyaulax*.
- cladophora* (Deflandre, 1938b, p.173, pl.7, fig.1-5; text-fig.5-6) Dodekova, 1967, p.17-18. Early Oxfordian; formerly *Gonyaulax*.
- subsp. *cladophora* (Deflandre, 1938b) *comb. nov.*
1938b *Gonyaulax cladophora* subsp. *cladophora* Deflandre, p.173-176, pl.7, fig.1-5; text-fig.5-6. Early Oxfordian.
Downie and Sarjeant, 1964 [1965], p.114, give the incorrect citation *Gonyaulax cladophora* Defl. subsp. *cladophora* Klement.

GONYAULACYSTA (cont'd)

cladophora (cont'd)

- subsp. *extensa* (Klement, 1960) *comb. nov.*
1960 *Gonyaulax cladophora* subsp. *extensa* Klement,
p.36-37, pl.4, fig.1-4; text-fig.16. Early Kimmeridgian.
- subsp. *hemipolyedrica* (Klement, 1960) *comb. nov.*
1960 *Gonyaulax cladophora* subsp. *hemipolyedrica* Klement,
p.36, pl.3, fig.10-12; text-fig.14-15. Early Kimmeridgian.
- subsp. *isovalvata* (Klement, 1960) *comb. nov.*
1960 *Gonyaulax cladophora* subsp. *isovalvata* Klement,
p.37-38, pl.4, fig.5-9; text-fig.17. Early Kimmeridgian.
- confusa* (Vozzhennikova, 1967, p.80, pl.17, fig.1a-b; pl.25,
fig.4-5; pl.27, fig.3-4) Sarjeant, 1969, p.9. Late Jurassic;
formerly *Gonyaulax*.
- crassicornuta* (Klement, 1960, p.38, pl.5, fig.1) Sarjeant, 1969,
p.9. Early Kimmeridgian; formerly *Gonyaulax*.
- cretacea* (Neale & Sarjeant, 1962, p.441, pl.19, fig.1-2; text-
fig.2) Sarjeant, 1969, p.9. Hauterivian; formerly *Gonyaulax*.
- crispa* (W. Wetzel, 1966, p.870, pl.15, fig.4a-b) Sarjeant, 1969,
p.9. Middle Jurassic; formerly *Gonyaulax*.
- dangeardi* Sarjeant, 1968, p.226-227, pl.1, fig.21; pl.3, fig.8-15;
text-fig.3. Oxfordian.
- "*delicata*" (Davey, 1969a) NOW *Leptodinium*.
- diaphanis* (Cookson & Eisenack, 1958, p.36, pl.3, fig.13-14;
text-fig.10-11) Sarjeant, 1969, p.9. ?Aptian; formerly
Gonyaulax.
- dictyophora* (Deflandre, 1938b, p.178, pl.8, fig.1-3) Sarjeant,
1969, p.9. Oxfordian; formerly *Palaeoperidinium*.
- downiei* Pocock, 1972, p.87, pl.22, fig.1-2; text-fig.2.
Oxfordian-Kimmeridgian.
- "*edwardsi*" (Cookson & Eisenack, 1958) NOW *Cribooperidinium*.
- ehrenbergii* Gitmez, 1970, p.252-254, pl.2, fig.8-9; text-fig.8.
Early Kimmeridgian.
- "*eisenacki*" (Deflandre, 1938b) NOW *Endoscrinium*.

GONYAULACYSTA (cont'd)

episoma Sarjeant, 1966b, p.118-119, pl.13, fig.9-10; text-fig.27.
Late Barremian.

"*evitti*" (Dodekova, 1969) NOW *Occisucysta*.

exilicristata Davey, 1969a, p.121, pl.1, fig.1-2; fig.9A-B.
Cenomanian.

"*extensa*" Clarke and Verdier, 1967, p.30, pl.4, fig.7-9; text-
fig.11. Jr. Syn. of *Psaligonyaulax deflandrei* Sarjeant, 1966b
according to Clarke *et al.*, 1968, p.181.

fetchemensis Sarjeant, 1966b, p.128-130, pl.15, fig.1-2; text-
fig.33. Cenomanian.

filapicata Gocht, 1970b, p.134-135, pl.26, fig.4,6-9; pl.27,
fig.1-3,7; pl.28, fig.3; pl.31, fig.1-5; text-fig.2a,3-4.
Early Bathonian.

fragosa Brideaux, 1971, p.83, pl.23, fig.42; pl.24, fig.44-45;
text-fig.8c-d. Middle-Late Albian.

giga Horowitz, 1970, p.178, pl.4, fig.20. Late Jurassic-Early
Cretaceous.

giuseppei (Morgenroth, 1966a, p.5, pl.2, fig.3-6) Sarjeant, 1969,
p.9. Early Eocene; formerly *Gonyaulax*.

subsp. *major* (Morgenroth, 1966a) *comb. nov.*
1966a *Gonyaulax giuseppei* subsp. *major* Morgenroth, p.6,
pl.2, fig.5-6. Early Eocene.

globosa Brideaux, 1971, p.81, pl.23, fig.37-38; text-fig.7g-h.
Middle-Late Albian.

globata Gitmez and Sarjeant, 1972, p.195-197, pl.3, fig.1-2;
text-fig.5A-B. Middle-Late Kimmeridgian.

gongylos Sarjeant, 1966b, p.111-113, pl.13, fig.1-2; text-fig.23.
Early Oxfordian.

gottisi Dupin, 1968, p.4, pl.1, fig.7-12. Late Jurassic.

granulata (Klement, 1960, p.39, pl.4, fig.10-13; text-fig.18-20)
Sarjeant, 1969, p.9. Middle Oxfordian-Early Kimmeridgian;
formerly *Gonyaulax*.

GONYAULACYSTA (cont'd)

- granuligera* (Klement, 1960, p.41, pl.5, fig.4-5) Sarjeant, 1969, p.10. Middle Oxfordian-Early Kimmeridgian; formerly *Gonyaulax*.
- hadra* Sarjeant, 1966b, p.119-121, pl.14, fig.1; text-fig.28. Late Barremian.
- helicoidea* (Eisenack & Cookson, 1960, p.2, pl.1, fig.4,9) Sarjeant, 1966b, p.116-117. Neocomian-Aptian; formerly *Gonyaulax*.
- subsp. *tuberculata* (Vozzhennikova, 1967) *stat. nov.*
1967 *Gonyaulax helicoidea* var. *tuberculata* Vozzhennikova p.83, pl.41, fig.3a-b. Tithonian. (Variety correctly transferred to *Gonyaulacysta* by Dodekova, 1971, p.10)
- hyaloderma* (Deflandre, 1939, p.144, pl.6, fig.3-4) Sarjeant, 1967b, p.252. Kimmeridgian; formerly *Palaeoperidinium*.
- hyalodermopsis* (Cookson & Eisenack, 1958, p.34, pl.3, fig.11-12; text-fig.5-6) Sarjeant, 1969, p.10. Neocomian-Aptian; formerly *Gonyaulax*.
- "*incomposita*" (Drugg, 1970b) NOW *Leptodinium*.
- indicosa* Brideaux, 1971, p.83, *nom. subst. pro Palaeoperidinium granulatum* Singh, 1964, p.135, pl.18, fig.2-3. Middle-Late Albian.
- **jurassica* (Deflandre, 1938b, p.168, pl.6, fig.2-5; text-fig.1-2) Norris and Sarjeant, 1965, p.65. Oxfordian; formerly *Gonyaulax*.
- subsp. *longicornis* (Deflandre, 1938b) *stat. nov.*
1938b *Gonyaulax jurassica* var. *longicornis* Deflandre, p.171, pl.6, fig.6. Oxfordian. Subspecies transferred as a variety to the genus *Gonyaulacysta* by Gitmez, 1970, p.260.
- "*kostromiensis*" (Vozzhennikova, 1967) NOW *Nelchinopsis*.
- longicornis* (Downie, 1957, p.420, pl.20, fig.8) Sarjeant, 1969, p.10. Late Kimmeridgian; formerly *Gonyaulax*.
- ?*mamillifera* (Deflandre, 1939, p.143, pl.6, fig.1) Sarjeant, 1969, p.10. Kimmeridgian; formerly *Gonyaulax*.
- microceras* (Eisenack, 1958, p.391, pl.21, fig.13) Clarke and Verdier, 1967, p.31. Late Aptian; formerly *Gonyaulax*.

GONYAULACYSTA (cont'd)

- ?*nannotrix* (Deflandre, 1939, p.143, pl.6, fig.7) Sarjeant, 1969, p.10. Kimmeridgian; formerly *Gonyaulax*.
- nuciformis* (Deflandre, 1938b, p.180, pl.8, fig.4-6) Sarjeant, 1968, p.227. Oxfordian; formerly *Gonyaulax* and *Palaeoperidinium*.
- obesa* Brideaux, 1971, p.82, pl.23, fig.39; text-fig.8a-b. Late Albian.
- obscura* (Lejeune-Carpentier, 1946, p.B191, fig.3-5) Sarjeant, 1969, p.10. Senonian; formerly *Gonyaulax*.
- "*orthoceras*" (Eisenack, 1958) NOW *Cribroperidinium*.
- "*pachyderma*" (Deflandre, 1938b) NOW *Ctenidodinium*.
- pannonicus* (Nagy, 1965) *comb. nov.*
1965 *Gonyaulax pannonicus* Nagy, p.200-201, pl.1, fig.1-2; pl.2, fig.10; text-fig.1-2. Early Pliocene.
- palla* Sarjeant, 1966b, p.113-114, pl.13, fig.3-4; text-fig.24. Early Barremian.
- parorthoceras* Davey, 1968, p.1. Holotype figured by Sarjeant, 1966b, as *Gonyaulacysta orthoceras*, pl.14, fig.5-6; text-fig.29.
- perforans* (Cookson & Eisenack, 1958, p.30, pl.2, fig.1-4,7-8; text-fig.8-9) Sarjeant, 1969, p.10. Late Jurassic; formerly *Gonyaulax*.
- "*pila*" (Gocht, 1959) NOW *Leptodinium*.
- pyra* (Drugg, 1967, p.14, pl.1, fig.17; pl.9, fig.6a-b) Sarjeant, 1969, p.11. Maastrichtian-Danian; formerly *Gonyaulax*.
- rara* Kar *et al.*, 1972, p.147, pl.1, fig.4-5. Tertiary.
- sarjeanti* (Vozzhennikova, 1967, p.87-88, pl.31, fig.1-3) Sarjeant, 1969, p.11. Tithonian; formerly *Gonyaulax*.
- subsp. *sphaericum* Vozzhennikova, 1967 *comb. nov., stat. nov.*
1967 *Gonyaulax sarjeanti* var. *sphaericum* Vozzhennikova, p.89, pl.25, fig.1-2; pl.28, fig.4; pl.32, fig.1-4. Tithonian.
- scarburghensis* Sarjeant, 1964c, p.472-473, *nom. nov. pro Gonyaulax areolata* Sarjeant, 1961a, p.95-97, pl.13, fig.13; text-fig.5. Late Callovian-Early Oxfordian.

GONYAULACYSTA (cont'd)

scotti (Cookson & Eisenack, 1958, p.30, pl.2, fig.5-6) Sarjeant, 1969, p.11. Early-Middle Kimmeridgian; formerly *Gonyaulax*.

serrata (Cookson & Eisenack, 1958, p.34, pl.3, fig.2; text-fig.12-14) Sarjeant, 1969, p.11. Late Jurassic-Neocomian; formerly *Gonyaulax*.

"*striata*" (Clarke & Verdier, 1967) NOW *Leptodinium*.

?*superornata* (W.Wetzel, 1966, p.869, pl.16, fig.8a-b) Eisenack and Kjellström, 1971b, p.306. Bathonian; formerly *Gonyaulax*.

systemmatus Gitmez and Sarjeant, 1972, p.204-205, pl.5, fig.7-8. Early Kimmeridgian.

?*tenuiceras* (Eisenack, 1958, p.389, pl.21, fig.14-15; pl.22, fig.1-3; pl.24, fig.2) Sarjeant, 1969, p.11. Late Barremian-Aptian; formerly *Gonyaulax*.

tenuicornuta (Cookson & Eisenack, 1962b, p.478, pl.3, fig.12-13; text-fig.1a-b) Sarjeant, 1969, p.11. Albian; formerly ?*Leptodinium*.

tenuitabulata (Gerlach, 1961, p.159, pl.25, fig.10-11; text-fig.1-3) De Coninck, 1969, p.23. Middle Oligocene-Middle Miocene; formerly *Gonyaulax*.

transparentis (Sarjeant, 1959, p.334, pl.13, fig.3; text-fig.3) Sarjeant, 1969, p.11. Early Callovian; formerly *Gonyaulax*.

wetzeli (Lejeune-Carpentier, 1939, p.B526, text-fig.1-2) Sarjeant, 1969, p.11. ?Senonian; formerly *Gonyaulax*.

whatleyi Sarjeant, 1972, p.19-21, pl.7, fig.1; text-fig.4. Bathonian-Middle Callovian.

whitei Sarjeant, 1966b, p.126-128, pl.14, fig.2; text-fig.32. Cenomanian.

GONYAULAX Diesing, 1866, p.305,382. Modern genus, all fossil forms, other than the species listed below, have been transferred to the genus *Gonyaulacysta*.

"*acanthosphaera*" (Sarjeant, 1961a) NOW *Acanthaulax*.

"*aceras*" (Eisenack, 1958) NOW *Leptodinium*.

"*amabilis*" (Deflandre, 1939) NOW *Leptodinium*.

GONYAULAX (cont'd)

- "*bulloidea*" (Cookson & Eisenack, 1960b) NOW *Meiourogonyaulax*.
"*caytonensis*" (Sarjeant, 1959) NOW *Meiourogonyaulax*.
"*clathratum*" (Cookson & Eisenack, 1960b) NOW *Leptodinium*.
"*cornigera*" (Valensi, 1953) NOW *Hystrihogonyaulax*.
"*cristulata*" (Sarjeant, 1959) NOW *Meiourogonyaulax*.
"*culmula*" (Norris, 1965) NOW *Ctenidodinium*.
"*decapitata*" (W.Wetzel, 1966) NOW *Meiourogonyaulax*.
"*delicatum*" (Davey, 1969a) NOW *Leptodinium*.
"*edwardsi*" (Cookson & Eisenack, 1958) NOW *Cribroperidinium*.
"*eisenacki*" (Deflandre, 1938b) NOW *Endoscrinium*.
"*eumorphum*" (Cookson & Eisenack, 1960b) NOW *Leptodinium*.
"*freakei*" (Sarjeant, 1963c) NOW *Leptodinium*.
"*heslertonensis*" (Neale & Sarjeant, 1962) NOW *Heslertonia*.
"*kostromiensis*" (Vozzhennikova, 1967) NOW *Nelchinopsis*.
"*margaritiferum*" (Cookson & Eisenack, 1960a) NOW *Leptodinium*.
"*millioudi*" (Sarjeant, 1963b) NOW *Leptodinium*.
"*muderongensis*" (Cookson & Eisenack, 1958) NOW *Cribroperidinium*.
"*nealei*" (Sarjeant, 1962a) NOW *Hystrihogonyaulax*.
"*orthoceras*" (Eisenack, 1958) NOW *Cribroperidinium*.
"*pachydermum*" (Deflandre, 1938b) NOW *Ctenidodinium*.
"*paliuros*" (Sarjeant, 1962a) NOW *Acanthaulax*.
"*porosum*" (Lejeune-Carpentier, 1946) NOW *Leptodinium*.
"*reticulatum*" (Nagy, 1969) NOW *Leptodinium*.
"*venusta*" (Klement, 1960) NOW *Acanthaulax*.

GORKADINIUM Loeblich and Loeblich, 1966, p.93. *nom. subst. pro*
Tetrasphaera Gorka, 1965.

**rara* (Gorka, 1965, p.307, pl.2, fig.6a-b) Loeblich and Loeblich,
1966, p.93. Early Kimmeridgian; formerly *Tetrasphaera*.

GYMNODINIUM Stein, 1878, p.89-91,97. Modern genus, all fossil
forms, other than the species listed below, have been trans-
ferred to the genus *Dinogymnium*.

"*attadalense*" (Cookson & Eisenack, 1958) NOW *Scriniodinium*.

"*australiense*" (Deflandre & Cookson, 1955) NOW *Scriniodinium*.

"*crystallinum*" (Deflandre, 1938b) NOW *Scriniodinium*.

"*dabendorfense*" (Alberti, 1961) NOW *Diconodinium*.

"*dorsispirale*" (Churchill & Sarjeant, 1963) NOW *Muiradinium*.

"*feharmense*" (Morgenroth, 1966a) NOW *Diconodinium*.

"*galeritum*" (Deflandre, 1938b) NOW *Endoscrinium*.

"*luridum*" (Deflandre, 1938b) NOW *Endoscrinium*.

"*parvimarginatum*" (Cookson & Eisenack, 1958) NOW *Scriniodinium*.

"*pontis-mariae*" (Deflandre, 1936b) NOW *Ascodinium*.

"*torulosum*" (Deflandre, 1943) NOW *Scriniodinium*.

"*ventriosum*" (Alberti, 1961) NOW *Diconodinium*.

HALOPHORIDIA Cookson and Eisenack, 1962a, p.271. Questionable
affinity.

**xena* Cookson and Eisenack, 1962a, p.271, pl.37, fig.6-8.
Albian-Cenomanian.

HELIODINIUM Alberti, 1961, p.33 emend. Sarjeant, 1966b, p.142.
Clarke and Verdier, 1967, p.37-38 consider *Heliodinium* to be a
Jr. Syn. of *Hystriochodinium* Deflandre emend. Clarke and Verdier
However, they do not validly transfer the type of the genus
H. voigti out of *Heliodinium*, therefore the genus remains a
valid genus.

patriciae Neale and Sarjeant, 1962, p.451-452, pl.19, fig.3;
text-fig.7. Hauterivian.

HELIODINIUM (cont'd)

**voigti* Alberti, 1961, p.33, pl.8, fig.1-5 emend. Sarjeant, 1966b, p.142-144. Barremian-Early Aptian.

HEMICYSTODINIUM Wall, 1967, p.110.

**zoharyi* (Rossignol, 1962, p.132, pl.2, fig.10) Wall, 1967, p.110. Pleistocene; formerly *Hystriichosphaeridium*.

subsp. *ktana* (Rossignol, 1964) *stat. nov.*
1964 *Hystriichosphaeridium zoharyi* var. *ktana* Rossignol, p.88, pl.2, fig.6-7,10; pl.3, fig.11. Pleistocene.

HEMIPLACOPHORA Cookson and Eisenack, 1965a, p.125.

**semilunifera* Cookson and Eisenack, 1965a, p.126, pl.14, fig.4-9,16. Late Eocene.

HERENDEENIA Wiggins, 1969, p.145-146.

**pisciformis* (Cookson & Eisenack, 1958, p.61, pl.8, fig.6) Wiggins, 1969, p.146-148. Late Jurassic; formerly *Omatia*.

HESLERTONIA Sarjeant, 1966b, p.133.

**heslertonensis* (Neale & Sarjeant, 1962, p.440, pl.19, fig.5; pl.20, fig.5) Sarjeant, 1966b, p.133. Hauterivian-Barremian; formerly *Gonyaulax*.

pellucida Gitmez, 1970, p.297-299, pl.4, fig.12; pl.14, fig.2; text-fig.26. Early Kimmeridgian.

HETERAULACACYSTA Drugg and Loeblich, 1967, p.183.

**campanula* Drugg and Loeblich, 1967, p.183-184, pl.1, fig.6-8c; text-fig.2. Middle Eocene.

fehmannensis *sp. nov.*

Description & Holotype. Morgenroth, 1966a, p.7, pl.2, fig.7-8. Early Eocene. Morgenroth, 1966a, included this species in *Goniodoma polyedricum* which is a modern form. Eisenack and Kjellström, 1971a, p.445, transferred *G. polyedricum* to the fossil genus *Heteraulacacysta* including all modern forms and

HETERAULACACYSTA (cont'd)

fehmannensis (cont'd)

Morgenroth's fossil forms. This transfer is herein rejected on the basis that *Heteraulacacysta* is a fossil genus and the new species *H. fehmannensis* is erected for fossil forms which resemble *Goniodoma polyedricum*.

HETEROSPHAERIDIUM Cookson and Eisenack, 1968, p.115.

**conjunctum* Cookson and Eisenack, 1968, p.115, text-fig.4G-H.
Santonian-Earliest Campanian.

heteracanthum (Deflandre & Cookson, 1955, p.276, pl.2, fig.5-6; text-fig.40-41) Eisenack and Kjellström, 1971a, p.451. ?Late Cretaceous-Early Eocene; formerly *Baltisphaeridium*, *Hystriosphæridium* and *Cleistosphæridium*.

subsp. *sparsiprocessum* (Varma & Dangwal, 1964, p.64, pl.1, fig.7) Eisenack and Kjellstrom, 1971a, p.453. Eocene-Oligocene.

HEXAGONIFERA Cookson and Eisenack, 1961a, p.73 emend. Cookson and Eisenack, 1962b, p.496.

chlamydata Cookson and Eisenack, 1962b, p.496, pl.7, fig.1-3,5-8.
Albian-Cenomanian.

**glabra* Cookson and Eisenack, 1961a, p.74, pl.12, fig.9-13.
Senonian.

jurassica Gitmez and Sarjeant, 1972, p.240-241, pl.14, fig.5-8.
Kimmeridgian.

laticaudata Vozzhennikova, 1967, p.125-126, pl.54, fig.1.
Santonian.

suspecta Manum and Cookson, 1964, p.9-10, pl.1, fig.9-13.
Cenomanian. Transfer of this species to the genus *Deflandrea* by Davey, 1970, p.342, is herein rejected.

vermiculata Cookson and Eisenack, 1961a, p.74, pl.12, fig.6-8.
Senonian.

"HEXASPHAERA" Clarke and Verdier, 1967, p.42, superfluous name.
Jr. Syn. of *Callaiosphaeridium*. See Clarke *et al.*, 1968, p.181.

HISTIOCYSTA Davey, 1969a, p.138.

**palla* Davey, 1969a, p.138-140, pl.1, fig.5-6; text-fig.14A-B.
Cenomanian.

HISTIOPHORA Klement, 1960, p.51.

**ornata* Klement, 1960, p.51-53, pl.6, fig.11-14; text-fig.28-30.
Late Jurassic.

HOMOTRYBLIUM Davey and Williams, 1966b, p.100.

pallidum Davey and Williams, 1966b, p.102-103, pl.12, fig.4,6;
text-fig.22. Early Eocene.

plectilum Drugg and Loeblich, 1967, p.184-186, pl.2, fig.1-9;
text-fig.3. Oligocene.

tasmaniense Cookson and Eisenack, 1967a, p.133-134, pl.20,
fig.1-2. Paleocene.

**tenuispinosum* Davey and Williams, 1966b, p.101-102, pl.4, fig.11;
pl.12, fig.1,5,7; text-fig.21. Early Eocene.

HOROLOGINELLA Cookson and Eisenack, 1962a, p.271.

apiculata Cookson and Eisenack, 1962a, p.272, pl.37, fig.4.
Campanian.

?*extrema* Cookson and Eisenack, 1962a, p.272-273, pl.37, fig.10.
Cenomanian.

incurvata Cookson and Eisenack, 1962a, p.272, pl.37, fig.5.
Early Eocene.

lineata Cookson and Eisenack, 1962a, p.272, pl.37, fig.1-3.
Aptian-?Albian.

?*obliqua* Cookson and Eisenack, 1962a, p.273, pl.37, fig.9. ?Late
Albian-Cenomanian.

?*spinosa* Cookson, 1965a, p.89, pl.10, fig.10-12; pl.11, fig.10.
Late Eocene.

HYSTRICHODINIUM Deflandre, 1935, p.182 emend. Clarke and Verdier,
1967, p.37-38.

HYSTRICHODINIUM (cont'd)

"*alatum*" (Cookson & Eisenack, 1962b) NOW *Xiphophoridium*.

amphiacanthum Cookson and Eisenack, 1958, p.37, pl.5, fig.9.
Late Jurassic or Neocomian.

compactum Alberti, 1961, p.15, pl.9, fig.5-6. Valanginian.

dasys Davey, 1969a, p.175-176, pl.10, fig.8-9. Cenomanian.

furcatum Alberti, 1961, p.16, pl.9, fig.7-8. Hauterivian.

oligacanthum Deflandre and Cookson, 1955, p.255-257, pl.1, fig.1;
text-fig.2-3. Albian.

"*parvum*" (Alberti, 1961) NOW *Cauca*.

**pulchrum* Deflandre, 1935, p.229-230, pl.5, fig.1; text-fig.9-11.
Senonian.

subsp. *densispinum* (Deflandre, 1936a) *stat. nov.*
1936a *Hystriochodinium pulchrum* var. *densispinum* Deflandre,
p.35-36, pl.9, fig.3. Senonian.

subsp. *globosum* (Deflandre, 1936a) *stat. nov.*
1936a *Hystriochodinium pulchrum* var. *globosum* Deflandre,
p.35, pl.9, fig.1-2. Senonian.

ramoides Alberti, 1961, p.15-16, pl.8, fig.11-13. Late Barremian.

HYSTRICHOGONYAULAX Sarjeant, 1969, p.13-14.

coreoides Benedek, 1972, p.20, pl.9, fig.4. Middle Oligocene.

**cornigera* (Valensi, 1953, p.27, pl.1, fig.4,8,10; pl.2, fig.1-2;
pl.13, fig.5; text-fig.2a) Bathonian; formerly *Gonyaulax*.

nealei (Sarjeant, 1962a, p.480, pl.69, fig.1; text-fig.2)
Sarjeant, 1969, p.14. Oxfordian; formerly *Gonyaulax*.

polytrix Benedek, 1972, p.20, pl.6, fig.1. Middle Oligocene.

"*HYSTRICHOKIBOTIUM*" Klumpp, 1953, p.387, believed to be a Junior
Synonym of *Hystriochosphaera* by Gocht, 1969, p.32, who
transferred the type of the genus *H. pseudofurcatum* to
Hystriochosphaera. Subsequently Sarjeant, 1970, p.76 transferred
H. pseudofurcatum to *Spiniferites*.

HYSTRICHOKOLPOMA Klumpp, 1953, p.388, emend. Williams and Downie, 1966a, p.176.

biformoides (Eisenack, 1954, p.68, pl.11, fig.16-20) Morgenroth, 1966a, p.28. Late Eocene-Early Oligocene; formerly *Hystrichosphaera*, *Hystrichosphaeridium* and *Baltisphaeridium*.

bulbosa (Ehrenberg, 1838, pl.1, fig.17) Morgenroth, 1968, p.546-547. Danian; formerly *Hystrichosphaera*, *Hystrichosphaeridium* and *Baltisphaeridium*.

**cinctum* Klumpp, 1953, p.389, pl.17, fig.3-5. Late Eocene.

clavigera (Deflandre, 1937b, p.71, pl.11, fig.1-2) Williams and Downie, 1969, p.17. Senonian; formerly *Baltisphaeridium* and *Hystrichosphaeridium*.

eisenacki Williams and Downie, 1966a, p.176-178, pl.17, fig.1-3; text-fig.46. Early Eocene.

subsp. *turgidum* (Williams & Downie, 1966a) *stat. nov.*
1966a *Hystrichokolpoma eisenacki* var. *turgidum* Williams and Downie, p.178-179, pl.17, fig.5. Early Eocene.

ferox (Deflandre, 1937b, p.72, pl.11, fig.3-4) Davey, 1969a, p.159. Senonian; formerly *Baltisphaeridium* and *Hystrichosphaeridium*.

?*fimbriata* Morgenroth, 1968, p.547-548, pl.45, fig.7-8. Danian.

poculum Maier, 1959, p.312-313, pl.31, fig.3. Middle Miocene.

rigaudae Deflandre and Cookson, 1955, p.279-281, pl.6, fig.6,10; text-fig.42. Eocene-Miocene.

sequanaportus Deflandre and Deflandre-Rigaud, 1958, cards 1352-1353, 4 figs. Late Cretaceous.

"*tridactylites*" (Valensi, 1955a) NOW *Achomosphaera*.

unispinum Williams and Downie, 1966a, p.179-180, pl.17, fig.6-7. Early Eocene.

?*xiphea* (Maier, 1959, p.309, pl.30, fig.5) Davey and Williams, 1969, p.5. Middle Miocene; formerly *Galea* and *Hystrichosphaeridium*.

"*HYSTRICHOSPHERA*" O. Wetzel, 1933b, p.33, ex. Deflandre, 1937b, p.61, superfluous name. Jr. Syn. of *Spiniferites*. See Sarjeant, 1970, p.75. All species with the exception of those listed below have been transferred to *Spiniferites*.

"HYSTRICHOSPHERA" (cont'd)

"biformis" (Wiesner, 1936) NOW *Hystriichosphaeridium*.

"biformoides" (Eisenack, 1954) NOW *Hystriichokolpoma*.

"borussica" (Eisenack, 1954) NOW *Rottnestia*.

"buccina" (Davey & Williams, 1966a) Jr. Syn. of *Spiniferites pseudofurcatus*.

"bulbosa" (Ehrenberg, 1838) NOW *Hystriichokolpoma*.

"ceratioides" (Deflandre, 1937b) NOW *Xenascus*.

"cruciata" (O.Wetzel, 1933b) NOW *Hystriichosphaeridium*.

"furcatus" (Ehrenberg, 1838) Jr. Syn. of *Spiniferites ramosus*.

"hyperacantha" (Deflandre & Cookson, 1955) NOW *Achomosphaera*.

"hirsuta" (Ehrenberg, 1838) NOW *Operculodinium*.

forma "minor" (O.Wetzel, 1933b) NOW *Operculodinium*.

forma "varians" (O.Wetzel, 1933b) NOW *Operculodinium*.

"ovum" (Deflandre, 1935) NOW *Hystriichosphaeropsis*.

"penicillata" (Ehrenberg, 1843) NOW *Hystriichosphaeridium*.

forma "coronata" (O.Wetzel, 1933b) NOW *Areoligera*.

forma "medusettiiformis" (O.Wetzel, 1933b) NOW *Areoligera*.

forma "rhizopodiphora" (O.Wetzel, 1933b) NOW *Areoligera*.

"pilosa" (Ehrenberg, 1843) NOW *Tenua*.

"pseudofurcata" (Varma & Dangwal, 1964) NOW *Spiniferites varmae*.

"salpingophora" (Deflandre, 1935) NOW *Hystriichosphaeridium*.

"tenuicapillata" (O.Wetzel, 1933b) NOW *Areoligera*.

"tubiferum" (Ehrenberg, 1838) NOW *Hystriichosphaeridium*.

"xanthiopyxides" (O.Wetzel, 1933b) NOW *Prolixosphaeridium*.

HYSTRICHOSPHAERIDIUM Deflandre, 1937b, p.68, emend. Davey and Williams, 1966b, p.55-56.

"*aemulum*" (Deflandre, 1938b) NOW *Adnatosphaeridium*.

"*albertense*" (Pocock, 1962) NOW *Oligosphaeridium*.

"*alcicornu*" (Eisenack, 1954) NOW *Achomosphaera*.

"*amalthei*" (W.Wetzel, 1966) NOW *Polysphaeridium*.

"*ancoriferum*" (Cookson & Eisenack, 1960a) NOW *Cleistosphaeridium*.

"*anthophorum*" (Cookson & Eisenack, 1958) NOW *Oligosphaeridium*.

aquitanicum Deunff, 1961, p.39-40, pl.2, fig.12-13. Cretaceous.

arborispinum Davey and Williams, 1966b, p.61, pl.9, fig.5,10.
Early-Middle Barremian.

"*armatum*" (Deflandre, 1937b) NOW *Cleistosphaeridium*.

aruncium Tasch, 1964, p.193, pl.3, fig.12. Albian.

arundum Eisenack and Cookson, 1960, p.8, pl.3, fig.7-9. Albian.

"*ashdodense*" (Rossignol, 1962) Jr. Syn. of *Lingulodinium machaerophorum*.

"*asperum*" (Maier, 1959) NOW *Polysphaeridium*.

assamicum Sah *et al.*, 1970, p.146-147, pl.2, fig.20-21. Late Cretaceous.

"*asterigerum*" (Gocht, 1959) NOW *Oligosphaeridium*.

"*asymmetricum*" (Deflandre & Courteville, 1939) NOW *Callaiosphaeridium*.

biforme (Wiesner, 1936, p.154, pl.7, fig.9) Deflandre, 1946a, card.881. Late Cretaceous; formerly *Hystriichosphaera*.

"*biformoides*" (Eisenack, 1954) NOW *Hystriichokolpoma*.

bowerbanki Davey and Williams, 1966b, p.69-70, pl.8, fig.1,4. Cenomanian.

breuiatum Morgenroth, 1966a, p.29, pl.7, fig.11-12. Early Eocene.

HYSTRICHOSPHAERIDIUM (cont'd)

brideauxi nom. nov., nom. subst. pro. *H. cylindratum*

Brideaux, 1971, p.91-92, pl.26, fig.69-70; pl.27, fig.74;
text-fig.9c. Late Albian. (non *H. cylindratum* Morgenroth, 1966a).

"*bulbosum*" (Ehrenberg, 1838) NOW *Hystrichokolpoma*.

calvum Tasch, 1964, p.193, pl.1, fig.21. Albian.

cambayense Varma and Dangwal, 1964, p.63, pl.1, fig.1-2.
Eocene-Oligocene.

"*caminuspinum*" (Wall, 1965a) NOW ?*Polysphaeridium*.

"*cantharellum*" (Brosius, 1963) NOW *Cordosphaeridium*.

"*capitatum*" (Cookson & Eisenack, 1960b) NOW *Tenua*.

"*caulleryi*" (Deflandre, 1938b) NOW *Adnatosphaeridium*.

"*centrocarpum*" (Deflandre & Cookson, 1955) Now type of the genus
Operculodinium.

choanophorum Deflandre and Cookson, 1955, p.271-272, text-fig.23-
29. Pliocene.

"*clavigerum*" (Deflandre, 1937b) NOW *Hystrichokolpoma*.

"*coelenteratum*" (Tasch, 1964) NOW *Oligosphaeridium*.

"*colligerum*" (Deflandre & Cookson, 1955) NOW *Diphyes*.

collum Tasch, 1964, p.194, pl.2, fig.7,16. Albian.

"*complex*" (White, 1842) NOW *Oligosphaeridium*.

cooksoni Singh, 1971, p.329-330, pl.51, fig.7-8; pl.52, fig.1-4.
Late Albian.

"*coronata*" (O.Wetzel, 1933b) NOW *Areoligera*.

"*costatum*" (Davey & Williams, 1966b) NOW *Cordosphaeridium*.

"*crassipes*" (Reade, 1839) NOW ?*Litosphaeridium*.

"*cribrotubiferum*" (Sarjeant, 1960) NOW *Surculosphaeridium*.

cruciatum (O.Wetzel, 1933b, p.48, pl.4, fig.30) Deflandre, 1937,
p.79. Late Cretaceous; formerly *Hystrichosphaera*.

HYSTRICHOSPHAERIDIUM (cont'd)

cylindratum Morgenroth, 1966a, p.30, pl.8, fig.3-4. Early Eocene.

"*cylindratum*" Brideaux, 1971, Jr. hom. nom. subst. *H. brideauxi* erected herein.

"*danicum*" (W.Wetzel, 1952) NOW *Cleistosphaeridium*.

deanei Davey and Williams, 1966b, p.58, pl.6, fig.4,8 emend.
Davey and Verdier, 1971, p.22. Cenomanian.

"*deflandrei*" (Valensi, 1947) NOW ?*Polysphaeridium*.

"*dictyophorum*" (Cookson & Eisenack, 1958) NOW *Oligosphaeridium*.

"*diktyoplokus*" (Klumpp, 1953) NOW *Areosphaeridium*.

"*dictyostilum*" Menendez, 1965, Jr. Syn. of *Areosphaeridium*
diktyoplokus. See Eaton, 1971, p.359.

difficile Manum and Cookson, 1964, p.12-14, pl.3, fig.1-3,7.
Cenomanian.

"*dispare*" (Tasch, 1964) NOW *Oligosphaeridium*.

"*divergens*" (Eisenack, 1954) NOW *Cordosphaeridium*.

eccentrum Tasch, 1964, p.194, pl.1, fig.6; pl.2, fig.9. Albian.

echinatum Menendez, 1965, p.12-13, pl.2, fig.9. Late
Cretaceous.

"*echinoides*" (Maier, 1959) NOW *Cleistosphaeridium*.

"*elegantulum*" (Lejeune-Carpentier, 1940, p.22, text-fig.11-12)
Jr. Syn. of *Oligosphaeridium complex*, according to Deflandre,
1946b, p.111.

"*ehrenbergi*" (Deflandre, 1947c) NOW *Cleistosphaeridium*.

"*ellipticum*" (Cookson, 1965a) NOW *Tanyosphaeridium*.

entomium Tasch, 1964, p.193, pl.3, fig.15. Albian.

"*eoinodes*" (Eisenack, 1958) NOW *Cordosphaeridium*.

equispinosum Tasch, 1963, p.336, pl.1, fig.12. Early Permian.

HYSTRICHOSPHAERIDIUM (cont'd)

- "*erectum*" (Manum & Cookson, 1964) NOW ?*Cordosphaeridium*.
- "*fabium*" (Tasch, 1964) NOW ?*Polysphaeridium*.
- "*ferox*" (Deflandre, 1937b) NOW *Hystriehokolpoma*.
- "*floripes*" (Deflandre & Cookson, 1955) NOW *Cordosphaeridium*.
- "*flosculus*" (Deflandre, 1937b) NOW ?*Litosphaeridium*.
- "*follium*" (Tasch, 1964) NOW *Polysphaeridium*.
- "*fucosum*" (Valensi, 1955a) NOW ?*Polysphaeridium*.
gliwicense Macko, 1957, p.113, pl.71, fig.11-15; pl.72, fig.1.
Miocene.
- "*grallaeforme*" (Brosius, 1963) NOW *Achomosphaera*.
- "*granulosum*" (Deflandre, 1937b) NOW *Prolixosphaeridium*.
- "*heteracanthum*" (Deflandre & Cookson, 1955) NOW *Heterosphaeridium*.
hilli (Merrill, 1895, p.17, text-fig.21) Sarjeant, 1964b,
p.175. Early Cretaceous; formerly *Geodia*.
- "*hirsutum*" (Ehrenberg, 1838) NOW *Operculodinium*.
- "*hirundo*" (Eisenack, 1958) NOW *Achomosphaera*.
- "*horridum*" (Deflandre, 1937b) NOW *Baltisphaeridium*, an acritarch.
- "*huguonioti*" (Valensi, 1955a) NOW *Cleistosphaeridium*.
- "*inodes*" (Klumpp, 1953) NOW *Cordosphaeridium*.
irregulare (Merrill, 1895, p.16, text-fig.4) Sarjeant, 1964b,
p.175. Early Cretaceous; formerly *Geodia*.
- "*irregulare*" (Pocock, 1962) NOW *Oligosphaeridium*.
- "*isocalamus*" (Deflandre & Cookson, 1955) NOW *Tanyosphaeridium*.
- "*israelianum*" (Rossignol, 1962) NOW *Operculodinium*.
kiowanum Tasch, 1964, p.193, pl.2, fig.1. Albian.
- "*langi*" (Wall, 1965) NOW ?*Polysphaeridium*.
latirictum Davey and Williams, 1966b, p.66-67, pl.10, fig.8.
Early Eocene.

HYSTRICHOSPHAERIDIUM (cont'd)

- leonardianum* Tasch, 1963, p.336, pl.1, fig.10-11. Early Permian.
- "*leptodermum*" (Maier, 1959) NOW *Spiniferites*.
- "*lobospinosum*" (Gocht, in Weiler, 1956) NOW *Chiropteridium*.
- "*longifurcatum*" (Firtion, 1952) NOW *Surculosphaeridium*.
- "*longofilum*" (Maier, 1959) NOW *Baltisphaeridium*, an acritarch.
- "*machaerophorum*" (Deflandre & Cookson, 1955) NOW *Lingulodinium*.
- "*macrotubulum*" (Neale & Sarjeant, 1962) NOW *Oligosphaeridium*.
- "*magdaliun*" (Drugg, 1967) NOW *Tanyosphaeridium*.
- magnarmatum* Tasch, 1964, p.192, pl.1, fig.22. Albian.
- "*major*" (Lejeune-Carpentier, 1940) NOW ?*Polysphaeridium*.
- mantelli* Davey and Williams, 1966b, p.66, pl.6, fig.6. Early Cenomanian.
- "*marsupium*" (Tasch, 1964) NOW ?*Polysphaeridium*.
- "*microtriaina*" (Klumpp, 1953) NOW *Cordosphaeridium*.
- mineralosum* Varma and Dangwal, 1964, p.64, pl.1, fig.8-9. Eocene-Oligocene.
- subsp. *jekhowskyi* Varma and Dangwal, 1964, p.65, pl.1, fig.12; pl.2, fig.1. Eocene-Oligocene.
- subsp. *labiatum* Varma and Dangwal, 1964, p.64-65, pl.1, fig.10-11. Eocene-Oligocene.
- "*monstruosum*" (Tasch, 1964) NOW ?*Diphyes*.
- multicornutum* Kimyai, 1966, p.471, pl.2, fig.20. Cenomanian.
- "*multifurcatum*" (Deflandre, 1937b) NOW *Cleistosphaeridium*.
- "*oligacanthum*" (W.Wetzel, 1952) NOW *Cleistosphaeridium*.
- pachydermum* Cookson and Eisenack, 1960b, p.251-252, pl.38, fig.5; text-fig.5. Oxfordian-Tithonian.
- "*palmatum*" (Deflandre & Courteville, 1939) NOW *Exochosphaeridium*.

HYSTRICHOSPHAERIDIUM (cont'd)

"*paradoxum*" (Brosius, 1963) NOW *Tanyosphaeridium*.

"*parvispinum*" (Deflandre, 1937b) NOW *Prolixosphaeridium*.

parvum Davey, 1969b, p.5, pl.1, fig.8; pl.2, fig.1. Campanian?-
Maastrichtian.

patulum Davey and Williams, 1966b, p.60, pl.10, fig.5.
Early Eocene.

"*paulinae*" (Valensi, 1953) NOW ?*Polysphaeridium*.

penicillatum (Ehrenberg, 1843, p.61) Deflandre, 1937b, p.27,
formerly *Xanthidium*, *Ovum hispidum* and *Hystrichosphaera*.

"*perforatum*" (Gocht, 1959) NOW *Oligosphaeridium*.

"*perovatum*" (Tasch, 1964) NOW *Polysphaeridium*.

perplexum Varma and Dangwal, 1964, p.64, pl.1, fig.5-6.
Eocene-Oligocene.

petilum Gitmez, 1970, p.289-290, pl.9, fig.1,6; text-fig.24.
Early Kimmeridgian.

"*pilosum*" (Ehrenberg, 1843) NOW *Tenua*.

"*placacanthum*" (Deflandre & Cookson, 1955) NOW *Systematophora*.

polonicum Gorka, 1965, p.306-307, pl.3, fig.5-6. Oxfordian.

polyplasion Maier, 1959, p.322-323, pl.33, fig.7-8. Miocene.

"*polytrichum*" (Valensi, 1947) NOW *Cleistosphaeridium*.

protellipticum Tasch, 1964, p.194, pl.2, fig.2. Albian.

"*pseudhystrihodinium*" (Deflandre, 1937b) NOW ?*Exochosphaeridium*.

pseudorecurvatum Morgenroth, 1966a, p.30-31, pl.8, fig.5-6.
Early Eocene.

"*pulcherrimum*" (Deflandre & Cookson, 1955) NOW *Oligosphaeridium*.

radiculatum Davey and Williams, 1966b, p.65, pl.7, fig.8; pl.9,
fig.6. Late Cenomanian.

"*ramuliferum*" (Deflandre, 1937b) NOW *Achomosphaera*.

HYSTRICHOSPHAERIDIUM (cont'd)

raritanianum Kimyai, 1966, p.471, pl.2, fig.19. Cenomanian.

readei Davey and Williams, 1966b, p.64-65, pl.6, fig.3.
Cenomanian.

recurvatum (White, 1842, p.39, pl.8, fig.12) Davey and Williams,
1966b, p.67-68. Senonian; formerly *Xanthidium* and *Spiniiferites*.

subsp. *parvum* (Rozen, 1965) *stat. nov.*

1965 *Hystriichosphaeridium recurvatum* var. *parvum* Rozen,
p.303-304, pl.4, fig.6; text-fig.13. Late Eocene.

redonensis Morzadec-Kerfourn, 1966, p.139, pl.2, fig.1-2.
Holocene.

"*reniforme*" (Tasch, 1964) NOW *Oligosphaeridium*.

replexum Tasch, 1964, p.193, pl.3, fig.14. Albian.

"*rhabdophorum*" (Valensi, 1955b) NOW ?*Polysphaeridium*.

salpingophorum Deflandre, 1935, p.232, pl.9, fig.1 emend.
Davey and Williams, 1966b, p.61-62. Senonian; formerly
Hystriichosphaera.

"*scaffoldi*" (Baksi, 1962) NOW *Cannosphaeropsis*.

sheppeyense Davey and Williams, 1966b, p.68-69, pl.11, fig.3.
Early Eocene.

"*simplex*" (White, 1842) NOW ?*Polysphaeridium*.

simplicispinum Davey and Williams, 1966b, p.59-60, pl.9, fig.3.
Barremian.

"*siphoniphorum*" (Cookson & Eisenack, 1958) NOW *Litosphaeridium*.

spini-pansatum (Merrill, 1895, p.17, text-fig.20) Sarjeant, 1964b,
p.175. Early Cretaceous; formerly ?*Geodia*.

"*spinosum*" (White, 1842) NOW *Exochosphaeridium*.

"*spiralisetum*" (deWit, 1943) NOW *Cleistosphaeridium*.

stellatum Maier, 1959, p.320-321, pl.33, fig.3-4. Middle
Oligocene-Middle Miocene.

HYSTRICHOSPHAERIDIUM (cont'd)

stephanophorum Benedek, 1972, p.30-31, pl.9, fig.6; text-fig.10.
Middle & Late Oligocene.

"*striatoconus*" (Deflandre & Cookson, 1955) NOW *Conosphaeridium*.

"*striolatum*" (Deflandre, 1937b) NOW *Exochosphaeridium*.

"*tiara*" (Klumpp, 1953) NOW *Cleistosphaeridium*.

"*torynum*" (Cookson & Eisenack, 1960b) NOW ?*Prolixosphaeridium*.

transculentum Sah *et al.*, 1970, p.147, pl.2, fig.18-19.
Late Cretaceous.

"*tribrachiosum*" (Tasch, 1964) NOW ?*Polysphaeridium*.

"*tridactylites*" (Valensi, 1955a) NOW *Achomosphaera*.

triradicosum Tasch, 1964, pl.2, fig.4,14. Albian.

truncigerum Deflandre, 1937b, p.71-72, pl.13, fig.6-7. Senonian.
The transfer of *H. truncigerum* to ?*Litosphaeridium* by Davey
and Williams, 1969, p.6, is herein rejected because this
species possesses a precingular archeopyle.

**tubiferum* (Ehrenberg, 1838, pl.1, fig.16) Deflandre, 1937b, p.68,
emend. Davey and Williams, 1966b, p.56-58. ?Late Cretaceous;
formerly *Xanthidium*, *Ovum hispidum* and *Hystriichosphaera*.

subsp. *brevispinum* (Davey & Williams, 1966b) *stat. nov.*
1966b *Hystriichosphaeridium tubiferum* var. *brevispinum*
Davey and Williams, p.58, pl.10, fig.10. Early Eocene.

unituberculatum Tasch, 1964, p.194, pl.3, fig.8. Albian.

valgum Tasch, 1964, p.192-193, pl.2, fig.10. Albian.

"*vasiformum*" (Neale & Sarjeant, 1962) NOW *Oligosphaeridium*.

verbinense Courteville in Deflandre, 1946, card 945.
Late Cretaceous.

"*vestitum*" (Deflandre, 1938b) NOW *Surculosphaeridium*.

"*whitei*" (Deflandre & Courteville, 1939) NOW *Impletosphaeridium*.

"*xanthiopyxides*" (O.Wetzel, 1933b) NOW ?*Prolixosphaeridium*.

"*xipheum*" (Maier, 1959) NOW *Hystriichokolpoma*.

HYSTRICHOSPHAERIDIUM (cont'd)

"*zoharyi*" (Rossignol, 1962) NOW *Hemicystodinium*.

"*HYSTRICHOSPHAERINA*" Alberti, 1961, p.38, superfluous name. Jr.
Syn. of *Systematophora*. See Sarjeant, 1966c, p.209, who transferred the type of the genus *H. schindewolfi* to *Systematophora*.
The other species *H. turonica* is also included in *Systematophora*.

HYSTRICHOSPHAEROPSIS (Deflandre, 1935, p.232) Sarjeant, 1966b, p.138.

"*borussica*" (Eisenack, 1954) NOW *Rottnestia*.

complanata Eisenack, 1965, p.153, pl.14, fig.5-7; pl.15, fig.5;
text-fig.2-3. Late Eocene-Early Oligocene.

obscura Habib, 1972, p.379-380, pl.21, fig.1-3. Late Miocene.

**ovum* Deflandre, 1935, p.232, pl.8, fig.111. Senonian.
The transfer of this species to *Hystriichosphaera* by Deflandre, 1937b, p.67, is herein rejected.

HYSTRICHOSTROGYLON Agelopoulos, 1964, p.673.

**membraniphorum* Agelopoulos, 1964, p.674, text-fig.1-2. Late Eocene. This species is believed to be an aberrant form of *Spiniferites ramosus ramosus* by Davey and Verdier, 1971, p.34.

IMBATODINIUM Vozzhennikova, 1967, p.52-53.

antennatum Gitmez and Sarjeant, 1972, p.232-233, pl.11, fig.2-3. Kimmeridgian.

ibatodinensis Vozzhennikova, 1967, p.55, pl.12, fig.4a-c. Late Jurassic.

**kondratjevi* Vozzhennikova, 1967, p.55, pl.9, fig.1-9; pl.10, fig.1-6; pl.11, fig.1-3; pl.15, fig.3-4. Late Jurassic.

verrucosum Vozzhennikova, 1967, p.56, pl.12, fig.6. Late Jurassic.

villosum Vozzhennikova, 1967, p.56, pl.12, fig.1-3; pl.13, fig.1-3; pl.14, fig.1-2; pl.15, fig.1-2. Late Jurassic.

IMPLETOSPHAERIDIUM Morgenroth, 1966a, p.32.

capillaceum Morgenroth, 1966a, p.33, pl.9, fig.12. Early Eocene.

?*densicomatum* (Maier, 1959, 1959, p.307, pl.29, fig.7-8)
Morgenroth, 1966a, p.33. Middle Oligocene-Middle Miocene;
formerly *Galea* and *Baltisphaeridium*.

erinaceum Morgenroth, 1966a, p.33-34, pl.8, fig.10-12.
Early Eocene.

implicatum Morgenroth, 1966a, p.34, pl.9, fig.1-3. Early Eocene.

krommelbeini Morgenroth, 1966a, p.34-35, pl.9, fig.4-5.
Early Eocene.

labyrinthus Morgenroth, 1966a, p.35, pl.9, fig.6-7. Early Eocene.

multispinosum Benedek, 1972, p.31-32, pl.11, fig.11; pl.12, fig.15.
Middle Oligocene.

panniforme (Gerlach, 1961, p.196, pl.28, fig.13) Morgenroth, 1966a,
p.35. Middle Oligocene; formerly *Baltisphaeridium*.

"*placacantha*" (Deflandre & Cookson, 1955) NOW *Systematophora*.

pynospinosum Benedek, 1972, p.32, pl.12, fig.14. Middle-Late
Oligocene.

rugosum Morgenroth, 1966a, p.36, pl.10, fig.2-3. Early Eocene.

**transfodum* Morgenroth, 1966a, p.32, pl.10, fig.4-5. Early Eocene.

whitei (Deflandre & Courteville, 1939, p.103, pl.3, fig.5-6)
Morgenroth, 1966, p.37. Formerly *Hystrichosphaeridium* and
Baltisphaeridium.

JANSONIA Pocock, 1972, p.97.

**jurassica* Pocock, 1972, p.97-98, pl.29, fig.8-9; text-fig.14-15.
Late Bajocian.

JUSELLA Vozzhennikova, 1963, p.183.

crebraporosa Vozzhennikova, 1967, p.120, pl.53, fig.1-6.
Early Oligocene.

**denticulata* Vozzhennikova, 1963, p.183, text-fig.19a-b. Early
Oligocene. Holotype lost, Lectotype chosen by Vozzhennikova,
1967, p.119-120, pl.52, fig.1-5.

JUSELLA (cont'd)

"*rarioporosa*" Vozzhennikova, 1967, p.119-120. Invalid. Name chosen by Vozzhennikova to replace the name *J. denticulata* as her interpretation of the morphology of *J. denticulata* was incorrect in 1963. However, under the I.C.B.N. (Article 62) the original specific name cannot be changed in this way.

KALLOSPHAERIDIUM De Coninck, 1969, p.44.

**brevibarbatum* De Coninck, 1969, p.44-45, pl.13, fig.14-15.
Early Eocene.

"KALYPTEA" Cookson and Eisenack, 1960b, p.256. Jr. Syn. of *Pareodinia*. See Gocht, 1970b, p.154. Two species, *K. diceras* (Cookson & Eisenack, 1960b) and *K. monoceras* (Cookson & Eisenack, 1960b), are questionable Jr. Syn. of *Pareodinia ceratophora* according to Gocht. *K. jurassicum* Alberti, 1961, is also considered a Jr. Syn. of *Pareodinia ceratophora*. *K. aceras* Manum and Cookson, 1964, is herein transferred to *Caligodinium*.

KENLEYIA Cookson and Eisenack, 1965b, p.135-136.

"*fimbriata*" (Cookson & Eisenack, 1967b) NOW *Muratodinium*.

Leptocerata Cookson and Eisenack, 1965b, p.136, pl.17, fig.5-6.
Paleocene.

Lophophora Cookson and Eisenack, 1965b, p.136-137, pl.17,
fig.7-10. Paleocene.

?*nuda* De Coninck, 1969, p.45-46, pl.13, fig.24-25. Early Eocene.

**pachycerata* Cookson and Eisenack, 1965b, p.136, pl.17, fig.1-3.
Paleocene.

KISSELEVIA Vozzhennikova, 1967, p.103

"*major*" Vozzhennikova, 1960, pl.3, fig.1. No diagnosis given.
nom. nud.

Vozzhennikova, 1967, p.104-105 designates as holotype a specimen which has been destroyed.

**ornata* Vozzhennikova, 1967, p.103-104, pl.42, fig.1-3; pl.43,
fig.1-4; pl.44, fig.1-12; pl.45, fig.1-3. Eocene.

KISSELEVIA (cont'd)

**ornata* (cont'd)

subsp. *ornata* (Vozzhennikova, 1967) *stat. nov.*

1967 *Kisselevia ornata* forma *ornata* Vozzhennikova, p.104,
pl.42, fig.1-3; pl.43, fig.1-4; pl.44, fig.4-6,9-12. Eocene.

subsp. *reticulata* (Vozzhennikova, 1967) *stat. nov.*

1967 *Kisselevia ornata* forma *reticulata* Vozzhennikova,
p.104, pl.44, fig.1-3,7-8; pl.45, fig.1-3. Eocene.

"*KISSELOVIA*" Vozzhennikova, 1963, p.183, *nom. nud.*

Since a holotype was not designated for the type of the genus
"*K. ornata*" the genus *Kisselovia* is a *nomen nudum* according
to I.C.B.N. Rule 37.

KOFOIDOPSIS Tasch, 1963, p.333.

**coronata* Tasch, 1963, p.333-334, pl.1, fig.7-8. Early Permian.

KOMEWUIA Cookson and Eisenack, 1960b, p.257.

**glabra* Cookson and Eisenack, 1960b, p.257, pl.39, fig.7-8.
probably Tithonian.

KOROJONIA Cookson and Eisenack, 1958, p.54.

**dubiosa* Cookson and Eisenack, 1958, p.54, pl.12, fig.13.
Cenomanian-Early Maastrichtian.

LANTERNA Dodekova, 1969, p.16.

**bulgarica* Dodekova, 1969, p.16-17, pl.2, fig.3-6; pl.3, fig.1;
text-fig.B & Db. Tithonian.

spinosa Dodekova, 1969, p.17-18, pl.3, fig.2-3,5-6,9,12;
text-fig.C, Da. Tithonian.

sportula Dodekova, 1969, p.18-19, pl.3, fig.4,7,10-11; text-
fig.Dc. Tithonian.

LANTERNOSPHAERIDIUM Morgenroth, 1966a, p.37.

axialis (Eisenack, 1965, p.38, pl.6, fig.4-5) Morgenroth, 1966a,
p.38-39. Late Eocene-Early Oligocene; formerly *Cordosphaeridium*.

LANTERNOSPHERIDIUM (cont'd)

bipolare (Cookson & Eisenack, 1965b, p.135, pl.16, fig.7-8)
De Coninck, 1969, p.38. Paleocene; formerly *Cordosphaeridium*.
The transfer of this species to *Amphorosphaeridium* by Davey,
1969c, p.35, is invalid.

essentiale De Coninck, 1969, p.38, pl.11, fig.7-8. Early Eocene.

**lanosum* Morgenroth, 1966a, p.38, pl.10, fig.10-11. Early Eocene.

lappaceum Drugg, 1970b, p.812-813, fig.4A-D,5A-D. Early Eocene.

radiatum Morgenroth, 1966a, p.37-38, pl.10, fig.7-9. Early Eocene.

LECANIELLA Cookson and Eisenack, 1962a, p.269. Questionable
affinity.

dictyota Cookson and Eisenack, 1962a, p.270, pl.37, fig.18-20.
Aptian-Cenomanian.

**margostriata* Cookson and Eisenack, 1962a, p.269-270, pl.37,
fig.16-17. Albian-Cenomanian.

LEJEUNIA Gerlach, 1961, p.169, emend. Kjellström, 1972, p.467.

aechmophora Benedek, 1972, p.41, pl.5, fig.7,11; text-fig.17.
Middle-Late Oligocene.

"*cretacea*" (Pocock, 1962) NOW *Astrocysta*.

fallax Morgenroth, 1966b, p.2-3, pl.1, fig.6-7. Middle Oligocene.

**hyalina* Gerlach, 1961, p.169, pl.26, fig.10-11, emend. Kjellström,
1972, p.469. Late Oligocene.

"*kozlowskii*" (Gorka, 1963) NOW *Astrocysta*.

paratenella Benedek, 1972, p.41-42, pl.5, fig.8; text-fig.18.
Late Oligocene.

psilodora Benedek, 1972, p.42, pl.6, fig.5. Middle Oligocene.

spatiosa Morgenroth, 1966b, p.3-4, pl.1, fig.5. Early Oligocene.

tenella Morgenroth, 1966b, p.4, pl.1, fig.8-9. Early Oligocene.

"*tricuspis*" (O.Wetzel, 1933b) NOW *Astrocysta*.

LEPTODINIUM Klement, 1960, p.45, emend. Sarjeant, 1969, p.11-12.

aceras (Eisenack, 1958, p.391, pl.21, fig.1-2) Gitmez and Sarjeant, 1972, p.215. Aptian; formerly *Gonyaulax*.

aculeatum Wall, 1967, p.104-105, pl.14, fig.18-19; text-fig.3C-D. Pleistocene-Holocene.

alectrolophum Sarjeant, 1966b, p.134-135, pl.15, fig.3-6; text-fig.34. Middle Barremian.

anabilis (Deflandre, 1939, p.143, pl.6, fig.8) Sarjeant, 1969, p.12. Kimmeridgian; formerly *Gonyaulax*. This species was transferred to *Gonyaulacysta* by Dodekova, 1971, p.7; this transfer is herein rejected.

arcuatum Klement, 1960, p.48, pl.6, fig.5-6, emend. Gitmez, 1970, p.270. Middle Oxfordian.

bacculatum Baltés, 1971, p.3, pl.1, fig.4-5. Early Pliocene.

clathratum (Cookson & Eisenack, 1960b, p.246-247, pl.37, fig.5; text-fig.1) Sarjeant, 1969, p.12. probably Tithonian; formerly *Gonyaulax*. This species was transferred to *Gonyaulacysta* by Dodekova, 1971, p.10; this transfer is herein rejected.

crassinervum (Deflandre, 1939, p.144, pl.6, fig.5) Sarjeant, 1969, p.12. Kimmeridgian; formerly *Palaeoperidinium*.

delicatum (Davey, 1969a, p.123-124, pl.1, fig.7-8; text-fig.10A-B) Sarjeant, 1969, p.12. formerly *Gonyaulax*. Sarjeant, 1969, p.12, incorrectly cited the date for the publication of this species as 1968; Davey's paper actually appeared early in 1969.

dispertitum Cookson and Eisenack, 1965a, p.122-123, pl.12, fig.5-7. Late Eocene.

egemeni Gitmez, 1970, p.272-274, pl.10, fig.5-6; text-fig.18. Early Kimmeridgian.

elegans Cookson and Eisenack, 1965a, p.123-124, pl.12, fig.10-13. Late Eocene.

eumorphum (Cookson & Eisenack, 1960b, p.246, pl.37, fig.1-3; text-fig.3) Sarjeant, 1969, p.12. Late Jurassic; formerly *Gonyaulax*.

LEPTODINIUM (cont'd)

freakei (Sarjeant, 1963c, p.85-86, pl.1, fig.1-3) Sarjeant, 1969, p.12. Oxfordian; formerly *Gonyaulax*.

incompositum (Drugg, 1970b) *comb. nov.*
1970b *Gonyaulacysta incomposita* Drugg, p.810-811, fig.1E-0,2A. Oligocene.

maculatum Cookson and Eisenack, 1961b, p.40, pl.2, fig.5-6. Eocene.

margaritifерum (Cookson & Eisenack, 1960a, p.5, pl.2, fig.1-2; text-fig.1) Sarjeant, 1969, p.13. Campanian; formerly *Gonyaulax*.

membranigerum Gerlach, 1961, p.162-164, pl.26, fig.1-4,7; text-fig.4-5. Late Oligocene.

millioudi (Sarjeant, 1963c, p.86-88, pl.1, fig.4-7) Sarjeant, 1969, p.13. Oxfordian; formerly *Gonyaulax*.

mirabile Klement, 1960, p.48-50, pl.6, fig.7-10; text-fig.25-27. Middle Oxfordian. Transfer of this species to *Gonyaulacysta* by Dodekova, 1967, p.19 is herein rejected.

?*mosaicum* (Downie, 1957, p.424, pl.20, fig.7; text-fig.2f) Sarjeant, 1969, p.13. Middle Kimmeridgian; formerly *Palaeoperidinium* and *Gonyaulacysta*.

multiplexum Wall and Dale, 1968, p.318, pl.1, fig.1-7. Early Pleistocene.

norrisii Pocock, 1972, p.92-93, pl.24, fig.1,9-10,12; text-fig.9. Callovian.

"*panneum*" (Norris, 1965) NOW *Ctenidodinium*.

ovum Sah *et al.*, 1970, p.147-148, pl.2, fig.25. Late Cretaceous.

paradoxum Wall, 1967, p.106-107, pl.15, fig.5-8; text-fig.2-3A & B. Middle Miocene-Recent.

patulum Wall, 1967, p.105-106, pl.14, fig.20; pl.15, fig.1-4; text-fig.4. Middle Miocene-Holocene.

?*pilum* (Gocht, 1959, p.56, pl.6, fig.14; pl.8, fig.8) Sarjeant, 1969, p.13. Valanginian; formerly *Palaeoperidinium* and *Gonyaulacysta*.

LEPTODINIUM (cont'd)

porosum (Lejeune-Carpentier, 1946, p.193,196; text-fig.6)
Sarjeant, 1969, p.13. Senonian; formerly *Gonyaulax*.

punctatum Baltes, 1971, p.3, pl.1, fig.2-3,6-7. Early Pliocene.

regale Gocht, 1970b, p.139-140, pl.33, fig.5-7; text-fig.10.
Early Bathonian.

reticulatum (Nagy, 1969) *comb. nov.*

1969 *Gonyaulax reticulatus* Nagy, p.293, pl.1, fig.7,10.
Late Pannonian.

"*schizoblattum*" (Norris, 1965) NOW *Ctenidodinium*.

sphaericum Wall, 1967, p.108, pl.15, fig.11-15; text-fig.2a-c.
Pleistocene-Holocene.

striatum Wall, 1967, p.107-108, pl.15, fig.9-10; text-fig.5.
Middle Miocene-Holocene.

striatum (Clarke & Verdier, 1967, p.31, pl.4, fig.11-13; pl.5,
fig.15; text-fig.12) Sarjeant, 1969, p.13. Santonian;
formerly *Gonyaulacysta*.

**subtile* Klement, 1960, p.46-47, pl.6, fig.1-4; text-fig.23-24.
Early Kimmeridgian.

subsp. *pectinigerum* Gocht, 1970b, p.138-139, pl.33, fig.1-4;
text-fig.11. Early Bathonian.

"*tenuicornuta*" (Cookson & Eisenack, 1962b) NOW *Gonyaulacysta*.

victorianum Cookson and Eisenack, 1965a, p.123, pl.12, fig.8-9.
Late Eocene.

LINGULASPHAERA Drugg, 1970b, p.817.

**spinula* Drugg, 1970b, p.817-818, fig.10G,11D-E,12A-B. Early Eocene.

LINGULODINIUM Wall, 1967, emend. Wall and Dale, 1973, p.23-24.

**machaerophorum* (Deflandre & Cookson, 1955, p.274, pl.9, fig.4,8)
Wall, 1967, p.109. Miocene; formerly *Hystrichosphaeridium* and
Baltisphaeridium.

LINGULODINIUM (cont'd)

**machaerophorum* (cont'd)

subsp. *filiforme* (Rossignol, 1964) *comb. nov., stat. nov.*
1964 *Baltisphaeridium machaerophorum* var. *filiforme* Rossignol,
p.91, pl.2, fig.13. Pleistocene.

subsp. *megacanthum* (Rossignol, 1964) *comb. nov., stat. nov.*
1964 *Baltisphaeridium machaerophorum* var. *megacanthum*
Rossignol, p.91, pl.2, fig.15. Pleistocene.

subsp. *strangulatum* (Rossignol, 1964) *comb. nov., stat. nov.*
1964 *Baltisphaeridium machaerophorum* var. *strangulatum*
Rossignol, p.91, pl.2, fig.16. Pleistocene.

pugiatum (Drugg, 1970b, p.819, text-fig.16D-E) Wall and Dale,
1973, p.24. Oligocene; formerly *Operculodinium*.

siculum (Drugg, 1970b, p.820, text-fig.16F-G) Wall and Dale, 1973,
p.24. Oligocene; formerly *Trioperculodinium*.

solarum (Drugg, 1970b, p.819, text-fig.16A-C) Wall and Dale, 1973,
p.24. Oligocene; formerly *Operculodinium*.

LITHODINIA Eisenack, 1935, p.175.

**jurassica* Eisenack, 1935, p.175-177, pl.4, fig.5-10; text-fig.1-4.
Callovian.

var. "*ornata*" (Eisenack, 1935) NOW *Ctenidodinium ornatum*.

"LITHOPERIDINIUM" Deflandre, 1933, p.272.

Jr. Syn. of *Peridinites*. See both Deflandre, 1945, card 806-
809 and Norris and Sarjeant, 1965, p.38.

LITOSPHERIDIUM Davey and Williams, 1966b, p.79-80.

?*crassipes* (Reade, 1839, pl.9, fig.2-5) Davey and Williams, 1969,
p.5. Late Cretaceous; formerly *Hystriosphæridium*.

?*flosculus* (Deflandre, 1937b, p.75, pl.15, fig.5-6) Davey and
Williams, 1969, p.5. Senonian; formerly *Hystriosphæridium*.

?*inversibuccinum* Davey and Williams, 1966b, p.82, pl.12, fig.3.
Early Eocene.

**siphoniphorum* (Cookson & Eisenack, 1958, p.44, pl.11, fig.8-10)
Davey and Williams, 1966b, p.80-82. Albian-Cenomanian;
formerly *Hystriosphæridium*.

LITOSPHAERIDIUM (cont'd)

"*truncigerum*" (Deflandre, 1937b) Retained in *Hystriichosphaeridium*.
The transfer of this species to ?*Litosphaeridium* by Davey and Williams, 1969, p.6, is herein rejected because of the nature of the archeopyle in *H. truncigerum*.

LOPHODICTYOTIDIUM Pocock, 1972, p.109. Questionable affinity.

**sarjeanti* Pocock, 1972, p.109, pl.25, fig.5-6. Late Bajocian.

LUEHNDEA Morgenroth, 1970, p.346-347.

**spinosa* Morgenroth, 1970, p.347, pl.9, fig.1-4. Late Pliensbachian (Lias).

MADURADINIUM Cookson and Eisenack, 1970a, p.150.

**pentagonum* Cookson and Eisenack, 1970a, p.150, pl.10, fig.13-17. Senonian.

MANCODINIUM Morgenroth, 1970, p.352.

**semitabulatum* Morgenroth, 1970, p.352-353, pl.12, fig.3-6; pl.13, fig.1-4. Late Pliensbachian (Lias).

MATHUROSPHAERA Varma and Dangwal, 1964, p.70.

**rajivi* Varma and Dangwal, 1964, p.70, pl.2, fig.11-12. Eocene-Oligocene.

MATURODINIUM Morgenroth, 1970, p.353-354.

**inornatum* Morgenroth, 1970, p.354-355, pl.13, fig.5-8. Late Pliensbachian (Lias).

MEIOUROGONYAULAX Sarjeant, 1966b, p.144.

bulloidea (Cookson & Eisenack, 1960b, p.247, pl.37, fig.11; text-fig.4) Sarjeant, 1969, p.14. ?Tithonian; formerly *Gonyaulax*.

callomonii Sarjeant, 1972, p.31-33, pl.5, fig.5; text-fig.6. Late Bathonian-Early Callovian.

MEIOUROGONYAULAX (cont'd)

- ?*cantrellii* Sarjeant, 1972, p.37-38, pl.4, fig.3; pl.6, fig.1-2; text-fig.8. Late Bathonian.
- caytonensis* (Sarjeant, 1959, p.330, pl.13, fig.1; text-fig.1) Sarjeant, 1969, p.14. Early Callovian; formerly *Gonyaulax* and *Gonyaulacysta*.
- ?*crisulata* (Sarjeant, 1959, p.332, pl.13, fig.2; text-fig.2) Sarjeant, 1969, p.14. Early Callovian; formerly *Gonyaulax*.
- decapitata* (W.Wetzel, 1966, p.869, pl.16, fig.7a-b) Sarjeant, 1972, p.29-31. Bajocian; formerly *Gonyaulax*.
- deflandrei* Sarjeant, 1968, p.228-229, pl.1, fig.20; pl.3, fig.13; text-fig.4. Late Callovian.
- dicryptos* Gitmez and Sarjeant, 1972, p.225-226, pl.7, fig.6; text-fig.22. Kimmeridgian.
- "*ghermani*" Beju, 1969, p.12, pl.4, fig.1-3; text-fig.4. Callovian-Early Oxfordian. Invalid. Privately circulated manuscript, not validly published.
- pila* Gitmez and Sarjeant, 1972, p.226-227, pl.4, fig.5; pl.7, fig.3; text-fig.23. Middle-Late Kimmeridgian.
- "?*predai*" Beju, 1969, p.13-14, pl.4, fig.4-7; text-fig.5. Callovian-Early Oxfordian. Invalid. Privately circulated manuscript, not validly published.
- "*rioulti*" Sarjeant, 1965, p.181, pl.1, fig.1; text-fig.1. Invalid, published before genus erected.
- rioulti* Sarjeant, 1968, p.229. Validation of *M. rioulti* Sarjeant, 1965, p.181, pl.1, fig.1; text-fig.1. Early Callovian.
- staffinensis* Gitmez, 1970, p.276-278, pl.3, fig.1; text-fig.20a-b. Early Kimmeridgian.
- stoveri* Millioud, 1969, p.429, pl.3, fig.1-3. Hauterivian-Early Aptian.
- strongylos* Sarjeant, 1972, p.35-37, pl.4, fig.7; text-fig.7. Late Bathonian-Early Callovian.
- "*superornata*" (W.Wetzel, 1966) NOW *Gonyaulacysta*.

MEIOUROGONYAULAX (cont'd)

**valensii* Sarjeant, 1966b, p.145-146, pl.15, fig.7; text-fig.37.
Bathonian.

MEMBRANILARNACIA (Eisenack, 1963a, p.99) Williams and Downie,
1966c, p.219.

amalthei W. Wetzel, 1966, p.318, pl.31, fig.6. Late
Pliensbachian (Lias).

australis (Pothé de Baldis, 1966, p.225, pl.1, fig.h) Eisenack
and Kjellström, 1971a, p.797. Early Tertiary; formerly
Membranilarnax.

?*charactera* (Tasch, 1964, p.192, pl.1, fig.20) Eisenack and
Kjellström, 1971a, p.799. Albian; formerly *Membranilarnax*.

?*formosa* (Tasch, 1964, p.192, pl.1, fig.23) Eisenack and Kjellström,
1971a, p.801. Albian; formerly *Membranilarnax*.

?*gigantea* (Tasch, 1964, p.192, pl.2, fig.13) Eisenack and
Kjellström, 1971a, p.803. Albian; formerly *Membranilarnax*.

**leptoderma* (Cookson & Eisenack, 1958, p.50, pl.10, fig.7,9)
Eisenack, 1963a, p.101. Albian; formerly *Membranilarnax*.

?*liradiscoides* (O.Wetzel, 1933b, p.52, pl.6, fig.3a-b) Downie and
Sarjeant, 1964 [1965], p.129. Late Cretaceous; formerly
Membranilarnax.

?*marina* (Kufferath, 1950, p.34, text-fig.40) Downie and Sarjeant,
1964 [1965], p.129. Holocene; formerly *Membranilarnax*.

minuta De Coninck, 1969, p.43, pl.12, fig.13-14.

polycladiata Cookson and Eisenack in Eisenack, 1963a, p.100. Holo-
type: Cookson and Eisenack, 1958, p.51, pl.10, fig.8. Albian.

?*pterococcoides* (O.Wetzel, 1933b, p.53, pl.6, fig.4) Eisenack,
1963a, p.102. formerly *Membranilarnax*.

subsp. *minuta* (Rozen, 1965) *stat. nov.*

1965 *Membranilarnacia pterococcoides* var. *minuta* Rozen,
p.312-313, pl.2, fig.4-5; text-fig.23-24. Late Eocene.

"*pterospermoides*" (O.Wetzel, 1933b) Downie and Sarjeant, 1964 [1965],
p.130. This transfer is herein rejected, NOW *Membranilarnax*.

MEMBRANILARNACIA (cont'd)

"reticulata" Williams and Downie, 1966c, Jr. Syn. of
Membranilarnacia ursulae, see De Coninck, 1969, p.43 and
Gocht, 1969, p.65.

reticulovata (Tasch, 1964, p.192, pl.2, fig.3) Eisenack and
Kjellström, 1971a, p.811. Albian; formerly *Membranilarnax*.

tenella Morgenroth, 1968, p.554-555, pl.48, fig.2-4. Danian.

ursulae (Morgenroth, 1966a, p.20, pl.3, fig.11-12) De Coninck,
1969, p.43. Early Eocene; formerly *Carnosphaeropsis*.

MEMBRANILARNAX O. Wetzel, 1933b, p.51.

Downie and Sarjeant, 1964 [1965], p.130, transfer the type of
this genus *M. pterospermoides* to ?*Membranilarnacia*, which in
effect combines the two genera *Membranilarnacia* and
Membranilarnax. According to the I.C.B.N. rules of priority the
first published name has priority and the genus *Membranilarnacia*
becomes a Jr. Syn. However due to the uncertainty regarding the
morphology of *M. pterospermoides* it is herein proposed that this
species be retained in *Membranilarnax*. Species formerly
included within this genus have been variously attributed to
Membranilarnacia, *Samlandia* and *Valensiella*.

**pterospermoides* O. Wetzel, 1933b, p.52, pl.6, fig.1-2. Late
Cretaceous.

"MEMBRANOPHORIDIUM" Gerlach, 1961, p.198. Brosius, 1963, p.48
transferred the type of the genus *M. aspinatum* and one other
species *M. partispinatum* to *Chiropteridium*. The remaining
species *M. multispinatum* was regarded by Brosius, 1963, p.48
as a Jr. Syn. of *Chiropteridium dispersum*. Gocht, 1969, p.63
lists *Membranophoridium multispinatum* as a Jr. Syn. of
Chiropteridium dispersum. Since all the species of
"Membranophoridium" are now included within the genus
Chiropteridium, "Membranophoridium" is in effect a Jr. hom.
of *Chiropteridium*.

MEMBRANOSPHAERA Samoilovitch ex Norris and Sarjeant, 1965, p.40
emend. Drugg, 1967, p.29.

The name *Membranosphaera* was originally used by Samoilovitch,
1961, p.251, as the name of a "groupe" which is not recognized
by the I.C.B.N. It was raised to generic status by Norris and
Sarjeant, 1965, p.40. The type of the genus *M. maastrichtica*
was at the same time given specific status. Other taxa of

MEMBRANOSPHAERA (cont'd)

the original "groupe" *Membranosphaera* were overlooked. These taxa are herein elevated to the proper status within the genus *Membranosphaera*.

bulluliniiformis (Maliavkina in Samoilovitch and Mtchedlishvili)
stat. nov.

1961 *Membranosphaera bulluliniiformis* Maliavkina, p.253-254, pl.84, fig.1a-b,2a-b,3. Late Jurassic-Late Cretaceous.

subsp. *sphaerica* (Maliavkina in Samoilovitch and Mtchedlishvili)
stat. nov.

1961 *Membranosphaera bulluliniiformis* forma *sphaerica*
Maliavkina, p.254-255, pl.84, fig.4. Late Jurassic.

subsp. *bulluliniiformis* (Maliavkova in Samoilovitch and
Mtchedlishvili) *stat. nov.*

1961 *Membranosphaera bulluliniiformis* forma *typica*
p.253-254, pl.84, fig.1a-b,2a-b,3.

**maastrichtica* Samoilovitch ex Norris and Sarjeant, 1965, p.40.

(Original description, Samoilovitch in Samoilovitch and
Mtchedlishvili, 1961, p.252, pl.83, fig.1a-d,2a-d). Late
Cretaceous.

subsp. *pilata* (Samoilovitch in Samoilovitch and Mtchedlishvili)
stat. nov.

1961 *Membranosphaera maastrichtica* var. *pilata* Samoilovitch,
p.253, pl.83, fig.3-4a-d. Late Cretaceous.

tuberculata (Maliavkina in Samoilovitch and Mtchedlishvili)
stat. nov.

1961 *Membranosphaera tuberculata* Samoilovitch, p.255, pl.84,
fig.7a-b,8. Late Jurassic.

MENDICODINIUM Morgenroth, 1970, p.347-348.

**reticulatum* Morgenroth, 1970, p.348-349, pl.9, fig.5-6; pl.10,
fig.1-4. Late Pliensbachian (Lias).

MICRODINIUM Cookson and Eisenack, 1960a, p.6, emend. Sarjeant, 1966b,
p.148-149.

?*crinitum* Davey, 1969a, p.137, pl.2, fig.7-8. Cenomanian.

deflandrei Milloud, 1969, p.429-430, pl.2, fig.5-7. Barremian.

dentatum Vozzhennikova, 1967, p.94-95, pl.38, fig.2a-e. Late
Cretaceous.

MICRODINIUM (cont'd)

dentatum (cont'd)

subsp. *dentatum* (Vozzhennikova, 1967) *stat. nov.*

1967 *Microdinium dentatum* forma *dentata* Vozzhennikova, p.95, pl.38, fig.2a-e. Late Cretaceous.

subsp. *sphaericum* (Vozzhennikova, 1967) *stat. nov.*

1967 *Microdinium dentatum* forma *sphaericum* Vozzhennikova, p.95-96, pl.36, fig.2a-b; pl.38, fig.1a-b. Late Cretaceous.

distinctum Davey, 1969a, p.133-135, pl.2, fig.9-11; text-fig.13D-E, I. Cenomanian.

"*echinatum*" Clarke and Verdier, 1967, p.64, pl.1, fig.9-10; text-fig.26. Jr. Syn. of *M. setosum* Sarjeant, 1966b, see Clarke, *et al.*, 1968, p.181.

irregulare Clarke and Verdier, 1967, p.65-66, pl.7, fig.5-8; text-fig.27. Cenomanian-Santonian.

kustanaicum Vozzhennikova, 1967, p.96, pl.37, fig.1a-b. ?Maastrichtian.

opacum Brideaux, 1971, p.76-77, pl.21, fig.19-22; text-fig.7d-e. Middle-Late Albian.

**ornatum* Cookson and Eisenack, 1960a, p.6-7, pl.2, fig.3-8; text-fig.2-4. Albian-Turonian.

punctulatum Vozzhennikova, 1967, p.96, pl.37, fig.7a-b. ?Maastrichtian.

reticulatum Vozzhennikova, 1967, p.96-97, pl.37, fig.2-5. Eocene.

saeptum Morgenroth, 1968, p.536-537, pl.41, fig.7-9; pl.42, fig.1. Danian.

setosum Sarjeant, 1966b, p.151, pl.16, fig.9-10; text-fig.39. Cenomanian.

singularis Vozzhennikova, 1967, p.97, pl.39, fig.2a-e. Eocene.

smolenskiensis (Vozzhennikova, 1967) *comb. nov.*

1967 *Ceratocorys smolenskiensis* Vozzhennikova, p.93, pl.34, fig.1-6; pl.35, fig.6; pl.36, fig.4. Late Cretaceous.

variospinum Davey, 1969a, p.135, pl.2, fig.5-6; text-fig.13G. Cenomanian.

MICRODINIUM (cont'd)

veligerum (Deflandre, 1937b, p.81, pl.12, fig.9) Davey, 1969a, p.136-137. Senonian; formerly *Micrhystriidium* and *Ceratocorys*.

"MIKROPITHON" Agelopoulos, 1967, p.51. *Non. nud.* Ph.D. Dissertation. Not validly published.

"**amniophorum*" Agelopoulos, 1967, p.51, pl.10, fig.6-8. Eocene. *Nom. nud.* Ph.D. Dissertation. Not validly published.

MUDERONGIA Cookson and Eisenack, 1958, p.40-41.

crucis Neale and Sarjeant, 1962, p.449-450, pl.20, fig.2,6; text-fig.6. Late Hauterivian.

**mcwhaei* Cookson and Eisenack, 1958, p.41, pl.6, fig.1-5. Aptian.

perforata Alberti, 1961, p.13, pl.2, fig.8-9. Turonian.

simplex Alberti, 1961, p.12, pl.2, fig.1-6; pl.12, fig.1-2. Valanginian-Early Barremian.

staurota Sarjeant, 1966c, p.203-204, pl.21, fig.6-7; pl.23, fig.4; text-fig.53. Early Barremian.

tetracantha (Gocht, 1957, p.168, pl.18, fig.7-9; text-fig.5) Alberti, 1961, p.14. Late Hauterivian; formerly ?*Pseudoceratium*.

tomaszowensis Alberti, 1961, p.12-13, pl.2, fig.12-13. Valanginian.

MUIRADINIUM Harland and Sarjeant, 1970, p.225.

**dorsispirale* (Churchill and Sarjeant, 1963, p.33, pl.1, fig.18; text-fig.2) Harland and Sarjeant, 1970, p.225. Formerly *Gymmodinium*.

MUIRIELLA Churchill and Sarjeant, 1963, p.36, emend. Harland and Sarjeant, 1970, p.226-227.

**plioplax* Churchill and Sarjeant, 1963, p.37, pl.1, fig.20-21; text-fig.4, emend. Harland and Sarjeant, 1970, p.227-228. Holocene.

MURATODINIUM Drugg, 1970b, p.818.

**fimbriatum* (Cookson & Eisenack, 1967b, p.252, pl.40, fig.1-7)
Drugg, 1970b, p.818-819. Paleocene; formerly *Kenleyia*.

NANNOCERATOPSIELLA Tasch, 1963, p.333.

**permiana* Tasch, 1963, p.333, pl.1, fig.4-6. Early Permian.

NANNOCERATOPSIS Deflandre, 1938b, p.183, emend. Evitt, 1961b, p.306.

"*deflandrei*" Evitt, 1961b, p.308. Jr. Syn. of *N. gracilis*
Alberti, 1961; see Evitt, 1962, p.1129-1130.

gracilis Alberti, 1961, p.30, pl.7, fig.6, emend. Evitt, 1962,
p.1129-1130. Bajocian.

**pellucida* Deflandre, 1938a, p.183, pl.8, fig.8-12, emend. Evitt,
1961b, p.312. Oxfordian.

spiculata Stover, 1966, p.42-43, pl.8, fig.1a-5e. Bajocian-
Bathonian.

NELCHINOPSIS Wiggins, 1972, p.299.

**kostromiensis* (Vozzhennikova, 1967, p.85, pl.26, fig.1-6; pl.27,
fig.1-2) Wiggins, 1972, p.301-302. Valanginian; formerly
Gonyaulax and *Gonyaulacysta*.

NELSONIELLA Cookson and Eisenack, 1960a, p.4.

**aceras* Cookson and Eisenack, 1960a, p.4, pl.1, fig.12-13.
Santonian-Campanian.

semireticulata Cookson and Eisenack, 1960a, p.4-5, pl.1, fig.15.
Santonian-Campanian.

tuberculata Cookson and Eisenack, 1960a, p.4, pl.1, fig.14.
Santonian-Campanian.

NEMATOSPHEROPSIS Deflandre and Cookson, 1955, p.268, emend. Williams
and Downie, 1966c, p.222.

**balcombiana* Deflandre and Cookson, 1955, p.268-269, pl.8, fig.5.
Middle Miocene.

NEMATOSPHAEROPSIS (cont'd)

philippoti (Deflandre, 1947a, p.1574, text-fig.2-3) De Coninck, 1969, p.29. Senonian; formerly *Cannosphaeropsis*.

velata Clarke and Verdier, 1967, p.51-52, pl.10, fig.1-2; text-fig.22. Santonian.

NETRELYTRON Sarjeant, 1961a, p.113, emend. Sarjeant, 1966c, p.199.

"*jurassicum*" Alberti, 1961, p.21, pl.7, fig.8. Invalidly transferred from *Kalyptea* by Sarjeant, 1966c, p.201.

parum Gitmez, 1970, p.314-315, pl.5, fig.4; pl.9, fig.4. Early Kimmeridgian.

**stegastum* Sarjeant, 1961a, p.114-115, pl.15, fig.15; text-fig.14. Early Oxfordian.

trinetrion Sarjeant, 1966c, p.199-200, pl.22, fig.3; text-fig.51. Middle Barremian.

OCCISUCYSTA Gitmez, 1970, p.267.

**balios* Gitmez, 1970, p.267-268, pl.5, fig.1-2; text-fig.16. Early Kimmeridgian.

evitti (Dodekova, 1969, p.14, pl.1, fig.1-2) Gitmez, 1970, p.269. Tithonian; formerly *Gonyaulacysta*.

monoheuriskos Gitmez and Sarjeant, 1972, p.221-223, pl.7, fig.10-11; text-fig.21. Early Kimmeridgian.

ODONTOCHITINA Deflandre, 1935, p.234, emend. Davey, 1970, p.354.

athabaskensis Pocock, 1962, p.78, pl.14, fig.209-210. Barremian.

"*blastema*" Davey, 1970, p.356, pl.5, fig.4-5. Jr. Syn. of *Xenascus ceratioides*; see Davey and Verdier, 1971, p.27, and *Xenascus* herein.

costata Alberti, 1961, p.31, pl.6, fig.10-13, emend. Clarke and Verdier, 1967, p.58-59. Cenomanian-Turonian.

cribropoda Deflandre and Cookson, 1955, p.292, pl.3, fig.7-11; text-fig.58. Senonian.

ODONTOCHITINA (cont'd)

**operculata* (O.Wetzel, 1933a, p.170, pl.2, fig.21-22; text-fig.3)
Deflandre and Cookson, 1955, p.291-292. Senonian.

porifera Cookson, 1956, p.188, pl.1, fig.17. Senonian.

"*silicorum*" Deflandre, 1935, p.234, pl.9, fig.8-10. Jr. Syn. of
O. operculata; see Deflandre and Cookson, 1955, p.292.

"*striatoperforata*" (Cookson & Eisenack, 1962b, p.490, pl.3, fig.14-
19). Jr. Syn. of *O. costata*; see Clarke and Verdier, 1967, p.58.

ODONTOCHITINOPSIS Eisenack, 1961, p.298-299,308.

incerta (Deflandre-Rigaud, 1954, p.59, text-fig.3) Eisenack, 1964,
p.563, formerly *Ceratocystidiopsis*. According to Article 33,
para 4 of the I.C.B.N. the transfer of *Ceratocystidiopsis incerta*
to *Odontochitinopsis* by Eisenack, 1961, p.299, is invalid.

**molesta* (Deflandre, 1937b, p.90, pl.17, fig.1-2) Eisenack, 1961,
p.299. Senonian; formerly *Ceratocystidiopsis*.

OLIGOSPHAERIDIUM Davey and Williams, 1966b, p.70-71.

albertense (Pocock, 1962, p.82, pl.15, fig.226-227) Davey and
Williams, 1969, p.5. Barremian; formerly *Hystrichosphaeridium*.

anthophorum (Cookson & Eisenack, 1958, p.43, pl.11, fig.12-13;
text-fig.16-18) Eisenack and Kjellström, 1971a, p.837. Late
Jurassic-Early Cretaceous; formerly *Hystrichosphaeridium*.

?*asterigerum* (Gocht, 1959, p.67, pl.3, fig.1; pl.7, fig.1-4) Davey
and Williams, 1969, p.5. Hauterivian; formerly
Hystrichosphaeridium.

cophalum Sah et al., 1970, p.147, pl.2, fig.22-23. Late
Cretaceous.

?*coelenteratum* (Tasch, 1964, p.195, pl.2, fig.11) Davey and
Williams, 1969, p.5. Albian; formerly *Hystrichosphaeridium*.

**complex* (White, 1842, p.39, pl.4, div.3, fig.11) Davey and
Williams, 1966b, p.71-74. Senonian; formerly
Hystrichosphaeridium.

diastema Singh, 1971, p.337, pl.55, fig.4-5; pl.56, fig.1-2.
Late Albian.

OLIGOSPHAERIDIUM (cont'd)

dictyophorum (Cookson & Eisenack, 1958, p.44, pl.11, fig.14) Davey and Williams, 1969, p.5. Late Jurassic; formerly *Hystriichosphaeridium*.

"?*dictyostilum*" (Menendez, 1965, p.11, pl.2, fig.6; pl.3, fig.18-22) Eisenack and Kjellström, 1971a, Jr. Syn. of the species *Areosphaeridium diktyoplokus*; see Eaton, 1971, p.359.

?*dispare* (Tasch, 1964, p.195, pl.2, fig.8) Davey and Williams, 1969, p.5. Albian; formerly *Hystriichosphaeridium*.

irregulare (Pocock, 1962, p.82, pl.15, fig.228-229 non Merrill) Davey and Williams, 1969, p.5. Barremian; formerly *Hystriichosphaeridium*.

macrotybulum (Neale & Sarjeant, 1962, p.452, pl.20, fig.7; text-fig.8a) Davey and Williams, 1966b, p.75. Hauterivian; formerly *Hystriichosphaeridium*.

"*paradoxum*" (Brosius, 1963) NOW *Tanyosphaeridium*.

perforatum (Gocht, 1959, p.68, pl.3, fig.7; pl.7, fig.13-16) Davey and Williams, 1969, p.5. Hauterivian-Barremian; formerly *Hystriichosphaeridium*.

prolixispinosum Davey and Williams, 1966b, p.76-77, pl.8, fig.2-3. Cenomanian.

pulcherrimum (Deflandre & Cookson, 1955, p.270, pl.1, fig.8; text-fig.21-22) Davey and Williams, 1966b, p.75-76. Albian; formerly *Hystriichosphaeridium*.

reniforme (Tasch, 1964, p.193, pl.2, fig.6) Davey, 1969a, p.148. Albian; formerly *Hystriichosphaeridium*.

reticulatum Davey and Williams, 1966b, p.74, pl.7, fig.10. Cenomanian.

totum Brideaux, 1971, p.88, pl.25, fig.53,55. Late Albian.

subsp. *minor* (Brideaux, 1971) *stat. nov.*

1971 *Oligosphaeridium totum* var. *minor* Brideaux; p.88-89, pl.25, fig.54,57. Late Albian.

subsp. *totum* (Brideaux, 1971) *stat. nov.*

1971 *Oligosphaeridium totum* var. *totum* Brideaux, p.88, pl.25, fig.53,55. Late Albian.

OLIGOSPHAERIDIUM (cont'd)

vasiformum (Neale & Sarjeant, 1962, p.452, pl.20, fig.1; text-fig.8b) Davey and Williams, 1966b, p.74-75. Middle Hauterivian-Early Barremian; formerly *Hystriichosphaeridium*.

OLLULA Góczán, 1962, p.194,200.

**goczani* Loeblich and Loeblich, 1966, p.42 = *O. ollula* Góczán, 1962, p.195, 201, pl.3, fig.11-16. See Loeblich and Loeblich, 1971, p.312. Cretaceous.

"OODNADATTIA" Eisenack and Cookson, 1960, p.6. Jr. Syn. of *Dinopterygium*; see Norris and Sarjeant, 1965, p.44. Clarke and Verdier, 1967, p.36, transfer the type of the genus *O. tuberculata* to *Dinopterygium* thus making a superfluous name of *Oodnadattia*.

OMATIA Cookson and Eisenack, 1958, p.60, emend. Wiggins, 1969, p.150.

butticula Wiggins, 1969, p.150, pl.2, fig.1-5. Neocomian, probably Late Valanginian or Early Hauterivian.

**montgomeryi* Cookson and Eisenack, 1958, p.60, pl.8, fig.7-9. Late Jurassic.

"*pisciformis*" (Cookson & Eisenack, 1958) NOW *Herendeenia*.

OPAEOPSOMUS Pocock, 1972, p.96. *non* *Opaeopsomus* Evitt in Pocock, 1972. Pocock used the name '*Opaeopsomus*' Evitt which appeared originally in an unpublished company report by Evitt. However, the diagnosis given by Pocock is substantially different from Evitt's. (Evitt, personal correspondence). Since the name *Opaeopsomus* has been applied in a different sense by Pocock, the citation should be *Opaeopsomus* Pocock, 1972. See I.C.B.N. Article 46D.

**wapellensis* Pocock, 1972, p.97, pl.24, fig.14. Callovian.

OPERCULITES Newman, 1965, p.18.

**carbonis* Newman, 1965, p.18-20, pl.1, fig.14-16. Campanian.

OPERCULODINIUM Wall, 1967, p.110-111.

OPERCULODINIUM (cont'd)

- **centrocarpum* (Deflandre & Cookson, 1955, p.272, pl.8, fig.3-4) Wall, 1967, p.111. Miocene; formerly *Baltisphaeridium*, *Hystriichosphaeridium* and *Cordosphaeridium*. (De Coninck, 1969, p.32, questionably includes this species as a subspecies of *Cordosphaeridium microtriaina*. This interpretation is herein rejected.)
- flucturum* Davey, 1969b, p.8, pl.2, fig.3,7-8. Maastrichtian-Danian?.
- giganteum* Wall, 1967, p.112, pl.16, fig.9-10. Pleistocene-Holocene.
- hirsutum* (Ehrenberg, 1838) *comb. nov.*
1838 *Xanthidium hirsutum* Ehrenberg, p.109-135, pl.1, fig.13. Cretaceous; formerly *Ovum hispidum hirsutum*, *Hystriichosphaeridium* and *Baltisphaeridium*.
- subsp. *amplum* (W.Wetzel, 1955) *comb. nov.*
1955 *Hystriichosphaeridium hirsutum* subsp. *amplum* W. Wetzel, p.38, text-fig.11. Danian.
- subsp. *minor* (O.Wetzel, 1933b) *comb. nov., stat. nov.*
1933b *Hystriichosphaera hirsuta* forma *minor* O. Wetzel, p.45-46, pl.4, fig.26. Late Cretaceous.
- subsp. *varians* (O.Wetzel, 1933b) *comb. nov., stat. nov.*
1933b *Hystriichosphaera hirsuta* forma *varians* O. Wetzel, p.47-48, pl.4, fig.27-29. Late Cretaceous.
- israelianum* (Rossignol, 1962, p.132, pl.2, fig.3) Wall, 1967, p.111. Pleistocene; formerly *Hystriichosphaeridium* and *Baltisphaeridium*.
- placitum* Drugg and Loeblich, 1967, p.186, pl.1, fig.9-11b; text-fig.4. Oligocene.
- psilatum* Wall, 1967, p.111-112, pl.16, fig.6-8. Holocene.
- "*pugiatum*" (Drugg, 1970b) NOW *Lingulodinium*.
- ?*punctatum* Cookson and Eisenack, 1971, p.220, pl.9, fig.6. Albian-Cenomanian.
- ?*rarispinosum* Cookson and Eisenack, 1971, p.220-221, pl.9, fig.7-8. Albian-Cenomanian.
- "*solarum*" (Drugg, 1970b) NOW *Lingulodinium*.

OVOIDINIUM Davey, 1970, p.351.

"*cinctum*" (Cookson & Eisenack, 1958) NOW *Pocockia*.

ostium Davey, 1970, p.353, pl.4, fig.5-6; text-fig.18. Albian-Early Cenomanian.

scabrosum (Cookson & Hughes, 1964, p.40, pl.5, fig.1-3) Davey, 1970, p.352. Albian-Early Cenomanian; formerly *Ascodinium*.

**verrucosum* (Cookson & Hughes, 1964, p.41, pl.5, fig.4-7) Davey, 1970, p.351-352. Cenomanian; formerly *Ascodinium*.

PALAEOCYSTODINIUM Alberti, 1961, p.20.

benjaminii Drugg, 1967, p.31, pl.3, fig.1; pl.9, fig.3. Maastrichtian-Danian.

?*denticulatum* Alberti, 1961, p.20-21, pl.7, fig.9. Turonian.

**golzowense* Alberti, 1961, p.20, pl.7, fig.10-12; pl.12, fig.16. Late Eocene-Late Oligocene.

hyperxantha (Vozzhennikova, 1963, p.185, fig.20) Vozzhennikova, 1967, p.152-153. Paleocene; formerly *Cystodiniopsis*.

lidiae (Gorka, 1963, p.37, pl.5, fig.6) Davey, 1969b, p.12-13. Maastrichtian; formerly *Leiofusa*.

?*rhomboides* (O.Wetzel, 1933a) *comb. nov., stat. nov.*

1933 *Ceratium* cf. *fuscus* forma *rhomboides* O. Wetzel, p.168, pl.2, fig.17. Senonian. The raising of *Ceratium fuscus* forma *rhomboides* to the species level is effected for the purpose of removing fossil forms from *Ceratium fuscus*. The assignment of these forms to *C. fuscus* has been questioned by Eisenack, 1961, p.300-301, and by Evitt, 1961c, p.402. As the figured forms most nearly compare with *Palaeocystodinium*, the forms are questionably transferred to this genus.

subsp. *filosum* (O.Wetzel, 1933a) *comb. nov., stat. nov.*

1933a *Ceratium* cf. *fuscus* forma *filosum* O. Wetzel, p.169, pl.2, fig.20. Senonian.

subsp. *incerta* (Deflandre, 1936a) *comb. nov., stat. nov.*

1936a *Ceratium* cf. *fuscus* forma *incerta* Deflandre, p.40, pl.10, fig.8-9. Senonian.

PALAEOCYSTODINIUM (cont'd)

?*rhomboides* (cont'd)

subsp. *nodosum* (O.Wetzel, 1933a) *comb. nov., stat. nov.*
1933a *Ceratium* cf. *fuscus* forma *nodosum* O. Wetzel, p.169,
pl.2, fig.19. Senonian.

subsp. *ovatum* (O.Wetzel, 1933a) *comb. nov., stat. nov.*
1933a *Ceratium* cf. *fuscus* forma *ovatum* O. Wetzel, p.168-169,
pl.2, fig.18. Senonian.

PALAEOGLENODINIUM Deflandre, 1935, p.227.

**cretaceum* Deflandre, 1935, p.227, pl.7, fig.2-3. ?Senonian.

PALAEOHYSTRICHOPIPHORA Deflandre, 1935, p.230, emend. Deflandre
and Cookson, 1955, p.257.

brevispinosa Pocock, 1962, p.81, pl.14, fig.222-223. Barremian.

"*dispersa*" (Cookson & Eisenack, 1958) NOW *Diconodinium*.

**infusorioides* Deflandre, 1935, p.230-231, pl.8, fig.4. Senonian?.

isodiametrica Cookson and Eisenack, 1958, p.38, pl.12, fig.11-12.
Campanian-Early Maastrichtian.

"*minuta*" (Deflandre & Cookson, 1955) NOW *Diconodinium*.

"*multispina*" (Deflandre & Cookson, 1955) NOW *Diconodinium*.

"*myalupensis*" (Churchill & Sarjeant, 1963) NOW *Aquadulcum*.

paucisetosa Deflandre, 1943, p.507-508, text-fig.26. Senonian?.

paucispina Alberti, 1961, p.19-20, pl.3, fig.25. Albian.

"*pellifera*" (Cookson & Eisenack, 1958) NOW *Diconodinium*.

"*pikei*" (Churchill & Sarjeant, 1963) NOW *Aquadulcum*.

"*spinosissima*" (Deflandre, 1938b) NOW *Acanthaulax*.

PALAEOPERIDINIUM Deflandre, 1935, p.227, ex Sarjeant, 1967, p.246.

alatum Conrad, 1941, p.5, pl.1, fig.C. Maastrichtian.

PALAEOPERIDINIUM (cont'd)

basilium (Drugg, 1967, p.13, pl.1, fig.9-11; pl.9, fig.1a-b)
Drugg, 1970b, p.810. ?Maastrichtian-Danian; formerly
Peridinium.

"*bicuneatum*" (Deflandre, 1938b) NOW *Scriniodinium*.

"*castanea*" (Deflandre, 1935) NOW *Trichodinium*.

"*caulleryi*" (Deflandre, 1935) NOW *Diconodinium*.

"*cayewrii*" (Deflandre, 1935) NOW *Phanerodinium*.

"*cornutum*" Vozzhennikova, 1963, text-fig.14, *nom. nud.*
No description given.

"*crassinervum*" (Deflandre, 1939) NOW *Leptodinium*.

"*cretaceum*" (Pocock, 1962) NOW *Astrocyta*.

deflandrei nom. nov. This new name is proposed for fossil
specimens formerly attributed to the modern taxon *Peridinium*
conicum. For description see Deflandre, 1936b, p.174,
holotype pl.4, fig.4.

subsp. *larjakiensis* (Vozzhennikova, 1967) *comb. nov., stat. nov.*
1967 *Peridinium conicum* var. *larjakiensis* Vozzhennikova,
p.71-72, pl.16, fig.1-2. Paleocene.

"*dictyophorum*" (Deflandre, 1938b) NOW *Gonyaulacysta*.

ellipsoideum Deflandre, 1936b, p.178, pl.6, fig.5-7. Senonian.

"*granulatum*" (Singh, 1964) NOW *Gonyaulacysta indicosa nom. subst.*
Brideaux, 1971.

?*hansonianum* (Traverse, 1955) *comb. nov.*
1955 *Peridinium hansonianum* Traverse, p.77-79, pl.13, fig.147.
Late Oligocene.

"*hyalodermum*" (Deflandre, 1939) NOW *Gonyaulacysta*.

mecsekense Nagy, 1969, p.292, pl.1, fig.6,8. Late Pannonian.

monacanthum Deflandre, 1935, p.228, pl.6, fig.1. Senonian?.

"*mosaicum*" (Downie, 1957) NOW *Leptodinium*.

PALAEOPERIDINIUM (cont'd)

muriciforme Conrad, 1941, p.7, pl.1, fig.k. Maastrichtian.

"*nuciforme*" (Deflandre, 1938b) NOW *Gonyaulacysta*.

"*nuciformoides*" Gorka, 1965, p.324, pl.2, fig.1-2. Jr. Syn. of *Gonyaulacysta nuciformis* according to Sarjeant, 1968, p.227.

"*nudum*" (Downie, 1957) NOW *Pareodinia*.

pannonium nom. nov., nom. subst. pro *Palaeoperidinium nudum*
Nagy, 1969, (non *P. nudum*, Downie, 1957) p.291, pl.1, fig.1.
Late Pannonian.

"*pilum*" (Gocht, 1959) NOW *Leptodinium*.

piriforme Conrad, 1941, p.9, pl.1, fig.G. Maastrichtian.

**pyrophorum* (Ehrenberg, 1838, pl.1, fig.1,4) Sarjeant, 1967,
p.246-247, formerly *Peridinium*.

"*reticulatum*" (Valensi, 1953) NOW *Dictyopyxidia*.

rhomboidalis Gorka, 1965, p.301-302, pl.1, fig.6. Early
Kimmeridgian.

"*spinosissima*" (Deflandre, 1938b) NOW *Acanthaulax*.

"*spinosum*" (Cookson & Hughes, 1964) NOW *Epelidosphaeridia*.

?*subconicoides* (Lejeune-Carpentier, 1942) comb. nov.
1942 *Peridinium subconicoides* Lejeune-Carpentier, p.183-185,
text-fig.1-8. Senonian.

velatum Conrad, 1941, p.8-9, pl.1, fig.A. Maastrichtian.

"*ventriosum*" (O.Wetzel, 1933a) Deflandre, 1935 NOW
Cribroperidinium.

PALAEOSPHAERIUM Gorka, 1965, p.308.

**infrequens* Gorka, 1965, p.308, pl.2, fig.7. Early Kimmeridgian.

PALAEOSTOMOCYSTIS Deflandre, 1937b, p.52.

apiculata Cookson and Eisenack, 1960a, p.12, pl.3, fig.15.
Santonian-Campanian.

PALAEOSTOMOCYSTIS (cont'd)

- chytra* Drugg, 1967, p.35, pl.6, fig.12. Maastrichtian-Danian.
- cretacea* (O.Wetzel, 1933a, p.175, pl.2, fig.28-29) Deflandre, 1937b, p.54. Late Cretaceous; formerly ?*Trachelomonas*, a genus of the class *Euglenineae*.
- cylindrica* Cookson and Eisenack, 1960b, p.258, pl.39, fig.16. Late Jurassic-Neocomian.
- decora* Deflandre, 1945, card 850, fig.436a. Late Cretaceous.
- "*echinulata*" (Deflandre, 1937b) NOW *Diacrocanthidium*.
- fragilis* Cookson and Eisenack, 1962b, p.496-497, pl.7, fig.10-11. Aptian-Cenomanian.
- laevigata* Drugg, 1967, p.35, pl.6, fig.14-15. Maastrichtian-Danian.
- oblonga* Deflandre, 1945, card 852. Late Cretaceous.
- pulchella* Conrad, 1941, p.10, text-fig.3. Maastrichtian.
- punctulosa* Deflandre, 1941, p.22-23, pl.6, fig.11. Late Cretaceous.
- **reticulata* Deflandre, 1937b, p.53-54. Late Cretaceous. Originally figured in Deflandre, 1935, pl.9, fig.13, *nom. nud.*
- sinuosa* Cookson and Eisenack, 1960b, p.258, pl.38, fig.16-17. Tithonian.
- sphaerica* Deflandre, 1937b, p.54. Late Cretaceous. Originally figured in Deflandre, 1935, pl.9, fig.14, *nom. nud.*

PALAEOTETRADINIUM Deflandre, 1936b, p.189.

- hermesinoides* O. Wetzel, 1940, p.138-140, pl.5, fig.7. Late Cretaceous.
- "*hyalodermum*" (Cookson, 1956, p.188, pl.1, fig.12-16). Transferred to the acritarch genus *Veryhachium* by Downie and Sarjeant, 1963, p.94.
- **silicorum* Deflandre, 1936b, p.189, pl.9, fig.11. ?Senonian. *P. silicorum* Deflandre, 1934, p.967, text-fig.6, *nom. nud.* since the genus *Palaeotetradinium* was not validly published until 1936.

PALMNICKIA Eisenack, 1954, p.69.

californica Drugg, 1967, p.30, pl.5, fig.14-15; pl.9, fig.8.
Danian.

**lobifera* Eisenack, 1954, p.70, pl.11, fig.10-11. Early Oligocene.

PALHISTIODINIA Deflandre, 1938b, p.185.

**arcana* Deflandre, 1938b, p.185, pl.5, fig.10. Oxfordian.

PALYNODINIUM Gocht, 1970a, p.135,137-138,140. According to
Loeblich and Loeblich, 1971, p.312, the genus *Palynodinium*
is invalid as no description or diagnosis is given, see
I.C.B.N. Art. 42, par. 1.

**grallator* Gocht, 1970a, p.135,137-138,140, text-fig.2; text-fig.4,
no.1-8; text-fig.5, no.1-2. Late Cretaceous. According to
Loeblich and Loeblich, 1971, p.312, the species *P. grallator*
is invalid, see I.C.B.N. Art. 43, par. 1.

PARANETRELYTRON Sarjeant, 1966c, p.201.

**strongylum* Sarjeant, 1966c, p.201-202, pl.21, fig.5; pl.23,
fig.5; text-fig.52. Early-Middle Barremian.

PAREODINIA Deflandre, 1947c, p.4, emend. Gocht, 1970b, p.153-154.

aphelia Cookson and Eisenack, 1958, p.60, pl.12, fig.3-4,9.
Middle Jurassic-?Aptian.

apotomocerastes Sarjeant, 1972, p.27-28, pl.3, fig.4. Late
Bathonian-Early Callovian.

**ceratophora* Deflandre, 1947c, p.4, text-fig.1-3, emend. Gocht,
1970b, p.153-156. Late Callovian.

subsp. *pachyceras* (Sarjeant, 1959) *stat. nov.*
1959 *Pareodinia ceratophora* var. *pachyceras* Sarjeant,
p.337, pl.13, fig.10; text-fig.5a. Early Callovian.

subsp. *scopaeus* (Sarjeant, 1972) *stat. nov.*
1972 *Pareodinia ceratophora* var. *scopaeus* Sarjeant, p.26,
pl.2, fig.4. Late Bathonian-Early Callovian.

PAREODINIA (cont'd)

curvocervicata Tasch, 1964, p.196, pl.3, fig.1. Albian.

groenlandica Sarjeant, 1972, p.27, pl.2, fig.2; pl.5, fig.1.
Late Bathonian-Early Callovian.

moderma Kufferath, 1950, p.37-38, text-fig.34. Holocene.

?*nuda* (Downie, 1957, p.424, pl.20, fig.11; text-fig.2e) Pocock,
1972, p.96. Late Kimmeridgian.

prolongata Sarjeant, 1959, p.335-336, pl.13, fig.8; text-fig.4.
Early Callovian.

spinosa Alberti, 1961, p.24, pl.4, fig.16. Late Barremian.

villosa Tasch, 1964, p.195-196, pl.1, fig.9. Albian.

PARVOCAVATUS Gitmez, 1970, p.306.

**tuberosus* Gitmez, 1970, p.307-308, pl.6, fig.9; text-fig.31.
Early Kimmeridgian.

PENTADINIUM Gerlach, 1961, p.164-165.

**laticinctum* Gerlach, 1961, p.165-166, pl.26, fig.5-6; text-fig.6-7.
Middle Oligocene-Middle Miocene.

subsp. *granulatum* Gocht, 1969, p.29-30, pl.9, fig.17-18;
text-fig.20. Middle Oligocene.

subsp. *imaginatum* Benedek, 1972, p.43-44, pl.6, fig.9; pl.2,
fig.11. Late Oligocene.

subsp. *lophophorum* Benedek, 1972, p.44, pl.6, fig.8; text-fig.19.
Middle Oligocene.

taeniagerum Gerlach, 1961, p.167-168, pl.26, fig.8-9,12,15;
text-fig.8. Middle Oligocene-Middle Miocene.

subsp. *imaginatum* Benedek, 1972, p.45-46, pl.6, fig.12.
Late Oligocene.

subsp. *lophophorum* Benedek, 1972, p.45, pl.6, fig.13. Middle
Oligocene.

PENTAGONUM Vozzhennikova, 1963, p.183.

"*conicoides*" Vozzhennikova, 1963, *nom. nud.*

No description. The name appears only in the description for text-fig.17 where it is erroneously used for *P. sibiricum*.

marginatum Vozzhennikova, 1967, p.107, pl.46, fig.1,3-4,6.
Paleocene.

**sibiricum* Vozzhennikova, 1963, p.183, text-fig.17a-b. Paleocene.
In the description for text-fig.17 the species name
P. conicoides is erroneously used for *P. sibiricum*.

PERIDINITES Lefèvre, 1933a, p.418. (Type of the genus selected by Deflandre, 1945, card 800.)

barbadensis Lefèvre, 1933a, p.416. (Figured in Lefèvre, 1933b, text-fig.9-12.) Early Tertiary.

diodon Lefèvre, 1933a, p.417-418. (Figured in Lefèvre, 1933b, text-fig.23.) Early Tertiary.

globosus Lefèvre, 1933a, p.416. (Figured in Lefèvre, 1933b, text-fig.15-16.) Early Tertiary.

amaruense (Deflandre, 1933, p.265, text-fig.1-7) Deflandre, 1945, card 806-809. Tertiary; formerly *Lithoperidinium*.

maculatum (Vozzhennikova, 1967) *comb. nov.*

1967 *Lithoperidinium maculatum* Vozzhennikova, p.117-118, pl.49, fig.1-12; pl.50, fig.1-8. Early Oligocene.

ovalis Lefèvre, 1933a, p.417. (Figured in Lefèvre, 1933b, text-fig.21-22.) Early Tertiary.

**parvulus* Lefèvre, 1933a, p.416. (Figured in Lefèvre, 1933b, text-fig.6-8.) Early Tertiary.

perforatus Lefèvre, 1933a, p.418. (Figured in Lefèvre, 1933b, text-fig.25-30.) Early Tertiary.

piriformis Lefèvre, 1933a, p.417. (Figured in Lefèvre, 1933b, text-fig.17-18.) Early Tertiary.

subsp. *compactum* (Lefèvre, 1933a) *stat. nov.*

1933a *Peridinites piriformis* var. *compactum* Lefèvre, p.417.
(Figured in Lefèvre, 1933b, text-fig.19-20.) Early Tertiary.

PERIDINITES (cont'd)

rossicus (Deflandre, 1940, p.266, text-fig.1-4) Deflandre, 1945, card 817-818. Eocene; formerly *Lithoperidinium*.

sphaericus Lefèvre, 1933a, p.416-417. (Figured in Lefèvre, 1933b, text-fig.13-14.) Early Tertiary.

subsp. *minor* (Lefèvre, 1933b) *stat. nov.*

1933b *Peridinites sphaericus* var. *minor* Lefèvre, p.224, text-fig.24. Early Tertiary.

PERIDINIUM Ehrenberg, 1832, p.38. Modern genus, all fossil forms transferred to *Palaeoperidinium* with the exception of those listed below. Forms discussed by Wall and Dale in Wall, Dale and Harada, 1973 are considered to be modern.

"*comatum*" (Morgenroth, 1966b) NOW *Phthanoperidinium*.

"*conicum*" all fossil forms assigned to this modern species are now *Palaeoperidinium deflandrei*.

"*damasii*" (Lejeune-Carpentier, 1942) NOW ?*Cooksoniella*.

"*delitiense*" (Ehrenberg, 1838) NOW *Spongodinium*.

"*diamantum*" (Churchill & Sarjeant, 1963) NOW ?*Phthanoperidinium*.

"*eocenicum*" (Cookson & Eisenack, 1965a) NOW ?*Phthanoperidinium*.

"*galeatum*" (Lejeune-Carpentier, 1942) NOW *Deflandrea*.

"*hansonianum*" (Traverse, 1955) NOW ?*Palaeoperidinium*.

"*illustrans*" (O.Wetzel, 1933a) NOW ?*Phthanoperidinium*.

"*kansanum*" (Tasch, 1964) NOW ?*Deflandrea*.

"*lambdoideum*" (Nagy, 1966) NOW *Phthanoperidinium*.

"*paleocenica*" (Cookson & Eisenack, 1965c) NOW ?*Cooksoniella*.

"*pleum*" (Tasch, 1964) NOW ?*Deflandrea*.

"*resistente*" (Morgenroth, 1966a) NOW *Phthanoperidinium*.

"*tricuspis*" (O.Wetzel, 1933a) NOW *Astrocysta*.

"*ventriosum*" (O.Wetzel, 1933a) NOW *Cribroperidinium*.

PERISSEIASPHAERIDIUM Davey and Williams, 1966b, p.78.

eisenackii Davey and Williams, 1969, p.6, = *Hystrichosphaeridium anthophorum*. Late Aptian, sensu Eisenack, 1958, p.402, pl.26, fig.1-2 non Cookson and Eisenack, 1958.

**pamosum* Davey and Williams, 1966b, p.78-79, pl.3, fig.5; pl.11, fig.8; text-fig.15. Early Eocene.

PHANERODINIUM Deflandre, 1937a, p.110.

**cayeuxii* (Deflandre, 1935, p.229, pl.6, fig.2-3) Deflandre, 1937a, p.110. Senonian; formerly *Palaeoperidinium*.

subsp. *laeve* (Lejeune-Carpentier, 1951) *stat. nov.*
1951 *Phanerodinium cayeuxii* var. *laeve* Lejeune-Carpentier, p.310-322, text-fig.6. Senonian.

fourmarieri Lejeune-Carpentier, 1951, p.311, text-fig.7. Senonian.

setiferum Deflandre, 1937a, p.112-114, text-fig.5. Senonian.

PHOBEROCYSTA Millioud, 1969, p.431-432. Also see *Xenascus*.

"*ceratioides*" (Deflandre, 1937b) NOW *Xenascus*.

**neocomica* (Gocht, 1957, p.172-178, pl.19, fig.1-5; pl.20, fig.1-7; text-fig.7-16) Millioud, 1969, p.432. Formerly *Wetzeliella*.

subsp. *circulata* (Gocht, 1957) *comb. nov., stat. nov.*
1957 *Wetzeliella neocomica* forma *circulata* Gocht, p.178, text-fig.14. Hauterivian.

subsp. *convexa* (Gocht, 1957) *comb. nov., stat. nov.*
1957 *Wetzeliella neocomica* forma *convexa* Gocht, p.178, pl.20, fig.1-2. Hauterivian.

subsp. *cruciformis* (Gocht, 1957) *comb. nov., stat. nov.*
1957 *Wetzeliella neocomica* forma *cruciformis* Gocht, p.176-177, pl.19, fig.5; pl.20, fig.3; text-fig.9-10. Hauterivian.

subsp. *dedecosa* (Gocht, 1957) *comb. nov., stat. nov.*
1957 *Wetzeliella neocomica* forma *dedecosa* Gocht, p.177, text-fig.11. Hauterivian.

subsp. *pteridia* (Gocht, 1957) *comb. nov., stat. nov.*
1957 *Wetzeliella neocomica* forma *pteridia* Gocht, p.178, text-fig.14. Hauterivian.

PHOBEROCYSTA (cont'd)

**neocomica* (cont'd)

subsp. *subovalis* (Gocht, 1957) *comb. nov., stat. nov.*
1957 ?*Wetzeliiella neocomica* forma *subovalis* Gocht, p.177,
text-fig.12-13. Hauterivian.

PTHANOPERIDIUM Drugg and Loeblich, 1967, p.182.

**amoenum* Drugg and Loeblich, 1967, p.182, pl.1, fig.1-5; text-
fig.1. Oligocene.

comatum (Morgenroth, 1966b, p.1, pl.1, fig.1-2) Eisenack and
Kjellström, 1971a, p.907. Early Oligocene; formerly
Peridinium.

?*diamantum* (Churchill & Sarjeant, 1963) *comb. nov.*
1963 *Peridinium diamantum* Churchill and Sarjeant, p.34-36,
pl.1, fig.19; text-fig.3. Holocene.

?*eocenicum* (Cookson & Eisenack, 1965a) *comb. nov.*
1965a *Peridinium eocenicum* Cookson and Eisenack, p.119-120.
pl.11, fig.1-5. Late Eocene.

?*illustrans* (O.Wetzel, 1933a) *comb. nov.*
1933a *Peridinium illustrans* O. Wetzel, p.167, pl.2, fig.15.
Senonian.

lambdoideum (Nagy, 1966, p.39, pl.1, fig.1-3; text-fig.1a-b)
Eisenack and Kjellström, 1971a, p.909. Early Pliocene;
formerly *Peridinium*.

resistente (Morgenroth, 1966a, p.5, pl.2, fig.1-2) Eisenack and
Kjellström, 1971a, p.911. Early Eocene; formerly *Peridinium*.

PLATYCYSTIDIA Cookson and Eisenack, 1960a, p.12. Questionable
affinity.

**diptera* Cookson and Eisenack, 1960a, p.14, pl.3, fig.22. ?Late
Albian-Cenomanian.

PLANINOSPHERIDIUM Eisenack, 1965, p.151.

**membranaceum* Eisenack, 1965, p.151, pl.14, fig.4; pl.15, fig.6;
text-fig.1. Late Eocene-Early Oligocene.

PLURIARVALIUM Sarjeant, 1962b, p.260.

**osmingtonense* Sarjeant, 1962b, p.262, pl.1, fig.5; text-fig.6.
Late Oxfordian.

POCOCKIA nom. nov., nom. subst. pro *Evittia* Pocock, 1972, p.93,
(non *Evittia* Brito, 1967). Type of genus *P. cincta* (Cookson
& Eisenack, 1958) Lentin and Williams comb. nov.

**cincta* (Cookson & Eisenack, 1958) comb. nov.
1958 *Deflandrea cincta* Cookson and Eisenack, p.26, pl.4,
fig.1-3. Late Neocomian or Early Aptian; formerly *Deflandrea*,
Ovoidinium and *Evittia*.

waltonii (Pocock, 1972) comb. nov.
1972 *Evittia waltonii* Pocock, p.93, pl.22, fig.13-14.

POLYGONIFERA Habib, 1972, p.376.

**evitti* Habib, 1972, p.376, pl.5, fig.1-2. Oxfordian-Kimmeridgian.

POLYKRIKOS Bütschli, 1873, p.673. (Modern genus, the only fossil
species referred here, *P. tentaculatum* O. Wetzels, 1933a, is
now *Wetzelsodinium*).

POLYSPHAERIDIUM Davey and Williams, 1966b, p.91-92.

amalthei (W.Wetzels, 1966, p.317, pl.31, fig.2,2a,b) Riley and
Sarjeant, 1972, p.2. Lias (Late Toarcian), formerly
Hystriichosphaeridium.

?*asperum* (Maier, 1959, p.319, pl.33, fig.2) Davey and Williams,
1969, p.6. Middle Miocene; formerly *Hystriichosphaeridium*.

belgicum Sarjeant, 1969, p.15. Early Eocene.

?*caminuspinum* (Wall, 1965a, p.165, pl.9, fig.3) Riley and Sarjeant,
1972, p.3. Lias (Early Sinemurian); formerly
Hystriichosphaeridium.

?*deflandrei* (Valensi, 1947, p.817, text-fig.3) Davey and Williams,
1969, p.6. Middle Jurassic; formerly *Hystriichosphaeridium*.

?*fabium* (Tasch, 1964, p.195, pl.2, fig.5) Davey and Williams, 1969,
p.6. Albian; formerly *Hystriichosphaeridium*.

?*follium* (Tasch, 1964, p.195, pl.1, fig.8) Davey and Williams, 1969,
p.6. Albian; formerly *Hystriichosphaeridium*.

POLYSPHAERIDIUM (cont'd)

- ?*fucosum* (Valensi, 1955a, p.40, text-fig.2b) Davey and Williams, 1969, p.6. Late Cretaceous; formerly *Micrhystridium* and *Hystrichosphaeridium*.
- laminaspinosum* Davey and Williams, 1966b, p.94-95, pl.8, fig.8. Cenomanian.
- ?*langi* (Wall, 1965a, p.163, pl.6, fig.9-11; pl.9, fig.9) Riley and Sarjeant, 1972, p.3. Lias (Hettangian-Sinemurian); formerly *Hystrichosphaeridium*.
- ?*major* (Lejeune-Carpentier, 1940, p.220, text-fig.13) Davey and Williams, 1969, p.6. Senonian; formerly *Hystrichosphaeridium*.
- ?*marsupium* (Tasch, 1964, p.193, pl.3, fig.16) Davey and Williams, 1969, p.6. Albian; formerly *Hystrichosphaeridium*.
- pastielsi* Davey and Williams, 1966b, p.92-93, pl.4, fig.10. Early Eocene.
- ?*paulinae* (Valensi, 1953, p.48, pl.12, fig.6) Davey and Williams, 1969, p.6. Middle Jurassic; formerly *Hystrichosphaeridium*.
- ?*perovatium* (Tasch, 1964, p.194, pl.3, fig.13) Davey and Williams, 1969, p.6. Albian; formerly *Hystrichosphaeridium*.
- pumilum* Davey and Williams, 1966b, p.93-94, pl.7, fig.3-4. Cenomanian.
- ?*rhabdophorum* (Valensi, 1955b, p.593, pl.3, fig.7) Davey and Williams, 1969, p.7. Late Cretaceous; formerly *Hystrichosphaeridium*.
- ?*simplex* (White, 1842, p.38, pl.4, div.3, fig.10) Davey and Williams, 1969, p.7. Late Cretaceous; formerly *Xanthidium* and *Hystrichosphaeridium*.
- **subtile* Davey and Williams, 1966b, p.92, pl.11, fig.1. Early Eocene.
- ?*tribrachiosum* (Tasch, 1964, p.195, pl.1, fig.3) Davey and Williams, 1969, p.7. Albian; formerly *Hystrichosphaeridium*.
- POLYSTEPHANEPHORUS Sarjeant, 1961b, p.1096, ex Downie and Sarjeant, 1964 [1965], p.141. Although Sarjeant created this genus in 1961, none of the species were correctly transferred until Downie and Sarjeant, 1964 [1965] complied with all the rules for combinations in listing species within *Polystephanephorus*.

POLYSTEPHANEPHORUS (cont'd)

**calathus* (Sarjeant, 1961a, p.104, pl.14, fig.7; text-fig.7)
Downie and Sarjeant, 1964 [1965], p.141. Early Oxfordian;
formerly *Polystephanosphaera*.

paracalathus (Sarjeant, 1960, p.143, pl.6, fig.4; text-fig.3b)
Downie and Sarjeant, 1964 [1965], p.141. Middle Callovian;
formerly *Polystephanosphaera*.

sarjeantii Gitmez, 1970, p.291-292, pl.11, fig.4; text-fig.25.
Early Kimmeridgian.

?*sarrisii* Archangelsky, 1969a, p.411, pl.2, fig.5-7. Eocene.

speciosa (Alberti, 1961, p.37, pl.9, fig.13) Riley and Sarjeant,
1972, p.3. Late Dogger (Bathonian-Callovian); formerly
Cannosphaeropsis.

urnaformis (Cookson, 1953, p.118, pl.2, fig.41-43) Downie and
Sarjeant, 1964 [1965], p.141. Oligocene; formerly
Cannosphaeropsis.

"POLYSTEPHANOSPHAERA" Sarjeant, 1960, p.140. This genus was rejected
by Sarjeant, 1961b, p.1095-1096 and the type species *P. valensii*
was invalidly transferred to *Systematophora*. The transfer was
subsequently correctly done by Downie and Sarjeant, 1964 [1965],
p.146. Other species are assigned to *Polystephanephorus*.

PRISMATOCYSTIS Habib, 1969, p.98.

cylindrica Habib, 1970, p.374, pl.10, fig.2. Albian-Cenomanian.

**ewingii* Habib, 1969, p.98, pl.3, fig.11.

PROLIXOSPHAERIDIUM Davey et al., 1966, p.171.

basifurcatum Dodekova, 1969, p.21-22, pl.5, fig.1-6; text-fig.G.
Tithonian.

conulum Davey, 1969a, p.160-161, pl.8, fig.5-6. Cenomanian.

**deirensis* Davey et al., 1966, p.171-172, pl.3, fig.2; text-fig.45.
Middle Barremian.

PROLIXOSPHAERIDIUM (cont'd)

granulosum (Deflandre, 1937b, p.77, pl.16, fig.4 as *Hystrichosphaeridium xanthiopyxides* var. *granulosum*) Davey et al., 1966, p.172. Senonian; Elevated to specific rank as *Baltisphaeridium granulosum* by Sarjeant, 1962b, p.264; formerly *Baltisphaeridium* and *Hystrichosphaeridium*.

mixtispinosum (Klement, 1960, p.58, pl.6, fig.17-19) Davey et al., 1969, p.17. Early Kimmeridgian; formerly *Baltisphaeridium*.

parvispinum (Deflandre, 1937b, p.77, pl.16, fig.5 as *Hystrichosphaeridium xanthiopyxides* var. *parvispinum*) Davey et al., 1969, p.17. Late Aptian; Elevated to specific rank as *Hystrichosphaeridium parvispinum* by Cookson and Eisenack, 1958, p.45; formerly *Baltisphaeridium* and *Hystrichosphaeridium*.

?*torynum* (Cookson & Eisenack, 1960b, p.252, pl.38, fig.6,15) Eisenack and Kjellström, 1971a, p.951. ?Tithonian-Neocomian; formerly *Hystrichosphaeridium*.

?*xanthiopyxides* (O.Wetzel, 1933b, p.44, pl.4, fig.25) Davey et al., 1969, p.17. ?Senonian; formerly *Hystrichosphaera*, *Hystrichosphaeridium* and *Baltisphaeridium*.

PROTOELLIPSODINIUM Davey and Verdier, 1971, p.28.

**spinocristatum* Davey and Verdier, 1971, p.28-29, pl.5, fig.2,5,11. Albian.

spinosum Davey and Verdier, 1971, p.29-30, pl.5, fig.10. Albian.

PSALIGONYAULAX Sarjeant, 1966b, p.136.

apatela (Cookson & Eisenack, 1960b, p.249, pl.37, fig.12-13) Sarjeant, 1969, p.15. Oxfordian-Tithonian; formerly *Scriniodinium*.

**deflandrei* Sarjeant, 1966b, p.137-138, pl.14, fig.7-8; text-fig.35. Cenomanian.

simplicia (Cookson & Eisenack, 1961b, p.42, pl.2, fig.3-4; text-fig.1e-f) Sarjeant, 1969, p.15. Eocene; formerly *Rottnestia*.

PSEUDOCERATIUM Gocht, 1957, p.166.

"*ceratioides*" (Deflandre, 1937b) NOW *Xenascus*.

PSEUDOCERATIUM (cont'd)

dettmannae Cookson and Hughes, 1964, p.51-52, pl.7, fig.1-4.
Late Albian-Early Cenomanian.

expolitum Brideaux, 1971, p.102-103, pl.30, fig.105-106,108.
Middle-Late Albian.

"*gochti*" (Neale & Sarjeant, 1962) NOW *Eopseudoceratium*.

"*gochti*" Pocock, 1962, p.79, pl.14, fig.213-214. Jr. Syn. of
Broomea jaegeri according to Singh, 1971, p.320.

"*ludbrookii*" (Cookson & Eisenack, 1958) NOW *Endoceratium*.

?*nudum* Gocht, 1957, p.168, pl.18, fig.3-4,6. Late Hauterivian.

parvum Michael, 1964, p.28, pl.2, fig.1. Early Barremian.

**pelliferum* Gocht, 1957, p.166-168, pl.18, fig.1-2; text-fig.1-3.
Valanginian-Hauterivian.

regium Singh, 1971, p.375-376, pl.66, fig.2-4; pl.67, fig.1-2.
Middle-Late Albian.

robustum Michael, 1964, p.29, pl.2, fig.2. Early Barremian.

"*tetracanthum*" (Gocht, 1957) NOW *Muderongia*.

turneri Cookson and Eisenack, 1958, p.55, pl.5, fig.2-6.
Aptian-Albian.

PSEUDODEFLANDREA Alberti, 1959a, p.91-92.

**gigantea* Alberti, 1959a, p.92, text-fig.1. Middle Oligocene.

PTEROCYSTIDIOPSIS Deflandre, 1937b, p.90.

?*angulosa* Deflandre, 1941, p.23-24, pl.6, fig.6-10. Late
Jurassic.

ornata Deflandre, 1937b, p.91-92, pl.18, fig.1-3. Late
Cretaceous.

**stephaniana* Deflandre, 1937b, p.91, pl.17, fig.7-9.

"*velata*" (Deflandre & Cookson, 1955) NOW *Thalassiphora*.

PTERODINIUM Eisenack, 1958, p.395.

**aliferum* Eisenack, 1958, p.395-396, pl.24, fig.6; text-fig.6.
Late Aptian.

circumsutum Morgenroth, 1966b, p.5, pl.1, fig.3-4. Early
Oligocene.

cornutum Cookson and Eisenack, 1962b, p.490, pl.3, fig.1-6.
Aptian-?Albian.

magnoserratum Cookson and Eisenack, 1962b, p.490, pl.3, fig.7-8.
Aptian-?Albian.

perforatum (Clarke & Verdier, 1967, p.36, pl.6, fig.1-3; text-
fig.15) Davey and Verdier, 1971, p.30-31. Early Cenomanian;
formerly *Dinopterygium*.

reticulatum Singh, 1971, p.358-359, pl.60, fig.6-7. Middle
Albian.

"*PYRAMIDIUM*" Clarke and Verdier, 1967, p.39. Jr. Syn. of
Xiphophoridium; see Clarke *et al.*, 1968, p.182.

PYXIDIELLA Cookson and Eisenack, 1958, p.51.

**pandora* Cookson and Eisenack, 1958, p.52, pl.6, fig.10-11.
Late Jurassic.

scrobiculata (Deflandre & Cookson, 1955, p.291, pl.3, fig.3;
text-fig.57) Cookson and Eisenack, 1958, p.52. Santonian-
Eocene; formerly *Leiosphaera*.

RAPHIDODINIUM Deflandre, 1936b, p.184-185.

**fucatum* Deflandre, 1936b, p.185-186, pl.10, fig.1-7. ?Senonian.

RENIDINIUM Morgenroth, 1968, p.551-552.

**membraniferum* Morgenroth, 1968, p.552-553, pl.46, fig.9; pl.47,
fig.1-3. Danian.

RHAETOGONYAULAX Sarjeant, 1966b, p.152-153.

chaloneri (Sarjeant, 1963b, p.354, text-fig.2(right)-3) Sarjeant,
1969, p.15. Late Triassic.

RHAETOGONYAULAX (cont'd)

**rhaetica* (Sarjeant, 1963b, p.353, text-fig.1-2(left)) Loeblich and Loeblich, 1968, p.212. Late Triassic.

RHOMBODELLA Cookson and Eisenack, 1962b, p.496.

**natans* Cookson and Eisenack, 1962b, p.496, pl.7, fig.12-13. Aptian-?Albian.

RHOMBODINIUM (Gocht, 1955, p.85) Vozzhennikova, 1967, p.167-168. This genus was lowered to the subgeneric rank within the genus *Wetzeliella* by Alberti, 1961, p.9.

coronatum Vozzhennikova, 1967, p.170-171, pl.89, fig.1-3,5; pl.90, fig.1-5. Late Eocene.

**draco* (Gocht, 1955, p.86, fig.1) Vozzhennikova, 1967, p.168-169. Middle Oligocene.

subsp. *freienwaldensis* (Gocht, 1955) *stat. nov., comb. nov.*
1955 *Rhombodinium draco* forma *freienwaldensis* Gocht, p.87, text-fig.2. Middle Oligocene.

glabra (Cookson, 1956, p.186, pl.2, fig.1-5) Vozzhennikova, 1967, p.169. Eocene.

subsp. *crassithecica* (Vozzhennikova, 1967) *stat. nov.*
1967 *Rhombodinium glabra* forma *crassithecica* Vozzhennikova, p.170, pl.91, fig.1-2,4-6. Late Eocene-Early Oligocene.

subsp. *granulata* (Wilson, 1967c) *comb. nov., stat. nov.*
1967c *Wetzeliella (Rhombodinium) glabra* var. *granulata* Wilson, p.493, fig.29-30. Late Eocene.

intermedium (Cookson & Eisenack, 1961b) *comb. nov.*
1961b *Wetzeliella intermedia* Cookson and Eisenack, p.40, pl.1, fig.5-6. Eocene.

longimanum Vozzhennikova, 1967, p.171, pl.92, fig.1-3; pl.93, fig.1-6; pl.94, fig.1-3. Late Eocene.

minuscula (Alberti, 1961) *comb. nov.*
1961 *Wetzeliella (Rhombodinium) minuscula* Alberti, p.10-11, pl.1, fig.10; pl.12, fig.4. Early Eocene.

pentagonum Vozzhennikova, 1967, p.171-172, pl.89, fig.4; pl.95, fig.1-5; pl.96, fig.1-6. Late Eocene-Early Oligocene.

RHOMBODINIUM (cont'd)

rhomboidea (Alberti, 1961) *comb. nov.*

1961 *Wetzeliella* (*Rhombodinium*) *rhomboidea* Alberti, p.10, pl.1, fig.1-5; pl.12, fig.9. Late Eocene.

rotundata Baltes ex Lentin and Williams *sp. nov.*

1969 *Wetzeliella rotundata* (provisional designation) Baltes, p.35, pl.5, fig.10 Holotype; pl.5, fig.10. Oligocene.

waipawaensis (Wilson, 1967c) *comb. nov.*

1967c *Wetzeliella* (*Rhombodinium*) *waipawaensis* Wilson, p.493-494, fig.18,20. Early Eocene.

RHYNCHODINIOPSIS Deflandre, 1935, p.231.

**aptiana* Deflandre, 1935, p.231, pl.5, fig.10; pl.8, fig.7-10. Senonian.

ROMANODINIUM Baltes, 1971, p.8-9.

**areolatum* Baltes, 1971, p.9, pl.3, fig.1-2. Early Pliocene.

ROTTNESTIA Cookson and Eisenack, 1961b, p.40,42.

**borussica* (Eisenack, 1954, p.62, pl.9, fig.5-7) Cookson and Eisenack, 1961b, p.42. Early Oligocene; formerly *Hystriosphraera* and *Hystriosphraeropsis*. The transfer to *Triblastula* by Morgenroth, 1966a, p.15-16 was rejected by Eisenack, 1969, p.105-108.

"*simplicia*" (Cookson & Eisenack, 1961b) NOW *Psaliogyaulax*.

SAMLANDIA Eisenack, 1954, p.76.

angustivela (Deflandre & Cookson, 1955, p.290, pl.7, fig.4-5) Eisenack, 1963a, p.102. Eocene; formerly *Membraniarnax*.

**chlamyphora* Eisenack, 1954, p.76, pl.11, fig.12-15. Early Oligocene.

reticulifera Cookson and Eisenack, 1965a, p.126-127, pl.15, fig.10-15. Late Eocene.

SCHEMATOPHORA Deflandre and Cookson, 1955, p.262.

**speciosa* Deflandre and Cookson, 1955, p.262-263, pl.6, fig.11-13;
pl.7, fig.11. Eocene-Miocene.

SCRINIOCASSIS Gocht, 1964, p.121.

**weberi* Gocht, 1964, p.121, pl.17, fig.1-4; text-fig.39. Late
Lias (Late Toarcian)-Early Bajocian.

SCRINIODINIUM Klement, 1957, p.409-410.

"*apatelum*" (Cookson & Eisenack, 1960b) NOW *Psaliogyonaulax*.

attadalense (Cookson & Eisenack, 1958, p.25, pl.1, fig.7)
Eisenack, 1967, p.193 (748a). Aptian; formerly *Gymmodinium*.

australiense (Deflandre & Cookson, 1955, p.248, pl.5, fig.1)
Eisenack, 1967, p.195 (748b), formerly *Gymmodinium*. Invalidly
transferred to *Emslandia* by Nagy, 1965, p.202.

bicuneatum (Deflandre, 1938b, p.180, pl.8, fig.7) Gitmez, 1970,
p.308. Oxfordian; formerly *Palaeoperidinium*.

"*campanula*" (Gocht, 1959) NOW *Endoscrinium*.

ceratophorum Cookson and Eisenack, 1960b, p.249, pl.37, fig.7.
Oxfordian-Early Kimmeridgian.

"*cooksonae*" Anderson, 1960, p.30, pl.9, fig.1-3. Jr. Syn. of
Deflandrea pirnaensis, see Sarjeant and Anderson, 1969,
p.232-233.

**crystallinum* (Deflandre, 1938b, p.165, pl.5, fig.1-3) Klement,
1960, p.18. Oxfordian; formerly *Gymmodinium*.

dictyotum Cookson and Eisenack, 1960b, p.248-249, pl.37, fig.8-9.
Oxfordian-Tithonian.

subsp. *dictyotum* Cookson and Eisenack, 1960b, p.248-249, pl.37,
fig.8-9. Oxfordian-Tithonian.

subsp. *osmingtonensis* Gitmez, 1970, p.310-311, pl.1, fig.3;
pl.8, fig.12. Early Kimmeridgian.

subsp. *papillatum* Gitmez, 1970, p.311, pl.9, fig.11. Early
Kimmeridgian.

SCRINIODINIUM (cont'd)

dictyotum (cont'd)

subsp. *pyrum* Gitmez, 1970, p.311,313, pl.10, fig.1; pl.13, fig.1-2; text-fig.33a-b. Early Kimmeridgian.

eurypylum Manum and Cookson, 1964, p.20-21, pl.4, fig.7-13. Late Cretaceous.

galeatum Cookson and Eisenack, 1960a, p.3-4, pl.1, fig.16-18. Albian-Cenomanian.

"*galeritum*" (Deflandre, 1938b) NOW *Endoscrinium*.

gochti Pocock, 1972, p.90, pl.22, fig.12; text-fig.6. Late Bajocian.

heusseri Habib, 1970, p.366-368, pl.8, fig.4. Albian-Cenomanian.

klementii Pocock, 1972, p.91, pl.23, fig.1-2; text-fig.7. Callovian.

"*luridum*" (Deflandre, 1938b) NOW *Endoscrinium*.

novissimum Morgenroth, 1968, p.540-541, pl.43, fig.3-4. Danian.

obscurum Manum and Cookson, 1964, p.21-22, pl.4, fig.5-6. Late Cretaceous.

parvimarginatum (Cookson & Eisenack, 1958, p.24, pl.1, fig.6) Eisenack, 1967, p.201 (770a). Late Jurassic; formerly *Gymnodinium*.

playfordi Cookson and Eisenack, 1960b, p.248, pl.37, fig.6. Oxfordian-Tithonian.

pontianum Baltes ex Lentin and Williams *sp. nov.* 1969 *Scriniodinium pontianum* (provisional designation) Baltes, p.35-36, pl.3, fig.15 Holotype; pl.3, fig.15. Early Pliocene.

"*pseudocrystallinum*" Beju, 1969, p.20-22, pl.8, fig.1-3; text-fig.7. Oxfordian-Kimmeridgian. *Nom. nud.*, privately circulated manuscript, not validly published.

reticulatum Pocock, 1972, p.91-92, pl.23, fig.3. Callovian.

scutellum Eisenack, 1958, p.385, pl.24, fig.3. Late Aptian.

"*subvallare*" (Sarjeant, 1962b) NOW *Endoscrinium*.

SCRINIODINIUM (cont'd)

?*torulosum* (Deflandre, 1943) *comb. nov.*

1943 *Gymmodinium torulosum* Deflandre, p.504, pl.17, fig.7-8; text-fig.17-25. Senonian. This species is questionably assigned to *Scriniodinium* since according to Evitt (personal communication), it does not have a precingular archeopyle.

"*trabeculosum*" (Gocht, 1959) NOW *Gardodinium*.

verrucosum Heisecke, 1970, p.232-234, pl.9, fig.2-3; pl.10, fig.3. Danian.

SCHIZOCYSTIA Cookson and Eisenack, 1962a, p.270.

laevigata Cookson and Eisenack, 1962a, p.270-271, pl.37, fig.13-14.
?Late Albian-Cenomanian.

**rugosa* Cookson and Eisenack, 1962a, p.270, pl.37, fig.11-12.
?Late Albian-Cenomanian.

SELENOPEMPHIX Benedek, 1972, p.47.

**nephroides* Benedek, 1972, p.47-48, pl.11, fig.13; pl.16, fig.1-4.
Middle-Late Oligocene.

selenoides Benedek, 1972, p.48, pl.11, fig.15; pl.16, fig.5-8;
text-fig.22. Middle-Late Oligocene.

SENONIASPHAERA Clarke and Verdier, 1967, p.61.

**protrusa* Clarke and Verdier, 1967, p.61-62, pl.14, fig.7-9;
text-fig.24. Santonian.

rotundata Clarke and Verdier, 1967, p.62-63, pl.14, fig.1-3;
text-fig.25. Santonian-Campanian.

SHUBLIKODINIUM Wiggins, 1973, p.2-4.

acanthocomum Wiggins, 1973, p.5, pl.4, fig.5-6. Late Triassic.

**arcticum* Wiggins, 1973, p.4, pl.1, fig.1-4; pl.2, fig.1-9; text-fig.2a-d. Late Triassic.

SHUBLIKODINIUM (cont'd)

**arcticum* (cont'd)

subsp. *maculatum* (Wiggins, 1973) *stat. nov.*

1973 *Shublikodinium arcticum* var. *maculatum* Wiggins, p.4-5, pl.2, fig.10-12. Late Triassic.

armatum Wiggins, 1973, p.6, pl.5, fig.1. Late Triassic.

dilatatum Wiggins, 1973, p.6, pl.5, fig.3-4. Late Triassic.

echinoverrucatum Wiggins, 1973, p.6-7, pl.5, fig.5-6. Late Triassic.

granulatum Wiggins, 1973, p.6, pl.5, fig.2. Late Triassic.

scaberrimum Wiggins, 1973, p.7, pl.5, fig.6. Late Triassic.

setigerum Wiggins, 1973, p.5-6, pl.4, fig.10-11. Late Triassic.

spinulosum Wiggins, 1973, p.5, pl.4, fig.7-9. Late Triassic.

verrucosum Wiggins, 1973, p.5, pl.3, fig.1-11; pl.4, fig.1-3. Late Triassic.

subsp. *exsculptum* (Wiggins, 1973) *stat. nov.*

1973 *Shublikodinium verrucosum* var. *exsculptum* Wiggins, p.5, pl.4, fig.4. Late Triassic.

SIRMIODINIUM Alberti, 1961, p.22 emend. Warren, 1973, p.104.

**grossi* Alberti, 1961, p.22, pl.7, fig.5-7; pl.12, fig.5, emend. Warren, 1973, p.104-105. Late Hauterivian-Late Barremian.

SMOLENSKIELLA Vozzhennikova, 1967, p.181-182.

**crassitheca* Vozzhennikova, 1967, p.182-183, pl.105, fig.1-4,6; pl.106, fig.1-4. Late Cretaceous.

SOANIELLA Vozzhennikova, 1967, p.108.

**granulata* Vozzhennikova, 1967, p.108-109, pl.116, fig.1-12. Eocene-Early Oligocene.

SPINIDINIUM Cookson and Eisenack, 1962b, p.489.

SPINIDINIUM (cont'd)

- aperturum* Wilson, 1967a, p.64-65, fig.3-5,8. Paleocene-Oligocene.
- densispinatum* Stanley, 1965, p.226-227, pl.21, fig.1-5.
Paleocene.
- essoii* Cookson and Eisenack, 1967a, p.135, pl.19, fig.1-8.
Paleocene.
- lanterna* Cookson and Eisenack, 1970a, p.144-145, pl.12, fig.1-3.
Senonian.
- microceratum* Stanley, 1965, p.227-228, pl.22, fig.5-6.
Paleocene.
- rallum* Heisecke, 1970, p.226-228, pl.1, fig.1-2; pl.2, fig.1.
Danian.
- rotundum* Wilson, 1967a, p.65-66, fig.6-7. Eocene.
- **styloniferum* Cookson and Eisenack, 1962b, p.489, pl.1, fig.1-5.
Aptian-?Albian.
- vestitum* Brideaux, 1971, p.99-101, pl.29, fig.99-103; text-fig.10a,
d. Late Albian-Early Cenomanian.

SPINIFERITES Mantell, 1850, p.191, emend. Sarjeant, 1970, p.75.

- assamicus* (Kar et al., 1972) *comb. nov.*
1972 *Hystriichosphaera assamica* Kar et al., p.147, pl.1,
fig.6-7. Tertiary.
- bentori* (Rossignol, 1962, p.132, figured but not described in
Rossignol, 1961, pl.1, fig.7-8) Sarjeant, 1970, p.75.
Pleistocene-Holocene.
- subsp. *truncata* (Rossignol, 1964) *comb. nov., stat. nov.*
1964 *Hystriichosphaera bentori* var. *truncata* Rossignol,
p.85, pl.1, fig.5-6; pl.3, fig.1. Quaternary.
- "*buccina*" (Davey & Williams, 1966a, p.42-43, pl.4, fig.1; text-
fig.10-11) Sarjeant, 1970, p.75. Early Eocene. Is considered
herein to be a Jr. Syn. of *Spiniferites pseudofurcatus*;
formerly *Hystriichosphaera*.
- bulloideus* (Deflandre & Cookson, 1955, p.264, pl.5, fig.3-4)
Sarjeant, 1970, p.75. Eocene-Miocene; formerly
Hystriichosphaera.

SPINIFERITES (cont'd)

"*ceratioides*" (Deflandre, 1937b) NOW *Xenascus ceratioides*.

The transfer of this species to *Spiniferites* by Sarjeant, 1970, p.76, is herein rejected.

cingulatus (O.Wetzel, 1933b, p.28, pl.4, fig.10) Sarjeant, 1970, p.76. Senonian; formerly *Cymatiosphaera* and *Hystriichosphaera*.

subsp. *cingulatus* (O.Wetzel, 1933b) *stat. nov.*

1933b *Cymatiosphaera cingulata* var. *cingulata* O. Wetzel, p.28, pl.4, fig.10. Senonian. Transfer of the variety to *Spiniferites* was effected by Davey and Verdier, 1971, p.32.

subsp. *granulatus* (Clarke & Verdier, 1967) *comb. nov., stat. nov.*

1967 *Hystriichosphaera cingulata* var. *granulata* Clarke and Verdier, p.45-46, pl.9, fig.5-6. Cenomanian.

subsp. "*perforatus*" (Clarke & Verdier, 1967, p.46, pl.9, fig.2-4; text-fig.19) Jr. Syn. of *S. cingulatus* subsp. *reticulatus*, see Clarke *et al.*, 1968, p.181.

subsp. "*polygonalis*" (Clarke & Verdier, 1967, p.47, pl.8, fig.7-8; text-fig.20) Jr. Syn. of *S. crassimuratus*, see Clarke *et al.*, 1968, p.181.

subsp. *reticulatus* (Davey & Williams, 1966a) *stat. nov.*

1966a *Hystriichosphaera cingulata* var. *reticulata*, Davey and Williams, p.39, pl.1, fig.10; pl.2, fig.4. Cenomanian. Transfer of this taxon to *Spiniferites* effected by Davey and Verdier, 1971, p.33.

cornigerus (O.Wetzel, 1933b, p.39, pl.5, fig.6) Sarjeant, 1970, p.76. Late Cretaceous; formerly *Hystriichosphaera*.

cornutus (Gerlach, 1961, p.180, pl.27, fig.10-12) Sarjeant, 1970, p.76. Middle Oligocene-Middle Miocene; formerly *Hystriichosphaera*.

subsp. *laevimurus* (Davey & Williams, 1966a) *comb. nov., stat. nov.*

1966a *Hystriichosphaera cornuta* var. *laevimura* Davey and Williams, p.44-45, pl.4, fig.5. Early Eocene.

crassimuratus (Davey & Williams, 1966a, p.39, pl.1, fig.11) Sarjeant, 1970, p.76. Cenomanian; formerly *Hystriichosphaera*.

crassipellis (Deflandre & Cookson, 1955, p.265, pl.6, fig.2-3; text-fig.20) Sarjeant, 1970, p.76. Early Eocene; formerly *Hystriichosphaera*.

SPINIFERITES (cont'd)

cristatus (Conrad, 1941) *comb. nov.*

1941 *Hystriichosphaera cristata* Conrad, p.4-5, pl.1, fig.D;
text-fig.2D. Maastrichtian.

cruciformis Wall and Dale, 1973, p.21-22, pl.1, fig.1-6; pl.2,
fig.1-4. Early Holocene.

?*dentatus* (Gocht, 1959) *comb. nov.*

1959 ?*Hystriichosphaera dentata* Gocht, p.75-76, pl.4, fig.11;
pl.7, fig.19. Late Hauterivian.

"*furcatus*" (Ehrenberg, 1838, pl.1, fig.12,14) Synonym of
Spiniferites ramosus, see Davey and Williams, 1966a, p.29-33.
Since the original specimens of "*S. furcatus*" have been lost
and the specimens of *S. ramosus* are preserved it appears
S. ramosus should have priority.

granulatus (Davey, 1969b) *comb. nov.*

1969b *Hystriichosphaera granulatus* Davey, p.4-5, pl.1, fig.4-7.
Maastrichtian-Danian?.

heterostylis (Heisecke, 1970) *comb. nov.*

1970 *Hystriichosphaera heterostylis* Heisecke, p.238, pl.5,
fig.1-4; pl.6, fig.4-5. Danian.

inaequalis Wall and Dale, 1973, p.22, pl.1, fig.7-8. Holocene.

leptodermus (Maier, 1959, p.321, pl.33, fig.5-6) Sarjeant, 1970,
p.76. Middle Oligocene-Late Miocene; formerly
Hystriichosphaeridium.

membranaceus (Rossignol, 1964, p.86, pl.1, fig.4,9-10; pl.3,
fig.7,12 as *Hystriichosphaera furcata* var. *membranacea*)
Sarjeant, 1970, p.76. Pleistocene-Recent; Elevated to specific
rank as *Hystriichosphaera membranacea* by Wall, 1967, p.102;
formerly *Hystriichosphaera*.

membranosus (Archangelsky, 1969b) *comb. nov.*

1969 *Hystriichosphaera membranosus* Archangelsky, p.197-199,
pl.3, fig.1-4. Late Eocene.

mirabilis (Rossignol, 1963, pl.2, fig.16-21, described but not
figured in Rossignol, 1962, p.132) Sarjeant, 1970, p.76.
Pleistocene; formerly *Hystriichosphaera*.

monilis (Davey & Williams, 1966a, p.45, pl.5, fig.2) Sarjeant,
1970, p.76. Early Eocene; formerly *Hystriichosphaera*.

SPINIFERITES (cont'd)

nodosus (Wall, 1967, p.101, pl.14, fig.7-9; text-fig.2)
Sarjeant, 1970, p.76. Pleistocene-Holocene; formerly
Hystriichosphaera.

paradoxus (Cookson & Eisenack, 1968, p.114, text-fig.2G,3)
Sarjeant, 1970, p.76. Senonian. Davey and Verdier, 1971,
p.34, consider *S. paradoxus* to represent a peculiar
morphological development of *S. ramosus ramosus*.

?*pedata* (O.Wetzel, 1933b) *comb. nov.*
1933b ?*Hystriichosphaera pedata* O. Wetzel, p.55-56, pl.4,
fig.35. Late Cretaceous.

perforatus (Davey & Williams, 1966a, p.41, pl.5, fig.7) Sarjeant,
1970, p.76. Early Eocene; formerly *Hystriichosphaera*.

porosus (Manum & Cookson, 1964) *comb. nov.*
1964 *Hystriichosphaera porosa* Manum and Cookson, p.11-12,
pl.2, fig.1-5; text-fig.2. Late Cretaceous.

pseudofurcatus (Klumpp, 1953, p.388, pl.16, fig.12-14) Sarjeant,
1970, p.76. Late Eocene; formerly *Hystriichokibotium* and
Hystriichosphaera. (non Varma and Dangwal, 1964, as
Hystriichosphaera. See *Spiniferites varmus nom. nov.*)

subsp. *obliquus* (Wall, 1967) *comb. nov., stat. nov.*
1967 *Hystriichosphaera tertiaria* var. *obliqua* Wall, p.103,
pl.14, fig.16; text-fig.2. Late Pleistocene-Recent.

pterotus (Cookson & Eisenack, 1958, p.50, pl.11, fig.7) Sarjeant,
1970, p.76. Albian-Maastrichtian; formerly *Cymatiosphaera*.

**ramosus* (Ehrenberg, 1838, pl.1, fig.1-2,5) Loeblich and Loeblich,
1966, p.56-57. As *Hystriichosphaera furcata* is considered to be
a synonym of *Spiniferites ramosus* by Davey and Williams, 1966a,
p.29-33, all subspecies of *H. furcata* are provisionally
included as subspecies of *S. ramosus*. Late Cretaceous.

?subsp. *angusta* (W.Wetzel, 1952) *comb. nov.*
1952 *Hystriichosphaera furcata* subsp. *angusta* W. Wetzel, p.394,
Pl.A, fig.2; text-fig.2. Danian.

?subsp. *aulocosphaeropsis* (O.Wetzel, 1933b) *comb. nov., stat. nov.*
1933b *Hystriichosphaera furcata* forma *aulocosphaeropsis*
O. Wetzel, p.35, pl.5, fig.5. Late Cretaceous.

SPINIFERITES (cont'd)

ramosus (cont'd)

- subsp. *gracilis* (Davey & Williams, 1966a) *comb. nov., stat. nov.*
1966a *Hystrichosphaera ramosa* var. *gracilis* Davey and Williams, p.34-35, pl.1, fig.5; pl.5, fig.6. Cenomanian-Early Eocene.
- subsp. *granosus* (Davey & Williams, 1966a) *comb. nov., stat. nov.*
1966a *Hystrichosphaera ramosa* var. *granosa* Davey and Williams, p.35, pl.4, fig.9. Early Eocene.
- subsp. *granomembranaceus* (Davey & Williams, 1966a) *comb. nov., stat. nov.*
1966a *Hystrichosphaera ramosa* var. *granomembranacea* Davey and Williams, p.37-38, pl.4, fig.4. Early Eocene.
- ?subsp. *multibrachiatus* (deWit, 1943) *comb. nov., stat. nov.*
1943 *Hystrichosphaera furcata* forma *multibrachiata* DeWit, p.376, text-fig.3f. Late Cretaceous.
- subsp. *multibrevis* (Davey & Williams, 1966a) *stat. nov.*
1966a *Hystrichosphaera ramosa* var. *multibrevis* Davey and Williams, p.35-36, pl.1, fig.4; pl.4, fig.6; text-fig.9. Transfer of the variety to *Spiniferites* effected by Davey and Verdier, 1971, p.33.
- subsp. *multiplicatus* (Rossignol, 1964) *comb. nov., stat. nov.*
1964 *Hystrichosphaera furcata* var. *multiplicata* Rossignol, p.86, pl.1, fig.14; pl.3, fig.16. Pleistocene-Holocene.
- subsp. *pachydermus* (Rossignol, 1964) *comb. nov., stat. nov.*
1964 *Hystrichosphaera furcata* var. *pachyderma* Rossignol, p.86, pl.1, fig.1-2; pl.3, fig.6. Pleistocene-Holocene.
- subsp. *ramosus* (Ehrenberg, 1838) *stat. nov.*
1838 *Xanthidium ramosum* Ehrenberg, pl.1, fig.1-2,5. Transfer of the variety to *Spiniferites* effected by Davey and Verdier, 1971, p.33. Late Cretaceous.
- subsp. *reticulatus* (Davey & Williams, 1966a) *stat. nov.*
1966a *Hystrichosphaera ramosa* var. *reticulata* Davey and Williams, p.38, pl.1, fig.2-3. Transfer of the variety to *Spiniferites* effected by Davey and Verdier, 1971, p.34. Cenomanian.
- reginaldi* (Mantell, 1844, p.240, text-fig.53, no.5) Sarjeant, 1970, p.76. Late Cretaceous; formerly *Xanthidium*, *Hystrichosphaera* and *Baltisphaeridium*.

SPINIFERITES (cont'd)

- rubinus* (Rossignol, 1964, p.87, pl.1, fig.12-13; pl.3, fig.22-23)
Sarjeant, 1970, p.76. Quaternary; formerly *Hystrichosphaera*.
- scabratus* (Wall, 1967, p.102, pl.14, fig.10-13; text-fig.2)
Sarjeant, 1970, p.76. Pleistocene-Recent; formerly
Hystrichosphaera.
- septatus* (Cookson & Eisenack, 1967b, p.253, pl.42, fig.6-10)
McLean, 1971, p.730. Late Paleocene; formerly
Baltisphaeridium.
- setosus* (Philippot, 1949, p.56, text-fig.1) Sarjeant, 1970,
p.76-77. Senonian; formerly *Hystrichosphaera*.
- speciosus* (Deflandre, 1937b, p.65, pl.11, fig.2) Sarjeant, 1970,
p.77. Late Cretaceous; formerly *Hystrichosphaera*.
- supparus* (Drugg, 1967, p.24, pl.4, fig.5-6) Sarjeant, 1970, p.77.
Maastrichtian-Danian; formerly *Hystrichosphaera*.
- "*tertiarius*" (Eisenack & Gocht, 1960, p.515, text-fig.4) Jr. Syn.
of *Spiniferites pseudofurcatus*; see Gocht, 1969, p.32 and
Sarjeant, 1970, p.76.
- trabeculiferum* (Deflandre & Cookson, 1955) *comb. nov.*
1955 *Hystrichokibotium trabeculiferum* Deflandre and Cookson,
p.269, pl.8, fig.6. Middle Miocene.
- ?*tripodes* (Morzadec-Kerfourn, 1966) *comb. nov.*
1966 *Baltisphaeridium tripodes* Morzadec-Kerfourn, p.140-141,
pl.3, fig.3-4. Holocene.
- varmae* *nom. nov.* (*nom. subst. pro Hystrichosphaera pseudofurcata*
Varma & Dangwal, 1964, p.66, pl.2, fig.7-8; *non Spiniferites*
pseudofurcatus (Klump) Sarjeant, 1970) Eocene-Oligocene.
- wetzeli* (Deflandre, 1937b, p.65, pl.11, fig.6,8) Sarjeant, 1970,
p.77. Senonian; formerly *Hystrichosphaera*.

SPONGODINIUM Deflandre, 1936b, p.169-170.

- **delitiense* (Ehrenberg, 1838, p.110, pl.1, fig.1,6) Deflandre,
1936b, p.170-171. Late Cretaceous; formerly *Peridinium*.
- ?*solidum* Alberti, 1961, p.31-32, pl.3, fig.17-18. Late Barremian-
Aptian.

STENOPYXINIUM Deflandre, 1968, p.424.

**grassei* Deflandre, 1968, p.425-426, fig.1-6. Senonian.

STEPHANELYTRON Sarjeant, 1961a, p.109.

This genus was originally considered an acritarch, however Gitmez and Sarjeant, 1972, p.237-238, describe it as a dinoflagellate with an apical archeopyle. No emendation was made.

caytonense Sarjeant, 1961a, p.110, pl.15, fig.16; text-fig.11.
Early Oxfordian.

**redcliffense* Sarjeant, 1961a, p.109-110, pl.15, fig.11; text-fig.10. Early Oxfordian.

scarburghense Sarjeant, 1961a, p.111, pl.15, fig.12-13. Early Oxfordian.

STEPHODINIUM Deflandre, 1936a, p.58 emend. Davey, 1970, p.347.

"*australicum*" Cookson and Eisenack, 1962b, p.491, pl.2, fig.5-10.
Considered to be a Jr. Syn. of *S. coronatum*; see Clarke and Verdier, 1967, p.67.

**coronatum* Deflandre, 1936a, p.58, text-fig.103. Senonian.

"*europaicum*" Cookson and Hughes, 1964, p.50, pl.8, fig.9-17.
Considered to be a Jr. Syn. of *S. coronatum*; see Clarke and Verdier, 1967, p.67.

pellucidum Deflandre, 1943, p.505,507, text-fig.12-16. ?Senonian.

spiniferum Cookson and Eisenack, 1965a, p.124-125, pl.14, fig.10.
Late Eocene.

SUBTILIDINIUM Morgenroth, 1968, p.539.

**minutum* Morgenroth, 1968, p.539-540, pl.42, fig.8-9; pl.43, fig.1-2; text-fig.3-4. Danian.

SURCULOSPHAERIDIUM Davey *et al.*, 1966, p.160-161.

**cribrotubiferum* (Sarjeant, 1960, p.137, pl.6, fig.2-3; text-fig.1) Davey *et al.*, 1966, p.161. Early Oxfordian; formerly *Hystrichosphaeridium*.

SURCULOSPHAERIDIUM (cont'd)

longifurcatum (Firtion, 1952, p.157, pl.9, fig.1; text-fig.1H-M)
Davey *et al.*, 1966, p.163. Cenomanian; formerly
Hystriosphæridium and *Baltisphaeridium*.

vestitum (Deflandre, 1938b, p.189, pl.11, fig.4-6) Davey *et al.*,
1966, p.162. Oxfordian; formerly *Hystriosphæridium* and
Baltisphaeridium.

SVALBARDELLA Manum, 1960, p.21.

australina (Cookson, 1965b, p.140, pl.25, fig.1-4) Malloy, 1972,
p.63. Paleocene.

**cooksoniae* Manum, 1960, p.21-22, pl.1, fig.1-3; text-fig.2.
Late Paleocene-Eocene.

granulata Wilson, 1967b, p.226-227, fig.7-9. Paleocene.

polymorpha Malloy, 1972, p.63-64, pl.1, fig.8-16, 21.
Maastrichtian.

SYSTEMATOPHORA Klement, 1960, p.61-62.

ancyrea Cookson and Eisenack, 1965a, p.126, pl.14, fig.1-3.
Late Eocene.

**areolata* Klement, 1960, p.62-65, pl.9, fig.1-8; text-fig.32-35.
Early Kimmeridgian.

?*austini* (Merrill, 1895, p.16, fig.11) Sarjeant, 1964, p.175.
Early Cretaceous; formerly ?*Geodia*.

complicata Neale and Sarjeant, 1962, p.455-456, pl.19, fig.6-7.
Late Hauterivian-Middle Barremian.

fasciculigera Klement, 1960, p.65, pl.9, fig.11-12. Middle
Oxfordian-Early Kimmeridgian.

orbifera Klement, 1960, p.66-67, pl.9, fig.9-10; pl.10, fig.7.
Middle Oxfordian.

ovata Gitmez and Sarjeant, 1972, p.237, pl.14, fig.1-3.
Kimmeridgian.

placacantha (Deflandre & Cookson, 1955, p.276, pl.9, fig.1-3)
Davey *et al.*, 1969, p.17. Miocene; formerly
Hystriosphæridium, *Baltisphaeridium* and *Impletosphæridium*.

SYSTEMATOPHORA (cont'd)

schindewolfi (Alberti, 1961, p.38, pl.10, fig.1-3,6-7) Downie and Sarjeant, 1964 [1965], p.146. Late Barremian-Turonian; formerly *Hystriichosphaerina*.

turonica (Alberti, 1961, p.39, pl.10, fig.4a-b) Downie and Sarjeant, 1964 [1965], p.146. Turonian; formerly *Hystriichosphaerina*.

valensii (Sarjeant, 1960, p.142, pl.6, fig.5-7; text-fig.3c) Downie and Sarjeant, 1964 [1965], p.146. Late Oxfordian; formerly *Polystephanosphaera*.

TAENIOPHORA Klement, 1960, p.67-68.

**iunctispina* Klement, 1960, p.68-69, pl.10, fig.1-6. Middle Oxfordian.

subsp. *filamentosa* Klement, 1960, p.70, pl.10, fig.5-6. Middle Oxfordian.

subsp. *iunctispina* Klement, 1960, p.69, pl.10, fig.1-4. Middle Oxfordian.

linifera (Cookson & Eisenack, 1967b, p.253, pl.40, fig.9; pl.41, fig.7-8) Eisenack and Kjellström, 1971, p.1019. Late Paleocene; formerly *Baltisphaeridium*.

TANYOSPHERIDIUM Davey and Williams, 1966b, p.98.

ellipticum (Cookson, 1965a, p.87, pl.11, fig.1-3a) Davey and Williams, 1969, p.7. Late Eocene; formerly *Hystriichosphaeridium*.

isocalamus (Deflandre & Cookson, 1955, p.272, pl.2, fig.7-8; text-fig.30-35) Davey and Williams, 1969, p.7. Early Cretaceous; formerly *Hystriichosphaeridium*.

magdaliium (Drugg, 1967, p.26, pl.4, fig.8-10; pl.9, fig.7) Heisecke, 1970, p.244. Danian; formerly *Hystriichosphaeridium*.

paradoxum [Brosius, 1963, p.41, pl.4, fig.6; text-fig.2(1a-c)] Gocht, 1969, p.54. Late Oligocene; formerly *Hystriichosphaeridium*. The transfer of this species to *Oligosphaeridium* by Davey and Williams, 1969, p.5 is herein rejected.

TANYOSPHAERIDIUM (cont'd)

regulare Davey and Williams, 1966b, p.99-100, pl.3, fig.4.
Early Eocene.

tenerum Benedek, 1972, p.35-36, pl.10, fig.13-14; text-fig.14.
Middle-Late Oligocene.

**variecalanum* Davey and Williams, 1966b, p.98-99, pl.6, fig.7;
text-fig.20. Cenomanian.

TECTATODINIUM Wall, 1967, p.112-113.

**pellitum* Wall, 1967, p.113, pl.16, fig.11-12. Miocene-Holocene.

psilatatum Wall and Dale, 1973, p.22-23, pl.1, fig.9-15; pl.3,
fig.1-6. Holocene.

TENERIDINIUM Krutzsch, 1962, p.41.

**magnoides* Krutzsch, 1962, p.42, pl.10, fig.1-7; text-fig.1a.
Eocene.

TENUA Eisenack, 1958, p.410, emend. Sarjeant, 1968, p.230-231.

The emendation of this genus by Pocock, 1972, p.94 is herein rejected as the inclusion of smooth forms within *Tenua* would create a Jr. Syn. of *Canningia* Cookson and Eisenack, 1960b. The emended circumscription of Pocock is otherwise similar to that of Sarjeant, 1968.

anaphrissa (Sarjeant, 1966c, p.206, pl.22, fig.8; pl.23, fig.6; text-fig.55) Benedek, 1972, p.9-10. Early Barremian; formerly *Doidyx*.

atlantica Habib, 1972, p.375, pl.4, fig.2,5. Callovian-Oxfordian.

capitata (Cookson & Eisenack, 1960b, p.252, pl.39, fig.9) Gitmez and Sarjeant, 1972, p.189. Oxfordian-Kimmeridgian; formerly *Hystrihosphaeridium*. Considered to be a species of *Prolixosphaeridium* by Singh, 1971, p.342.

echinata Gitmez and Sarjeant, 1972, p.190, pl.1, fig.1,9.
Kimmeridgian.

evittii Pocock, 1972, p.94-95, pl.24, fig.6,8; text-fig.11.
Late Bajocian-Callovian. Pocock, 1972, p.94 states that the archeopyle of *T. evittii* is apical while in the caption to

TENUA (cont'd)

evittii (cont'd)

fig.11 (Pocock, 1972, p.95) the term precingular tabulation is used to denote the opercular pseudoplates. From the specimen illustrated in Pocock, 1972, text-fig.11; pl.24, fig.8, the archeopyle is obviously intercalary of the 3I type.

hystricella Eisenack, 1958, p.411, pl.23, fig.5-7. Aptian.

**hystrix* Eisenack, 1958, p.410, pl.23, fig.1-4; text-fig.10.
Aptian

pilosa (Ehrenberg, 1843, p.61) Sarjeant, 1968, p.231. Oxfordian; formerly *Xanthidium*, *Ovum hispidum*, *Hystrichosphaera*, *Hystrichosphaeridium*, *Baltisphaeridium* and *Cleistosphaeridium*.

subsp. *longispinosa* (Sarjeant, 1961a) *comb. nov., stat. nov.*
1961a *Baltisphaeridium pilosum* var. *longispinosum* Sarjeant
p.102, pl.14, fig.8. Early Oxfordian.

rioulti Sarjeant, 1968, p.231, pl.1, fig.12,22; pl.2, fig.1-2,4.
Late Callovian.

taugourdeaui Varma and Dangwal, 1964, p.68, pl.2, fig.9.
Eocene-Oligocene.

varispinosa (Sarjeant, 1959, p.338, pl.13, fig.7; text-fig.6)
Sarjeant, 1972, p.43. Early Callovian; formerly
Baltisphaeridium.

verrucosa Sarjeant, 1968, p.232, pl.1, fig.17; pl.2, fig.3,6.
Late Callovian-Early Oxfordian.

villersense Sarjeant, 1968, p.231-232, pl.1, fig.16; pl.2,
fig.5,10. Early Callovian-Early Oxfordian.

"TETRASPHERA" (Gorka, 1965 *non Tetrasphaera* Popofsky, 1912)
NOW *Gorkadinium*.

THALASSIPHORA Eisenack and Gocht, 1960, p.513, text-fig.1-3, emend.
Gocht, 1968, p.153.

balcanica Baltes, 1971, p.6, pl.3, fig.3-7. Early Pliocene.

delicata Williams and Downie, 1966c, p.235, pl.26, fig.8.
Early Eocene.

THALASSIPHORA (cont'd)

flammea Cookson and Eisenack, 1967b, p.252-253, pl.42, fig.1-5.
Late Paleocene.

**pelagica* (Eisenack, 1954, p.71, pl.12, fig.17-18) Eisenack and
Gocht, 1960, p.513-514. Late Eocene-Early Oligocene;
formerly *Pterospermopsis*.

reticulata Morgenroth, 1966b, p.6-7, pl.2, fig.1-2. Early
Oligocene.

succincta Morgenroth, 1966b, p.7-8, pl.2, fig.7-9. Early
Oligocene.

sueroi Pothé de Baldis, 1966, p.224-225, pl.2, fig.d. Early
Tertiary.

velata (Deflandre & Cookson, 1955, p.291, pl.8, fig.8) Eisenack
and Gocht, 1960, p.514-515. Early Tertiary; formerly
Pterocystidiopsis.

TOOLONGIA Cookson and Eisenack, 1960a, p.14.

**medusoides* Cookson and Eisenack, 1960a, p.14, pl.3, fig.11-12.
Senonian.

TRIBLASTULA O. Wetzel, 1933b, p.54, emend. Morgenroth, 1966a, p.15.

"*borussica*" (Eisenack, 1954) SEE *Rottnestia*.

nuda O. Wetzel, 1961, p.340, pl.2, fig.2. Erratic, ?Late
Cretaceous.

quasicribrata O. Wetzel, 1961, p.340, pl.2, fig.3. Erratic,
?Late Cretaceous.

tubulata O. Wetzel, 1961, p.340, pl.2, fig.4. Erratic, ?Late
Cretaceous.

**utinensis* O. Wetzel, 1933b, p.54, pl.6, fig.5-6. Erratic,
Cretaceous.

TRICHODINIUM Eisenack and Cookson, 1960, p.5, emend. Clarke and
Verdier, 1967, p.18-19.

TRICHODINIUM (cont'd)

castanea (Deflandre, 1935, p.229, pl.6, fig.8) Clarke and Verdier, 1967, p.19-20. Erratic, ?Senonian; formerly *Palaeoperidinium*.

"*ciliatum*" (Gocht, 1959, p.65, pl.8, fig.5-6) Eisenack, 1964, p.811. Considered by Clarke and Verdier, 1967, p.19, to be a Jr. Syn. of *Trichodinium castanea*.

hirsutum Cookson, 1965b, p.139, pl.25, fig.5-13. Paleocene.

"*intermedium*" (Eisenack & Cookson, 1960, p.6, pl.2, fig.5-6) Jr. Syn. of *T. castanea*, see Clarke and Verdier, 1967, p.19.

paucispinum Eisenack and Cookson, 1960, p.5-6, pl.2, fig.7. Albian.

**pellitum* Eisenack and Cookson, 1960, p.5, pl.2, fig.4. Aptian.

spinosum Singh, 1971, p.316-317, pl.48, fig.8-9. Late Albian.

TRIGONOPYXIDIA Cookson and Eisenack, 1961a, p.75. (*nom. subst. pro Trigonopyxis* Cookson & Eisenack, 1960a, p.11, *non* Penard, 1912.)

**ginella* (Cookson & Eisenack, 1960a, p.11, pl.3, fig.18-20) Downie and Sarjeant, 1964 [1965], p.149. ?Late Albian-Cenomanian.

"TRIGONOPYXIS" (Cookson & Eisenack, 1960a *non* Penard, 1912) NOW *Trigonopyxidia*.

"TRIOPERCULODINIUM" (Drugg, 1970, p.820) Jr. Syn. of *Lingulodinium*, see Wall and Dale, 1973, p.24. *T. siculum* NOW *Lingulodinium*.

TRITHYRODINIUM Drugg, 1967, p.20, emend. Davey, 1969b, p.10.

**evittii* Drugg, 1967, p.20, pl.3, fig.2-3; pl.9, fig.2. Danian.

fragile Davey, 1969b, p.11, pl.3, fig.3,6,9. Maastrichtian-?Danian.

TUBERCULODINIUM Wall, 1967, p.114.

rossignolae Drugg, 1970a, p.116-118, fig.3,10-11. Early Miocene.

wallii Drugg, 1970a, p.115-116, fig.1,4-6. Post Miocene.

TUBERCULODINIUM (cont'd)

**vancampoae* (Rossignol, 1962, p.134, pl.2, fig.1) Wall, 1967, p.114-115. Pleistocene; formerly *Pterospermopsis*. The transfer of this species to the modern genus *Pyrophacus* by Wall and Dale, 1971, p.234-235, is herein rejected because thecal equivalents of the type material are unknown.

TUBIDERMODINIUM Morgenroth, 1966a, p.16.

**sulcatum* Morgenroth, 1966a, p.16-17, pl.3, fig.4-6. Early Eocene.

TUBOTUBERELLA Vozzhennikova, 1967, p.179-180.

**rhombiformis* Vozzhennikova, 1967, p.180, pl.101, fig.1-2; pl.102, fig.1-3; pl.104, fig.1-3. Late Jurassic.

sphaerocephalus Vozzhennikova, 1967, p.181, pl.103, fig.1-3; pl.104, fig.4-5a-b. Late Jurassic.

TURBIOSPHAERA Archangelsky, 1969a, p.408.

**filosa* (Wilson, 1967a, p.66, fig.2, 31-32, 34) Archangelsky, 1969a, p.408-411. Paleocene-Oligocene; formerly *Cordosphaeridium*.

UVATODINIUM Vozzhennikova, 1963, p.182.

**nasutum* Vozzhennikova, 1963, p.182, text-fig.13a-b. Paleocene.

marginatum Vozzhennikova, 1967, p.51-52, pl.8, fig.1-2. Paleocene.

VALENSIELLA Eisenack, 1963a, p.100-101.

amandopolitana (Valensi, 1955b, p.590, pl.2, fig.7; pl.5, fig.2) Eisenack, 1963a, p.102. Middle Jurassic; formerly *Membranilarnax* and *Favilarnax*.

ampulla Gocht, 1970b, p.149-150, pl.34, fig.7-9; text-fig.19a. Early Bathonian.

clathroderma (Deflandre & Cookson, 1955, p.290, pl.7, fig.6; text-fig.51) Eisenack, 1963a, p.101. ?Early Eocene; formerly *Membranilarnax*.

VALENSTELLA (cont'd)

**ovulum* (Deflandre, 1947c, p.9, text-fig.22-23) Eisenack, 1963a, p.101. Bajocian; formerly *Membranilarnax* and *Favilarnax*.

vermiculata Gocht, 1970b, p.150, pl.34, fig.10-11; text-fig.19d. Early Bathonian.

VALVAEODINIUM Morgenroth, 1970, p.350.

**armatum* Morgenroth, 1970, p.350-351, pl.11, fig.1-5. Lias (Late Pliensbachian).

WALLODINIUM Loeblich and Loeblich, 1968, p.212. (*nom. subst. pro Diplotesta* Cookson & Eisenack, 1960, *non* Brongniart, 1874.)

anglicum (Cookson & Hughes, 1964) *comb. nov.*
1964 *Diplotesta anglica* Cookson and Hughes, p.56-57, pl.11, fig.1-5. Late Albian-Early Cenomanian.

bidigitata (Manum & Cookson, 1964) *comb. nov.*
1964 *Diplotesta bidigitata* Manum and Cookson, p.25-26, pl.5, fig.4-6. Late Cretaceous.

**glæssneri* (Cookson & Eisenack, 1960b, p.256, pl.39, fig.4-6) Loeblich and Loeblich, 1968, p.212. Oxfordian-?Aptian; formerly *Diplotesta*.

inflatum (Habib, 1969, p.98, pl.3, fig.14-15; pl.4, fig.2) Habib, 1970, p.374. Albian-Cenomanian; formerly *Diplotesta*.

krutzschi (Alberti, 1961, p.21, pl.7, fig.19-21; pl.12, fig.6-7) Habib, 1972, p.378. Hauterivian-Barremian; formerly *Diplotesta*.

luna (Cookson & Eisenack, 1960a) *comb. nov.*
1960a *Diplotesta luna* Cookson and Eisenack, p.10-11, pl.3, fig.21. ?Late Albian-Cenomanian.

WANAEA Cookson and Eisenack, 1958, p.57.

elathrata Cookson and Eisenack, 1958, p.58, pl.9, fig.6-8. Late Jurassic.

digitata Cookson and Eisenack, 1958, p.58, pl.9, fig.2-5. Late Jurassic.

fimbriata Sarjeant, 1961a, p.112-113, pl.15, fig.14; text-fig.13. Early Oxfordian.

WANAEA (cont'd)

**spectabilis* (Deflandre & Cookson, 1955, p.293, pl.3, fig.12-14)
Cookson and Eisenack, 1958, p.57. Oxfordian; formerly
Epicephalopyxis.

WETZELIELLA Eisenack, 1938, p.187, emend. Williams and Downie,
1966b, p.182.

**articulata* Eisenack, 1938, p.186, text-fig.4. Late Eocene-
Early Oligocene.

subsp. *conopia* (Williams & Downie, 1966b) *stat. nov.*
1966b *Wetzeliella articulata* var. *conopia* Williams and
Downie, p.184, pl.18, fig.5. Early Eocene.

clathrata Eisenack, 1938, p.187, text-fig.5. Late Eocene-
Early Oligocene.

subsp. *fasciata* (Rozen, 1965) *stat. nov.*
1965 *Wetzeliella clathrata* var. *fasciata* Rozen, p.296-297,
pl.2, fig.13; text-fig.4. Late Eocene.

coleothrypta Williams and Downie, 1966b, p.185-186, pl.18,
fig.8-9; text-fig.47. Early Eocene.

condylos Williams and Downie, 1966b, p.193-194, pl.20, fig.1-2.
Early Eocene.

echinosuturata Wilson, 1967c, p.477-479, fig.3,22-25. Middle
Eocene.

echinulata Vozzhennikova, 1967, p.164-165. Figured in
Vozzhennikova, 1960, pl.3, fig.3, description not published
until 1967. Eocene.

edwardsi Wilson, 1967c, p.477, fig.8-9. Early Eocene.

hampdenensis Wilson, 1967c, p.480-481, fig.17,19. Middle Eocene.

homomorpha Deflandre and Cookson, 1955, p.254, pl.5, fig.7;
text-fig.19. Early Eocene.

subsp. *quinquelata* (Williams & Downie, 1966b) *stat. nov.*
1966b *Wetzeliella homomorpha* var. *quinquelata* Williams and
Downie, p.191-192, pl.18, fig.7. Early Eocene.

hyperacantha Cookson and Eisenack, 1965b, p.134-135, pl.16,
fig.3-6. Paleocene.

WETZELIELLA (cont'd)

"*intermedia*" (Cookson & Eisenack, 1961b) NOW *Rhombodinium*.

irregularis Cookson and Eisenack, 1958, p.28-29, pl.10, fig.1-2.
Late Jurassic.

irtyschensis Alberti, 1961, p.8, pl.1, fig.11-12; pl.12, fig.8.
Early Oligocene.

lineidentata Deflandre and Cookson, 1955, p.253-254, pl.5, fig.5;
text-fig.17-18. Eocene.

lunaris Gocht, 1969, p.13-15, pl.10, fig.1-3; text-fig.6.
Early Eocene.

meckelfeldensis Gocht, 1969, p.15-16, pl.10, fig.12-15. Early
Eocene.

"*neocomica*" (Gocht, 1957) NOW *Phoberocysta*.

ornata Wilson, 1967c, p.481-492, fig.33-34. Early Eocene.

ovalis Eisenack, 1954, p.59, pl.8, fig.1-7. Early Oligocene.

parva Alberti, 1961, p.8-9, pl.1, fig.14-18; pl.12, fig.10-11.
Eocene.

pilata Stanley, 1965, p.222, pl.21, fig.12-16. Paleocene.

reticulata Williams and Downie, 1966b, p.187-188, pl.19,
fig.3,6; text-fig.48. Early Eocene.

rugosa Stanley, 1965, p.222-223, pl.21, fig.6-11. Paleocene.

samlandica Eisenack, 1954, p.59, pl.8, fig.11-12. Early
Oligocene.

similis Eisenack, 1954, p.58-59, pl.8, fig.8-10. Early
Oligocene.

solida [Gocht (pars), 1955, p.88, text-fig.3a-b,4a-b,5a]
Williams and Downie, 1966b, p.195. Eocene or Oligocene.

symmetrica Weiler, 1956, p.132-135, pl.11, fig.1-3; text-fig.2-5.
Middle Oligocene.

subsp. *incisa* Gerlach, 1961, p.156-158, pl.25, fig.9. Middle-
Late Oligocene.

WETZELIELLA (cont'd)

symmetrica (cont'd)

subsp. *lobisca* (Williams & Downie, 1966b) *stat. nov.*
1966b *Wetzeliella symmetrica* var. *lobisca* Williams and
Downie, p.196, pl.20, fig.3. Early Eocene.

subsp. *symmetrica* Weiler, 1956, p.132-135, pl.11, fig.1-3;
text-fig.2-5. Middle Oligocene.

tabulata Wilson, 1967c, p.473-474, fig.2,4-7,10-11. Late Eocene.

tenuivirgula Williams and Downie, 1966b, p.188-189, pl.19,
fig.2,4; text-fig.49. Early Eocene.

subsp. *crassoramosa* (Williams & Downie, 1966b) *stat. nov.*
1966b *Wetzeliella tenuivirgula* var. *crassoramosa* Williams
and Downie, p.189-190, pl.19, fig.1,5,7; text-fig.50.

varielongituda Williams and Downie, 1966b, p.196-197, pl.20,
fig.4,8. Early Eocene.

WETZELODINIUM Deflandre, 1936b, p.168.

**tentaculatum* (O.Wetzel, 1933a, p.171, pl.2, fig.23; text-fig.4)
Deflandre, 1936b, p.168-169. ?Senonian; formerly
Polykrikos.

XENASCUS Cookson and Eisenack, 1969, p.7.

Davey and Verdier, 1971, p.27, list the type of this genus
X. australense as a Jr. Syn. of *Phoberocysta ceratioides*
(Deflandre, 1937b) Davey and Verdier, 1971, p.26. We concur
with this interpretation. However, *Xenascus* (type species:
X. ceratioides = Sr. Syn. of *X. australense*, = *Phoberocysta*
ceratioides, = *Hystriosphera ceratioides*) is herein main-
tained as a genus separate from *Phoberocysta* (type species:
P. neocomica, = *Wetzeliella neocomica*) on the grounds that
they are morphologically distinct. *Xenascus* is characterized
by a single lateral (postcingular) horn, whereas *Phoberocysta*
is characterized by two similar lateral (postcingular) horns.

"*australense*" (Cookson & Eisenack, 1969, p.7, fig.1, I-K) Jr. Syn.
of *Xenascus ceratioides*. See Davey and Verdier, 1971, p.26.

XENASCUS (cont'd)

**ceratioides* (Deflandre, 1937b) *comb. nov.*
1937b *Hystriichosphaera ceratioides* Deflandre, p.66-67, pl.12,
fig.7-8. Senonian; formerly also *Phoberocysta* and
Pseudoceratium.

XENICODINIUM Klement, 1960, p.53-54.

**densispinosum* Klement, 1960, p.54, pl.5, fig.14-15. Early
Kimmeridgian.

hispidum Drugg, 1970a, p.120-121, fig.12-15. Middle Miocene-
Pliocene.

lubricum Morgenroth, 1968, p.554, pl.47, fig.9; pl.48, fig.1.
Danian.

XENIKOON Cookson and Eisenack, 1960a, p.14-16.

americanus Habib, 1970, p.372, pl.10, fig.10. Albian-Cenomanian.

**australis* Cookson and Eisenack, 1960a, p.16, pl.3, fig.16-17.
Turonian-Campanian.

XIPHOPHORIDIUM Sarjeant, 1966b, p.146-147.

**alatum* (Cookson & Eisenack, 1962b, p.487, pl.2, fig.1-4).
Sarjeant, 1966b, p.147-148. Albian-Cenomanian; formerly
Hystriichodinium.

ZOSTEROSPHAERA Schopf, 1968, p.684. Questionable affinity.

**tripuhctata* Schopf, 1968, p.684, pl.84, fig.6. Late Precambrian.

REFERENCES

Agelopoulos, Johann

1964: *Hystrihostrogylon membraniphorum* n.g. n.sp. aus dem Heiligenhafener Kieselton (Eozan); Neues Jahrb. Geol. Paläontol., Mh., p. 673-675.

1967: Hystrichosphären, Dinoflagellaten und Foraminiferen aus dem eozänen Kieselton von Heiligenhafen, Holstein; Dissertation Math.-Naturwiss. Fak. Eberhard-Karls- Univ. Tübingen, 74 p.

Alberti, Gerhard

1959a: Über *Pseudodeflandrea* n.gen. (Dinoflag.) aus dem Mittel-Oligozan von Norddeutschland; Mitt. Geol. Staatsinst. Hamburg, v. 28, p. 91-92.

1959b: Zur Kenntnis der Gattung *Deflandrea* Eisenack (Dinoflag.) in der Kreide und im Alttertiär Nord- und Mitteldeutschlands; Mitt. Geol. Staatsinst. Hamburg, v. 28, p. 93-105.

1961: Zur Kenntnis Mesozoischer und Alttertiärer Dinoflagellaten und Hystrichosphaerideen von Nord- und Mitteldeutschland sowie einigen anderen Europäischen Gebieten; Palaeontographica, Abt. A, v. 116, p. 1-58.

Anderson, R.Y.

1960: Cretaceous-Tertiary palynology, eastern side of the San Juan Basin, New Mexico; State Bur. Mines and Mineral Resources, New Mexico Inst. Mining and Technology, mem. 6, p. 1-59.

Archangelsky, Sergio

1969a: Sobre el paleomicroplancton del Terciario inferior de Rio Turbio, Provincia de Santa Cruz; Ameghiniana, v. 5, p. 406-416.

1969b: Estudio del paleomicroplancton de la Formacion Rio Turbio (Eoceno), Provincia de Santa Cruz; Ameghiniana, v. 6, p. 181-218.

Baksi, S.K.

1962: Palynological investigation of Simsang River Tertiaries, south Shillong Front, Assam; Geol., Mining Met. Soc. India, Bull. 26, p. 1-22.

Baltes, Nicolae

- 1963: Dinoflagellate și Hystrichosphaeride cretacice din Platforma moezică; Petrol și Gaze, v. 14, p. 581-589.
- 1969: Distribution stratigraphique des dinoflagellés et des acritarches Tertiaires en Roumanie; in Brönnimann, P. and Renz, H.H. [eds.] Proceedings First International conference Planktonic Microfossils Geneva 1967, E.J. Brill, Leiden, v. 1, p. 26-45.
- 1971: Pliocene Dinoflagellata and Acritarcha in Romania; in Farinacci, A. [ed.] Proceedings Second Planktonic Conference Rome 1970, Edizioni Tecnoscienza, Rome, v. 1, p. 1-19.

Beju, D.

- 1969: Jurassic microplankton from the Carpathian Foreland of Romania; Colloquium on the Mediterranean Jurassic; Budapest 3-8 Sept., 1969, preprint. Not validly published in accordance with ICBN Art. 45c.

Benedek, P.N.

- 1972: Phytoplanktonen aus dem Mittel- und Oberoligozän von Tönisberg (Niederrheingebiet); Palaeontographica, Abt. B, v. 137, p. 1-71.

Brideaux, W.W.

- 1971: Palynology of the Lower Colorado Group, central Alberta, Canada. I. Introductory remarks. Geology, and microplankton studies; Palaeontographica, Abt. B, v. 135, p. 53-114.

Brito, I.M.

- 1967: Silurian and Devonian Acritarcha from Maranhão Basin, Brazil; Micropaleontology, v. 13, p. 473-482.

Brosius, Marita

- 1963: Plankton aus dem nordhessischen Kasseler Meeressand (Oberoligozän); Z. deutsch. geol. Ges., v. 114, p. 32-56.

Burgess, J.D.

- 1971: Palynological interpretation of Frontier environments in central Wyoming; Geoscience and Man, v. 3, p. 69-82.

Calandra, François

- 1964: Sur un présumé dinoflagellé *Arpylorus* nov. gen. du Gothlandien de Tunisie; C.R. Acad. Sci., Paris, v. 258, p. 4112-4114.

- Churchill, D.M., and Sarjeant, W.A.S.
1963: Freshwater microplankton from Flandrian (Holocene) peats of southwestern Australia; *Grana Palynologica*, v. 3, p. 29-53.
- Claparède, Édouard and Johannes Lachmann
1859: Études sur les Infusoires et les Rhizopodes; *Mém. Inst. nat. génev.*, 6 (mém. 1), p. 261-482.
- Clarke, R.F.A., Davey, R.J., Sarjeant, W.A.S., and Verdier, J.-P.
1968: A note on the nomenclature of some Upper Cretaceous and Eocene dinoflagellate taxa; *Taxon*, v. 17, p. 181-183.
- Clarke, R.F.A., and Verdier, J.-P.
1967: An investigation of microplankton assemblages from the Chalk of the Isle of Wight, England; *Verh. Kon. Nederl. Akad. Wetensch., Afd. Natuurk., Eerste Reeks*, v. 24, p. 1-96.
- Conrad, W.
1941: Notes protistologiques XIX. Quelques microfossiles des silex crétacés; *Mus. Roy. Hist. Nat. Belg., Bull.*, v. 17, p. 1-10.
- Cookson, I.C.
1953: Records of the occurrence of *Botryococcus braunii*, *Pediastrum* and the Hystrichosphaerideae in Cainozoic deposits of Australia; *Nat. Mus. Melbourne. Mem.*, no. 18, p. 107-123.
1956: Additional microplankton from Australian Late Mesozoic and Tertiary sediments; *Austral. J. Mar. Freshw. Res.*, v. 7, p. 183-191.
1965a: Cretaceous and Tertiary microplankton from south-eastern Australia; *Proc. Roy. Soc. Victoria*, v. 78, p. 85-93.
1965b: Microplankton from the Paleocene Pebble Point Formation, south-western Victoria; *Proc. Roy. Soc. Victoria*, v. 78, p. 137-141.
- Cookson, I.C. and Alfred Eisenack
1958: Microplankton from Australian and New Guinea Upper Mesozoic sediments; *Proc. Roy. Soc. Victoria*, v. 70, p. 19-79.
1960a: Microplankton from Australian Cretaceous sediments; *Micropaleontology*, v. 6, p. 1-18.

- 1960b: Upper Mesozoic microplankton from Australia and New Guinea; *Palaeontology*, v. 2, p. 243-261.
- 1961a: Upper Cretaceous microplankton from the Belfast No. 4 Bore, south-western Victoria; *Proc. Roy. Soc. Victoria*, v. 74, p. 69-76.
- 1961b: Tertiary microplankton from the Rottneest Island Bore, Western Australia; *J. Roy. Soc. W. Austral.*, v. 44, p. 39-47.
- 1962a: Some Cretaceous and Tertiary microfossils from Western Australia; *Proc. Roy. Soc. Victoria*, v. 75, p. 269-273.
- 1962b: Additional microplankton from Australian Cretaceous sediments; *Micropaleontology*, v. 8, p. 485-507.
- 1965a: Microplankton from the Browns Creek Clays, SW. Victoria; *Proc. Roy. Soc. Victoria*, v. 79, p. 119-131.
- 1965b: Microplankton from the Dartmoor Formation, SW Victoria; *Proc. Roy. Soc. Victoria*, v. 79, p. 133-137.
- 1965c: Microplankton from the Paleocene Pebble Point Formation, south-western Victoria; *Proc. Roy. Soc. Victoria*, v. 79, p. 139-146.
- 1967a: Some Early Tertiary microplankton and pollen grains from a deposit near Strahan, western Tasmania; *Proc. Roy. Soc. Victoria*, v. 80, p. 131-140.
- 1967b: Some microplankton from the Paleocene Riverook Bed, Victoria; *Proc. Roy. Soc. Victoria*, v. 80, p. 247-257.
- 1968: Microplankton from two samples from Gingin Brook No. 4 Borehole, Western Australia; *J. Roy. Soc. W. Austral.*, v. 51, p. 110-122.
- 1969: Some microplankton from two bores at Balcatta, Western Australia; *J. Roy. Soc. W. Austral.*, v. 52, p. 3-8.
- 1970a: Cretaceous microplankton from the Eucla Basin, Western Australia; *Proc. Roy. Soc. Victoria*, v. 83, p. 137-157.
- 1970b: Die Familie der Lecaniellaceae n. fam. - Fossile Chlorophyta, Volvocales? *Neues Jahrb. Geol. Paläontol., Mh.*, p. 321-325.
- 1971: Cretaceous microplankton from Eyre No. 1 Bore Core 20, Western Australia; *Proc. Roy. Soc. Victoria*, v. 84, p. 217-226.

Cookson, I. C., and Hughes, N. F.

- 1964: Microplankton from the Cambridge Greensand (mid-Cretaceous); *Palaeontology*, v. 7, p. 37-59.

Cookson, I.C., and Svein Manum

- 1964: On *Deflandrea victoriensis* n. sp., *D. tripartita* Cookson and Eisenack, and related species; *Proc. Roy. Soc. Victoria*, v. 77, p. 521-524.

Davey, R.J.

- 1968: *Gonyaulacysta parorthoceras*, a new species of dinoflagellate cyst; *Palaeontol. Afr.*, v. 11, p. 1.

- 1969a: Non-calcareous microplankton from the Cenomanian of England, northern France and North America, Part I; *Bull. Br. Mus. nat. Hist. (Geol.)*, v. 17, p. 103-180.

- 1969b: Some dinoflagellate cysts from the Upper Cretaceous of northern Natal, South Africa; *Palaeontol. Afr.*, v. 12, p. 1-23.

- 1969c: The evolution of certain Upper Cretaceous hystrichosphaeres from South Africa; *Palaeontol. Afr.*, v. 12, p. 25-51.

- 1970: Non-calcareous microplankton from the Cenomanian of England, northern France and North America, Part II; *Bull. Br. Mus. nat. Hist. (Geol.)*, v. 18, p. 333-397.

Davey, R.J., Downie, Charles, Sarjeant, W.A.S., and Williams, G.L.

- 1966: Fossil dinoflagellate cysts attributed to *Baltisphaeridium*; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., *Studies on Mesozoic and Cainozoic dinoflagellate cysts*; *Bull. Br. Mus. nat. Hist. (Geol.)*, Suppl. 3, p. 157-175.

- 1969: Generic reallocations; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Appendix to "Studies on Mesozoic and Cainozoic dinoflagellate cysts"; *Bull. Br. Mus. nat. Hist. (Geol.)*, Appendix to Suppl. 3, p. 15-17.

Davey, R.J., and Verdier, J.-P.

- 1971: An investigation of microplankton assemblages from the Albian of the Paris Basin; *Verh. Kon. Nederl. Akad. Wetensch., Afd. Natuurk., Eerste Reeks*, v. 26, p. 1-58.

Davey, R.J., and Williams, G.L.

- 1966a: The genera *Hystriichosphaera* and *Achomosphaera*; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Studies on Mesozoic and Cainozoic dinoflagellate cysts; Bull. Br. Mus. nat. Hist. (Geol.), Suppl. 3, p. 28-52.
- 1966b: The genus *Hystriichosphaeridium* and its allies; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Studies on Mesozoic and Cainozoic dinoflagellate cysts; Bull. Br. Mus. nat. Hist. (Geol.), Suppl. 3, p. 53-106.
- 1969: Generic reallocations; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Appendix to "Studies on Mesozoic and Cainozoic dinoflagellate cysts"; Bull. Br. Mus. nat. Hist. (Geol.), Appendix to Suppl. 3, p. 4-7.

De Coninck, Jan

- 1965: Microfossiles planctoniques du Sable yprésien à Merelbeke. Dinophyceae et Acritarcha; Acad. Roy. Belg., Cl. Sci., Mém., Coll. in-8°, no. 26-2, p. 1-56.
- 1969: Dinophyceae et Acritarcha de l'Yprésien du Sondage de Kallo; Inst. Roy. Sci. Natur. Belg., Mém. 161, p. 1-67.

Deflandre, Georges

- 1933: Note préliminaire sur un péridinien fossile *Lithoperidinium oamaruense* n.g., n. sp; Bull. Soc. Zool. Fr., v. 58, p. 265-273.
- 1934: Sur les microfossiles d'origine planctonique, conservés à l'état de matière organique dans les silex de la craie; C.R. Acad. Sci., Paris, v. 199, p. 966-968.
- 1935: Considérations biologique sur les microorganismes d'origine planctonique conservés dans les silex de la craie; Bull. Biol. Fr. Belg., v. 69, p. 213-244.
- 1936a: Les flagellés fossiles operçu biologique et paléontologique. Role géologique; Actualités sci. industr. no. 335, p. 1-97.
- 1936b: Microfossiles des silex cretaces. Première partie. Generalites Flagelles; Ann. Paleont., v. 25, p. 151-191.
- 1937a: *Phanerodinium*, genre nouveau de dinoflagelle fossile des silex. Bull. Soc. Fr. Microsc., v. 6, p. 109-115.

- 1937b: Microfossiles des silex crétacés. Deuxième partie. Flagellés *incertae sedis* Hystrichosphaeridés. Sarcodinés organisms divers; Ann. Paléont., v. 26, p. 51-103.
- 1938a: Sur le microplancton des mers jurassiques, conservé à l'état de matière organique dans les marnes des Villers-sur-Mer; C.R. Acad. Sci., Paris. v. 206, p. 687-689.
- 1938b: Microplancton des mers Jurassiques conservé dans les marnes de Villers-sur-Mer (Calvados). Étude lumineuse et considérations générales; Stat. Zool. Wimereux, Trav., v. 13, p. 147-200.
- 1939: Sur les dinoflagellés des schistes bitumineux d'Orbagnoux (Jura); Bull. Soc. Fr. Microsc., v. 8, p. 141-145.
- 1940: Sur un nouveau Péridinien fossile à thèque originellement siliceuse; C.R. Acad. Sci., Paris, v. 211, p. 265-268.
- 1941: Le microplancton kiméridgien d'Orbagnoux et l'origine des huiles sulfurées naturelles; Mém. Acad. Sci., Paris, no. 65, p. 1-32.
- 1943: Sur quelques nouveaux Dinoflagellés des silex crétacés; Bull. Soc. Géol. Fr., v. 13, p. 499-509.
- 1945: Dinoflagellés II. Flagelles incertae sedis; Fich. micropaléont. sér. 5, Arch. orig. Serv. Docum., C.N.R.S., no. 235, cards 752-859.
- 1946a: Hystrichosphaeridés II. Espèces du Secondaire et du Tertiaire; Fich. micropaléont. ser. 6; Arch. Orig. Serv. Docum., C.N.R.S., no. 235, cards 860-1019.
- 1946b: Remarques sur la systématique des Hystrichosphaeridés; C.R. Soc. Géol. Fr., v. 7, p. 110-111.
- 1947a: Sur une nouvelle Hystrichosphère des silex crétacés et sur les affinités du genre *Cannosphaeropsis* O. We.; C.R. Acad. Sci., Paris, v. 224, p. 1574-1576.
- 1947b: *Calciodinellum* nov. gen., premier représentant d'une famille nouvelle de dinoflagellés fossiles à thèque calcaire; C.R. Acad. Sci., Paris, v. 224, p. 1781-1782.
- 1947c: Sur quelques microorganismes planctoniques des silex Jurassiques; Bull. Inst. Océanogr. Monaco, No. 921, p. 1-10.

- 1948: Les Calciodinellidés dinoflagellés fossiles à thèque calcaire; *Botaniste*, v. 34, p. 191-219.
- 1964: Remarques sur la classification des Dinoflagellés fossiles, à propos d'*Evittodinium*, nouveau genre crétacé de la famille des Deflandreaceae; *C.R. Acad. Sci., Paris*, v. 258, p. 5027-5030.
- 1966: Addendum à mon Memoire: Microfossiles des silex crétacés; *Cah. Micropaleontol.* [Arch. orig. Cen. Docum. C.N.R.S. no. 419] ser. 1, no. 2, p. 1-9.
- 1968: *Stenopyxinium* n.g. *grassei* n.sp., nouveau type de kyste de dinoflagellé fossile d'un silex crétacé; *Protistologica*, v. 3 (1967), p. 423-426.
- Deflandre, Georges, and Cookson, I.C.
1955: Fossil microplankton from Australian Late Mesozoic and Tertiary sediments; *Austral. J. Mar. Freshw. Res.*, v. 6, p. 242-313.
- Deflandre, Georges, and Courteville, H.
1939: Note préliminaire sur les microfossiles des silex crétacés du Cambrésis; *Bull. Soc. Fr. Microsc.*, v. 8, p. 95-106.
- Deflandre, Georges, and Deflandre-Rigaud, M.
1958: Hystrichosphaeridés IV et genres incertae sedis. Espèces du Secondaire et du Tertiaire (Supplément 1); *Fich. micropaléont.* ser. 10, Arch. orig. Cen. Docum. C.N.R.S. no. 366, cards 1293-1750.
- 1966: Dinoflagellés V; *Fich. micropaléont.* ser. 15, Arch. orig. Cen. Docum. C.N.R.S. card. 2876-3175.
- Deflandre, Georges, and Foucher, J.C.
1967: *Diacrocanthidium* nov. gen., Diacrodien présumé du crétacé, pourvu d'un archaeopyle. Affinités péridiniennes des Diacrodien; *Cah. Micropaleontol.* [Arch. orig. Cen. Docum. C.N.R.S. no. 439] ser. 1-5, p. 1-5.
- Deflandre, Georges, and Sarjeant, W.A.S.
1970: Nouvel examen de quelques holotypes de Dinoflagellés fossiles et d'Acritarches; *Cah. Micropaléontol.* [Arch. orig. Cen. Docum. C.N.R.S. no. 466] ser. 2, no. 1, p. 1-10.
- Deflandre-Rigaud, M.
1954: Microfossiles des silex sénoniens du Bassin de Paris; *C.R. Soc. Géol. Fr., Somm.* no. 3, p. 58-59.

Diesing, C.M.

- 1866: Revision der Prothelminthen. Abtheilung; Mastigophoren. S.B. Akad. Wiss. Wien, v. 52, p. 287-401.

Dodekova, Lilia

- 1967: Les dinoflagellés et acritarches de l'Oxfordien-Kimeridgien de la Bulgarie du Nord-Est; Ann. Univ. Sofia, Fac. Géol. Géogr., v. 60, Livre 1, Géol., 1965-1966, p. 9-30.

- 1969: Dinoflagellés et acritarches du Tithonique aux environs de Pleven, Bulgarie Central du Nord; Bulgarian Acad. Sci., Committee Geol., Bull. Geol. Inst., Ser. Paleontol., v. 18, p. 13-24.

- 1971: Dinoflagelati i acritarchi ot Titona v tsentralni severna Bulgariya; Bulgarian Acad. Sci., Committee Geol., Bull. Geol. Inst., Ser. Paleontol., v. 20, p. 5-22. [Dinoflagellates and acritarchs of the Tithonian of North-Central Bulgaria].

Downie, Charles

- 1957: Microplankton from the Kimeridge Clay; Geol. Soc. London, Quart. J., v. 112, p. 413-434.

Downie, Charles, Evitt, W.R., and Sarjeant, W.A.S.

- 1963: Dinoflagellates, hystriospheres, and the classification of the acritarchs; Stanford Univ. Publ., Geol. Sci., v. 7, p. 1-16.

Downie, Charles, and Sarjeant, W.A.S.

- 1963: On the interpretation and status of some hystriosphere genera; Palaeontology, v. 6, p. 83-96.

- 1964[1965]: Bibliography and index of fossil dinoflagellates and acritarchs; Geol. Soc. Amer. Mem., 94, 180 p. [Dated December 1964, appeared January, 1965].

Drugg, W.S.

- 1964: *Glyphanodinium*, a new dinoflagellate genus from the Paleocene of California; Proc. Biol. Soc. Washington, v. 77, p. 237-240.

- 1967: Palynology of the Upper Moreno Formation (Late Cretaceous-Paleocene) Escarpado Canyon, California; Palaeontographica, Abt. B, v. 120, p. 1-71.

- 1970a: Two new Neogene species of *Tuberculodinium* and one of *Xenicodinium* (Pyrrhophyta); Proc. Biol. Soc. Washington, v. 83, p. 115-122.

- 1970b: Some new genera, species, and combinations of phytoplankton from the Lower Tertiary of the Gulf Coast, U.S.A.; North Amer. Paleontol. Convention, Chicago, 1969, Proc. G, p. 809-843.
- Drugg, W.S., and Loeblich, A.R., Jr.
1967: Some Eocene and Oligocene phytoplankton from the Gulf Coast, U.S.A.; Tulane Stud. Geol., v. 5, p. 181-194.
- Dupin, Françoise
1968: Deux nouvelles espèces de Dinoflagellés du Jurassique d'Aquitaine; Cah. Micropaleontol. [Arch. orig. Cen. Docum. C.N.R.S. no. 450] ser. 1, no. 8, p. 1-5.
- Eaton, G.L.
1971: A morphogenetic series of dinoflagellate cysts from the Bracklesham Beds of the Isle of Wight, Hampshire, England; in Farinacci, A. [ed.] Proceedings Second Planktonic Conference Rome 1970, Edizioni Tecnoscienza, Rome, v. 1, p. 355-379.
- Ehrenberg, C.G.
1832[separate 1830]: Beiträge zur Kenntniss der Organisation der Infusorien und ihrer geographischen Verbreitung, besonders in Sibirien; Abh. preuss. Akad. Wiss., 1830, p. 1-88.

1837[separate 1836]: Zusätze zur Erkenntnis grosser organischer Ausbildung in den kleinsten thierschen Organismen; Abh. preuss. Akad. Wiss., 1835, p. 151-180.

1838: Über das Massenverhältniss der jetzt lebenden Kiesel-Infusorien und über ein neues Infusorien-Conglomerat als Polirschiefer von Jastraba in Ungarn; Abh. preuss. Akad. Wiss., 1836, p. 109-135.

1840: Über noch jetzt zahlreich lebende Thierarten der Kreidebildung und den Organismus der Polythalamien; Abh. preuss. Akad. Wiss., 1839, p. 81-174.

1843: Über die Verbreitung des jetzt wirkenden kleinsten organischen Lebens in Asien, Australien und Afrika und über die vorherrschende Bildung auch des Oolithkalkes der Juraformation aus kleinen polythalamischen Thieren; Verh. preuss. Akad. Wiss., Ber, p. 100-106.

1854: Mikrogeologie das Erden und Felsen schaffende Wirken des unsichtbaren Kleinen selbständigen Lebens auf der Erde; Leopold Voss, Leipzig, 374 p., Namenregister 31 p., index to atlas 88 p.

Eisenack, Alfred

- 1935: Mikrofossilien aus Doggergeschieben Ostpreussens; Z. Geschiebeforsch., v. 11, p. 167-184.
- 1936: *Eodinia pachythea* n.g., n.sp., ein primitiven Dinoflagellat aus einem Kelloway-Geschiebe Ostpreussens; Z. Geschiebeforsch., v. 12, p. 72-75.
- 1938: Die Phosphoritknollen der Bernsteinformation als Überlieferer tertiären Planktons. Schr. phys.-ökon. Ges. Königsb., v. 70, p. 181-188.
- 1954: Mikrofossilien aus Phosphoriten des Samlandischen Unteroligozäns and über die Einheitlichkeit der Hystrichosphaerideen; Palaeontographica, Abt. A, v. 105, p. 49-95.
- 1958: Mikroplankton aus dem norddeutschen Apt; Neues Jahrb. Geol. Paläontol., Abh., v. 106, p. 383-422.
- 1961: Einige Erörterungen über fossile Dinoflagellaten nebst Übersicht über die zur Zeit bekannten Gattungen; Neues Jahrb. Geol. Paläontol., Abh., v. 112, p. 281-324.
- 1963a: Zur *Membranilarnax*-Frage; Neues Jahrb. Geol. Paläontol., Mh., p. 98-103.
- 1963b: *Cordosphaeridium* n.g. ex *Hystrichosphaeridium*, Hystrichosphaeridea; Neues Jahrb. Geol. Paläontol., Abh., v. 118, p. 260-265.
- 1964: Katalog der fossilen Dinoflagellaten, Hystrichosphären und verwandten Mikrofossilien. Band 1 Dinoflagellaten; E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1964, 888 p.
- 1965: Über einige Mikrofossilien des samländischen und norddeutschen Tertiärs; Neues Jahrb. Geol. Paläontol., Abh., v. 123, p. 149-159.
- 1967: Katalog der fossilen Dinoflagellaten, Hystrichosphären und verwandten Mikrofossilien. Band I Dinoflagellaten. 1. Ergänzungslieferung; E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1967, 241 p.
- 1969: Kritische Bemerkungen und Richtigstellungen im Gebiet der fossilen Dinoflagellaten und Acritarchen. Critical review of some fossil dinoflagellates and Acritarcha; Neues Jahrb. Geol. Paläontol., Abh., v. 134, p. 101-116.

- Eisenack, Alfred, and Cookson, I.C.
1960: Microplankton from Australian Lower Cretaceous sediments; Proc. Roy. Soc. Victoria, v. 72, p. 1-11.
- Eisenack, Alfred, and Gocht, Hans
1960: Neue Namen für einige Hystrichosphären der Bernsteinformation Ostpreussens; Neues Jahrb. Geol. Paläontol., Mh., p. 511-518.
- Eisenack, Alfred, and Kjellström, Goran
1971a: Katalog der fossilen Dinoflagellaten, Hystrichosphären und verwandten Mikrofossilien. Band II Dinoflagellaten; E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1971, 1130 p.
- 1971b: Katalog der fossilen Dinoflagellaten, Hystrichosphären und verwandten Mikrofossilien. Band II Dinoflagellaten. 2 Ergänzungslieferung; E Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1971, 215 p.
- Evitt, W.R.
1961a: *Dapcodinium priscum* n. gen., n.sp., a dinoflagellate from the Lower Lias of Denmark; J. Paleontol., v. 35, p. 996-1002.
- 1961b: The dinoflagellate *Nannoceratopsis* Deflandre: morphology, affinities and infraspecific variability; Micropaleontology, v. 7, p. 305-316.
- 1961c: Observations on the morphology of fossil dinoflagellates; Micropaleontology, v. 7, p. 385-420.
- 1962: Dinoflagellate synonyms: *Nannoceratopsis deflandrei* Evitt junior to *N? gracilis* Alberti; J. Paleontol., v. 36, p. 1129-1130.
- 1963: A discussion and proposals concerning fossil dinoflagellates, hystrichospheres, and acritarchs, I; Proc. Nat. Acad. Sci., Wash., v. 49, p. 158-164.
- Evitt, W.R., Clarke, R.F.A., and Verdier, J.-P.
1967: Dinoflagellate studies III. *Dinogymnium acuminatum*: n. gen., n.sp. (Maastrichtian) and other fossils formerly referable to *Gymmodinium* Stein; Stanford Univ. Publ., Geol. Sci., v. 10, p. 1-27.

Firtion, F.

- 1952: Le Cenomanien inférieur du Nouvion-en-Thiérache: examen micropaléontologique; Soc. Geol. Nord, Ann., v. 72, p. 150-164.

Gerlach, Ellen

- 1961: Mikrofossilien aus dem Oligozän und Miozän Nordwestdeutschlands, unter besonderer Berücksichtigung der Hystrichosphären und Dinoflagellaten; Neues Jahrb. Geol. Palaontol., Abh., v. 112, p. 143-228.

Gitmez, G.U.

- 1970: Dinoflagellate cysts and acritarchs from the basal Kimmeridgian (Upper Jurassic) of England, Scotland and France; Bull. Br. Mus. nat. Hist. (Geol.), v. 18, p. 231-331.

Gitmez, G.U., and Sarjeant, W.A.S.

- 1972: Dinoflagellate cysts and acritarchs from the Kimmeridgian (Upper Jurassic) of England, Scotland and France; Bull. Br. Mus. nat. Hist. (Geol.), v. 21, p. 171-257.

Gocht, Hans

- 1955: *Rhombodinium* und *Dracodinium* zwei neue Dinoflagellaten-Gattungen aus dem norddeutschen Tertiär; Neues Jahrb. Geol. Paläontol., Mh., p. 84-92.
- 1956: See Weiler.
- 1957: Mikroplankton aus dem nordwestdeutschen Neokom (Teil I); Paläontol. Z., v. 31, p. 163-185.
- 1959: Mikroplankton aus dem nordwestdeutschen Neokom (Teil II); Paläontol. Z., v. 33, p. 50-89.
- 1960: Die Gattung *Chiropteridium* n. gen. (Hystrichosphaeridea) im deutschen Oligozän; Paläontol. Z., v. 34, p. 221-232.
- 1964: Planktonische Kleinformen aus dem Lias/Dogger-Grenzbereich Nord- und Süddeutschlands; Neues Jahrb. Geol. Paläontol., Abh., v. 119, p. 113-133.
- 1968: Zur Morphologie und Ontogenie von *Thalassiphora* (Dinoflagellata); Palaeontographica, Abt. A, v. 129, p. 149-156.
- 1969: Formengemeinschaften Alttertiären Mikroplanktons aus Bohrproben des Erdölfeldes Meckelfeld bei Hamburg; Palaeontographica, Abt. B, v. 126, p. 1-100.

- 1970a: Dinoflagellaten-Zysten aus einem Geschiebefeuerestein und ihr Erhaltungszustand; Neues Jahrb. Geol. Paläontol., Mh., p. 129-140.
- 1970b: Dinoflagellaten-Zysten aus dem Bathonium des Erdölfeldes Aldorf (NW-Deutschland); Palaeontographica, Abt. B, v. 129, p. 125-165.
- Goczan, F.
1962: Mikroplankton a Bakonyi Krétaból [Un microplancton dans le Crétacé de la Montagne Bakony] A Magyar Allami Foldtani Intézet Evi Jelentese, Az 1959. Évről; p. 181-209.
- Gorka, Hanna
1963: Coccolithophoridés, Dinoflagellés, Hystrichosphaeridés et microfossiles incertae sedis du Crétacé supérieur de Pologne; Acta Palaeontol. Pol., v. 8, p. 1-83.
- 1965: Les microfossiles du Jurassique supérieur de Magnuszew (Pologne); Acta Palaeontol. Pol., v. 10, p. 291-327.
- 1970: Dinoflagellate cysts from Callovian of Kuków (Poland); Acta Palaeontol. Pol., v. 15, p. 479-498.
- Habib, Daniel
1969: Middle Cretaceous palynomorphs in a deep-sea core from the Seismic Reflector Horizon A outcrop area; Micropaleontology, v. 15, p. 85-101.
- 1970: Middle Cretaceous palynomorph assemblages from clays near the Horizon Beta deep-sea outcrop; Micropaleontology, v. 16, p. 345-379.
- 1972: Dinoflagellate stratigraphy Leg 11, Deep Sea Drilling Project; in Hollister, C.D., Ewing, J.I., *et al.*, Initial Reports of the Deep Sea Drilling Project, Volume XI, Washington, p. 367-425.
- Harland, Rex, and Sarjeant, W.A.S.
1970: Fossil freshwater microplankton (dinoflagellates and acritarchs) from Flandrian (Holocene) sediments of Victoria and Western Australia; Proc. Roy. Soc. Victoria, v. 83, p. 211-234.
- Harris, W.K.
1965: Basal Tertiary microfloras from the Princetown Area, Victoria, Australia; Palaeontographica, Abt. B, v. 115, p. 75-106.

Heisecke, A.M.

1970: Microplankton de la Formacion Roca de la Provincia de Neuquen; Ameghiniana, v. 7, p. 225-262.

Horowitz, A.

1970: Jurassic microflora from the northern Negev, Israel; Isr. J. Earth-Sci., v. 19, p. 153-182.

Kar, R.K., Singh, R.Y., and Sah, S.C.D.

1972: On some algal and fungal remains from Tura Formation of Garo Hills, Assam; Palaeobotanist, Lucknow, v. 19, p. 146-154.

Kimyai, A.

1966: New plant microfossils from the Raritan Formation (Cretaceous) in New Jersey; Micropaleontology, v. 12, p. 461-476.

Kjellström, Göran

1972: Archaeopyle formation in the genus *Lejeunia* Gerlach, 1961 emend; Geol. Fören. Stockholm, Förh., v. 94, p. 467-469.

Klement, K.W.

1957: Revision der Gattungszugehörigkeit einiger in die Gattung *Gymmodinium* Stein eingestufte Arten jurassischer Dinoflagellaten; Neues Jahrb. Geol. Paläontol., Mh., p. 408-410.

1960: Dinoflagellaten und Hystrichosphaerideen aus dem unteren und mittleren Malm Südwestdeutschlands; Palaeontographica, Abt. A, v. 114, p. 1-104.

1961: Kritische Stellungnahme zur Gattung *Bulbodinium* O. Wetzel 1960 (Dinoflagellaten); Neues Jahrb. Geol. Paläontol., Mh., p. 489-492.

Klump, Barbara

1953: Beitrag zur Kenntnis der Mikrofossilien des mittleren und oberen Eozän; Palaeontographica, Abt. A, v. 103, p. 377-406.

Krutzsch, Wilfried

1962: Die Mikroflora der Geiseltalbraunkohle. Teil III. Süßwasserdinoflagellaten aus subaquatisch gebildeten Blätterkohlenlagen des mittleren Geiseltales; Hallesches Jahrb. Mitteldtsch. Erdgesch., v. 4, p. 40-45.

Kufferath, H.

- 1950: Recherches sur le plancton de la mer flamande (mer du Nord méridionale). 1. Quelques flagellés, protistes et "caetera"; Inst. Roy. Sci. Natur. Belg. Bull., v. 26, 43 p.

Lange, Dieter

- 1969: Mikroplankton aus dem Fischton von Stevns-Klint auf Seeland; Beiträge zur Meereskunde, Heft 24-25, p.110-121.

Lefèvre, Maurice

- 1933a: Recherches sur les Péridiniens fossiles des Barbades; Bull. Mus. Hist. nat. Paris, ser. 2, v. 5, p. 415-418.

- 1933b: Les Péridinites des Barbades; Ann. Crypt. Exot. v. 6, p. 215-229.

Lejeune-Carpentier, Maria

- 1938: L'étude microscopique des silex. *Areoligera*: nouveau genre d'Hystrichosphaeridée (Sixième note); Ann. Soc. Géol. Belg., v. 62, p. B163-B174.

- 1939: L'étude microscopique des silex. Un nouveau Péridinien crétacique: *Gonyaulax wetzeli* (Septième note); Ann. Soc. Géol. Belg., v. 62, p. B525-B529.

- 1940: L'étude microscopique des silex. Systematique et morphologie des "Tubifères" (Huitième note); Ann. Soc. Géol. Belg., v. 63, p. B216-B236.

- 1941: L'étude microscopique des silex. Sur *Hystrichosphaeridium hirsutum* (Ehrenberg) et quelques formes voisines (Neuvième note); Ann. Soc. Géol. Belg., v. 63, p. B71-B92.

- 1942: L'étude microscopique des silex. Péridiniens nouveaux ou peu connus (Dixième note); Ann. Soc. Géol. Belg. v. 65, p. B181-B192.

- 1946: L'étude microscopique des silex. Espèces nouvelles ou douteuses de *Gonyaulax*. (Douzième note); Ann. Soc. Géol. Belg., v. 69, p. B187-B197.

- 1951: L'étude microscopique des silex. *Gymmodinium* et *Phanerodinium* (Dinoflagellates) de Belgique (Treizième note); Ann. Soc. Géol. Belg., v. 74, p. B307-315.

Loeblich, A.R. Jr., and Loeblich, A.R. III

- 1966: Index to the genera, subgenera, and sections of the Pyrrhophyta; Stud. Trop. Oceanogr. Miami, no. 3, x + 94 p.

- 1968: Index to the genera, subgenera, and sections of the Pyrrhophyta, II; J. Paleontol., v. 42, p. 210-213.
- 1969: Index to the genera, subgenera, and sections of the Pyrrhophyta, III; J. Paleontol., v. 43, p. 193-198.
- 1970: Index to the genera, subgenera, and sections of the Pyrrhophyta; Phycologia, v. 9, p. 199-203.
- 1971: Index to the genera, subgenera, and sections of the Pyrrhophyta, VI; Phycologia, v. 10, p. 309-314.
- Mackó, S.
1957: Lower Miocene pollen flora from the valley of Keodnicka near Gliwice (Upper Silesia); Soc. Sci. Wroclaw, Trav., ser. 13, no. 88, p. 1-313.
- Maier, Dorothea
1959: Planktonuntersuchungen in tertiären und quartären marinen Sedimenten. Ein Beitrag zur Systematik, Stratigraphie und Ökologie der Coccolithophorideen, Dinoflagellaten und Hystrichosphaerideen vom Oligozän bis zum Pleistozän; Neues Jahrb. Geol. Paläontol., Abh., v. 107, p. 278-340.
- Maliavkina, V.S.
1961: in Samoilovitch, S.R., and Mtchedlishvili, N.D. (eds.) 1961: Pyl'tsa i spory zapadnoy Sibiri, Yura-Paleotsen; Trudy vses. neft. nauchno- issled. geol. razv. Inst. 177, 659 p. [Pollen and spores of Western Siberia, Jurassic-Paleocene].
- Malloy, R.E.
1972: An Upper Cretaceous dinoflagellate cyst lineage from Gabon, West Africa; Geoscience and Man, v. 4, p. 57-65.
- Mantell, G.A.
1844: The medals of Creation; or, First lessons in Geology and the Study of Organic Remains. Henry G. Bohn, London, 2 vols. 1016 p.
- 1850: A pictorial atlas of fossil remains consisting of coloured illustrations selected from Parkinson's "Organic remains of a former world," and Artis's "Antediluvian phytology." Henry G. Bohn, London. xii + 207 p.
- Manum, Svein
1960: Some dinoflagellates and hystrichosphaerids from the Lower Tertiary of Spitsbergen; Nytt. Mag. Bot., v. 8, p. 17-26.

- 1963: Some new species of *Deflandrea* and their probable affinity with *Peridinium*; Nor. Polarinst., Årbok 1962, p. 55-67.
- Manum, Svein, and Cookson, I.C.
1964: Cretaceous microplankton in a sample from Graham Island, Arctic Canada, collected during the second "Fram"-Expedition (1898-1902). With notes on microplankton from the Hassel Formation, Ellef Ringnes Island; *Skrifter utgitt av Det Norske Videnskaps-Akademi i Oslo, I. Mat-Naturv. Klasse, Ny Ser.* 17, p. 1-35.
- Mayr, Ernst
1969: *Principles of systematic zoology* McGraw-Hill, New York. 428 p.
- McLean, D.M.
1971: Transfer of *Baltisphaeridium septatum* Cookson and Eisenack, 1967, from the Acritarcha to the Dinophyceae; *J. Paleontol.*, v. 45, p. 729-730.
1972: *Cladopyxidium septatum*, n. gen., n. sp., possible Tertiary ancestor of the modern dinoflagellate *Cladopyxis hemibranchiata* Balech, 1964; *J. Paleontol.*, v. 46, p. 861-863.
- Menéndez, C.A.
1965: Microplancton fósil de sedimentos terciarios y cretácicos del norte de Tierra del Fuego (Argentina); *Ameghiniana*, v. 9, p. 7-15.
- Merrill, J.A.
1895: Fossil sponges of the flint nodules in the Lower Cretaceous of Texas; *Mus. Comp. Zool. Harv. Bull. (Geology Ser. III)*, v. 28, p. 1-26.
- Michael, E.
1964: Mikroplankton und Sporomorphe aus dem nordwestdeutschen Barrême; *Mitt. Geol. Inst. T.H. Hannover*, v. 2, p. 22-48.
- Millioud, M.E.
1969: Dinoflagellates and acritarchs from some western European Lower Cretaceous type localities; in Bronnimann, P., and Renz, H.H. [eds.] *Proceedings First International Conference Planktonic Microfossils Geneva, 1967*, E.J. Brill, Leiden, v. 2, p. 420-434.
- Morgenroth, Peter
1966a: Mikrofossilien und Konkretionen des nordwesteuropäischen Untereozäns; *Palaeontographica, Abt. B*, v. 119, p. 1-53.

- 1966b: Neue in organischer Substanz erhaltene Mikrofossilien des Oligozäns; Neues Jahrb. Geol. Paläontol., Abh., v. 127, p. 1-12.
- 1968: Zur Kenntnis der Dinoflagellaten und Hystrichosphaeridien des Danien; Geol. Jahrb., v. 86, p. 533-578.
- 1970: Dinoflagellate cysts from the Lias Delta of Lühnde/Germany; Neues Jahrb. Geol. Paläontol., Abh., v. 136, p. 345-359.

Morzadec-Kerfourn, M.T.

- 1966: Etude des Acritarches et Dinoflagelles des sédiments vaseux de la Vallée de la Vilaine aux environs de Redon (Ille-et-Vilaine). Bull. Soc. Géol. Minér. Bretagne, 1964-65, N.S., 137.

Nagy, Esther

- 1965: The microplankton occurring in the Neogene of the Mecsek Mountains; Acta Bot. Acad. Sci. Hung., v. 11, p. 197-216.
- 1966: Investigations into the Neogenic microplankton of Hungary; Palaeobotanist, Lucknow, v. 15, p. 38-46.
- 1969: Palynological elaborations in the Miocene layers of the Mecsek Mountains; A Magyar Allami Földtani Intézet Évkönyve, v. 52, p. 291-322.

Neale, J.W., and Sarjeant, W.A.S.

- 1962: Microplankton from the Speeton Clay of Yorkshire; Geol. Mag., v. 99, p. 439-458.

Newman, K.R.

- 1965: Upper Cretaceous-Paleocene guide palynomorphs from northwestern Colorado; Univ. Colo. Stud., Earth Sci. Ser., no. 2, p. 1-21.

Norris, Geoffrey

- 1965: Archeopyle structures in Upper Jurassic dinoflagellates from southern England; N.Z. J. Geol. Geophys., v. 8, p. 792-806.

Norris, Geoffrey, and Hedlund, R.W.

- 1972: Transapical sutures in dinoflagellate cysts; Geoscience and Man, v. 4, p. 49-56.

Norris, Geoffrey, and Sarjeant, W.A.S.

- 1965: A descriptive index of genera of fossil Dinophyceae and Acritarcha; N.Z. Geol. Surv. Paleont. Bull., no. 40, 72 p.

Pastiels, André

- 1948: Contribution a l'étude des microfossiles de l'Éocène belge; Mem. Mus. Roy. Hist. Nat. Belg., no. 109, p. 1-77.

Philipott, A.

- 1949: Contributions à la paléontologie des silex crétacés. Trois nouveaux microfossiles. Bull. Soc. Scient. Bretagne, v. 24, p. 55-58.

Pocock, S.A.J.

- 1962: Microfloral analysis and age determination of strata at the Jurassic-Cretaceous boundary in the western Canada plains; Palaeontographica, Abt. B, v. 111, p. 1-95.

- 1972: Palynology of the Jurassic sediments of western Canada. Part 2. Marine species; Palaeontographica, Abt. B, v. 137, p. 85-153.

Pothé de Baldis, E.D.

- 1966: Microplancton del Terciario de Tierra del Fuego; Ameghiniana, v. 4, p. 219-228.

Reade, J.B.

- 1839: On some new organic remains in the Flint of Chalk; Ann. Nat. Hist. v. 2, p. 191-198.

Riley, L.A., and Sarjeant, W.A.S.

- 1972: Survey of the stratigraphic distribution of dinoflagellates, acritarchs and tasmanitids in the Jurassic; Geophytology, v. 2, p. 1-40.

Rosignol, Martine

- 1961: Analyse pollinique de sédiments marins Quaternaires en Israël. I: Sédiments Récents; Pollen Spores, v. 3, p. 303-324.

- 1962: Analyse pollinique de sédiments marins Quaternaires en Israël. II. Sédiments Pléistocènes; Pollen Spores, v. 4, p. 121-148.

- 1963: Aperçus sur le développement des hystrichosphères; Mus. Nat. Hist. Natur., Paris, Bull., ser. 2, v. 35, p. 207-212.

- 1964: Hystrichosphères du Quaternaire en Méditerranée orientale, dans les sédiments Pléistocènes et les boues marines actuelles; Rev. Micropaléontol., v. 7, p. 83-99.

Rozen, Betsy

- 1965: Contribution à l'étude des Hystrichosphères et Dinoflagelles du Bartonien belge; Soc. Belg. Geol. Paléont. Hydrol., Bull., v. 73, p. 287-318.

Sah, S.C.D., Kar, R.K., and Singh, R.Y.

- 1970: Fossil microplankton from the Langpar Formation of Therriaghat, south Shillong Plateau, Assam, India; Palaeobotanist, Lucknow, v. 18, p. 143-150.

Samoilovitch, S.R.

- 1961: In Samoilovitch, S.R., & Mtchedlishvili, N.D. (eds.) 1961: Pyl'tsa i spory Zapadnoy Sibiri, Yura-Paleotsen; Trudy vses. neft. nauchno- issled. geol. razv. Inst. 177, 659 p. [Pollen and spores of Western Siberia, Jurassic-Paleocene]

Sarjeant, W.A.S.

- 1959: Microplankton from the Cornbrash of Yorkshire; Geol. Mag., v. 96, p. 329-346.
- 1960: New hystrichospheres from the Upper Jurassic of Dorset; Geol. Mag., v. 97, p. 137-144.
- 1961a: Microplankton from the Kellaways Rock and Oxford Clay of Yorkshire; Palaeontology, v. 4, p. 90-118.
- 1961b: *Systematophora* Klement and *Polystephanosphaera* Sarjeant; J. Paleontol., v. 35, p. 1094-1096.
- 1962a: Microplankton from the Ampthill Clay of Melton, south Yorkshire; Palaeontology, v. 5, p. 478-497.
- 1962b: Upper Jurassic microplankton from Dorset, England; Micropaleontology, v. 8, p. 255-268.
- 1963a: *Favilarnax*, new genus of Mesozoic hystrichospheres; J. Paleontol., v. 37, p. 719-721.
- 1963b: Fossil dinoflagellates from Upper Triassic sediments; Nature, v. 199, p. 353-354.
- 1963c: Two new Jurassic species of *Gonyaulax* (Dinophyceae); Rev. Micropaléontol., v. 6, p. 85-88.
- 1964a: Hystrichosphere synonyms: *Favilarnax* Sarjeant junior to *Valensiella* Eisenack; J. Paleontol., v. 38, p. 172-173.

- 1964b: Taxonomic notes on hystrichospheres and acritarchs; J. Paleontol., v. 38, p. 173-177.
- 1964c: New name and diagnosis for an Upper Jurassic species of *Gonyaulacysta* (Dinophyceae); Palaeontology, v. 7, p. 472-473.
- 1965: Microplankton from the Callovian (*S. calloviense* Zone) of Normandy; Rev. Micropaléontol., v. 8, p. 175-184.
- 1966a: The supposed "sponge spicules" of Merrill, 1895, from the Lower Cretaceous (Albian) of Texas; Breviora, v. 242, p. 1-15.
- 1966b: Dinoflagellate cysts with Gonyaulax-type tabulation; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Studies on Mesozoic and Cainozoic dinoflagellate cysts; Bull. Br. Mus. nat. Hist. (Geol.), Suppl. 3, p. 107-156.
- 1966c: Further dinoflagellate cysts from the Speeton Clay; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Studies on Mesozoic and Cainozoic dinoflagellate cysts; Bull. Br. Mus. nat. Hist. (Geol.), Suppl. 3, p. 199-214.
- 1967a: The stratigraphical distribution of fossil dinoflagellates; Rev. Palaeobot. Palynology, v. 1, p. 323-343.
- 1967b: The genus *Palaeoperidinium* Deflandre (Dinophyceae); Grana Palynologica, v. 7, p. 243-258.
- 1968: Microplankton from the Upper Callovian and Lower Oxfordian of Normandy; Rev. Micropaléontol., v. 10, p. 221-242.
- 1969: Taxonomic changes; in Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Appendix to "Studies on Mesozoic and Cainozoic dinoflagellate cysts"; Bull. Br. Mus. nat. Hist. (Geol.), Appendix to Suppl. 3, p. 7-15.
- 1970: The genus *Spiniferites* Mantell, 1850 (Dinophyceae); Grana, v. 10, p. 74-78.
- 1972: Dinoflagellate cysts and acritarchs from the Upper Vardekløft Formation (Jurassic) of Jameson Land, East Greenland; Komm. Vidensk. Unders. Grønland, v. 195, p. 1-69.

- Sarjeant, W.A.S., and Anderson, R.Y.
1969: A re-examination of some dinoflagellate cysts from the uppermost Lewis Shale (Late Cretaceous) New Mexico (U.S.A.); *Rev. Palaeobot. Palynology*, v. 9, p. 229-237.
- Schopf, J.W.
1968: Microflora of the Bitter Springs Formation, Late Precambrian, Central Australia; *J. Paleontol.*, v. 42, p. 651-688.
- Schrank, Franz von Paula
1793: Mikroskopische Wahrnehmungen; *Der Naturforscher*, v. 27, p. 26-37.
- Singh, Chaitanya
1964: Microflora of the Lower Cretaceous Mannville Group, east-central Alberta; *Res. Coun. Alberta, Bull.*, 15, 239 p.
1971: Lower Cretaceous microfloras of the Peace River area, northwestern Alberta; *Res. Coun. Alberta, Bull.*, 28, v. 2, p. 301-542.
- Stafleu, F.A. *et al.*
1972: International code of botanical nomenclature adopted by the eleventh International Botanical Congress, Seattle, Aug. 1969 (Utrecht 1972).
- Stanley, E.A.
1965: Upper Cretaceous and Paleocene plant microfossils and Paleocene dinoflagellates and hystrichosphaerids from northwestern South Dakota; *Bull. Amer. Paleontol.*, v. 49, p. 179-384.
- Stein, F.R. von
1878: *Der Organismus der Infusionsthiere nach eigenen Forschungen in systematischer Reihenfolge bearbeitet. Abteilung III. Die Naturgeschichte der Flagellaten oder Geisselinfusorien. Hälfte I. Den noch nicht abgeschlossenen allgemeinen Teil nebst Erklärung der sämtlichen Abbildungen enthaltend.* Wilhelm Engelmann, Leipzig. x + 154 p.
1883: *Der Organismus der Infusionsthiere nach eigenen Forschungen in systematischer Reihenfolge bearbeitet. Abteilung III, Hälfte II, Die Naturgeschichte der arthrodelen Flagellaten.* Wilhelm Engelmann, Leipzig. 30 p.

Tasch, Paul

- 1963: Hystrichosphaerids and dinoflagellates from the Permian of Kansas; *Micropaleontology*, v. 9, p. 332-336.
- 1964: [In Tasch, P., McClure, K., and Oftedahl, O., *Biostratigraphy and taxonomy of a hystrichosphere-dinoflagellate assemblage from the Cretaceous of Kansas*; *Micropaleontology*, v. 10, p. 189-206.]

Traverse, Alfred

- 1955: Pollen analysis of the Brandon lignite of Vermont; *U.S. Bur. Mines, Rept.*, no. 5151, 107 p.

Valensi, Lionel

- 1947: Note préliminaire à une étude des microfossiles des silex jurassiques de la région de Poitiers; *C.R. Acad. Sci.*, Paris, v. 225, p. 816-818.
- 1953: Microfossiles des silex du Jurassique moyen. Remarques pétrographiques; *Soc. Géol. Fr., Mem.*, no. 68, 100 p.
- 1955a: Sur quelques microorganismes des silex crétacés du Magdalénien de Saint-Amand (Cher); *Bull. Soc. Géol. Fr.*, ser. 6, v. 5, p. 35-40.
- 1955b: Étude micropaléontologique des silex du Magdalénien de Saint-Amand (Cher); *Bull. Soc. Préhist. Fr.*, v. 52, p. 584-596.

Varma, C.P., and Dangwal, A.K.

- 1964: Tertiary hystrichosphaerids from India; *Micropaleontology*, v. 10, p. 63-71.

Vozzhennikova, T.F.

- 1960: Paleoal'gologicheskaya kharakteristika Mezokaynozoyskikh otlozheniy Zapadno - Sibirskoy Nizmennosti; *Akad. Nauk SSSR, Sib. Otd., Inst. Geol. Geofiz., Tr.*, v. 1, *Vop. Strat. Paleontol. Zap. Sibiri*, p. 7-64. [Paleoalgalogical characteristics of the Mesozoic-Cenozoic deposits of Western Siberia]
- 1963: Pirrofitovye Vodorosli. [Phylum Pyrrophyta]; p. 179-185. *in* Orlov, Yu. A [ed.] *Osnovy Paleontologii* 14. [Fundamentals of Paleontology]

- 1965: Vvedenie v izuchenie iskopaemykh peridineevykh vodorosley; Akad. Nauk SSSR, Sib. Otd., Inst. Geol. Geofiz., Tr., 156 p. [Introduction to the study of fossil peridininian algae]
- 1967: Iskopaemye peridinei yurskikh, melovykh i paleogenovykh otlozheniy SSSR; Akad. Nauk SSSR, Sib. Otd., Inst. Geol. Geofiz., Tr., 347 p. [Fossil peridinians of the Jurassic, Cretaceous and Paleogene deposits of the U.S.S.R.]
- Wall, David
- 1965a: Microplankton, pollen, and spores from the Lower Jurassic in Britain; *Micropaleontology*, v. 11, p. 151-190.
- 1965b: Modern hystrichospheres and dinoflagellate cysts from the Woods Hole region; *Grana Palynologica*, v. 6, p. 297-314.
- 1967: Fossil microplankton in deep-sea cores from the Caribbean Sea; *Palaeontology*, v. 10, p. 95-123.
- Wall, David, and Dale, Barrie
- 1968: Early Pleistocene dinoflagellates from the Royal Society borehole at Ludham, Norfolk; *New Phytol.*, v. 67, p. 315-326.
- 1971: A reconsideration of living and fossil *Pyrophacus* Stein, 1883 (Dinophyceae); *J. Phycol.* v. 7, p. 221-235.
- Wall, David, Dale, Barrie, and Harada, Kenichi
- 1973: Descriptions of new fossil dinoflagellates from the Late Quaternary of the Black Sea; *Micropaleontology*, v. 19, p. 18-31.
- Warren, J.S.
- 1973: Form and variation of the dinoflagellate *Sirmiodinium grossi* Alberti, from the Upper Jurassic and Lower Cretaceous of California; *J. Paleontol.* v. 47, p. 101-114.
- Weiler, Helmut
- 1956: Über einen Fund von Dinoflagellaten, Coccolithophoriden und Hystrichosphaerideen im Tertiär des Rheintales; *Neues Jahrb. Geol. Paläontol., Abh.*, v. 104, p. 129-147.
- West, R.G.
- 1961: Vegetational history of the Early Pleistocene of the Royal Society borehole at Ludham, Norfolk; *Roy. Soc. London, Proc., Ser. B*, v. 155, p. 437-453.

Wetzel, Otto

- 1933a: Die in organischer Substanz erhaltenen Mikrofossilien des baltischen Kreide-Feuersteins mit einem sediment-petrographischen und stratigraphischen Anhang; *Palaeontographica*, Abt. A, v. 77, p. 141-188.
- 1933b: Die in organischer Substanz erhaltenen Mikrofossilien des baltischen Kreide-Feuersteins mit einem sediment-petrographischen und stratigraphischen Anhang; *Palaeontographica*, Abt. A, v. 78, p. 1-110.
- 1940: Mikropaläontologische Untersuchungen an der obersenenen Kreide von Stevns Klint-Kridtbrud auf der dänischen Insel Seeland und an ihrem Feuerstein in geschiebekundlicher Hinsicht; *Z. Geschiebeforsch.*, v. 16, p. 118-156.
- 1960: Eine neue Dinoflagellaten-Gruppe aus dem baltischen Geschiebefeuerstein; *Schr. Naturw. Ver. Schlesw.-Holst.*, v. 31, p. 81-86.
- 1961: New microfossils from Baltic Cretaceous flintstones; *Micropaleontology*, v. 7, p. 337-350.

Wetzel, Walter

- 1952: Beitrag zur Kenntnis des dan-zeitlichen Meeresplanktons; *Geol. Jahrb.*, Hannover, v. 66, p. 391-419.
- 1955: Die Dan-Scholle vom katharinenhof (Fehmarn) und ihr Gehalt an Planktonen; *Neues Jahrb. Geol. Paläontol.*, Mh., p. 30-46.
- 1966: Charakteristik des marinen Planktons und Pseudoplanktons der Amaltheen-Schichten Deutschlands und Lothringens; *Neues Jahrb. Geol. Paläontol.*, Abh., v. 124, p. 313-326.

White, H.H.

- 1842: On fossil Xanthidia; *Microsc. J. London*, v. 2, p. 35-40.

Wiesner, H.

- 1936: Sur la découverte de Diatomées et autres microfossiles peu connus dans le Crétacé supérieur de la Bohême; *Ann. Protist.*, v. 5, p. 151-155.

Wiggins, V.D.

- 1969: Two Lower Cretaceous dinoflagellate species from Alaska; *Micropaleontology*, v. 15, p. 145-150.

1972: Two new Lower Cretaceous dinoflagellate genera from southern Alaska (U.S.A.); *Rev. Palaeobot. Palynology*, v. 14, p. 297-308.

1973: Upper Triassic dinoflagellates from arctic Alaska; *Micropaleontology*, v. 19, p. 1-17.

Williams, G.L., and Downie, Charles

1966a: The genus *Hystriochokolpoma*; *in* Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., *Studies on Mesozoic and Cainozoic dinoflagellate cysts*; *Bull. Br. Mus. nat. Hist. (Geol.)*, Suppl. 3, p. 176-181.

1966b: *Wetzeliella* from the London Clay; *in* Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., *Studies on Mesozoic and Cainozoic dinoflagellate cysts*; *Bull. Br. Mus. nat. Hist. (Geol.)*, Suppl. 3, p. 182-198.

1966c: Further dinoflagellate cysts from the London Clay; *in* Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., *Studies on Mesozoic and Cainozoic dinoflagellate cysts*; *Bull. Br. Mus. nat. Hist. (Geol.)*, Suppl. 3, p. 215-235.

1969: Generic reallocations, *in* Davey, R.J., Downie, C., Sarjeant, W.A.S., and Williams, G.L., Appendix to "Studies on Mesozoic and Cainozoic dinoflagellate cysts"; *Bull. Br. Mus. nat. Hist. (Geol.)*, Appendix to Suppl. 3, p. 17.

Wilson, G.J.

1967a: Some new species of Lower Tertiary dinoflagellates from McMurdo Sound, Antarctica; *New Zealand J. Bot.*, v. 5, p. 57-83.

1967b: Microplankton from the Garden Cove Formation, Campbell Island; *New Zealand J. Bot.*, v. 5, p. 223-240.

1967c: Some species of *Wetzeliella* Eisenack (Dinophyceae) from New Zealand Eocene and Paleocene strata; *New Zealand J. Bot.*, v. 5, p. 469-497.

1968: Palynology of some Lower Tertiary coal measures in the Waihao District, south Canterbury, New Zealand; *New Zealand J. Bot.*, v. 6, p. 56-62.

Wit, Rein de

1943: Hystrichosphaeridae uit Limburgsche Vuursteen; Verh.
Geol. Mijnb. Gen., v. 13, p. 363-392.

Woloszyńska, Jadwiga

1928: Dinoflagellatae polskiego bałtyku i błot nad piaśnica;
Arch. Hydrob. Rybact., v. 3, p. 153-278.

APPENDIX

Included in the following list of non dinoflagellate genera (primarily achritarchs) are species which subsequently have been referred to the dinoflagellates.

BALTISPHAERIDIUM Eisenack, 1958, p.398.

"*armatum*" (Deflandre, 1937b) NOW *Cleistosphaeridium*.

"*ashdodense*" (Rossignol, 1962) Jr. Syn. of *Lingulodinium machaerophorum*.

"*bifidum*" (Clarke & Verdier, 1967) NOW *Exochosphaeridium*.

"*bulbosum*" (Ehrenberg, 1838) NOW *Hystriochokolpoma*.

"*clavigerum*" (Deflandre, 1937b) NOW *Hystriochokolpoma*.

"*colligerum*" (Deflandre & Cookson, 1955) NOW *Diphyes*.

"*danicum*" (W.Wetzel, 1952) NOW *Cleistosphaeridium*.

"*densicomatum*" (Maier, 1959) NOW *Impletosphaeridium*.

"*divergens*" (Eisenack, 1954) NOW *Cordosphaeridium*.

"*echinoides*" (Maier, 1959) NOW *Cleistosphaeridium*.

"*ehrenbergi*" (Deflandre, 1947c) NOW *Cleistosphaeridium*.

"*ferox*" (Deflandre, 1937b) NOW *Hystriochokolpoma*.

"*granulosum*" (Deflandre, 1937b) NOW *Prolixosphaeridium*.

"*heteracanthum*" (Deflandre & Cookson, 1955) NOW *Heterosphaeridium*.

"*hirsutum*" (Ehrenberg, 1838) NOW *Operculodinium*.

"*huguonioti*" (Valensi, 1955a) NOW *Cleistosphaeridium*.

"*israelianum*" (Rossignol, 1962) NOW *Operculodinium*.

"*leve*" (Maier, 1959) NOW *Cleistosphaeridium*.

"*linifera*" (Cookson & Eisenack, 1967b) NOW *Taeniophora*.

"*lobospinosum*" (Gocht in Weiler, 1956) NOW *Chiropteridium*.

"*longifurcatum*" (Firtion, 1952) NOW *Surculosphaeridium*.

BALTISPHAERIDIUM (cont'd)

- "*lumectum*" (Sarjeant, 1960) NOW *Cleistosphaeridium*.
"*mixtispinosum*" (Klement, 1960) NOW *Prolixosphaeridium*.
"*multispinosum*" (Singh, 1964) NOW *Cleistosphaeridium*.
"*neptuni*" (Eisenack, 1958) NOW *Achomosphaera*.
"*oligacanthum*" (W.Wetzel, 1952) NOW *Cleistosphaeridium*.
"*palmatum*" (Deflandre & Courteville, 1939) NOW *Exochosphaeridium*.
"*panniforme*" (Gerlach, 1961) NOW *Impletosphaeridium*.
"*parvispinosum*" (Deflandre, 1937b) NOW *Prolixosphaeridium*.
"*pectiniforme*" (Gerlach, 1961) NOW *Cleistosphaeridium*.
"*pilosum*" (Ehrenberg, 1843) NOW *Tenua*.
"*placacanthum*" (Deflandre & Cookson, 1955) NOW *Systematophora*.
"*polytrichum*" (Valensi, 1947) NOW *Cleistosphaeridium*.
"*pseudhystriochodinium*" (Deflandre, 1937b) NOW *Exochosphaeridium*.
"*ramuliferum*" (Deflandre, 1937b) NOW *Achomosphaera*.
"*reginaldi*" (Mantell, 1844) NOW *Spiniferites*.
"*septatum*" (Cookson & Eisenack, 1967b) NOW *Spiniferites*.
"*spinosum*" (White, 1842) NOW *Exochosphaeridium*.
"*spiralisetum*" (deWit, 1943) NOW *Cleistosphaeridium*.
"*striatoconus*" (Deflandre & Cookson, 1955) NOW *Conosphaeridium*.
"*striolatum*" (Deflandre, 1937b) NOW *Exochosphaeridium*.
"*tiara*" (Klump, 1953) NOW *Cleistosphaeridium*.
"*triangulatum*" (Gerlach, 1961) NOW *Achomosphaera*.
"*tribuliferum*" (Sarjeant, 1962a) NOW *Cleistosphaeridium*.
"*tridactylites*" (Valensi, 1955a) NOW *Achomosphaera*.

BALTISPHAERIDIUM (cont'd)

- "tripodes" (Morzadec-Kerfourn, 1966) NOW *Spiniferites*.
- "twistringensis" (Maier, 1959) NOW *Areoligera*.
- "varispinosa" (Sarjeant, 1959) NOW *Tenua*.
- "vestitum" (Deflandre, 1938b) NOW *Surculosphaeridium*.
- "xanthiopyxides" (O.Wetzel, 1933b) NOW *Prolixosphaeridium*.

CYMATIOSPHAERA O. Wetzel, 1933b, p.27 emend. Deflandre, 1954, p.257.

- "cingulata" (O.Wetzel, 1933b) NOW *Spiniferites*.
- "pterotus" (Cookson & Eisenack, 1958) NOW *Spiniferites*.

"GALEA" Maier, 1959, p.305. Jr. homonym of *Galea* Meuschen, 1787.

- "densicomatum" (Maier, 1959) NOW *Impletosphaeridium*.
- "galea" (Maier, 1959) NOW *Areoligera*.
- "koryka" (Maier, 1959) NOW ?*Chiropteridium*.
- "leve" (Maier, 1959) NOW *Cleistosphaeridium*.
- "lychnea" (Maier, 1959) NOW *Areoligera*.
- "mespilana" (Maier, 1959) NOW ?*Chiropteridium*.
- "twistringensis" (Maier, 1959) NOW *Areoligera*.
- "ziphea" (Maier, 1959) NOW *Hystriichokolpoma*.

GEODIA Lamarck, 1815.

This is a genus of sponge spicules to which Merrill, 1895, referred the following dinoflagellate species.

- "austini" (Merrill, 1895) NOW ?*Systematophora*.
- "hilli" (Merrill, 1895) NOW *Hystriichosphaeridium*.
- "spini-pansatum" (Merrill, 1895) NOW *Hystriichosphaeridium*.

GEODIA (cont'd)

"tripunctata" (Merrill, 1895) Jr. Syn. of *Hystriichosphaera furcata* by Sarjeant, 1964b, p.175, and therefore now to be considered a Jr. Syn. of *Spiniferites ramosus*. See comments under *Hystriichosphaera* and *Spiniferites*.

LEIOSPHERIDIA Eisenack, 1958, p.2 emend. Downie and Sarjeant, 1963, p.94.

"lidiae" (Gorka, 1963) NOW *Palaeocystodinium*.

"scrobiculata" (Deflandre & Cookson, 1955) NOW *Pyxidiella*.

MICRHYSTRIDIUM Deflandre, 1937b, p.79 emend. Lister, 1970, p.77.

"paulinae" (Valensi, 1953) NOW *Polysphaeridium*.

"veligerum" (Deflandre, 1937b) NOW *Microdinium*.

PTEROSPERMOPSIS W. Wetzel, 1952, p.411.

"pelagica" (Eisenack, 1954) NOW *Thalassiphora*.

"vancampoae" (Rossignol, 1962) NOW *Tuberculodinium*.