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Literature of the Receptaculitid Algae: 1805–1980

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Literature of the Receptaculitid Algae: 1805–1980

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Literature of the Receptaculitid Algae: 1805-1980

Abstract

This bibliography of 1,649 published references summarizes the progress of study and the history of changing ideas and concepts about receptaculitids, a class of algae composed of Receptaculitales, Cyclocrinitales, and Radiocytalales. All systematic descriptions, and all major stratigraphic and geographic occurrences of receptaculitids are believed to be included. Each entry is accompanied by an abstract consisting of objective data on description, illustration, discussion or listing of the receptaculitid paleontology, and stratigraphy.

Introduction

The purpose of this bibliography is twofold: first, to provide for future work a synonymy list of receptaculitids that is as complete as possible; second, and equally important, to compile data on all aspects of receptaculitids to help in deciphering the pattern of their geographic and stratigraphic distribution and thus to plot the evolutionary path of this problematic group of fossils.

The bibliography annotates references describing, illustrating, discussing, or listing receptaculitid morphology and occurrences. Although we are not certain whether receptaculitids belonged with the chlorophytes, we do not doubt that they were algae. We follow here a modified Nitecki and Toomey (1979b) classification and recognize as receptaculitid algae all the fossils placed in the class Receptaculitaphyceae and including the orders Receptaculitales, Radiocytalales, and Cyclocrinitales.

The practice of constructing synonymy lists that purport to cite all references as a step in the systematic description of taxa appears now to be an impossible task that has outlived its usefulness. As the present bibliography shows, to quote all the references to the genus Receptaculites, for example, would make a synonymy list longer than the actual description or definition of the genus itself. While it is possible that synonymy lists were valuable and easily compiled in the past (when the literature was small), at the present time (when the literature is enormous) they represent a custom that may merely provide assurances that the literature was partially read. Of course, selective synonymy lists offer a reasonable vehicle for redefining and restricting a taxon and for rejecting certain definitions by deliberate omissions or by insertion of the Latin prefix non. The selective synonymy list also allows for the propagation of preferred published ideas. Even if complete synonymy lists were practical to produce, they would seldom be read; therefore, listing the references to species may as well be abolished. We hope that our bibliography will replace future need for synonymy lists in receptaculitid systematics. In all our future work on receptaculitids, we will refer to the present volume rather than compile a new synonymy listing.

We have avoided subjective judgments as much as possible. We are correcting only spelling errors and including only published changes in taxonomy or stratigraphy. For example, “Lower Silurian” in older literature refers to the Ordovician; Goldfuss’s 1826 assignment of Receptaculites neptuni to the Jurassic of Switzerland has been shown to be in error. All changes made by us are in brackets.

Of course, perfect objectivity in works like this
is never possible, nor always desirable. For example, we had to decide which taxa to include in receptaculitids: while *Leptopoteron mammiferum* is a receptaculitid taxon, *L. faberi* is not; the Maslov 1960 reference to Cretaceous cyclocrinitids is very doubtful; Permian calathids are not related to the receptaculitid *Calathium*. Therefore, some references to "receptaculitid" taxa (e.g., *L. faberi*) are excluded from the bibliography and from the index to be published soon.

We hope that all references to the systematic descriptions have been included, and that in this sense our bibliography is complete, at least as far as the Receptaculitides are concerned. However, the references to stratigraphic and geographic distribution are most likely incomplete. This is because the abundance of stratigraphic references in our bibliography is proportional to our familiarity with geographic regions, and this familiarity decreases away from the Upper Mississippi Valley region.

Contrary to claims usually made, "good" libraries, and particularly "good" reprint libraries, are frequently limited and regional in character. Our departmental reprint library at Field Museum is such a library, and although it has initially helped us with many stratigraphic references, it has also skewed our presentation in favor of the midcontinent of North America. In addition, we list the Illinois State Geological Survey Educational Series Guidebooks because we are familiar with them. We do not imply that other state survey guidebooks do not exist, but simply that we did not find them. This further distorts our picture of receptaculitid distribution. We thus acknowledge the bias in at least our pattern of distribution of receptaculitids. Unfortunately, whether recognized or not, such biases are always part of compilations of this kind.

Our bibliographic entries consist of the name of the author, the date of publication, title and associated references of the publication, and the main entry.

### Names of Authors

All entries are arranged alphabetically by author and chronologically within authors. The prefixes Mc in Irish and Scottish names are listed alphabetically as *mc*, not as *mac*. The spellings of family names of authors (or for that matter, all other proper names) are unaltered except for the umlauted vowels, particularly the German ä, ö, and ü, which are represented by *ae*, *oe*, and *ue*. All Russian names (and words) are transliterated as consistently as possible.

In order to avoid any future confusion, the full first names, when known to us, are provided, whether or not the authors actually used them in their publications. After prolonged usage of the middle name or initial, certain authors have discontinued using it in subsequent publications. Again, to avoid doubts as to authorship, we have included the middle name or initial in these cases.

### Dates of Publications

The attempt to determine the exact date of publication in order to establish priority of authorship of a taxonomic name is an obsession of systematists. Perhaps much too much time has been spent on this frequently impossible task. The dates on covers of books or journals (even on systematic publications such as the *Journal of Paleontology*) or on the title pages of reprints are notoriously inaccurate. The precise dates are particularly difficult to determine when the publication is distributed in advance copies, as with prepublication releases of "significant" results. It is often impossible to determine whether the date printed represents the date of publication, public distribution, review distribution, advance distribution, bulk mailing, printing, sale, or news distribution, or any other conceivable date. After trying to solve these riddles, we realized that they were often unsolvable and rarely important. Therefore, we have listed the dates as they appear on the publication, unless there is published evidence to the contrary. In those cases, we have listed the "correct" date in brackets. In the instances where the dates were questioned but not resolved in previous publications, we indicated them by a question mark. For the undated publications, we guessed the dates and placed them in brackets with a question mark.

### Titles of Publications

The titles of articles, books, journals, series, etc., are given entirely without abbreviations. In general, we have used abbreviations only where they were self-evident and widely accepted (e.g., *pp.* for pages and *n.* *sp.* for new species). The number of pages, figures (when numbered), maps, tables, and charts are always given.

In paleontological bibliographies, the most trou-
blesome problem is determining what constitutes a paleontological publication. Although we are not concerned with the legalistic aspect, we are confronted with a question of definition. There are diverse means of publishing, encompassing a spectrum of different purposes, origins, and productions of printed matter. Books by well-known presses almost by definition must be included in any bibliography. However, the number of pages, the book size, the printing, and how the publication is distributed may or may not define the publication. Surely a scientific society’s journal is a publication, but societies produce much published material; for example, in the past, abstracts published by the Geological Society of America in its Bulletin or Proceedings series were different from the abstracts distributed at meetings. There are many field trip guidebooks, some of which form parts of series and hence are indexed in various registers and bibliographies. Others consist of only a few typewritten and hand-stapled pages, distributed in small amounts at one time only.

Further complications arise when publications of such well-known writers as James Hall and Elkana Billings are examined. Those eminent 19th century paleontologists had galleys of their books and papers printed in large quantities and, for various reasons, distributed prior to the time of distribution of the main work. Should these be treated as formal publications, as first editions, or should they be discarded as references? Equally problematic are the frequently passed out “preprints” of papers that are orally delivered at meetings. It is also difficult to define “scientific society” rigorously, particularly since the character and aims of many societies and institutions change, and their official publications may become popular or public relations organs, with no change of name, format, or manner of numbering consecutive issues. Since there is no formal or accepted requirement (e.g., of size, shape, quality, content, quality of paper or ink, purpose, distribution, or publishing) for judging whether a publication is scientific, it is difficult to make such a judgment. Therefore, we have included in our bibliography all printed matter we have been able to examine, with the exception of the following: (1) “unpublished” doctoral theses; (2) various editions of books, revised or not, which were difficult for us to find; (3) various translations of original reports; (4) the United States Geological Survey Open File Reports; and (5) The Zoological Record.

Main Entry

The length of our treatment of a particular reference does not reflect the length or significance of that reference; nor is our listing of taxa proportional to the importance of the publication. In general, if a reference provides only a stratigraphic and/or geographic listing of one or a few taxa, our entry includes all of the information we found. Of necessity, monographic works are proportionally more abbreviated than the stratigraphic listing. We tried to remedy this by being more comprehensive and inclusive in the index (which will be published separately).

We quote the taxonomic names as originally given. However, when no assignment was made to a genus or species, we refer to the taxon as a receptaculitid or a cyclocrinitid, etc.

Frequently we have omitted the names and the dates of authors of species or other taxa. We became aware during our work that the idea that names of species (or other taxa) are properties of individual workers is inaccurate. For example, Receptaculites was originally described in 1827 by Defrance as Receptacules, and in 1828 was redescribed by Deshayes as Receptaculites. The nomenclatural custom requires that the name of Deshayes 1828 be associated with Receptaculites. However, the name Receptaculites represents the concept of neither Defrance nor Deshayes, but rather one that has evolved and that properly belongs to all those paleontologists who refined it over the period of more than 150 years. More importantly, when the descriptions of Receptaculites of various authors are compared, they are so varied, and so different from each other, that the question becomes not of authorship, but rather of whether Receptaculites can be identified at all. Like magic, Receptaculites can assume various morphologies and physiologies from algae to echinoderms. Therefore, little is gained by inclusion of names and dates of original authors with taxonomic names.

Stratigraphic boundaries and designations have changed, but we quote them as in the original publication, providing a more modern name only when we are certain of the change; this is always done in brackets. The more accurate designation is given in the index.

Very seldom did the original authors provide accurate and detailed geographic information. Such practices are relatively new in paleontological literature. We have given very general geographic
data, and those readers who may wish to visit the localities must consult the original publications.

Generally we have indicated the largest taxonomic unit to which individual authors assigned their taxa, thus expressing their opinion on the receptaculitid nature and affinities.

We feel that it is particularly important to indicate clearly whether the specimens were only listed or fully described and figured. Of course, what constitutes description, that is, how many lines are required to describe the taxon properly, is an unanswered question. We considered as “described” the discussion, however brief, of any aspect of the taxon’s morphology.

Acknowledgments

This bibliography was started about 20 years ago, and could not have been completed without the assistance of many individuals and numerous institutions. However we may wish, it is impractical to list them all. Among the paleontologists, Prof. Dr. Siegfried Rietschel, the director of the Landessammlungen fuer Naturkunde in Karlsruhe, provided and checked many German references; the late Curator Dr. Eugene S. Richardson, Jr., of Field Museum, guided us through the labyrinths of the semantics of nomenclature; Dr. Inessa Zhuravleva, of the Department of Geology and Geophysics of the Siberian Branch of the USSR Academy of Sciences, helped with the Russian literature; and Dr. Ann Lutz-Gerrihan, of the Lunar and Planetary Institute, for weeks on end searched the libraries and abstracted many a paper. Among the graduate students from The University of Chicago, Gerald Forney, now an independent oil geologist in Denver, and Janet Anne Sherman, of the Committee on Evolutionary Biology, diligently worked at the Museum and searched for references in the local libraries.

Among the librarians, the staffs of the libraries of Field Museum of Natural History, The University of Chicago, Northwestern University in Evanston, Museum National d’Histoire Naturelle in Paris, British Museum (Natural History), Sedgwick Museum in Cambridge, Paleontologisk Museum in Oslo, University of Leningrad, Institut Royal des Sciences Naturelles in Bruxelles, Naturhistoriska Riksmuseet in Stockholm, Natur-Museum Senckenberg in Frankfurt am Main, and the John Crerar Library in Chicago lent books, made copies of rare publications, and cooperated with us in most generous ways.

Bibliography

Aaloe, A., Elga Mark, Ralf M. Maennil, K. Mueuerisepp, and K. Orviku


An alga Mastopora concava Eichwald is listed from the Ordovician Idavere Formation in Northern Estonia.

Adams, P. J.

See:


Ager, Derek V.


Devonian Receptaculites is listed from a Devonian bioherm in the Dinant basin in Belgium (p. 285).

Agnew, Allen F.


Receptaculites occurs in the Middle Ordovician Stewartville and Prosser Members of the Galena Dolomite in the mid-United States (p. 784, fig. 4; p. 792).


Zones of the upper Middle Ordovician Galena Dolomite in Iowa are characterized by Receptaculites (p. 1720).


Receptaculites occurs in the Stewartville and Prosser Members of the Middle Ordovician Galena Formation in the Upper Mississippi Valley (pp. 44, 48).


Receptaculites occurs in the Ordovician Galena Dolomite in the lead-zinc mining district of Wisconsin (p. 256).

See also:

Agnew, Allen F., Arthur E. Flint, and John W. Allingham

Receptaculites oweni occurs in the Prosser, Stewartville, and Dubuque Members of the Galena Dolomite in Dubuque and Jackson Counties, Iowa (pp. 5–7, fig. 3).

Agnew, Allen F., Arthur E. Flint, and Rusian P. Crumpton

Receptaculites oweni occurs in the Stewartville and Prosser Members of the Middle Ordovician Galena Dolomite east of Cuba City, Wisconsin (fig. 2).

Agnew, Allen F., Allen V. Heyl, Jr., Charles H. Behre, Jr., and Erwin J. Lyons

Zones of Receptaculites oweni are found in the Prosser and basal Stewartville Members of the Middle Ordovician Galena Dolomite in the Wisconsin-Illinois-Iowa zinc-lead district. Ischadites iowensis is present in the Prosser (pp. 251, 255, 257, 263, 266–268, 296–299).

Agnew, Allen F., and Robert E. Sloan

Receptaculites zones occur in the Prosser and Stewartville Members of the Galena Formation in Grant County, Wisconsin; Dubuque, Iowa; and Clayton, Iowa (pp. 86–87, 90).

Ahlfeld, Federico, and Leonardo Branisa

A Lower Devonian anthozoan, Receptaculites bolivianus Branisa, is illustrated (pl. 3, fig. 15). A Receptaculites zone occurs in the Sicasica Series in Belen, Bolivia (pp. 65, 71, 81).

Aitken, J. D.
See:

Aitken, J. D., W. H. Fritz, and B. S. Norford

Unspecified receptaculitids and Receptaculites sp. are found in the Middle Ordovician Whiterock Stage of the southern Canadian Rocky Mountains (pp. 39–40).

Alberstadt, Leonard P.
See:
Alberstadt, Leonard P., and Kenneth R. Walker

Upright-branching calathids (algae or sponges) form part of a stabilization community in a patch reef in the Middle Ordovician Carters Limestone of Tennessee.


Calathids, now believed to be dasycladaceous algae, play a role in the substrate stabilization stage of reef development. Calathids from the Middle Ordovician rocks near Birmingham, Alabama, and the Elk River Reef in south-central Tennessee are discussed and figured; Calathium igerodae and Ischadites iowensis (Owen) are mentioned. In the Lower Ordovician Fillmore Formation of Utah and in the Silurian reefs of Illinois, calathids are most abundant near the top of the reefs. Receptaculitids occur in reefs and in level-bottom muddy sediments.

Alberstadt, Leonard P., Kenneth R. Walker, and Ronald P. Zurawski

Receptaculitid "thickets," which act as frame builders in reefs on the Middle Ordovician Carters Limestone in Tennessee, are discussed, diagrammed, and figured (pp. 1171, 1176–1178; figs. 6; 9c, e, g; 10). Calathium occurs in the McKelligon Canyon "mounds" of the Lower Ordovician El Paso Group in Texas (p. 1179).

Alcock, Frederick J.

Receptaculites oweni occurs in the Ordovician limestone at Wekusko Lake, Manitoba (p. 29).

Alden, William C.

Receptaculites occurs in the Ordovician Galena Limestone of south-central Wisconsin (p. 85).

Alguire, Samuel L., and Bruce A. Liberty

Receptaculites occurs in the Ordovician Bobcaygeon Formation [on Great Cloche Island, Ontario] (p. 15).

Allen, Victor T.

Receptaculites oweni occurs in the Ordovician Kimmick Limestone in Jefferson County, Missouri (pp. 260, 262).

Allingham, John W.

A Receptaculites oweni zone occurs in the Pros- ser Member of the Ordovician Galena Dolomite in the Dodgeville and Mineral Point Quadrangles of southwestern Wisconsin (p. 196).

See also:

Allingham, John W., Arthur E. Flint, and Allen F. Agnew

Several zones containing Receptaculites occur in the Middle Ordovician Galena Dolomite in the Sinsinawa River area of Wisconsin (fig. 3, text).
Ami, Henry M.


A rhizopod, *Nidulites favus* Salter, from the Ordovician Quebec Group of Canada is described and compared to *Pasceolus, Cyclocrinus*, and *Sphaerospongia* (pp. 83–84).


*Receptaculites occidentalis* Salter is characteristic of the [Ordovician] Black River Formation at Paquette’s Rapids, Ontario (p. 153). *Pasceolus globosus* and *R. iowensis* from the Trenton Formation of the Ottawa Valley are listed as Protozoa (p. 154).


*Receptaculites occidentalis* Salter from the Mattawa outlier near Mattawa, Ontario, and *Pasceolus globosus* Billings from the Manitou Islands of Lake Nipissing are listed as Black River [Ordovician] protozoans (pp. 297–298, 300).


*Pasceolus globosus* from the Ordovician Trenton Formation near St. John, New Brunswick, and *Receptaculites occidentalis* from the Ordovician Bird’s Eye and Black River Formations near Mattawa, Ontario, are listed (tables 1, 2).


*Pasceolus globosus* Billings is found along the Ottawa River in Ottawa, Ontario (p. 64).


The protozoan or protist *Receptaculites* is present in Ordovician Trenton rocks on Allumette Island, and *R. occidentalis* (Salter) occurs in the Ordovician Black River beds at Paquette Rapids and Bonnechere Valley (pp. 51, 54, 57, 60, 63–66, 70).

Amsden, Thomas W.


The sponge *Ischadites iowensis* (Owen) is found in the Ordovician Bromide Formation in the Arbuckle Mountain region (p. 12).

Amsden, Thomas W., and Arthur K. Miller


*Receptaculites* is found in the Ordovician Bighorn Formation of the southern Bighorn Mountains, Wyoming (pp. 302, 304).

Anderson, Thomas B.


The sponges (?) *Receptaculites, R. oweni* Hall, *R. occidentalis* Salter, and *Nidulites pyriformis* Bassler are found in the Ordovician Fremont
Limestone in the Mosquito Range of Colorado (pp. 51, 57).

Andrews, Henry N., Jr.


Apidium Stolley 1896, Coelosphaeridium Roemer 1885, Mastopora Eichwald 1840, Nidulites Salter 1851, Polygonosphaerites F. Roemer 1880, Receptacules Defrance 1827 (?), and Tetragonis Eichwald 1842 are listed as fossil plants.


Apidium Stolley 1896, Coelosphaeridium Roemer 1885, Ischadites Murchison 1839, Mastopora Eichwald 1840 (= Nidulites Salter 1851), Pasceolus Billings 1857, Polygonosphaerites F. Roemer 1880, Receptacules Defrance 1827 (?), and Tetragonis Eichwald 1842 are listed as fossil plants.

Andrichuk, John M.


Receptaculites occurs in the lower and intermediate beds of the Ordovician Red River Formation in southern Manitoba (pp. 2358–2359).

Anonymous [Schrenk, Alexander Gustav]


Receptaculites infundibulum n. sp. [nomen nudum] is listed from the Silurian H [Adavere] stage in Vaindra in Estonia (p. 51).

Anonymous [Hall, James]


Nidulites favus (Salter) from the lower Llandovery and Nittidulus [sic] favus from the [Ordovician] Llandeilo flags of Haerfordwest, England, are housed in the State Cabinet in Albany, New York (pp. 12, 17).

Anonymous [Jones, Thomas Rupert]


This is a review of Guembel, C. W., 1876.

Anonymous [Lindstroem, Gustaf]


Ischadites koenigi Murchison and I. lindstroemi Hinde are listed from the Upper Silurian of Gotland (p. 20).


[Ordovician] Receptaculites orbis Eichwald from the lower gray Orthoceratites and Cyclocrinus sp/ki Eichwald from the Chasmos Limestone are listed (pp. 10, 16).

1888b. List of the Fossil Faunas of Sweden. II. Upper Silurian. Edited by the Palaeontological Department of the Swedish State Museum (Natural History), P. A. Norstedt & Soener, Stockholm, 29 pp.

Ischadites koenigi Murchison and I. lindstroemi Hinde from the [Silurian] Wenlock Shale of Gotland are listed as sponges (p. 23).

Anonymous [Ulrich, Edward O. ?]

James' [1885] conclusion that Lepidolites and Anomaloides are synonyms of Ischadites and Receptaculites is rejected (p. 324).

Anonymous


Receptaculites neptuni is found in the Upper Devonian (Lower Frasnian, Fr Im) of Belgium (p. 118).


Rauff [1892b] is reviewed. Receptaculites, R. neptuni, R. occidentalis, R. orbis, Ischadites, and I. koenigii are described. Leptopterion and Sphaerospongia tessellata are listed.


Receptaculites zones in the [Orдовиц] Stewartville and Prosser Dolomites are exposed at Eagle Point, north of Dubuque, Iowa (p. 7).


Receptaculites zones in the Stewartville and Prosser Members of the Orдовиц Galena Formation are exposed at several localities in Iowa. Receptaculites oweni occurs in the Prosser west of McGregor (pp. 10, 17, 20, 23).


A sponge, Ischadites koenigii Murchison, occurs in the Orдовиц Llandeilo, Caradoc, and Ashgill series; a specimen from the Wenlock series at Dudley, Great Britain, is figured. Another sponge, Amphipogonia oblonga Salter, is listed from the Silurian Ludlow series and is figured from the Pentland Hills. The alga Mastopora fava (Salter) from the Silurian Llandovery series at Mulloch Hill, Givran, Ayrshire, is figured (pp. 35, 37–39, 41; pl. 15, figs. 7–9).

See also:


The section on receptaculitids is the same as in Anonymous, 1964.


The section on receptaculitids is almost identical to Anonymous, 1964.

Archiac [de Saint Simon, Étienne Jules Adolphe Desmier], Vicompte d', and Édouard de Verneuil


Silurian Receptaculites neptuni from the Rhenish Province and Devonian and Silurian Ischadites koenigii from Ludlow, England; Eifel; Belgium; and Rocquigny are listed (p. 407).

Armstrong, James, John Young, and David Robertson


Nidulites favus Salter (an amorphozoan) and Ischadites koenigii Murchison are found in western Scotland (pp. 11, 13, 22).

Asselburgs, Étienne


Receptaculites neptuni occurs in Middle Frasnian [Devonian] nodular shales near Hatton, Belgium (pp. 48, 53).
Astrova, G. G.

See:

Ault, Curtis H.

See:

Ausich, William I.

See:

Austin, Thomas


*Sphaerontes tessellatus* and *Ischadites* are calcareous sponges, based on Bowerbank’s (1845) description and illustration of *Dunstervilla*.

Awramik, Stanley M., and Barry Cameron


A well-preserved, rich algal flora, including the dasyclad *Receptaculites occidentalis* Salter, occurs in the Rocklandian Ordovician Coboconk, Selby, and Napanee Limestones of New York and Ontario.

See also:


This is identical to Awramik, S. M., and B. Cameron, 1968.

Baillie, Andrew D.

1951. Devonian geology of Lake Manitoboa-Lake Winnipegosis area. Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 49-2, 72 pp., 5 pls., 6 text-figs., tables, 1 map.

*Sphaerostorgia* sp. and *S. tessellata* (Phillips) are listed as sponges from the Middle Devonian Winnipegosis Formation at numerous Manitoba lowland localities (p. 29).

1952. Ordovician geology of Lake Winnipeg and adjacent areas, Manitoba. Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 51-6, 64 pp., 4 text-figs., tables, 1 map.

*Receptaculites* sp. is found in Manitoba in the Ordovician Winnipeg Formation and in sandstone probably equivalent to the Winnipeg (pp. 14, 18, 27, 34) and *Cyclocrinites globosus* Billings occurs in the sandstone. Other components of the same fauna are *C. spaskii* of unknown phylum and the sponges *R. oweni* Hall and *Ischadites* sp. (pp. 34, 36). The Red River Formation contains the sponges *I. iowensis*, *Nidulites gregarius*, *N. gregarius* (?), and *R. oweni* (p. 28).

Bain, H. Foster


Two horizons marked by *Receptaculites oweni* are present in the Ordovician Galena Limestone of Illinois (p. 21).


*Receptaculites oweni* Hall is found in the Ordovician (Trenton) Platteville Limestone near Darlington in southern Wisconsin (p. 23). *Receptaculites oweni* is present throughout the Ordovician Galena Limestone of northeastern Iowa but is particularly abundant in upper and lower zones (pp. 28–29).

See also:
Bain, H. F., 1907.

This is identical to Bain, H. F., 1906.

See also:
Calvin, S., and H. F. Bain, 1900.

Balakrishnan, M. S.


A monostromatic cortex is the characteristic morphological feature of the dasycladacean lineage to which Cyclocrinus belongs (p. 10). Cyclocrinus porosus has primitive vegetative features (p. 9).

Baldwin, H. L., Jr.

See:
Brainerd, A. E., H. L. Baldwin, Jr., and I. A. Keyte, 1933.

Ball, John R.

See:
Greacen, K. F., and J. R. Ball, 1944 and 1946.

Ball, John R., and Katherine F. Greacen


Receptaculitids (family Receptaculitidae Römer), including Astraeospongia meniscus (Römer), are sponges of uncertain position (pp. 14–15). Receptaculites hemisphericus (Hall) from Wisconsin, R. tessellatus (Winchell and Marcy) and Ischadites iowensis (Owen) from Illinois, and Cerionites dactyloides (Owen) from Iowa are listed.

Banks, Harlan P.


Middle Ordovician Ischadites, a green alga belonging to the Codiaceae, is figured (fig. 3-9) and described (p. 44).


The tribe Cyclocrininae of family Dasycladaceae occurs in the Precambrian of the Kola Peninsula (p. 166).

Banks, Maxwell R.


Receptaculites (?) sp. is found in the Ordovician Gordon Limestone of the Junee Group in the Ida Bay, Zeehan, Railton, and Melrose areas of Tasmania (pp. 46, 48–49, 51).

See also:
Banks, M. R., 1957b.

1957b. The stratigraphy of Tasmanian Limestones. University of Tasmania, Department of Geology Publication 48, pp. 39–85, text-figs. 3–6.

This is identical to Banks, M. R., 1957a.

See also:

Banks, Maxwell R., and J. Harlan Johnson


Receptaculites is associated with Maclurites and Girvanella in the Ordovician Gordon River Limestone near Benjamin, south central Tasmania (p. 633).

Bannatyne, Barry

See:
Bannister, Henry M.

Receptaculites is found in the [Ordovician] Trenton Group in Kendall County, Illinois (pp. 144–146).

Barghoorn, Elso S.
See:

Barlow, Alfred E.

Receptaculites occidentalis Salter occurs in the Lower Trenton [Ordovician] in the Mattawa outlier near Mattawa, Quebec (pp. 122, 297–298). Coscinophora (?) sp. and Pasceolus globosus Billings are found on McDonald Island (pp. 121, 300).

See also:
Barlow, A. E., 1907.


This is identical to Barlow, A. E., 1899, except for pagination.

Barnes, Christopher R.
See:

Barnes, Harley
1967. Section B. Specter Range, Nevada; pp. 34–38. In Ross, Reuben James, Jr., Some Middle Ordovician brachiopods and trilo-

Receptaculites is found in the Aysees Member of the Middle Ordovician Antelope Valley Limestone on the west side of the Specter Range, southwest of Mercury, Nevada (p. 34).

See also:
Byers, F. M., Jr., H. Barnes, F. G. Poole, and R. J. Ross, Jr., 1961.

Barnes, J. A.
See:

Barnes, Virgil E.
See:
Cloud, P. E., Jr., and V. E. Barnes, 1948.

Barnes, Virgil E., Preston E. Cloud, Jr., Lane P. Dixon, Robert L. Folk, E. C. Jones, Allison Ralph Palmer, and Eugene J. Tynan
1959. Stratigraphy of the pre-Simpson Paleozoic subsurface rocks of Texas and southeast New Mexico. Appendix B: Description of cores, core sections, core chips and cuttings from individual wells. University of Texas Publication no. 5924, 294 pp.; vol. 2, pp. 295–836; 65 pls., 38 text-figs., 14 tables.

Calathium (?) occurs in a core in the Kindblade Formation of the Lower Ordovician Arbuckle group in Texas. Lenticular Receptaculites (?) sp. from another Middle Ordovician core in Texas is described and compared with other receptaculitids, particularly R. mamillaris [sic] Walcott (pp. 379, 651, 653).

Barnett, Victor H.
See:

Barr, F. T.
See:

Barrett, Simeon T.
1878. Descriptions of new species of fossils, from the Upper Silurian rocks of Port Jervis, N.Y.;

*Receptaculites lateritius* n. sp. from the Upper Silurian Delthyris Shale [Lower Devonian New Scotland Limestone] is described.

**Barrois, Charles**


One species of Lower Devonian *Receptaculites* is found in shales of Fret in Brest, France (p. 84).


Devonian (Frasian) *Receptaculites neptuni* Defrance is found in the slates of Traouliors in central Brittany (p. 113).

**Bassett, Michael G., and Dianne Edwards**


*Coelosphaeridium* from the Caradoc limestones of the Bala district is the oldest dasycladacean in Wales. *Mastopora fava* (Salter) first occurs near the base of the Llandovery in the Gasworks Mudstone of the Haverfordwest district in Wales. *Ischadites koenigii* from Wenlock and Ludlow of the Welsh area is a problematic organism that may even represent a separate genus with sponge and algal characteristics (pp. 3–4). *Mastopora fava* from Llandovery of Haverfordwest, Pembrokeshire, Wales, is figured; the original illustration of Murchison's *I. koenigii* is reproduced (figs. on pp. 3–4).

**Bassler, Ray Smith**


*Nidulites* sp. from the Nidulites bed of the Ordovician Chambersburg Formation in Virginia is illustrated (pl. 7, fig. 11). *Receptaculites biconstrictus* n. sp. (Ulrich MS) is figured and described as a characteristic fossil of the Ordovician Holston Marble and associated strata of the Clinch Mountain area, Virginia (pp. 164, 166; pl. 21, figs. 4–5).

*Nidulites cf. favus* Salters occurs in the Chambersburg Formation of northwestern Virginia (p. 59).


The following Ordovician fossils are listed: *Receptaculites orbis* Eichwald, *R. eichwaldi* Schmidt, *Cyclocrinus spasski* and *Mastopora concava* from the Baltic Provinces of Russia; *R. oweni* from the Prosser Limestone of the Trenton Group in northeastern Iowa and southeastern Minnesota and from Baffin Land, Arctic Canada; and species of *Receptaculites* and *Ischadites* from the Trenton in Minnesota and Silliman's Fossil Mount in Baffin Land (pp. 19, 25, 35–36).


Literature on North American receptaculitids published prior to 1915 is listed. The stratigraphic and geographic ranges, synonymies, and taxonomic affinities (to sponges or calcareous algae) of genera and species are given. *Nidulites pyriformis* n. sp. is named.


*Nidulites pyriformis* from the Ordovician Chambersburg Limestone in Virginia, Maryland, and Pennsylvania, and *Receptaculites occidentalis* from the Chambersburg in southern Pennsylvania and Maryland are described and illustrated (pp. 193–195; pl. 46, figs. 1–5; pl. 45, fig. 7). *Receptaculites occidentalis* also occurs in the [Ordovician] Black River Group of Canada, New Jersey, Kentucky, and Arctic America (p. 195). *Nidulites* from the Greencastle bed, *N. pyriformis* from the Nidulites bed, and *R. occidentalis* from the Echinospaerites bed, all of the Chambersburg Limestone, are found in various localities (pp. 132–133, 139–141, 144–154, 164, 174–175, 220). *Nidulites* and the related forms *Receptaculites*, *Cerionites*, and *Ischadites* are either sponges or calcareous algae (p. 194).

The Ordovician Kimmick Limestone is locally called the Receptaculites limestone in Missouri (p. 70). The sponge (?) Receptaculites occidentalis Salter is found in the Ordovician Curdsville Limestone of Kentucky (p. 72).


See also:

Bassoulet [Bassoulet], Jean-Paul, Paul Bernier, Raoul Deloffre, Patrick Génot, Michel Jaffrezo, Alain-François Poignant, and Geneviève Segonzac


Cyclocrinus is figured as a dasycladaceous alga (pp. 269–270). The tribe Cyclocrinae [sic] was defined by Pia on the basis of endospor, the form of the branches, and other morphological characters (pp. 278, 280, 285). Following Korde, the tribes Cyclocrinae and Mastoporinae are placed in the family Seletothaleaceae, order Dasycladales (p. 289).


The criteria used to classify Dasycladales are evaluated. Cyclocrinus (tribe Cyclocrinae [sic]) is representative of the Dasycladales (pp. 158, 162, 163).

Bassoulet, Jean-Paul, Paul Bernier, Raoul Deloffre, Patrick Génot, Michel Jaffrezo, and Daniel Vachard


A classification of the Dasycladales is proposed. Cyclocrininae Pia, an Ordovician and Silurian tribe of the family Seletothaleaceae Korde consisting of Cyclocrinus Eichwald, Apidium Stolley, Coelospheraeidi Roemer, and Mastopora Eichwald, is described. Receptaculites, Acanthochonia Hinde, Amphiprospongia Salter, Anomaloides Ulrich, Calathella Rauff, Calathium Billings, Ischadites Murchison, and Sphaerospongia Pengelly are probably sponges (pp. 430–432, 436–440).

Bedford, J.

See:

Bedford, R., and J. Bedford


Lower Cambrian sponges Uranosphaeridae n. fam., Uranosphaera, U. ramosa n. sp. and U. hexaster; order Heterocyathina (Okulitch), Heterocyathidae (Bedford), Heterocyathus, H. tertius n. sp., H. minor, and H. major are described and figured as Cyathospongia (Archaeocyathi) from the Ajax Mine, Beltana, South Australia (pp. 21–23; pl. 21, figs. 89–90; pl. 22, figs. 91–92).

1937. Further notes on Archaeos (Pleospongia) from the Lower Cambrian of South Australia. Memoirs of the Kyancutta Museum, Kyancutta, South Australia, no. 4, pp. 27–38, pls. 27–41.

Pleosponge (= sponge) Uranosphaera and Hetairacyathus and the orders Uranosphaerina and Hetairacyathina are described from the Lower Cambrian of South Australia (p. 37).

Calathium Billings 1865 of doubtful affinity, C. anstedi (or crassum), and C. formosum from Newfoundland are described and figured. C. anstedi is related to the archaeo Metaldetimonopha rather than to Calathium (pp. 80–81, pl. 52, figs. 208, 211).

Bedford, R., and W. R. Bedford

1934. New species of Archaeocyathinae and other organisms from the Lower Cambrian of Beltana, South Australia. Memoirs of the Kyancutta Museum, Kyancutta, South Australia, no. 1, 8 pp., 6 pls.

Archaeocyathid family Heterocycathidae, Heterocycathus minor, H. major, and sponges Uranosphaera polyaster and U. hexaster are described and figured (pp. 7–8, pl. 6, figs. 32–36).

1936. Further notes on Archaeocyathi (Cyathospongia) and other organisms from the Lower Cambrian of Beltana, South Australia. Memoirs of the Kyancutta Museum, Kyancutta, South Australia, no. 2, pp. 9–20, pls. 7–20.

Dictyocycathus macdonnelli n. sp. [?Radiocyathus minor (Bedford and Bedford)] from the Lower Cambrian, Macdonnell Ranges, Central Australia (p. 14, pl. 12, fig. 61), and Uranosphaera hexaster, a sponge (p. 10, pl. 7, figs. 39–41) are described and figured. U. polyaster is mentioned (p. 10).

Bedford, W. R.

See:


Beecher, Charles Emerson


Calathium Billings is of uncertain taxonomic position (p. 15). Receptaculites Defrance, Ischadites Murchison, and Acanthoconia [sic] Hinde, in family Receptaculitidae Hinde [sic], are Silurian [Orдовician and Silurian] and Devonian lyssacine hexactinellids (pp. 16–17).

Beerbower, James R.


The sponge-like family Receptaculitidae, possibly representing a distinct phylum, consists of ten Ordovician to Devonian genera (pp. 227, 230). Receptaculites (text-fig. 9-19) and Ischadites are common fossils.

See also:


The section on receptaculitids (pp. 231, 233–234; text-fig. 9-17) is almost identical to that of Beerbower, 1960.

Behre, Charles H., Jr.

See:


Bekker, Hendrick


Coelosphaeridium kohtlense n. sp. is described (p. 11) and figured (pl. 1, fig. 11) as C. kohtlense from Ordovician, Kukruse Stage, Coelosphaeridium zone (pp. 8–9) in Kohla, Estonia, and is related to C. excavatum Stolley from the Ordovician Echinophasaerite limestone.

Bell, Alfred Hannam

See:

Bell, Bruce M.

See:

Bell, Robert


[Ordovician?] Receptaculites [sic] oweni is found off Big Island in the Hudson’s Strait, Canada (p. 9).

Bell, W. Charles

See:

Berg, Robert R.


The sponge Receptaculites is abundant in the Upper Ordovician Lower Fremont Formation in Colorado (p. 16).

Berggren, Dwain J.

See:

Bergquist, Patricia R.

1978. Sponges. University of California, Berkeley, California, 268 pp., illus.

Receptaculitida without pores, canal system, and spicules cannot be sponges (p. 217).

Bergstroem, Stig M., John Riva, and G. Marshall Kay


Mastopora (“Nidulites” sp.) and Receptaculites sp. are found in the Ordovician Lourdatte Limestone of the Long Point Group, southwestern Newfoundland (pp. 1629-1630).

Bernard, Felix


Receptaculites Defrance, Ischadites Murchison, and Sphaerospingia Pengelly are poorly known lyssacine sponges (p. 115). Devonian S. tessellata is figured (p. 114, text-fig. 16).

Bernier, Paul

See:

Beugnies, Alphonse

See:

Bevan, Arthur C.


Cerionites dactyloides occurs in the Cerionites bed of the Silurian (Niagaran) Hopkinton Dolomite throughout northwestern Illinois and northeastern Iowa, but is absent farther east (pp. 2, 6).

Beyrich, [Heinrich] Ernst


A new form of “Echino-Encriniten” [Sphaerospingia] from the Middle Devonian of Villmar, Germany, is mentioned (p. 16).

Bierbauer, Bruno

1888 [1891]. A check-list of the Palaeozoic fossils of Wisconsin, Minnesota, Iowa, Dakota, and Nebraska. Bulletin of the Minnesota...

The following sponges are listed: Cerronites [sic] dactyloides Owen from the [Silurian] Niagaran of Iowa, Receptaculites globularis Hall from the [Ordovician] Galena of Wisconsin, R. hemisphaericus Hall and R. infundibuliformis Hall from the Niagaran of Wisconsin, R. iowensis Owen from the Galena of Wisconsin and the [Ordovician] Hudson River of Minnesota and Iowa, R. occidentalis Salter from the Hudson River of Minnesota, R. oweni Hall from the Galena of Wisconsin, the [Devonian] Hamilton of Minnesota, and the [Ordovician] Trenton of Iowa, and R. reticulata Owen from the Niagaran of Iowa (p. 208).

Bigby, John J.


The Silurian [and Ordovician] species of the following genera are listed: Amphispungia M'Coy 1846, Calathium Billings 1865, Coscinopora [of Owen], Ischadites Murchison 1839, Nidulites Salter 1851, Receptaculites Defrance 1827, Sphaerospangia Salter, and Tetragonis Eichwald 1859 are listed as Amorphoza under Protozoa. Cyclocrinus Eichwald 1859 (= Pasceolus Billings 1857), Mastopora Eichwald 1859, and Pasceolus Billings 1857 are listed under Crinoidea, Polyzoa, and incertae sedis, respectively (pp. 3–5, 19, 85, 192, 194).


Devonian Receptaculites neptuni, R. rhombifera [sic], R. sp., and Sphaerospangia tessellata (pp. 6–7) and Carboniferous Receptaculites sp. from Silesia (p. 201) are listed as Protozoa.

Billings, Elkanah


Pasceolus and P. halli from Gamache Bay and P. globosus from the [Ordovician] Trenton Lime- stone at Ottawa resemble Ischadites koenigi and are described (pp. 342–343) as an uncertain class allied to the Tunicata.

[This is also published in a French edition.]


Receptaculites occidentalis (Salter) is common in the Lower Silurian [Ordovician] Trenton Formation in New York and the Black River Limestone in Canada (p. 156).


Receptaculites occidentalis is found in the Lower Silurian [Ordovician] Birdseye and Black River Formations in southeastern Canada (pp. 163, 165, 195). Ischadites, a tunicate allied to I. koenigi, occurs in the Middle Silurian Niagaran in the Anticosti Group (p. 327). Ischadites canadensis (Billings) is figured (p. 309, fig. 313). A second tunicate, Pasceolus halli (Billings), is figured (pp. 308–309; fig. 312).


The following Protozoa are listed: Receptaculites Defrance, R. occidentalis Salter (= R. neptuni Hall) from the Birdseye, Black River, and Trenton Formations, R. iowensis Owen from the Trenton, and R. calciferous Billings from the Calciferous Formation (p. 937). Pasceolus Billings and P. globosus Billings from the Trenton are listed under incertae sedis (p. 954).

1865a. Palaeozoic Fossils. Volume 1. Containing Descriptions and Figures of New or Little Known Species of Organic Remains from the

The following are described and illustrated: Calathium n. gen., C. formosum n. sp., C. affine n. sp., C. anstedi n. sp., C. fittoni n. sp., C. (?) pan- nosum n. sp., and C. anstedi (?) (C. crassum n. sp. if distinct) from the Lower Silurian [Ordovician] Quebec Group of northern Newfoundland (pp. 208–211, 335–338, text-figs. 192–196, 324–325, 416); Calathium (?) paradoxicum n. sp., Receptaculites calciferus n. sp. (which resembles R. occidentalis from the Black River Limestone), and R. (?) elegantulus n. sp. from the Lower Silurian [Ordovician] Calciferous Formation of the Min- gan Islands, Quebec (pp. 358–360, text-figs. 345–347); Calathium canadense from the [Ordovician] Chazy Limestone of the Minang Islands, Quebec (pp. 377–378, text-fig. 351); Receptaculites jonesi n. sp. from the Devonian Lower Helderberg Group of Cape Gaspe (pp. 389–390, text-fig. 365). Genus Receptaculites Defrance, a possible foraminifer, is described; the following species are discussed, and some are illustrated: R. occidentalis, R. calciferus, R. okeni, R. canadense, R. iowensis, Tetragonis murchisoni, T. sulcata, T. parvipora, and Ischa- dites koenigi Murchison (pp. 378–388, text-figs. 353–364). The structure, probable life orientation, and zoological classification of Receptaculites are discussed.

Genus Pasceolus of uncertain taxonomic position is described; P. halli and P. globosus are discussed and illustrated (pp. 390–392, text-figs. 366–367).

See also:
Billings, E., 1865b and 1865c.


This is identical to Billings, E., 1865a, pp. 169–344.

See also:
Billings, E., 1865c.


This is identical to Billings, E., 1865a, pp. 378–388 and 390–392, except that the description and illustration of Receptaculites jonesi are omitted, and the figures are renumbered.

See also:
Billings, E., 1865b.


Receptaculites (?) insularis n. sp. from the lower part (Div. 1.A.G.) of the Anticosti Group at Gamache Bay is described. It appears congeneric with Tetragonis sulcata but cannot be referred to that genus unless T. murchisoni is replaced by T. sul- cata as the type species (pp. 29–30). Pasceolus and the following species are described as incertae se- dis: P. halli Billings; P. gregarius Billings, and P. intermedius Billings from Anticosti, and P. glo- bosus from the Trenton at Ottawa, Ontario. Ischadites koenigi, Sphaeronites, S. tesselatus, Cy- clocrinus, Cyclocrinites, and Nidulites are men- tioned (pp. 69–72).

Bjorlykke, Knut


The Middle Ordovician Furuberg Formation of the Mjosa region comprises the Coelosphaeridium and the Cyclocrinus beds (p. 18).

Blacet, Philip M.

See:
West, W. S., and P. M. Blacet, 1971.

Blackadar, Robert Gordon


Receptaculites cf. arcticus Etheridge is listed from the Ordovician Ship Point and Baillarge Bay Formations of Admiralty Inlet, Baffin Island (pp. 18–19).

Receptaculites sp. is part of the Arctic Ordovician fauna from Mogg Bay, Arctic Canada (p. 16).


Receptaculites spp. are found at a number of localities of Lake Wilderness, Barneveld, and post-Barneveld ages [Ordovician] on southern Baffin Island, Arctic Canada (pp. 20-21, 23-29).

See also:

Blackadar, Robert Gordon, and Robert L. Christie

Receptaculites sp. on Somerset Island, North-west Territories, is part of the Arctic Ordovician fauna, which is equivalent to the Cornwallis and Allen Bay faunas of Cornwallis Island and to the faunas in the Upper Ordovician Dog Head Formation of southern Manitoba (p. 10).

Blainville, Henri Marie Ducrotay de

Receptaculites is a genus of lithozaaires (polyps) of uncertain taxonomic position. Receptaculites neptunii Defrance is described (pp. 534-535).


Devonian Receptaculites and R. neptunii (taxonomic position uncertain) from Chimay are described (p. 572).

Blaise, Jacques, Raymond Desparmet, and Albert F. de Lapparent

Receptaculites neptunii occurs in rocks of Frasnian [Devonian] age in the Sadmarda Mountains of Afghanistan (p. 424).

Blake, Donald Alan Wright
See:

Blanford, Henry Francis
See:
Salter, J. W., and H. F. Blanford, 1865.

Blusson, S. L.
See:

Bold, Harold C., and Michael J. Wynne

There is some doubt that members of the receptaculitid family Receptaculitaceae are true dasyclads (p. 219). Ordovician Ischadites iowensis Owen and Cyclocrinus porosus Stolley are figured as dasycladaceans (p. 22, figs. 1.9, 1.10a).

Bolton, Thomas E.

Holotypes of Ordovician Calathium affine Billings, C. anstedi Billings, C. crassum Billings, C. fittoni Billings, C. formosum Billings, C. (?) paradoxicum Billings (= Nipterella paradoxica Hinde), and hypotypes of Whiteaves’ Devonian Sphaerospongia tessellata Phillips are in the collection of the Geological Survey of Canada, Ottawa (pp. 8-10).


The alga Cyclocrinus occurs in the Silurian Bec-scie Formation on Anticosti Island (p. 9).

Receptaculites occurs in Middle Ordovician Wilderness Stage Limestone near Lake Manicouagan, eastern Canada, and in the upper part of the Upper Ordovician Cornwallis Formation on Ellesmere Island (pp. 21–22, 25).


Type specimens of Cyclocrinites intermedius (Billings), Ischadites canadensis Billings, I. otawaensis Wilson, Pasceolus globosus Billings, P. gregarius Billings (= Cyclocrinites gregarius Twenhofel), P. halli Billings (= Cyclocrinites halli Twenhofel), P. intermedius Billings, Receptaculites cf. arcticus Etheridge, R. calciferus Billings, R. (?) elegans Billings, R. (?) insularis Billings (= Ischadites (?) insularis Twenhofel), R. iowensis (Owen), R. jonesi Billings, R. occidentalis Salter, R. oweni Hall, and Receptaculites sp. are in the collection of the Geological Survey of Canada in Ottawa. All are of uncertain taxonomic position except the algae Cyclocrinites and Pasceolus (pp. 142–144).


Sinclair’s (1964) syntype of Receptaculites occidentalis Salter, of uncertain taxonomic position, is in the Canadian Geological Survey collection (p. 220).


The algae Cyclocrinites halli (Billings) and C. gregarius (Billings) occur in the Late Ordovician Ellis Bay Formation and the Lower Niagaraan (Silurian) Beccscie Formation, respectively, on Anticosti Island, Quebec (pp. 8, 12).


Receptaculites sp. occurs in the late Middle Ordovician Bad Cache Rapids Formation on Melville Peninsula, District of Franklin (pp. 3–5).


The alga Cyclocrinites aff. globosus (Billings), Receptaculites aff. biconstrictus Bassler, and Receptaculites sp. are present in the Middle Ordovician Bad Cache Rapids Limestone on Melville Peninsula (pp. 24, 26–27, 30). Cyclocrinites is present in younger beds of the formation, while Receptaculites is abundant throughout. Receptaculites sp. is figured (pl. 1, fig. 2) and described (p. 26). Receptaculites biconstrictus (?) Bassler is listed from the Porterfield-Wilderness beds of Tennessee. The Arctic Ordovician fauna containing Receptaculites is also present in the basal Cape Choumba beds of upper Gonioceras Bay Formation of northwestern Greenland.

See also:

Bolton, Thomas E., and Bruce A. Liberty


Receptaculites occidentalis is characteristic of the higher strata of the Ordovician Cloche Island beds on Great Cloche Island, Ontario (p. 28).

Bonte, Antoine

See:

Born, Kendall, E.

1937. Kimmswick horizon in south-central Tennessee (abstr.). Proceedings of the Geo-

Receptaculites oweni is found near Aspen Hill, Tennessee, in an Ordovician Kimmswick-age limestone (p. 371).

Bornemann, Johann Georg


Ischadites, Cyclocrinus, Receptaculites, Pascoelus, Tetragonis, and Polygonosphaerites are organisms of uncertain taxonomic position. Calathium (?) paradoxicum Billings (p. 33) and Receptaculites (p. 35) are mentioned.

Boule, Marcellin, and Jean Piveteau


Enigmatic Silurian and Devonian Receptaculites is probably a sponge (p. 89).

Boutrière, André, and Denise Brice


Abundant Receptaculites occur with tabulate corals in the Devonian of the Ghazni Province, Afghanistan (pp. 1940–1942).

Bowerbank, James Scott


Sphaeronites tessellatus resembles a calcareous sponge, Dunstervillea n. gen.

Bowman, Isaiah, and C. A. Reeds


“Receptaculites” are mentioned from the Ordovician Kimmswick (Trenton) Limestone (p. 20).

Bownocker, John Adams


A Devonian sponge, Receptaculites devonicus Whitfield, is found beneath the bone bed in Columbus, Ohio (p. 20, pl. 6).

Bowsher, Arthur L.


Latest Middle Devonian in Sacramento and San Andres Mountains of New Mexico contains Sphaerospongia (p. 261), which is also reported from Onate Formation in Mud Spring Mountains (p. 266).

Bowyer, Ben

See:


Bradley, Frank H.


Bradley, John H., Jr.


The Ordovician Kimmswick Limestone (= Receptaculite limestone) of Missouri and Illinois contains Receptaculites cornutiformis n. sp., Ischadites iowensis, and R. oweni, an important horizon marker (pp. 50, 52–54, 56, 58–59). Ischadites iowensis and R. oweni from the Kimmswick and Prosser Formations and Nidulites favus and Receptaculites from the Chambersburg Limestone
of the Appalachian Valley are listed (pp. 62–64, 71).


*Receptaculites cornutiformis* n. sp. (class Spongiae, incertae sedis) from the [Ordovician] Kimmswick Limestone of Missouri is described, figured, and compared to *R. oweni* Hall (pp. 221–222).

**Brady, Henry Bowman**


*Receptaculites oceani* Eichwald is a Carboniferous foraminifer (p. 151).

**Brainerd, A. E., H. L. Baldwin, Jr., and J. A. Keyte**


The coral *Receptaculites owenii* [sic] is common in the Ordovician Fremont Limestone near Canon City, Colorado (p. 387).

**Brathwaite, L. F.**

See:


**Branisa, Leonardo**

1965. Los fosiles guias de Bolivia. Index fossils of Bolivia. Servicio Geologico de Bolivia, Boletin, La Paz, Bolivia, no. 6, 282 pp., 80 pls.

*Receptaculites bolivianus* Branisa from the *Receptaculites* zone of the Lower Devonian at Belen, Quebrada Jacha Chili, Bolivia, is figured (pl. 49).

See also:


**Branson, Edwin Bayer**


The Ordovician Kimmswick Limestone was known as the Receptaculite Limestone (p. 54). *Receptaculites owenii* is illustrated and described (p. 98, pl. 2, fig. 11).


*Calathium* (?) [probably not *Calathium*] from the Ordovician Jefferson City Formation and *Receptaculites cornutiformis* Bradley and *R. oweni* (Hall) from the Middle Ordovician Kimmswick (Receptaculite) Limestone are listed as sponges (pp. 54, 85–86).

**Branson, Edwin Bayer, and Virgil B. Cole**


*Receptaculites owenii* is present at the top of the Ordovician Kimmswick Limestone in the Castlewood section, St. Louis County, Missouri (p. 47).

**Brasier, M. D.**


Zhuravleva (1974) proposed a new Kingdom, Archaeata, to include archaeocyathids, aphrosole-pingoids, soanitids, and receptaculitids (p. 235).

**Bretz, J Harlen**


*Receptaculites*, of uncertain systematic position, is figured as a characteristic fossil of the Ordovician Galena Formation in the Kings Quadrangle area of Illinois (pp. 228–230, fig. 50).

118 pp., 7 pls., 91 text-figs. [Reprinted in 1953 and 1964.]

*Calathium* sp. from the Silurian of the Chicago region is figured as a sponge (p. 76, pl. 6, fig. 1).

**Brice, Denise**


*Receptaculites* sp. is listed from two Devonian localities in Afghanistan (pp. 309, 311).


**Bridge, Josiah**


The sponge *Calathium* sp. [probably not *Calathium*] is characteristic of the Ordovician Jefferson City Formation in the Ozark region of Missouri (p. 128).

See also: Dake, C. L., and J. Bridge, 1932.

**Bridges, Luther W. (Dan)**


*Receptaculites* is present in the Ordovician Sos-tenes Formation in Mexico (pp. 50-51).

**Broadhead, Garland C.**


The Lower Silurian [Ordovician] Receptaculite Limestone, which is correlated with the Galena Limestone of Illinois and Iowa, occurs in ten Missouri counties (p. 28).

**Brock, Maurice R.**

See:


**Broderip, W. J.**


[Devonian *Sphaerospongia tessellata*] from Devon is described as a tunicate in a footnote [signed W. J. B.].

See also: De La Beche, H. T., 1835.

**Brøgger, Waldemar Christofer**


Upper Ordovician *Mastopora concava* Eichwald, *Cyclocrinites spaskii* Eichwald, and receptaculitids occur in the Oslo region of Norway (pp. 261-265). *Mastopora concava* is also found in Estonia (p. 263).


*Cyclocrinites spaskii* Eichwald occurs in the [Ordovician, Caradocian] 4b Zone in Norway (p. 23).

See also: Brøgger, W. C., 1890.


This is identical to Brøgger, W. C., 1887.

**Bronn, Heinrich Georg**

1850-1856. Systematische Uebersicht der fossilen Pflanzen und Thiere nach ihrer geolo-

NITECKI ET AL.: RECEPTACULITID ALGAE

Silurian [Ordovician] Mastopora Eichwald and Tetragonis Eichwald, and [Ordovician], Silurian, and Devonian Receptaculites Defrance are listed as Amorphozoao (p. 11). Cyclocrinus Eichwald is listed as a Silurian [Ordovician] cystidean (p. 23).

Broughton, W. A.

See:

Brown, C. Ervin

See:

Brown, C. Ervin, Lorence G. Collins, and Percy Crosby


Receptaculites zones are important stratigraphic markers for lead deposits in the Stewartville and Prosser members of the Middle Ordovician Galena Dolomite in Dubuque County, Iowa (fig. 2, table 3, text).

Brown, C. Ervin, and Jesse W. Whitlow


Receptaculites oweni Hall is common in the Prosser and Stewartville Members of the Ordovician Galena Dolomite (pp. 17–21, pl. 3). Ce-
rionites occurs in the Silurian Hopkinton Dolomite in Dubuque County, Iowa (p. 33).

Brown, C. Ervin, Jesse W. Whitlow, and Percy Crosby


Receptaculites occurs in the Middle Ordovician Stewartville and Prosser Members of the Galena Dolomite in the Catfish Creek area of Iowa (fig. 2). The Stewartville Member contains an upper Receptaculites zone; a lower Receptaculites zone in the Prosser Member is not exposed in the area.

Brown, Howard E.

See:

Browne, W. R.

See:

Bruce, Everend Lester


Pasceolus (Cyclocrinus) spaskii (?) Eichwald and Receptaculites cf. oweni are found in Middle Ordovician Trenton (?) dolomite in northern Manitoba and Saskatchewan, Canada (p. 49).

Brummer, G. J. A.


Tetragonis sulcata d'Eichwald 1860 from Upper Ordovician erratics in the northern Netherlands is described. Eichwald's original description of this taxon is reviewed. Tetragonis sulcata and Lepidolites dickhauti Ulrich 1879 are placed in family Tetragonaceae Rietschel 1969 (nomen correctum). The functional morphology, growth, and merom calcification of receptaculitids are discussed. The Tetragonis type merom arrangement is compared with the Receptaculites type. The position of soft parts in and the life orientation of receptaculitids are discussed. Arguments are made against an apex-down orientation. An analysis of the systemic position of receptaculitids indicates that they constitute an order, Receptaculitales, of calcareous algae separate from Dasycladales.

Buckley, Ernest Robertson


The Ordovician Kimmswick Formation of Missouri is characterized by abundant remains of the "sunflower coral" in the Receptaculites horizon (p. 64).

Burbank, Wilbur Swett


Receptaculites sp. and R. oweni Hall are found in the Upper Ordovician upper limestone member of the Tomichi Limestone in the Kerber Creek region of Colorado (p. 11, fig. 2).

Burchard, Ernest F.

See:


Lower Devonian Receptaculites neptuni from argillaceous shales in the Basse-Loire (Maine-et-Loire) is listed (p. 338).

Burhenne, H.


NITECKI ET AL.: RECEPTACULITID ALGAE 25
Devonian Receptaculites is described as a protozoan from Eifel, and from Leun, Oberbiel (pp. 44–45).

Burns, Cecil Albert


Ordovician, Richmond Receptaculites cf. arcticus Etheridge is found on Prince Charles and Air Force Islands in the Northwest Territories (pp. 7–8).

Buschbach, Thomas C.

See:

Butts, Charles


A Calathium-like sponge characteristic of the Lower Ordovician from the Odenville Limestone in Cohaba Valley, Alabama, is listed and illustrated (pp. 99, 102; pl. 19, figs. 17–18). Ordovician Nidulites cf. favus from the Little Oak Limestone in Shelby County, Alabama, is figured (p. 102; pl. 19, figs. 13–14). Nidulites also occurs in the Lenoir Limestone (p. 114).


Receptaculites is reported from the Ordovician Ottossee Limestone and Receptaculites and Nidulites sp. from the Ordovician Chambersburg Limestone of the Black River Group in Virginia (pp. 17, 20).


Ordovician Receptaculites oweni is abundant in the Galena (Trenton) of Michigan, in the Receptaculites beds of the Dubuque Dolomite, in two horizons of the Galena in Wisconsin, Illinois, Iowa, and Minnesota, and in the Trenton-age Stewartville Formation (Macluarea beds) in southwestern Minnesota (pp. 339–340). Receptaculites occidentalis is found in the Middle Ordovician (Mohawkian) Curdsville Limestone in Frankfort, Kentucky (p. 343). Calathium sp. [probably not Calathium] occurs in the Ordovician Jefferson City Dolomite in Missouri and Arkansas (p. 325). The Trenton-age Clitambonites beds of the Prosser Limestone in southeastern Minnesota contain Ischadites iowensis, Pasceocolus globosus, and R. oweni (p. 340).


The following Ordovician sponges from Virginia are listed: Nidulites [not cyclocrinitid] ovoides n. sp. in the Lenoir Limestone; N. cf. pyriformis Bassler in the Ottossee and Chambersburg Limestones; Receptaculites sp. in the Lenoir, Whitesburg, Ottossee, and Chambersburg Limestones and the Athens Formation; and R. cf. elegantulus in the Ottossee Limestone (pp. 142, 144, 156, 166, 171, 175, 184, 198–199).


Nidulites [not cyclocrinitid] ovoides n. sp. from the Lenoir Limestone near Blacksburg, Virginia, is illustrated, described, and compared to N. pyriformis Bassler (pl. 76, figs. 8–10). Nidulites pyriformis from the Chambersburg Limestone (pl. 95, figs. 35–38) and Receptaculites sp. and two sponges [receptaculitids] from the Ottossee Limestone of Virginia are figured (pl. 84, figs. 1–2, 6–8). Nidulites pyriformis also occurs in the Ottossee Limestone (pp. 52–53, 80–81, 108, 110).

Byers, F. M., Jr., Harley Barnes, F. G. Poole, and Reuben James Ross, Jr.

1961. Revised subdivision of Ordovician system at the Nevada Test Site and vicinity, Nevada. Short papers in the geologic and hydro-

Receptaculites sp. is listed from the Lower Ordovician Aysee Member of the Antelope Valley Limestone at the Nevada Test Site (p. 108).

Byrd, William J.


Receptaculites sp. is abundant in the Lower Ordovician Yellow Hill Limestone, Leham Formation, and Ely Springs Dolomite in the Ely Springs Range, Nevada (pp. 29–30).

Byrnes, John G.


The Receptaculitaceae, a family of uncertain taxonomic position probably related to the dasycladaceae algae, inhabited warm, shallow seas primarily within 15 degrees of the paleoequator. Ischadites (Neoischadites) n. subgen., and I. (N.) struszi n. sp., from the Lower Devonian Garra Formation of central western New South Wales, Australia, are described and illustrated. The morphology, orientation, and ontogeny of receptaculitids are described.


Ordovician through Devonian receptaculitoids are poorly known fossils. The photosynthetic nature of these organisms is presently favored (pp. 684–685). Their systematics, systematics, and geographic and stratigraphic distribution are discussed. Ischadites, I. ivesii, Receptaculites, Sphaerosponga, Hexabactron, Amphipsongia, and Tetragonitis are described. Some of Rauff’s (1892) figures of Ischadites murchisoni, I. koenigi, and Receptaculites neptuni are reproduced. The orders Dasycladales and Receptaculitales are placed in the class Squamuliferi Sushchkin and the families comprised by these orders are described.

See also:
Cailleux, André
See:
Caldwell, W. G. E.
See:
Caley, John Fletcher


Receptaculites is listed from the uppermost beds of the Ordovician Blake River Formation on Cloche Island, Ontario (p. 26).


A sponge, Receptaculites canadensis Billings, occurs in the Cabot Head Member of the Lower Silurian Medina Formation in southern Ontario (p. 35).

Calvin, Samuel


The structure and affinities of the protozoan Cerionites dactylioides [sic] Owen from the Niagara of Iowa are discussed and figured. Cerionites, Pasceolus, and Lumulites (?) dactioloide are mentioned.

See also:
Calvin, S., 1893b.

This is identical to Calvin, S., 1893a.


*Cerionites dactylioides* [sic] Owen is listed from the Niagara series at various localities in Jones County, Iowa (pp. 71, 74, 79).


*Cerionites dactylioides* [sic] is an index fossil for part of the Silurian Niagara Limestone in Delaware County, Iowa (pp. 149–150).


*Receptaculites oweni* Hall is associated with a gastropod faunal zone and also forms two persistent *Receptaculites* faunal zones in the Galena Limestone at several localities in Winneshiek County, Iowa (pp. 90–91, 93–94, 141–142). *Ischadites iowensis* Owen occurs between the two *Receptaculites* zones (p. 94).

**Calvin, Samuel, and H. Foster Bain**


The problematic fossil *Receptaculites oweni* Hall, found throughout the Ordovician Galena Limestone in Dubuque County, Iowa, is particularly abundant in the *Receptaculites* zone (pp. 409–410, 424–425, 427, 429, 433). *Cerionites dactylioides* [sic] is a typical fossil of the Silurian Niagara Limestone in Dubuque County (pp. 454–456).

**Camacho, Horacio H.**


Receptaculitidae Eichwald is a family of possibly aberrant sponges (p. 163). Ordovician *Receptaculites* sp. [*R. camacho* Nitecki & Forney] from Argentina and *R. occidentalis* Salter from Canada are figured (figs. VIII, 2, n–p, on p. 156). *Receptaculites bolivianus* Branisa is known from the Devonian of Bolivia.

**Cameron, Barry**


**Campbell, Gregg T.**


**Campbell, Kenton S. W., D. J. Holloway, and W. D. Smith**


*Hexabactron* n. gen. and *H. borenorense* n. sp. from the Middle Silurian of New South Wales are described and illustrated. The mode of preservation makes it clear that the apertural pole was the lower one, which during life was buried in the sediment. Interpretations of the orientation and mode of growth of some previously described receptaculitids are reassessed, and the lower pole can be consistently interpreted as generative. Receptaculitids are not related to the Porifera, but no conclusive evidence against a relationship with the algae has so far been produced. Rietschel's view that they are a separate order of Thallophytes is supported.

**Carlson, John E.**


*Receptaculites, Ischadites, and R. oweni* Hall of the lower *Receptaculites* zone are found in the Prosser Member of the Ordovician Galena Dolomite in the lead-zinc district of Wisconsin (pp. 114–115, pl. 9).

**Carozzi, Albert V.**

Carrier, John B.

See:
Miller, A. K., and J. B. Carrier, 1942.

Carss, B. W.

See:

Cebull, S. E.


*Receptaculites* is abundant in beds of the Ordovician upper Pogonip Group south of Scofield Canyon in the Grant Range, Nye County, Nevada (p. 1839).

Chamberlin, Thomas Chrowder


*Receptaculites oweni*, *R. globosus*, *R. iowensis*, and *R. globularis* from the Lower Silurian [Ordovician] Galena Limestone and *R. hemisphericus* and *R. infundibuliformis* from the Racine beds of the Silurian Niagara Group are found in various eastern Wisconsin localities (pp. 307–314, 320, 372).


*Receptaculites oweni* is listed from the [Ordovician] Galena Limestone of southwestern Wisconsin (p. 410).


*Receptaculites oweni* Hall, which is characteristic of the Lower Silurian [Ordovician] Galena Limestone, is discussed and figured (pp. 166–167, 169; fig. 38). Its taxonomic position is unknown, but it may be a gigantic foraminifer. Two small species of *Receptaculites* occur in the Silurian Racine beds (p. 189).

Chamberlin, Thomas Chrowder, and Rollin D. Salisbury


The Ordovician sponges *Receptaculites occidentalis* Salter and *Ischadites* sp., sometimes regarded as foraminifers, are illustrated (text-fig. 168). In the Silurian, the *Receptaculites* family, of doubtful zoological affinities, was chiefly represented by *Ischadites* (p. 408).


The Ordovician sponges *Receptaculites occidentalis* Salter and *Ischadites* sp., sometimes regarded as foraminifers, are illustrated (text-fig. 395). *Receptaculites oweni* is figured as a Silurian [Ordovician] sponge (text-fig. 405). The problematical *Receptaculites* family had passed its climax by the Silurian period (p. 553).

Chapman, Frederick


Silurian *Receptaculites fergusoni* n. sp. from
Victoria; Middle Devonian *R. australis* from New South Wales and Victoria and Carboniferous [*?*]. *R. australis* from Queensland are described and figured. *Receptaculites, R. neptuni,* and *Sphaerospongia* are mentioned.


The Carboniferous [*?] *Receptaculites,* Ordovician *Receptaculites* sp., and the Silurian *Ischadites* are sponges in the National Museum of Victoria (p. 22).

Chappars, Michael Stephen


Cotypes of Ordovician *Pasceolus claudiei* Miller and *P. darwini* Miller are housed in the University of Cincinnati Museum (p. 32).

Charlet, Jean-Marie

See:


Chatterton, Brian D. E.


The *Receptaculites* Limestone Member of the Taemas Formation in New South Wales is mentioned (pp. 371–373).

Chavan, André, and André Cailleux


*Receptaculites,* which resembles a sponge, is described as a Silurian to Devonian "Cyathozoaire" (p. 173).

Chernuishev, Theodosiy Nikolaevich

1893. Fauna nizhnago devona vostachnago sklona Urala. Trudy geologicheskago komiteta, tom iv, no. 3 i posljedni. Die fauna des unteren Devon am Ostabhänge des Ural.


Lower Devonian hydrozoan *Receptaculites* sp. from Gosudarnyi Lai, near highway from Kushva to Iye factory, is described and compared with *R. infundibuliformis* Eaton (pp. 102–103). Lower Devonian hydrozoan *Pasceolus* Billings is described (pp. 103–104) and compared with *Cyclocrinus, C. spasskii,* *Receptaculites,* *P. claudii,* *P. darwini,* *P. globosus,* *P. gregarius,* *P. halli,* and *Sphaerospongia.* *Pasceolus exilis* Eichwald (= *Cyclocrinus exilis* Eichwald 1860), from limestone of River Talty, below mouth of Bobrovka River near Bogoslovsk, is described and figured (pp. 104–105, pl. 12, figs. 17–21), and compared with *Receptaculites* and *P. halli.*

[In German the name of the author is Thomas Tschernyschew.]

Chesters, K. I. M.

See:


China, W. E.

See:


Christie, Robert L.


Late Ordovician *Receptaculites* cf. *arcticus* is listed from northeastern Ellesmere Island (p. 20).


The upper Cornwallis Formation of the Canadian Arctic Archipelago contains *Receptaculites* as part of the Arctic Ordovician fauna (p. 49). *Receptaculites* occurs throughout the Cornwallis Formation at Copes Bay, Ellesmere Island, Canada, and *R. arcticus* is found in the Ordovician Troedson Cliffs Formation in Washington Land and Inglefield Land, Greenland (fig. 4).

Upper Ordovician (Edenian) Receptaculites sp. is found on Somerset Island in the Northwest Territories (pp. 7, 12).


Receptaculites sp. is found in the Franklin Strait Formation (Middle and Upper Ordovician, in part) of the Boothia Peninsula region (p. 26). Receptaculites belongs to the Arctic Ordovician fauna of the Thumb Mountain, Irene Bay, and Allen Bay Formations of Cornwallis and Ellesmere Islands (p. 27).


Receptaculites arcticus is found in the Middle Ordovician Croker Bay Formation (tentatively correlated with the Cornwallis Group) west of Dundas Harbour on Devon Island (p. 225).

See also:

Chronic, John


Ischadites cf. iowensis (Owen) and Receptaculites cf. oweni Hall are listed as Ordovician Porifera from the Ferris outlier in Albany County, Wyoming (p. 145).


Receptaculites sp. is listed from the Upper Ordovician Ferris outlier in southeastern Wyoming (p. 25).

Chronic, John, Malcolm E. McCallum, Clinton S. Ferris, Jr., and David H. Egglcr


Receptaculites cf. oweni Hall and Calathrium [sic] (?) sp. are listed as Porifera from Late Ordovician diatremes on the Colorado-Wyoming border (p. 153).

Church, Stephen B.


Calathium, a possible frame-building receptaculitid alga, is figured from the Lower Ordovician reefs in the Fillmore Formation of western Utah. The classification, life orientation, form, and structure of Calathium are discussed.


Calathium, a possible receptaculitid alga, forms
patch reefs in the Lower Ordovician Fillmore Limestone in the House Range of western Utah (p. 155).

**Chuvashov, Boris Ivanovich**


*Ischadites* from a Lower Devonian association of reef-forming algae in the Ural region of the USSR is mentioned (p. 126).

See also:

Chuvashov, B. I., 1969.


This is an English translation of Chuvashov, B. I., 1967.

**Clark, David L.**

See:


**Clark, Thomas Henry**


Trenton [Ordovician] *Receptaculites* is found in the St. Casimir Formation along the St. Lawrence River in Quebec (pp. 16–17).

**Clark, Thomas Henry, and Donald Alan Wright Blake**

1952. Ordovician fossils from Waswanipi Lake, Quebec. Canadian Field Naturalist, vol. 66, no. 5, pp. 119–121, 1 text-fig.

*Receptaculites oweni* Hall is found in Richmondian (?) Ordovician limestone near Waswanipi Lake, Quebec (p. 119).

**Clarke, John Mason**


*Receptaculites* sp. is listed from the youngest Devonian strata of the Chemung Group at the summit of High Point in Ontario County, New York (p. 22).

See also:

Clarke, J. M., 1885b.


*Receptaculites* sp. occurs in the Devonian Chemung Beds at High Point, Naples, New York (p. 106).

See also:

Clarke, J. M., 1885a.


*Coscinopora macropora* [*Receptaculites* sp.] is listed from the second graywacke on Becroft Mt., near Hudson (p. 34).


This is identical to Clarke, J. M., 1892a.

Ischadites bursiformis, I. squamifer, Receptaculites bursiformis, R. infundibuliformis, R. monticulatus, R. neptunii?, R. oweni, and R. subturbinatus have appeared in publications of the New York State Natural History Survey and New York State Museum (pp. 581, 627).


The sponge Receptaculites jonesi Billings is reported from Cape Gaspe in the upper part of the Lower Helderberg Group and the Forillon of the Grande Greve beds (pp. 46, 225, 249). Billings' (1865) description is given.

1920. Seventeenth report of the director of the State Museum and Science Department. Bulletin of the New York State Museum, nos. 239–240, 63 pp., 12 pls, 1 map.

Receptaculites [Ischadites planoconvexus Nitecki 1972] from the Clinton at Verona Station, Oneida County, New York, is illustrated (facing p. 24).

See also:
Hall, J., and J. M. Clarke, 1898a, 1898b, 1898c, and 1899.

Clarke, John Mason, and D. Dana Luther

1904. Stratigraphic and paleontologic map of Canandaigua and Naples Quadrangles. Bulletin of the New York State Museum, 63, Paleontology, 7, 76 pp., 1 map.

Receptaculites sp. is listed from the Devonian High Point Sandstone of the Naples Quadrangle, Ontario County, New York (p. 64).

Clarke, John Mason, and Rudolph Ruedemann


The types of the protozoan? Receptaculitidae: Devonian Ischadites bursiformis Hall 1883 and I. squamifer (Hall 1859) from New York State, and Silurian Receptaculites sacculus Hall 1879 from Indiana are housed in the New York State Museum in Albany (pp. 11–12).


This is identical to Clarke, J. M., and R. Ruedemann, 1903.

Clarke, William Branwhite

1860. Researches in the Southern Gold Fields of New South Wales. Reading and Wellbank, Sydney, 305 pp., 1 text-fig., 1 map.

Receptaculites clarkii (Salter) from the Silurian of the southern districts of New South Wales is listed as an echinoderm (p. 286).


Upper Silurian Receptaculites is found in the Southern Gold Fields of New South Wales.

See also:
Clarke, W. B., 1867b, 1868, 1870, 1875a, and 1875b.


This is identical to Clarke, W. B., 1867a.

See also:
Clarke, W. B., 1868, 1870, 1875a, and 1875b.


This is identical to Clarke, W. B., 1867a.

See also:
Clarke, W. B., 1867b, 1870, 1875a, and 1875b.

1870. Remarks on the sedimentary formations of New South Wales, illustrated by references
to other provinces of Australasia, 2nd ed. The Industrial Progress of New South Wales, 27 pp. [Prepared for the Intercolonial Exhibition of 1870 at Sydney.]

This is almost identical to Clarke, W. B., 1867a.

See also:
Clarke, W. B., 1867b, 1868, 1875a, and 1875b.


This is almost identical to Clarke, W. B., 1867a.

See also:
Clarke, W. B., 1867b, 1868, 1870, and 1875b.

1875b. Remarks on the sedimentary formations of New South Wales, illustrated by references to the other provinces of Australasia, 3rd ed. Sydney, 61 pp., 2 pls., 1 map.

This is almost identical to Clarke, W. B., 1867a.

See also:
Clarke, W. B., 1867b, 1868, 1870, and 1875a.

1878. Remarks on the sedimentary formations of New South Wales, illustrated by references to other provinces of Australasia, 4th ed. Richards, Sydney, 165 pp., 5 pls., 5 maps.

Receptaculites neptuni and R. clarkei [R. australis?] are listed (pp. 16, 151).

Cline, Lewis M.

See:

Cloud, Preston E., Jr.

See:

Cloud, Preston E., Jr., and Virgil E. Barnes


Cloud, Preston E., Jr., and Allison R. Palmer

Lithistid sponges resembling Archaeoscyphia or Calathium are present in Texas in several zones, probably high in the Lower Ordovician, in rocks similar to the Arbuckle Group. Receptaculites is found in a post-Lower Ordovician but pre-Carboniferous core from Texas (pp. 79, 83).

Clough, C. T.

See:
Peach, B. N., and others, 1907.

Cocks, Leonard R. M., and Peter Toghill

Dasyclad alga Mastopora is listed from the base of the Silurian, and M. fava (Salter) from the Silurian Glenwells Shale and Newlands Farm Formations in the Girvan District in Scotland (pp. 214–215, 221).

Coen-Aubert, Marie, Eric Groessens, and Robert Legrand

Receptaculites from the Upper Devonian, Fras-
nian, Bovesse Formation in Tournai, Belgium, is listed (pp. 248, 259–260, fig. 6).

Cohenour, Robert E.


The Lower Ordovician Pogonip Group in the Sheprock Mountains of northwestern Utah contains *Receptaculites* sp. in the Juab Formation and the Kanosh Shale and *R. ellipticus* in the Juab Formation (pp. 74–75, 156, 158, 183, 185).

Colbert, Edwin H.

See:

Cole, Virgil B.

See:
- Branson, E. B., and V. B. Cole, 1941.

Collier, Arthur J.


A lithistid sponge similar to *Calathium* is found in the Lower Silurian [Ordovician] Port Clarence Limestone in the western part of the Seward Peninsula (p. 20).


The Silurian [Ordovician?] Port Clarence Limestone north of Port Clarence, Alaska, contains a lithistid sponge similar to *Calathium* (p. 75).

Collin, L. [Léon?]

1912. Étudé de la région dévonienne occidentale du Finistère. Thèses présentées à la faculté des sciences de l'Université de Paris pour obtenir le grade de Docteur ès-Sciences Natu-

relles. Séries A., L. Bourgeon, Brest, France, 444 pp., pls.

The hexactinellid sponges *Receptaculites* sp. and *R. neptuni* are discussed, and *R. seunesi* n. sp. from the Devonian of Finistere, France, is described and illustrated (pp. 442–444, pl. 1).

Collins, Lorence G.

See:

Collinson, Charles W.


*Sphaerospongia* sp., *Ischadites* sp., and *Receptaculites* sp. from Illinois are illustrated as sponges (pp. 10, 12, pl. 1).

See also:

Collinson, Charles W., D. H. Swann, and Harold Bowen Willman


*Receptaculites oweni*, an index fossil for the Ordovician Kimmswick Limestone, is common in Pere Marquette State Park, Illinois (p. 39).

Colquhoun, Donald J.


The sponge *Receptaculites occidentalis* Salter occurs in the Rocklandian Ordovician near Deux Rivieres on the Ottawa River, the Ottawa Formation, the Rockland beds of the Ottawa Valley.
and Paquette Rapids, Ontario, the Coboconk and Kirkfield Formations of the Lake Simcoe area, and the Cloche Island Formation on Manitoulin Island, Ontario (pp. 90–91).

Cone, George C.

See:

Conrad, Timothy A.


Dictuocrinites Conrad is figured (fig. 22 on pl.).

See also:
Hall, J., 1862a.

Cook, Donald G., and James D. Aitken


The Middle Devonian Hume Formation of the Northwest Territories, Canada, contains Sphaerospongia tessellata (pp. 28–29).

Cooper, Byron N.


Receptaculites occidentalis Salter and Nidulites pyriformis Bassler are found in the Ordovician (Black River) Chambersburg Limestone in the Draper Mountain area of Virginia (p. 33). A similar if not conspecific form of Nidulites occurs with Receptaculites in the Ottossee Formation (p. 33).


The Middle Ordovician sponges Nidulites, N. pyriformis, and Receptaculites from the Ward Cove Member of the Cliffide Formation, N. pyriformis from the Athens Formation, and Receptaculites and R. biconstrictus from Wardell Formation are found in several localities in the Burkes Garden Quadrangle, Virginia (pp. 43–45, 50, 52–53, 70–71, 84–85; pls. 5, 8).


The following Ordovician fossils from the Clinch Valley district of western Virginia are listed: Receptaculites and Nidulites from the Ward Cove and Rockdell Limestones; N. pyriformis from the Rockdell Limestone; Receptaculites, R. biconstrictus, and R. occidentalis from the Wardell Formation; and Receptaculites and Isehadites from the Benbolt Formation (pp. 47, 90, 137, 140, 146–147, 156, 163, 166, 169–171, 180, 209, 213, 215–217, 231, 233, 239, 241, 247).

Cooper, Byron N., and G. Arthur Cooper


Nidulites sp., N. pyriformis, Receptaculites sp., and R. cf. occidentalis are present in various Middle Ordovician formations at several localities in the Shenandoah Valley, Virginia. Nidulites ovoides is found in the Middle Ordovician Lincolshire Limestone and Nidulites sp., N. pyriformis, and Receptaculites cf. occidentalis are found in the Edinburg Formation. Nidulites pyriformis is figured (pl. 2, figs. 3–4) and its value as an index fossil is discussed.

Cooper, Byron N., and Chilton E. Prouty


Nidulites sp., N. pyriformis Bassler, Receptaculites sp., and R. biconstrictus Ulrich from various Lower Middle Ordovician formations in Tazewell County, Virginia, are reported as sponges (pp. 828–830, 838–839, 841, 850, 853, 856–858, 863, 866, 868, 873–874, 883–885).

Cooper, G. Arthur

Nidulites zones containing *N. pyriformis* are present in the Edinburg Formation of west-central and northern Virginia (pp. 46, 59-60, 65, 71, 89). *Nidulites* also occurs in the Rockedall Formation of Virginia and the Quebec City Formation near Quebec; *N. pyriformis* characterizes the Ward Cove Formation in Virginia (pp. 87, 95). *Receptaculites* from the Pogonip Group of Nevada and the Orlando Formation of the Appalachian Valley, *R. occidentalis* from the Jacksonburg Formation of northwestern New Jersey and Pennsylvania, and *R. oweni* from the Kimmswick Limestone of Missouri and Tennessee are listed (pp. 70, 103, 127). All are Ordovician.


Receptaculitids are uncommon and poorly known in the early Middle Ordovician of the United States (p. 181).

See also:
Cooper, B. N., and G. A. Cooper, 1946.

**Cooper, G. Arthur, and James Stewart Williams**


*Receptaculites* sp. from the Upper Devonian Tully Formation of New York is listed (p. 855).

**Copeland, M. J.**

See:

**Copeland, M. J., and Thomas E. Bolton**


*Cyclocrinites* sp. from the Silurian Gun River Formation along the Shallop River of central Anticosti Island, Quebec, is listed as an alga (p. 521).

**Copper, Paul**


The dasycladacean algae *Cyclocrinites* and *Ischadites* are reported from the Ordovician-Silurian of Anticosti Island, Quebec (p. 274).


Receptaculitids dominated the *Receptaculites-Gonioeceras* community of the upper member of the Ordovician Cloche Island Formation on Manitoulin Island. *Receptaculites* sp. is figured (pp. 47, 49, 53; text-fig. 4; pl. 1, fig. 5).

**Corbett, K. D., and Maxwell R. Banks**


Dasycladacean *Ischadites*, "*Receptaculites*" of earlier reports, is listed from the Ordovician Gordon Sub-group in southwest Tasmania (pp. 222-223).

**Cornwall, Henry R., and Frank J. Kleinhampel**


The spongelike *Receptaculites elongatus* Walcott is found in the Early and Middle Ordovician Pogonip Group in the Bare Mountain Quadrangle of Nevada (text).

**Corsin, Paul**

See:

**Cote, William E.**

See:

**Cote, William E., David L. Reinertsen, and Myrna M. Killey**

Receptaculites is found in the Middle Ordovician Kimmswick Limestone in the Thebes area of Illinois (p. 30).


The sponge Receptaculites is abundant in the upper Wise Lake Formation and in the middle and upper Dunleith Formation near Freeport, Illinois (p. 10). Ordovician Ischadites [iowensis] and Receptaculites [oweni] are figured.


Ordovician Ischadites [iowensis] and Receptaculites [oweni] from Wisconsin and Illinois are figured (unnumbered pl.). Receptaculites zones are found in the Dunleith and Wise Lake Formations in the Galena area (fig. 2). Receptaculites, of unknown taxonomic status, occurs in the Dunleith Formation in Wisconsin (p. 6) and in the Wise Lake Formation in Illinois (p. 9).

Cote, William E., David L. Reinertsen, and George M. Wilson


Ordovician Ischadites [iowensis] and Receptaculites [oweni] are figured (unnumbered pl.).


Ordovician Ischadites [iowensis] and Receptaculites [oweni] are figured (unnumbered pl.).


Ordovician Receptaculites [oventi] and Ischadites [iowensis] are figured (unnumbered pl.).

See also:


This is identical to Cote, W. E., D. L. Reinertsen, and G. M. Wilson, 1967b.

Cote, William E., David L. Reinertsen, George M. Wilson, and Myrna M. Killey


Receptaculites, an unknown animal, is abundant in the Ordovician Galena Dolomite in the Mt. Carroll area of Illinois (p. 10). Ordovician Receptaculites [oweni] and Ischadites [iowensis] are figured (unnumbered pl.).

See also:


This is identical to Cote, W. E., D. L. Reinertsen, G. M. Wilson, and M. M. Killey, 1969.

Courtright, T. R.

See:

Cowie, J. W.

1961. The Lower Paleozoic geology of Green-land; pp. 160–169, 1 text-fig. In Raasch, Gil-
Receptaculites arcticus Etheridge is found in the Middle Ordovician Heimbjerge Formation in East Greenland (p. 163).


Ordovician (Mohawkian) Receptaculites from the Heimbjerge Formation of East Greenland is listed (p. 283).

Cowie, J. W., and P. J. Adams

Receptaculites arcticus Etheridge from the Heimbjerge Formation of Greenland is listed. Receptaculites arcticus Etheridge represents a number of species; its presence has been used to correlate and date rocks from Baffin Land and Northwest Greenland. It may indicate a Trenton age (pp. 40–42, 71–72).

Cox, Guy Henry

Receptaculites oweni is abundant throughout the [Ordovician] Galena Dolomite of the northwestern Illinois lead and zinc district (pp. 26, 104).

Craig, James, Jack Devine, Peter McGill, and Robert Meneley

The receptaculitid Sphaerospongia tessellata (Phillips) is diagnostic of the Middle Devonian (Givetian) Keg River Formation of northern Alberta (p. 134).

Crawford, Ralph Dixon

Ordovician Receptaculites oweni Hall is found in the Tomichi Limestone and in the Fremont Limestone of Colorado (pp. 60–61).

Crawford, Ralph Dixon, and Philip George Worcester

Receptaculites oweni occurs in the Upper Ordovician upper Yule [now Fremont] Limestone of the Gold Brick district, Colorado (p. 56).

Crickmay, Colin Hayter

Sphaerospongia tessellata Phillips is found in the Middle Devonian Winnipegosan Formation (Member 3 of the Elk Point Formation) in Manitoba (pp. 150, 154).

1960. The Older Devonian Faunas of the Northwest Territories. Published by the author, Calgary, Alberta, 20 pp., 11 pls.

Sphaerospongia tessellata (Phillips) occurs in the Atrypa arctica fauna of the Devonian Hare Indian Shale, Northwest Territories (p. 2).

Croneis, Carey

Ordovician Receptaculites oweni is less com-
mon in the upper Kimmswick Formation in Arkansas than it is farther north (p. 31).

Crunton, Carey, and William C. Krumbein


The Middle Ordovician index fossil *Receptaculites*, a sponge or coral, is found in the Trenton limestones of the north-central United States (pl. 42).

Crosby, Percy

See:

Crumpton, Rusian P.

See:

Cullison, James S.


(*Calathium*) *Archaeoscypitia* (Dake & Bridge 1932) from the Lower Ordovician Ellenburger Limestone of Texas is reported (p. 23).

Cummings, Edgar R., and Robert R. Shrock

1928. The geology of the Silurian rocks of northern Indiana. Indiana Department of Conservation, Division of Geology, Publication 75, 226 pp., 78 text-figs.

*Receptaculites* sp. from the Silurian Huntington Dolomite at Ridgeville, Indiana, is listed as a sponge (pp. 97, 189).

Cumming, L. M.


*Receptaculites* sp. is found in the Upper Ordovician Portage Chute Formation of the Bad Cache Rapids Group, southwest of Hudson Bay (pp. 15, 18, 23, 25, 29, 35, 37, 45, 56). *Cyclocrinites* sp. (= *Pasceolus* Billings 1857, or *Nidulites* Salter 1851) and *Cyclocrinites* (?) sp. occur in the Richmondian Churchill River Group along Gods River, west of Hudson Bay. *Cyclocrinites* is also found in the Upper Ordovician (?) Jupiter Formation on Anticosti Island (pp. 43–44).

See also:

Currie, Ethel D., and Wilfred Norman Edwards


Ordovician *Mastopora parva* (Nicholson and Etheridge) and Silurian *M. fava* (Salter) from the Girvan district in Great Britain, are described and illustrated as dasycladaceous algae. *Mastopora* Eichwald (= *Nidulites* Salter 1851) of sub-family Cyclocrinae is discussed and compared with *Coe-losphaeridium*, *Cyclocrinites* (= *Cyclocrinus* Eichwald and *Pasceolus* Billings), and *Apidiun*. Three additional species of *Mastopora* are recognized: *M. concava* Eichwald 1860, *M. odini* Stolley 1898, and *M. pyriformis* Bassler 1909. *Cyclocrinites hospitalis* (Salter) and *Apidiun rotundum* Hoeg are mentioned.

Currie, K. L.


*Receptaculites* is part of a Middle Ordovician Wilderness assemblage in limestone outliers near the Manicouagan resurgent caldera of Quebec. *Receptaculites chidensis* [nomen nudum] occurs in parting planes in rocks overlying the limestone (p. 32).

Cygan, Norbert E., and Frank L. Koucky


The Ordovician pleosponge *Receptaculites* and
R. cf. oweni are listed from the Lander Sandstone and from the Bighorn Dolomite on the east side of the Big Horn Mountains in Wyoming (pp. 29, 31-33).

Dacqué, Edgar


Receptaculitids, usually placed among sponges, are described. Figures of Sphaeronites tessellatus (from Phillips 1841) and Receptaculites neptuni (from Rauff 1892) are reproduced (pp. 597-598; fig. 281).

Dake, Charles Laurence, and Josiah Bridge


Calathium sp., conspecific with an undescribed sponge from the Jefferson City Dolomite of Missouri, is found in the [Ordovician] Ellenburger Limestone of the central mineral region of Texas (p. 738; pl. 12, fig. 15). Similar sponges are found in the Monument Spring Dolomite and the El Paso Limestone of Texas (p. 741).

Dall, William Healey

See:

Dalvé, Elizabeth


The following Ordovician (Richmond) taxa are listed: Ischadites circularis (Emmons), of uncertain taxonomic position, from the Fairmount, Corryville, and Mt. Auburn Formations of the Maysville Group (pp. 23, 31, 34); Pasteoeolus claudiei Miller and P. darwini Miller from the Bellevue Formation of the Maysville Group (p. 26); P. camdenensis Foerste from the Sunset and Oregonia Members of the Arnheim Formation (p. 37), the Liberty Formation (p. 46), the Lower Whitewater, Saluda, and Upper Whitewater Members of the Whitewater Formation (p. 52), and the Elkhorn Formation (p. 55).

Dames, W. [Wilhelm Barnim ?]


Devonian Receptaculites neptuni Defrance from Ober-Kunzendorf in Lower Silesia is described and illustrated (pp. 483-488, pl. 10, fig. 1). No similarities exist between Receptaculites and the gemmulae of Spongilla.

Receptaculites, Tetragonis, and Ischadites form the family Receptaculitidae within the Foraminifera. Receptaculites also occurs in shales of Carboniferous age at Rothwaltersdorf.

Dana, James Dwight


Coscinopora Goldfuss [Fisherites ?], restricted by Blainville to species with characteristics similar to C. infundibuliformis, is described in the Madrepore tribe. Receptaculites Defrance (included by Blainville in R. neptuni) from Chismay is described. The classification of Receptaculites is uncertain because it differs from Recent corals. Some of Goldfuss’s Coscinopora [Receptaculites neptuni?] species are included with Receptaculites. Tetradium is similar to Receptaculites (pp. 693, 700-701).


Receptaculites neptuni Defrance occurs in the Lower Silurian [Ordovician] Trenton or Hudson in the United States, Canada (Lake Winnipeg), and Europe. Receptaculites neptuni is found in the Upper Silurian of the American Arctic and in Great Britain, Belgium, Eifel, and the United States. The “Receptaculite” limestone of the Lower Silurian [Ordovician] Trenton beds in Missouri is mentioned (pp. 224, 262, 383).
See also:
Dana, J. D., 1864[?], 1871, 1875[?], 1880, and 1895.


This is almost identical to Dana, J. D., 1863.

See also:
Dana, J. D., 1871, 1875[?], 1880, and 1895.


This is almost identical to Dana, J. D., 1863.

See also:
Dana, J. D., 1863, 1864[?], 1875[?], 1880, and 1895.


This is almost identical to Dana, J. D., 1863.

See also:
Dana, J. D., 1863, 1864[?], 1871, 1880, and 1895.


Receptaculites occurs in the Ordovician (Trenton) Wappinger Valley (or Barnegat) Limestone near Poughkeepsie, New York (p. 381).


The following sponges are listed: Lower Silurian [Ordovician] Calathium (?) pannosum Billings and C. anstedi (?) Billings from Point Levis and Newfoundland; Receptaculites spp. from east Tennessee; R. globularis and R. oweni from the [Ordovician] Galena Limestone of Wisconsin and Illinois; and Upper Silurian R. neptuni from the United States, Lake Winnipeg, the American Arctic, Great Britain, Eifel, and Belgium (pp. 190, 202, 209, 249). [Ordovician] R. calciferus from the Mingan Islands of Quebec is a possible rhizoped (p. 189). The [Ordovician] "Receptaculite limestone" from Missouri is mentioned (pp. 196, 378).

See also:
Dana, J. D., 1863, 1864[?], 1871, 1875[?], and 1895.


Receptaculites elegantulus is described and illustrated, and R. calciferus and Sphaerospongia tessellata are illustrated (pp. 497, 500, 597; text-figs. 597–598, 902a, b, c). The distribution of the following doubtful sponges is given: Receptaculites, R. elegantulus, R. calciferus, R. oweni, R. neptuni, R. globularis, R. iowensis, R. influndibuliformis, Receptaculites sp., Pasceolus sp., Ischadites, I. busiformis, and Sphaerospongia tessellata (pp. 513, 515–517, 524, 560, 562, 569, 584, 590, 596–597, 601).

See also:
Dana, J. D., 1863, 1864[?], 1871, 1875[?], and 1880.

Daniels, Edward


Coscinopora sulcata, the sun-flower coral, characterizes the [Ordovician] gray limestone in the lead-zinc region of Wisconsin (p. 15).
Dapples, Charles C.

See:

D'Archiac, Vicomte

See:
Archiac, Vicomte d'.

Darton, Nelson Horatio


Ordovician Receptaculites oweni occurs in the Fremont Limestone near Canon City, Colorado, in a fauna equivalent to the Lower Trenton of New York (p. 563).


Receptaculites oweni Hall occurs in the basal calcareous sandstone of the Ordovician Bighorn Limestone in the Wind River Mountains, Wyoming (p. 411).


Calathium anstedi and C. cf. anstedi are listed from the Lower Ordovician El Paso Limestone of the Silver City region and the Sacramento and San Andres Mountains, respectively (p. 36). Receptaculites sp. from Dog Canyon and R. cf. oweni Hall from the Sacramento Mountains and the Franklin Mountains near El Paso are found in the Ordovician (Richmond) Montoya Limestone (pp. 39–40).


Calathium anstedi Billings and C. cf. anstedi Billings are present in the Lower Ordovician El Paso Limestone in New Mexico near Silver City, in the San Andres Mountains and near Alamo-gordo (pp. 11, 185, 200). Receptaculites sp. is found in the upper member of the Upper Ordovician Montoya Limestone in the Sacramento Mountains (p. 200).

David, Tannatt William Edgeworth


The sponge Receptaculites australis is abundant in the Middle Devonian of the Murrumbidgee area, New South Wales (p. 51). It also occurs in Middle Devonian of Capertee, New South Wales, the Buchan and Bindi Formations in Victoria, and Middle-Upper Devonian Mt. Wyatt Series in Queensland (Table C, p. 51).

David, Tannatt William Edgeworth, and W. R. Browne


Silurian Receptaculites sp. and R. fergusoni and Devonian Receptaculites sp., R. australis, and Sphaeropsis from numerous localities in Australia are listed; R. australis is figured (pp. 193, 197, 231–236, 241, 257–258; pl. 25, fig. f).

Davis, Richard A., Jr.

See:

Dawes, Peter R.


A Middle Ordovician alga Receptaculites is found in the Gonioceras Bay Formation in Washington Land and the Borglum River Formation in Peary Land, northern Greenland. It also occurs in an unnamed Upper Ordovician formation in Hall Land-Wulff Land (pp. 270–272).

See also:
Peel, J. S., P. R. Dawes, and J. C. Troelsen, 1974.

NITECKI ET AL.: RECEPTACULITID ALGAE
Dawson, John William


*Receptaculites* is a foraminifer (p. 52).

See also:

Dawson, J. W., 1865b.


This is identical to Dawson, J. W., 1865a.


*Receptaculites*, possibly allied to archaeocyathids, is figured and described as probably an intermediate between foraminifers and sponges (pp. 162–164, figs. 46–48).

1888. Specimens of *Eozoon canadense* and their geological and other relations. Peter Redpath Museum Notes on Specimens, McGill University, Montreal, Quebec, 106 pp., 16 text-figs.

*Receptaculites* is probably a protozoan (p. 58).

1897. Note on *Cryptozoan* and other ancient fossils. Canadian Record of Science, vol. 7, no. 4, pp. 203–219, 3 text-figs.

Lower Ordovician to Carboniferous *Receptaculites* has been placed with foraminifers and sponges, but may be a survivor of an ancient type of protozoan (pp. 214–215).

Debrenne, Françoise


[Radiocysthid] “Dictyocysthus” macdonnelli

Bedford and Bedford is described and figured as an uncertain genus of archaocyathids from Lower Cambrian, Ajax Mine in South Australia (p. 196, fig. 4).


*Girphanovellae* Zhuravleva and *?Girvanovella* sp. are described and figured as Radiocysthia, family Girphanovellidae, from Cambrian, Lenian in Jbel Irhoud in Morocco (p. 128, pl. 5, fig. 2).

See also:


Debrenne, Françoise, Henri Termier, and Geneviève Termier


The Lower Cambrian family Heterocyathidae, *Radiocysthia*, *R*. minor, *R*. major, and *R*. tertiis are described and figured, and a new class Radiocysthia is established. The tendency of *Radiocysthia* to form skeletal plates similar to the structural plan of archaeocyathids represents a specialization in rapport with archaeos. However, the mesenchymatous character of its skeleton also evokes a pattern similar to that of echinoderms.


Radiocysthids represent animals more primitive than sponges, and are possibly close to a protozoan source of metazoan. They are without descendants, and are limited to the explosive period of archaeos. Their classification is as follows:

class Radiocysthia Debrenne, Termier and Termier 1971

Uranosphaeridae Bedford and Bedford 1936

*Kuraya* Romanenko 1968

*K. sphaerica* Romanenko 1968
K. hexaster (Bedford and Bedford 1934)
Uranosphaera Bedford and Bedford 1934
U. polyaster Bedford and Bedford 1934
U. ramosa Bedford and Bedford 1936
Gonamispongia Korshunov 1968
G. ignorabilis Korshunov 1968
Girphanovellidae fam. nov.
Blastasteria nov. gen.
B. bedfordorum sp. nov.
Girphanovella Zhuravleva 1967
G. girphanovae Zhuravleva 1967

All these lower Cambrian taxa are described and figured.

Dechen, [Ernst] Heinrich [Carl] von
1832. Handbuch der Geognosie von De la Bèche.

Scyphia [Sphaerospongia] cornu copiae Goldfuss is listed as a sponge (p. 517).


Lower Middle Devonian Receptaculites sp. and lower Upper Devonian R. neptuni from Germany are listed (pp. 139, 182-185).

Decker, Charles E.

Receptaculites occurs in the Ordovician Bromide Formation of the Simpson Group in Oklahoma (pp. 56, 58).

See also:

Decker, Charles E., and Clifford A. Merritt

The following Ordovician sponges are found in the Simpson Group of Oklahoma: Receptaculites in the Oil Creek Formation; R. occidentalis Salter, Ischadites iowensis (Owen) and I. cf. iowensis in the Bromide Formation; and Ischadites sp. in the middle Viola Formation (pp. 21, 46, 48, 54, 59-60, 68, 83-84). Receptaculites ranges from Oil Creek to the Viola Formation.

Deecke, W. [Johannes Ernst Wilhelm ?]

Cyclocrinus, Mastopora and Coelosphaeridium are green algae (pp. 470, 473).

Defrance, J. L. M.

[Devonian] Receptacles n. gen. neptuni n. sp. from Chimay, Belgium, is described and figured as a polyp.

De la Beche, Henry Thomas

“A very singular fossil” [Sphaerospongia tessellata] is figured. It appears to have been attached in the manner of the Alecynthia; but whether it is a coral or an intermediate between the Crinoidea and Echinodermata, has not yet been determined (p. 32).


[Devonian Sphaerospongia tessellata] from Devon is figured (pl. 20, figs. 1-2).

See also:
Broderip, W. J., 1835.

Delise, Knoxie Carlton
See:
Deloffre, Raoul

See:

Delury, Justin S.


Receptaculites oweni is found in Ordovician limestone near Bigstone and Limestone Lakes in Saskatchewan (p. 44).

Demanet, Félix

See:
- Maillieux, E., and F. Demanet, 1929.

Denis, Théophile C.

See:

DeRance, Charles Eugene

See:
- Feilden, H. W., and C. E. DeRance, 1878.

Deshayes, Gérard Paul


Receptaculites is a polyp from Chimay, Belgium (p. 486). [This marks the change in spelling in Receptacles Defrance 1827, to Receptaculites.]

Desparmet, Raymond

See:

Desparmet, Raymond, and Christian Montenat


Receptaculites occurs in the Devonian of Spina Kada, Afghanistan.

Devine, Jack

See:

Dewalque, Gustave


Receptaculites neptuni Defr. from the Devonian Frasnian stage at Givet, near Marche, Belgium, is listed (p. LXXXIV).

Diemberger-Sironi, M. A.

See:

Dings, McClelland G., and Charles S. Robinson


Receptaculites oweni is found in the Middle to Late Ordovician Fremont Dolomite in the Garfield Quadrangle of Colorado (p. 13).

Dixon, Lane P.

See:

Dorr, M. E.

See:
- Johnson, J. H., and M. E. Door, 1942.

Dow, Guy

See:

Dowling, Donaldson Bogart

*Ischadites canadensis* Billings and *Pasceolus halli* Billings are listed (pp. 233, 336).


*Receptaculites oweni* Hall, *Ischadites iowensis* (Owen), and *Pasceolus gregarius* Billings are found in the Trenton (Galena) around Lake Winnipeg, Manitoba (pp. 38, 40, 45, 48, 64, 68–70, 72–73, 76, 78, 81, 86).

Doyle, Frank Larry

The sponge *Receptaculites* is found in the Galena Ordovician Buckhorn, Fairplay, Mortimer, Rivoli, and Sherwood Members of the Dunleith Formation and the Stewartville Member of the Wise Lake Formation (pp. 4–5, 9–13).

Dresser, John A., and Théophile C. Denis

The following are listed: *Receptaculites neptunii* and *R. occidentalis* (?) from the Lake St. Jean-Saguenay area; *R. occidentalis* from the Ordovician Trenton Limestone in Quebec; *R. jonesi* from the Lower Devonian Grand Greve Formation of Gaspe Peninsula; and *Ischadites cf. squamifer* from the Middle (?) Devonian Gaspe Sandstone of eastern Gaspe (pp. 211, 213, 264, 325, 328). *Cyclocrinites intermedius* from the Gun River Formation of Anticosti is figured (pl. 39, fig. 8).

Drevermann, Fritz

The protozoan *Receptaculites Neptuni* Defr. is described and listed from Upper Devonian tuff-breccias in Langenaubach, Iberger Kalk, in Prussia (pp. 182, 184, 196, 206).

Drewes, Harald

A sponge resembling *Receptaculites* is found in the Funeral Peak Quadrangle of Death Valley, indicating a probable Ordovician age (pp. 12–13).

Droste, John B.
See:

Drushchits, Vladimir Vasilyevich

Upper Cambrian to Lower Carboniferous class *Receptaculida* is described in an addenda to sponges; Ordovician *Ischadites murchisonii* from the Baltic region and Devonian *Receptaculites neptunii* from the South Urals are figured.


Class (?) Receptaculita and family (?) Soanitidae are described as Metazoa of uncertain taxonomic position (pp. 163–164).

Drushchits, Vladimir Vasilyevich, G. G. Astrova, R. L. Merklin, and V. N. Shimanskii

NITECKI ET AL.: RECEPTACULITID ALGAE 47
The sponge, Class (?) Receptaculida is described (pp. 109–110). Ordovician *Ischadites murchisoni* Eichwald from the Baltic region and *Receptaculites neptuni* Defrance from the Urals are figured (fig. 66).

**Dujardin, Felix**


*Receptaculites* is a polyp.

**Du Montelle, Paul B.**

See:

**Dun, William Sutherland**

See:
Etheridge, R., Jr., and W. S. Dun, 1898.

**Dunbar, Carl O.**

See:
Schuchert, C., and C. O. Dunbar, 1934.

**Duncan, Donald**

See:
Lochman, C., and D. Duncan, 1944.

**Durkooop, A., H. Mensink, and G. Plodowski**


Upper Devonian *Receptaculites neptuni* from Doni Jarschi, Afghanistan, and Tabas, South Iran, is listed (pp. 541, 543).

**Dutro, J. Thomas, Jr.**


*Receptaculites* sp., which resembles *R. oweni* Hall from the Richmond [Ordovician] of Alaska and the western states, is mentioned (p. 262).

**Dwight, William B.**


*Receptaculites* from the Ordovician Trentonian Wappinger Valley ("Barnegat") Limestone near Poughkeepsie, New York, is described (pp. 389–390, 392).

**Dyer, William Spafford**


*Pasceolus* cf. *camdenensis* Foerste from the Erindale or Streetsville Member of the Ordovician Richmond Formation, near Streetsville, Ontario, is described (p. 61).

**Eardley, Armand John**


The sponge-like *Receptaculites* is an Ordovician index fossil (pp. 276–277, text-fig. 14-14).

**Earp, J. R.**

See:

**East, Edwin H.**


*Receptaculites mammillaris* Walcott from the Middle Ordovician Pogonip Group in the San Francisco Mountains of west-central Utah is listed (p. 911).

**Eastman, Charles R.**

See:
Zittel, K. A., 1896–1900 and 1913.
Easton, William Heyden

Receptaculitids are placed with sponges of uncertain taxonomic position but may belong to another phylum. Receptaculites and Ischadites are discussed, and R. occidentalis, R. mammillaris, R. oweni, R. neptuni, and I. iowensis are illustrated (pp. 116–118, text-fig. 38).

Eaton, Amos

Coscinopora from New York State [the first figured North American receptaculitid] and C. macropora, C. infundibuliformis (p. 132; pl. 5; text-figs. 64–65), and C. sulcata are described; they belong to the Reteporite family of the Radiata (pp. 43–44).

See also:

Edwards, Dianne
See:

Edwards, H. Milne
See:
Milne-Edwards, H.

Edwards, Wilfred Norman
See:

Eftekhar-Nezhad, J.
See:

Egerod, Lois Eubank

Ordovician Cyclocrinus belongs to the Dasyycladales. Its phylogeny is discussed, and C. porosus is illustrated (pp. 340–341; pl. 39, fig. h).

Egglar, David H.
See:

Ehrenberg, Kurt

The Ordovician to Carboniferous Receptaculitida, including Receptaculites and Ischadites, are sponges of uncertain taxonomic position.

Eichwald, Edouard

This is identical to Eichwald, E., 1840c.


This is the Russian version of Eichwald, E., 1840c.


Mastopora concava n. sp. (pp. 204–205) and Receptaculites orbis n. sp. (pp. 203–204) are described as corals. Cyclocrinites spaskii n. sp. (pp. 192–193), is described as a crinoid. Receptaculites orbis is compared with R. neptuni and Ischadites koenigii. All are from Estonia or the surrounding Baltic area.

_Coscinopora orbis_ Eichwald, _Mastopora concava_, and _Cyclocrinites spaskii_ Eichwald from the Ordovician of Estonia are mentioned (p. 13).


This is identical to Eichwald, E., 1840c, Part I.


This is Part I of Eichwald, E., 1840c.


This is the French version of Eichwald, E., 1840c.


This is the French version of Part I of Eichwald, E., 1840c.


This is Part II of Eichwald, E., 1840c.


This is Part II of the French version of Eichwald, E., 1840c.


This is identical to Eichwald, E., 1840c, Part II.


_Cyclocrinites spaskii_ from the “Kalkstein” of Dagoee, Munetas, and Birkas in Estonia is described and figured and is compared with _Ischadites Murch._ _Receptaculites bronni_ from Reval is compared with _Receptaculites Defrance_ and _Ischadites_ from the Ludlow Limestone. The zoo-phyte _Tetragonis n. gen. murchisonii_ n. sp. is described and figured and is placed in the same family as the problematic _Ischadites. Receptaculites orbis_ is listed. All are [Ordovician] probable corals (pp. 10, 32, 48–49, 80–83; pl. 1, figs. 8–9; pl. 3, fig. 18).


The following Ordovician [receptaculitids] from Estonia are described and figured: _Cyclocrinites spaskii_, pp. 48–49, pl. 1, fig. 8, _Receptaculites Bronnii_, pp. 80–81, pl. 1, fig. 9, and _Tetragonis Murchisonii_, pp. 81–83, pl. 3, fig. 18.


This is almost identical to Eichwald, E., 1842b.


This is almost identical to Eichwald, E., 1842a.


“Plant-animal” _Receptaculites orbis_ and _Mastopora concava_ are listed from the Lower Silurian [Ordovician] of Estonia (p. 540).


_Receptaculites bronni_ is described.

The following are listed: Receptaculites, R. Bronnii, R. orbis, R. neptuni, Mastopora concava, Tetragonis Murchisonii, Cyclocrinites Spaskii, Ischadites altaicus, and Zamia (pp. 354, 359–360, 370, 375, 384).


Receptaculites orbis and Cyclocrinites spaskii are figured.


Kutorga's 1842 Zamia rossica from the greywacke limestone of the Altai Mountains is not a plant but a coral similar to Tetragonis from the greywacke limestone of Estonia (p. 168).


Receptaculites orbis, R. bronnii, Ischadites eichwaldi, I. altaicus, Tetragonis sulcata, T. parvipora, Mastopora concava, Escharipora recta, Cyclocrinus exilis, and C. spaskii are figured (pl. 27, figs. 1–8; pl. 32, figs. 20–21).

See also:
Eichwald, E., 1860 and 1861.


[Echinospaerites] and Cyclocrinus are placed with Cystidea, and the following Russian species from the Grauwackenkalke are described: Echinospaerites tesselatus Phill. from Altai and the Northern Urals, and Cyclocrinus spaskii Eichwald from Russia (pp. 122, 124).


This is the same as Eichwald, E., 1855b, 1856, and others, bound in one volume.


The following Ordovician corals, the family Receptauculitidae, are described: Receptaculites Defrance, R. orbis Eichwald (= Echinospaerites tesselatus Schloth.), R. bronnii Eichwald, Tetragonis Eichwald, T. murchisonii Eichwald, T. sulcata Eichwald, T. parvipora Eichwald, Mastopora Eichwald, M. concava Eichwald, Escharipora Hall, E. recta Hall, Ischadites Koenig [sic], I. eichwaldi Schmidt, and I. altaicus Eichwald (pp. 427–439). Ordovician Cyclocrinus Eichwald, C. spaskii Eichwald, and C. exilis Eichwald from Russia are described as crinoids (pp. 637–640). Receptaculites neptuni, Coscinopora, C. placentia, C. sulcata, Ischadites Koenig, and Tetragonis danbyi are mentioned. Synonymies, geographic distributions, and stratigraphic ranges are given for all described taxa.
See also:

Eichwald, Eduard [Eduard]

The following [Ordovician] corals from Russia are described and some are figured: Receptaculitidae n. fam., Receptaculites Defrance, R. orbis Eichwald (= Escharites fomiculosus Schloth.) (pl. 6, fig. 1), R. bronni Eichwald (pl. 6, fig. 2), Ischadites Koenig [sic], I. eichwaldi Schmidt (pl. 6, fig. 3), I. altaicus Eichwald (pl. 6, fig. 4), Escharipora Hall, E. recta Hall (pl. 6, fig. 8), Tetragonis n. gen., T. murchisoni Eichwald (pl. 3, fig. 18), T. sulcata Eichwald (pl. 6, fig. 5), T. parvipora Eichwald (pl. 6, fig. 6), Mastopora n. gen., M. concava Eichwald (pl. 6, fig. 7). The following [Ordovician] crinoids from Russia are described and figured: Cyclocrinites n. gen., C. exilis Eichwald (pl. 11, fig. 20), and C. spaskii Eichwald (pl. 11, fig. 21). Receptaculites neptuni Defrance, Ischadites koenigi Lonsd. [sic], Coscinopora, C. placenta, C. sulcata, Tetragonis danbyi, and Zamia are mentioned (pp. 81–87, 181–182).

See also:
Eichwald, E., 1855a and 1860.

Einasto, R. F.
See:

Elfas, Maxim K.
1947. Permopora keenae, a new Late Permian alga from Texas. Journal of Paleontology, vol. 21, no. 1, pp. 46–58, pl. 18, 8 text-figs., 1 table.

Nidulites, Pasciulites [sic], and Cerionites are mentioned (p. 55). Ordovician Mastopora (Nidulites) pyriformis (Bassler) is figured and compared with Permpora (p. 55; pl. 18, figs. 12–14). All belong to family Dasycladaceae.

Elliott, Graham Francis
1968. Permian to Palaeocene calcareous algae (Dasycladaceae) of the Middle East. Bulletin

of the British Museum (Natural History), Geology, Supplement 4, 111 pp., 16 figs., 24 pls.

Cyclocrinite Pia 1920 is listed as a dasycladacean tribe (p. 14).


Older Palaeozoic Mastopora is a highly organized and calcified dasycladaceous (p. 641).


Rietschel (1969) believes that receptaculitids are an order of green algae, the Receptaculitales, distinct from dasyclads. Ischadites sp. is illustrated and its plate orientation is compared to that of a modern non-calcified green alga, Dictyosphaeria. Dasycladaceous Mastopora (tribe Cyclocrinite) and Upper Ordovician M. parva and Lower Silurian M. fava are described and figured. The alleged reproductive structures of M. parva are considered inorganic. An early non-calciﬁed growth stage of M. fava is described. All are from the Girvan area of southern Scotland.

Ellis, Mary

Ischadites bursiformis, I. squamifer, Receptaculites bursiformis, R. infundiformis, R. monitculatus, R. neptuni?, R. oweni and R. subarbinnatus, which appear in the publications of the New York State Natural History Survey and New York State Museum, are listed (pp. 581, 627).

Ells, Robert Wheelock

Receptaculites is found in basal beds of the [Or-
dovician] Trenton Limestone near Kingston, Ontario (p. 179).


The *Receptaculites* beds represent either the lowest part of the [Ordovician] Trenton Formation or beds below and transitional to the Trenton. *Receptaculites occidentalis* Salter occurs in these beds and in the [Ordovician] Black River Formation near the Ottawa River in Canada (pp. 33, 36).

**Elwes, Major E. V.**


The sponge *Sphaerospongia tessalata* Phillips is described from Lummaton and Wolborough [England].

**Ely, R. W.**

See:


**Emberger, Louis**


Ordovician *Apidiurn, Coelosphaeridium, and Mastopora*, and Upper Ordovician *Cyclocrinus* belong to the dasycladaceous Tribe Cyclocrinacea. General characters of the Cyclocrinacea are listed (pp. 68, 74–75). Silurian *Cyclocrinus* and *Mastopora* are also listed (p. 440). Ordovician *Cyclocrinus porosus* is figured (fig. 42, p. 69).

**Emerson, Benjamin Kendall**


A new species of *Receptaculites* unlike *R. occidentalis* or the species from the Galena Limestone, occurs in Silliman’s Fossil Mount, Baffin Island. *Receptaculites neptuni* is found in King William’s Land (pp. 553, 576).

**Emmons, Ebenezer**


*Receptaculites circularis* n. sp. from the Loraine [Lorraine] Shale and *R. neptuni* Defrance are described, illustrated, and placed with the zoophytes, or corals (p. 230; pl. 14, fig. 1; text-fig. 82).

**Emrich, Grover**

See:


**Endo, Riuji**


*Calathium frechi* n. sp., a sponge from the Upper Canadian Santao Formation in Manchuria, is described and illustrated and compared with *C. canadense* Billings (pp. 18, 38; pl. 30, fig. 9; pl. 31, figs. 5–6).


*Calathium frechi* Endo is a characteristic fossil of the Lower Ordovician Santao Formation in southern Manchuria.

1961. Phylogenetic relationships among the calcareous algae; 53 pp., 17 pls., 7 tables. The Science Reports of the Saitama University. Series B (Biology and Earth Sciences), Commemorative Volume Dedicated to Professor
The following Ordovician algae of the tribe Cyclocrineae are described, figured, and their stratigraphic distribution given: Apidium, A. pygmacum [sic] from Estonia; Cyclocrinus, C. spasskii from the Baltic region; Coelosphaeridium, C. cyclocrinum, Mastopora, and M. concava from Estonia; and M. pyriformis (pp. 18–19, 22, 40; pl. 4, fig. 7; pl. 5, fig. 7; pl. 7, figs. 3, 9). The algae Goldsonia, G. burntensis from the Clinton Pike Ann Formation, and Mastopora pyriformis are figured and described (p. 40; pl. 7, fig. 3; pl. 16, fig. 1). Phylogenies of all these taxa are given (table 2).

Engler, Heinrich Gustav Adolf

The “Cyclocrineae,” with six Palaeozoic genera, including Cyclocrinus, Coelosphaeridium, and Mastopora (p. 104) are listed as fossil dasycladacean algae.

Erdtmann, Bernd-Dietrich, and Dennis R. Prezbindowski

Receptaculites sp. from the Middle Silurian Mississinewa Shale near Huntington in northern Indiana is listed and illustrated as a dasycladaceous alga (pp. 353, 358, 372, fig. 10.8).

Etheridge, Robert
See:
Huxley, T. H., and R. Etheridge, 1865.

Etheridge, Robert, John Young, and Robert Etheridge, Jr.

Seven localities in southwestern Ayrshire, at which Silurian Nidulites favus Salter occurs, are listed (pp. 29–31, 33).

Etheridge, Robert, Jr.

The foraminifers Receptaculites australis Salter and R. clarkii Salter occur in the Upper Silurian [Devonian?] at Yarradong, near Yass Plains, New South Wales (p. 3).


The sponge Receptaculites arcticus n. sp. from the Lower Silurian [Ordovician] at Cape Louis Napoleon and Cape Frazer in the Arctic Archipelago, Grinnell Land, is described and compared with R. occidentalis and R. neptuni. Receptaculites occidentalis Salter from the same beds at Cape Louis Napoleon is described (pp. 571, 575–577).


The following British Silurian [Ordovician to Devonian] sponges are listed: Amphispongia oblonga Salter, Ischadites antiquus Salter, I. grindei Salter, I. koenigii Murchison, I. lindstromi Hinde, I. tessellatus Salter, Nidulites favus Salter, Pascoeolus goughii Salter, Receptaculites neptuni Defrance, Sphaerospongia hospitalis Salter, and Tetragonis danbyi McCoy; and Middle Devonian Sphaerospongia tesselata Phillips and Receptaculites neptuni (pp. 2–3, 136, 390, 427).

See also:
Etheridge, R., [John?] Young, and R. Etheridge, Jr., 1873.
Jack, R. L., and R. Etheridge, Jr., 1892.

Etheridge, Robert, Jr., and William Sutherland Dun
1898. On the structure and mode of preservation of Receptaculites australis Salter. Record


**Ethington, Raymond L.**

See:

**Evans, Thomas A., Jr.**

See:

**Everett, Oliver**

See:
- Ulrich, E. O., and O. Everett, 1890.

**Fagerstrom, John Alfred**


*Receptaculites* sp. and *Ehlersospongia* n. gen. *stellata* n. sp. from a middle Devonian bioherm in southwestern Ontario are described and illustrated as Receptaculitidae of uncertain phylum, class, and order (pp. 5, 22; pl. 3, figs. 21–24).

**Fairchild, Herman LeRoy**

See:
- LeConte, J., 1877.
- LeConte, J., and H. L. Fairchild, 1903.

**Fearnside, William George**


*Ischadites micropora* Hall [Salter] is listed from the Ordovician Derfel Limestone at Garn, east of Arenig, North Wales (p. 627).

**Feilden, Henry Wemyss, and Charles Eugene DeRance**


**Fenton, Carroll Lane, and Mildred Adams Fenton**


Middle to Late Ordovician *Receptaculites oweni* Hall from the central United States and Wyoming and Ordovician Trentonian *Ischadites iowensis* (Owen) from central North America are illustrated (p. 65). *Receptaculites* is a problematic organism (p. 69).

**Fenton, Mildred Adams**

See:

**Ferguson, Henry Gardner**


*Receptaculites mammillaris* is found in the Ordovician Pogonip Formation in Nevada (p. 19).

**Ferris, Clinton S., Jr.**

See:

**Field, Richard M.**


*Nidulites favus* from the Chambersburg Formation at Marion, Pennsylvania, and *Receptaculites occidentalis* from the Rodman and Cham-
bersburg Formations of Pennsylvania and the Stones River and Trenton Formations are listed (p. 424). A *Nidulites* zone is mentioned.

**Fillman, Louise (Chairman, Lexicon Committee)**

1958. Lexicon of Pre-Pennsylvanian Stratigraphic Names of West Texas and Southeastern New Mexico. West Texas Geological Society, Midland, Texas, 153 pp., 6 maps.

A sponge, *Calathium*, is common in the Lower Ordovician El Paso Formation (p. 50).

**Finks, Robert M.**


A Cambrian to Silurian *Calathium* Billings 1865 of uncertain affinities is excluded from the family Anthaspidellidae (p. 59).


S. A. Miller (1889) placed *Pasceolus* Billings in family Pasceolidae Miller 1889, *Cerionites* Meek and Worthen and *Receptaculites* Defrance (= *Selengoides* Owen) in family Receptaculitidae Eichwald 1860, and *Calathium* Billings in family Astylospongiidae Zittel 1877; thus Miller places *Pasceolus*, *Cerionites*, and *Receptaculites* with the Receptaculitida and *Calathium* with the Porifera (pp. 804–805).


Lower Ordovician *Nipterella*, which was referred to the lithistid group Rhizomorina by Hinde (1889), is probably an anthaspidellid related to *Archaeoscyphia* (p. 1145).


Receptaculitida, which may be algae rather than sponges, range from the Ordovician Arenig (earliest species *Receptaculites californus* Billings) to the Devonian Eifel (last species *Sphaerospongia tesselata* (Phillips) and *Receptaculites neptuni* Defrance) (pp. 334, 339–340). *Ischadites iowensis* (Owen) is included in the group, and its analysis as an alga by Kesling and Graham (1962) is cited. *Calathium* Billings, *Amphispongia* Salter, and *Pi-rania* Walcott resemble receptaculitids and may also be algae.


The Receptaculitida are shallow-water sponges or algae that occur with algae and in reefs as constituents of the Ordovician, Silurian, and Devonian shelly facies and as Ordovician reef builders; they disappear after the Devonian (pp. 18–20, figs. 13–15). Ordovician *Nipterella* Hinde 1889 and Aphrosalpingoidea Miagkova 1955 are listed (pp. 7, 14).

**Finney, Stanley C., and Matthew H. Nitecki**


The distribution and description of a green alga, *Receptaculites oweni* Hall, is given.


Ordovician *Orbitulites? reticulata* Owen 1844, and *Receptaculites oweni* Hall 1861, are a single species. Owen's name has priority. Since *Orbitulites* was applied to a Jurassic coelenterate, *Fisherites* n. gen. is erected to encompass *F. reticulata* (Owen 1844), *F. occidentalis* (Salter 1859), *F. orbis* (Eichwald 1860), *F. arcticus* (Etheridge 1878), and *F. camacho* (Nitecki and Forney 1978). *Fisherites* is defined and compared with other receptaculitids.

**Fischer, Alfred G.**

See:


Fisher, Daniel C., and Matthew H. Nitecki

New skeletal elements in receptaculitids are added near the apical lacuna. In the living position, the lacuna is uppermost and the nearly closed end is lowermost.


Ischadites dixonensis (Miller and Gurley 1896) from the Ordovician Galena Group of Illinois is described and illustrated. Ischadites iowensis, I. koenigii, I. barrandei, I. tenuis, and Receptaculites neptuni are discussed and are compared with I. dixonensis. Receptaculitids are believed to be algae.

Fisher, Daniel Jerome

Calathium sp. is figured as a sponge from the Silurian Niagara Dolomite of Illinois (pl. 5, fig. 1).

Fisher, Donald W.

Ordovician, Mohawkian Receptaculites in New York State ranges from middle Wilderness to middle Barneveld and Pasceolus globosus occurs in the middle-upper Barneveld.


Pasceolus globosus is listed from the Middle Or-}

do

Fletcher, H. O.

Hypotypes of Middle Devonian Receptaculites australis Salter from New South Wales are housed in the Australian Museum (p. 17).

Flint, Arthur E.
See:

Flint, Arthur E., and C. Ervin Brown

Receptaculites zones occur in the Middle Ordovician Galena Dolomite in Dubuque County, Iowa (fig. 2, table 3, and text).

Florin, Rudolf

The Permian alga Calathella n. gen. and C. kraeseuli n. sp. are figured and described from Germany (pp. 254–255, pl. 3, figs. 8–10; pl. 4, figs. 6–9). [This is not Calathella, nor a receptaculitid.]

Flower, Rousseau H.

Receptaculites from the Ordovician Montoya Group of New Mexico is reported (p. 13).

The Ordovician, Trentonian (?) Montoya Limestone and Dolomite in southwestern New Mexico contains conspicuous *Receptaculites* (p. 16).


*Receptaculites* is reported from the Ordovician (late Trenton?) Upham Dolomite of the Montoya Group in New Mexico (p. 108).


*Receptaculites* from a Red River fauna in the Ordovician Upham Dolomite of the Montoya Group in southern New Mexico is reported (p. 68).


*Receptaculites* is common in the Middle Ordovician Second Value Formation of the Montoya Group in New Mexico (p. 21) and in the Trentonian Ordovician of Quebec (p. 40).


*Receptaculites*, a “real or supposed sponge,” occurs in the Ordovician Second Value Formation of the Montoya Group in New Mexico (pp. 11–12). Arctic *Receptaculites* is mentioned (p. 43).


A *Receptaculites* horizon in the Ordovician (Cassian?) Pogonip Limestone in the Ely Springs Range, Nevada, is a stratigraphic marker. Several sponge horizons have also been called *Receptaculites* horizons (pp. 106, 117–118, 145).


The Ordovician Red River fauna in the Upham Dolomite of the Second Value Formation (Montoya Group) in New Mexico contains large *Receptaculites*. Similar faunas occur from New Mexico to Greenland, but the species differ (pp. 125–126). *Sphaerospongia* (formerly “Receptaculites”) occurs in the late Middle (?) Devonian Onate Formation of the Mud Springs Mountains, New Mexico (p. 128).


*Receptaculites* from the Ordovician of King William Island, Arctic Canada, is reported (p. 11).


Ordovician *Receptaculites* from the Upham Dolomite of the Montoya Group (p. 74) and the Second Value Formation (p. 80) of New Mexico, is listed. The receptaculitid *Sphaerospongia* is listed from the Devonian Onate Formation of New Mexico (p. 90).


**Fluegel, Helmut**

The dasycladacean Cyclocrininae are listed (p. 150).


Upper Devonian *Receptaculites neptuni* from the Kuh-i-Shotori, East-Iran, is described and illustrated and its distribution given (p. 78, figs. 1–3).

**Foerste, August F.**

1904. The Ordovician-Silurian contact in the Ripley Island area of southern Indiana, with notes on the age of the Cincinnati geanticline. American Journal of Science, 4th ser., vol. 18, no. 107, pp. 321–342, pl. 17, 1 text-fig.

*Pasceolus darwini* Miller (? = *Astyspongia tumidus* James) from the Bellevue bed of the Ordovician Maysville Formation in Kentucky is described, illustrated, and compared with *P. intermedium* (pp. 303, 305; pl. 8, fig. 1).


*Pasceolus camdenensis* n. sp. from Ohio is described, figured, and compared with *P. halli* and *P. globosus* (pp. 85–86; pl. 2, fig. 6). *Pasceolus darwini, P. gregarius, P. clauderi, and P. intermedium* are mentioned. *Pasceolus* may consist of two distinct genera.


Ordovician *Receptaculites occidentalis* is present in the Black River Cloche Island beds but not in the overlying Trenton on Cloche and Goat Islands in Lake Huron (pp. 40–41). *Receptaculites occidentalis* occurs in the Lower Trenton Curdsville of Kentucky.


*Receptaculites occidentalis* Salter is reported from the Ordovician Black River Limestones of Cloche Island, Ontario, but is absent in the Trenton of Goat Island (pp. 86–87).


*Pasceolus globosus* Billings from the Ordovician Point Pleasant Limestone of Ohio is illustrated (p. 336; pl. 4, fig. 4).


*Pasceolus clauderi* Miller and *P. tumidus* James from the Cincinnatian Ordovician formations are figured and described; they may be conspecific with *P. darwini*. Plate structures and markings of *P. globosus* suggest a closer relationship to *P. halli* than to *P. darwini*. *Pasceolus globosus* is removed from the list of fossils from Kentucky and Ohio (pp. 287–290; pl. 3, figs. 1–2). *Leptopoterion mamiferum* Ulrich from the Ordovician Maysville in Cincinnati, Ohio, is described as a sponge (pp. 291–292).


*Receptaculites oweni* is listed from the Ordovician Kimmswick Limestone south of Thebes, Illinois, and from Ralls and northern Pike Counties, Missouri (pp. 177, 186–187, 190).


*Receptaculites oweni* Hall, *Calathium* sp., and *C. cf. pannosum* Billings are listed from the Ordovician of the North American Arctic and Bear Island (pp. 247, 253).

1924. Upper Ordovician faunas of Ontario and

Receptaculites oweni Hall, R. cf. oweni Hall, and Ischadites iowensis (Owen) from the Ordovician Black River Limestone are listed from various localities on the Precambrian Shield (pp. 14–15). Receptaculites oweni, R. occidentalis, and R. cf. oweni Hall are mentioned in a discussion of the equivalency of Receptaculites-bearing formations in North America (pp. 17, 21). Calathium sp. and C. cf. pannosum Billings are listed from Bear Island (p. 18).


Receptaculites sp. from the Ordovician (Trenton?) Red River Formation has been identified with R. neptuni Hall, R. occidentalis Salter, and R. oweni Hall but may be related to R. arcticus. Receptaculites pearyi from Cape Harrison and R. arcticus from Cape Louis Napoleon and Cape Frazer are mentioned (pp. 30–32).


Receptaculites oweni from the Black River Fauna of Boothia Felix and Calathium sp. and C. cf. pannosum from Canadian exposures on Bear Island are listed (pp. 34, 58).


Ordovician Pasceolus gregarius, Receptaculites oweni, and Ischadites iowensis are listed from southern Manitoba (p. 131). Receptaculites oweni and I. iowensis occur in the Stewartville Formation of Minnesota, the Red River Formation in Southern Manitoba and in Arctic and sub-Arctic areas, which also may contain Ischadites sp. and R. arcticus (pp. 126–127).


Receptaculites cf. oweni is reported from the Ordovician Whitewood Formation near Medicine Mountain, Wyoming (p. 10).

Foerste, August F., and Thomas E. Savage


Receptaculites cf. oweni is listed from Ordovician Nelson-age (?) limestone north and northwest of Gypsum Point, Great Slave Lake, Canada (p. 20).

Folk, Robert Louis

See:


Follmann, O. [Otto ?]


This is a German summary of Hinde, G. J., 1884.

Fonin, Victor D.

See:


Forney, Gerald G.

See:

Foster, Merrill


Middle Ordovician receptaculitids from the Grapevine Mountains of Eastern California are highly variable intrapopulational variants of a single species and are tentatively assigned to *Ischadites mammillaris* (Walcott 1884). The variation is due to differences in the microenvironment and to the presence of several ontogenetic stages. Recent interpretations that regard the closed extremity of the receptaculitid as the growing end are incorrect. *Ischadites mammillaris* and other receptaculitids are described and tentatively considered sponges.

Foster, Roy W.

See:


Fraas, Eberhard


Silurian and Devonian Receptaculitidae are described as corals. Upper Devonian *Receptaculites neptuni* from Silesia is figured (p. 61, fig. 38).

Fraunfelter, G. H.

See:


Frech, Fritz


*Receptaculites* occurs in the Lower Silurian [Ordovician] Eureka Formation of Nevada and the lower Upper Devonian Frasnian, Fr2 of Belgium (pp. 43, 176). The Lower Silurian [Ordovician] *Receptaculites* limestone of Missouri is mentioned (pp. 82, 87, table 5).

Frederickson, E. A.


The Upper Ordovician Fremont Formation in the Canon City area of Colorado contains *Receptaculites (?)* and *R. oweni* Hall (pp. 138–139).

Freeman, Tom


*Receptaculites* is illustrated as a sponge from Kimmswick Limestone of northern Arkansas (p. 22; pl. 2, fig. 1).

Fritsch, F. E.


Ordovician *Coelosphaeridium* is a dasycladaceous alga, and *C. cyclocriphilum* Roemer is figured (pp. 398–399, 439, fig. 128).

Fritz, W. H.

See:


Furnish, William M.

See:


Gabrielse, Hubert, S. L. Blusson, and J. A. Roddick

1973. Geology of Flat River, Glacier Lake, and Wrigley Lake Map-areas, District of Mackenzie and Yukon Territory. Geological Sur-
vey of Canada, Memoir 366; part I: 153 pp., 45 pls., 18 text-figs., 4 tables, 3 maps; part II: 268 pp.

Receptaculites sp. is listed from the basal member of the Middle Ordovician Sunblood formation in the District of Mackenzie and the Yukon Territory (pt. I, pp. 52–53, 57, fig. 16; pt. II, pp. 130, 138).

Galloway, J. J.


Ordovician or doubtfully Lower Silurian Receptaculites is listed from Gornaya Shoria, west Siberia [from Radugin 1936] (p. 427).

Gans, William T.


Receptaculites, R. oweni, and the pleosponge Calathium (?) from the Mountain Springs Formation of Red Rock Canyon, Nevada, are listed (pp. 196–198). The formational name “Mountain Springs” is new; the postulated Middle to Upper Ordovician age of the formation is based, in part, on the receptaculitid specimens found therein.

Garwood, E. J.


Ordovician Cyclocrinus and Apidium are listed as members of Dasyycladaceae from the Baltic Provinces (p. 494, table 2).

Geikie, Archibald


Silurian [and Ordovician] Ischadites, Receptaculites, and Nidulites may be foraminifers. Amphipsponia is a Silurian sponge (p. 663). Receptaculites is a well-known Devonian (?) fossil (p. 696).

See also:

Geikie, A., 1885 and 1893.


This is similar to Geikie, A., 1883. [In addition] Sphaerospongia occurs in the Lower Silurian [Ordovician] Bala Limestone and Nidulites favus in the Silurian Lower Llandovery Group of England (pp. 661, 668, 695).

See also:

Geikie, A., 1882 and 1893.


The entry on receptaculitids (pp. 741, 779) is similar to Geikie, A., 1882 and 1885.

Geinitz, [Franz] Eugen


Lower Silurian [Ordovician through Devonian] receptaculitids from the glacial erratics of Germany and Poland are discussed. Ischadites is identical to Receptaculites. Receptaculites aff. Ischadites koenigi Murchison is illustrated and compared with R. neptuni Defrance, R. jonesi Billings, R. bronnii Eichwald, I. koenigi Murchison, and J. tesselatus Winchell and Marcy. Cyclocrinus spaski Eichwald and Coelosphaeridium cycloerinophilum Roemer are described as sponges. Hinde’s (1884) interpretation that receptaculitids are sponges is upheld.

Génot, Patrick

See:


Gerhard, Lee C.

The Ordovician, Cincinnatian Fremont Limestone in the Canon City embayment of Colorado contains a shallow marine benthic (subtropical?) fauna, including *Receptaculites* and *Ischadites* (?) (p. 113).

**Gerk, Arthur J.**


**Gerk, Arthur J., and Calvin O. Levorson**


The Ordovician Galena Group in Winneshiek County, Iowa, contains *Receptaculites oweni* zones in the Sinsinawa and Stewartville Members of the Wise Lake Formation and in the Fairplay and Mortimer Members of the Dunleith Formation. An *Ischadites iowensis* zone occurs in the Rivoli and Sherwood Members of the Dunleith Formation (pp. 3, 8, text-fig.).

**Giebel, Christoph [Gottfried Andreas]**


_Coscinopora sulcata_ Goldfuss and _C. placenta_ Goldfuss are synonyms of _Receptaculites neptuni_ Bronn and _Heliolites placenta_ M. Edwards, respectively.

**Giles, Albert W.**


_Nidulites_ characterizes one faunal division of the Ordovician Chambersburg Limestone in northern Virginia (p. 44).

**Gill, Edmund D.**


A Lower Devonian hexactinellid sponge, _Receptaculites australis_ Salter, from Moerooolhark, New Zealand, is described and illustrated (p. 35; pl. 5, figs. 2, 4–5).

**Girty, George Herbert**


Rauff's 1888 discussion of _Receptaculites, Ischadites, and Polygonosphaerites_ as summarized by Nicholson and Lydekker (1889) is reprinted. _Receptaculites influndibuliformis_ (= _R. monticulatus_ Hall) from the Lower Helderberg Group of the Helderberg Mountains, New York, is described and illustrated. _Receptaculites_ and _Ischadites_ are subspherical and inclosed. _Receptaculites_ was originally calcareous, probably aragonitic. _Receptaculites oweni_ (pl. 6, figs. 1–4) and _R. neptuni_ are described and compared with _R. influndibuliformis_ (pp. 284–287). The generic characteristics of _Receptaculites_ and _Ischadites_, sponges of uncertain position, are discussed (pp. 270–287; pl. 2, figs. 4–6; pl. 3, figs. 1–7; pl. 6, figs. 1–4).

See also: Girty, G. H., 1895 [1897]b.


This is identical to Girty, G. H., 1895 [1897]a.

**Glenister, Brian F.**


Middle Ordovician _Receptaculites_ sp. is listed from the upper limestone member of the Corn-
wallis Formation at Burnett Inlet south of Devon Island, Northwest Territories (p. 183).


Receptaculites sp. is listed from the Ordovician Cornwallis Formation at Sydkap Fiord along the south coast of Ellesmere Island, Northwest Territories (p. 290).

See also:

Glenister, Brian F., and Raymond Thorsteinsson


Receptaculites sp. is listed from the Ordovician Cornwallis Formation on the south coast of Devon Island, Northwest Territories (p. 198).

Gnilovskaya, Marina Borisovna

See:
Gnilovskaya, Marina Borisovna.

Gnilovskaya, Marina Borisovna


Mastopora n. sp. and Apidium n. sp. are found in the lower part of the Upper Ordovician Upper Caradoc in east Kazakhstan. Their stratigraphic and geographic distributions are discussed.

See also:


Ordovician, Carboniferous, and Permian

5phaerical dasycladaceous algae of tribe Cyclocrini- neae are described and listed from Ordovician Lower Upper Caradoc of West Kazakhstan and from the Ordovician of the Baltic area. Apidium Stolley 1986, A. parvulum n. sp., Mastopora Eich- wald 1840, and M. nana n. sp. are listed. Apidium parvum n. sp. and Mastopora nana are listed from the Upper Ordovician (Upper Caradocian) of Kazakhst (pp. 7, 9–10, 18, 27, 30, table 1).


This is an English translation of Gnilovskaya, M. B., 1967.

1972. Izvestkovye vodorosli srednego i pozdnego ordovika vostochnogo Kazakhstana [The calcareous algae of the Middle and the Late Ordovician of eastern Kazakhstan]. Akademia Nauk SSSR. Institut Geologii i Geo- kronologii Dokembria Leningrad, 195 pp., 15 pls., 58 text-figs., numerous tables.

sphaeridium Roemer (text-fig. 8), Cyclocrinus Eichwald (text-fig. 9), Mastopora Eichwald (text-figs. 10, 31), M. nana n. sp. (text-fig. 30, pl. 4, fig. 3), Apidium Stolley, and A. parvulum n. sp. (text-fig. 29, pl. 4, fig. 2) from Kazakhstan are described and figured.

See also:

Gobbett, D. J.
See:

Goeppert, H. R.
See:

Goldfuss, [Georg] August

Coscinopora placenta n. sp. [Receptaculites neptuni?] from the Uebergangskalke, probably from Eifel, and C. sulcata [Receptaculites neptuni?] from the Jurassic [sic], probably from Switzerland [sic] are described and figured as sponges or corals. Oth- er species of Coscinopora, including the lectotype, C. infundibuliformis, are described, but they are not receptaculitids.

See also:
Goldfuss, G. A., 1862.


The section on Coscinopora is identical to Gold- fuss, G. A., 1826.

Goldring, Winifred

The Ordovician plant Receptaculites is de- scribed from the Silurian Clinton beds of New York (pp. 259, 309).


Species of calcareous algae Receptaculites and Ischadites are present in the Lower Devonian New Scotland Limestone near Clarksville, New York (p. 109).


Ischadites bursiformis Hall from the Devonian Schoharie Grit of the Schoharie-Felderberg area is listed as a plant (p. 213). “Receptaculites” in- fundibuliformis (Eaton) Hall from the upper shaly limestone member of the Devonian New Scotland Formation in the Catskill area is listed as a sea- weed (p. 165).

Golubic, Stjepko, and Elso S. Barghoorn

Cell division may result in the formation of hollow balls as in the cyanophyte [sic] Coelosphae- ridium (p. 9).

NITECKI ET AL.: RECEPTACULITID ALGAE 65
Gosselet, Jules Auguste Alexandre  

*Receptaculites neptuni* is a guide fossil for the lower Upper Devonian Frasian (pp. 96—98, pl. 4, fig. 24).

Gothan, Walther, and Hermann Weyland  

Cyclocrinoidea from the Baltic region, consisting of Silurian [Ordovician] *Cyclocrinus* and *Coelosphaeridium*, are described and *Cyclocrinus* is figured (pp. 48—49, fig. 31).

Gottsche, Carl  

*Receptaculites orbis*, *R. crenulatus*, *Mastopora concava*, *Cyclocrinus spasskii*, and *Ischadites crenulatus* are found in Ordovician glacial erratics in Schleswig-Holstein, Germany (pp. 15, 19, 21).


*Coelosphaeridium cyclocrinophilum* from the Backsteinkalk in Holstein is compared with *Cyclocrinus* and *Receptaculites* (p. 458).

Gould, Charles N., and Charles E. Decker  

*Ischadites iowensis* is listed from the upper part of the Ordovician Simpson Formation in the Ar- buckle and Wichita Mountains of Oklahoma (p. 14).

Gould, Stephen Jay, and Michael Katz  

Morphogenesis, life orientation, intercalation of facets, morphology and taxonomic affinities of receptaculitids, particularly *Ischadites barrandeii*, are described. *Ischadites mammallaris* [sic] (Ordovician, California), *I. aubertae*, and *I. koenigi* are mentioned. *Ischadites barrandeii* and *I. hemisphaericus* are figured.

Grabau, Amadeus W.  

*Ischadites squamifer* Hall from the [Devonian] Lower Helderberg Series of the Schoharie region, New York, and *I. bursiformis* Hall from the Schoharie Grit in Albany County, New York, are listed as bryozoans (pp. 324—325).


*Receptaculites devonicus* Whitfield is listed from the Middle Devonian Columbus Limestone of Ohio (p. 328).


Canadian *Calathium anstedti* [sic] Billings. *C. (?) panosum* Billings, *Receptaculites calciferus* Billings, and *R. elegantulus* Billings from the Dunness Limestone of Scotland are listed as sponges (p. 566). *Nidulites favus* (Salter) is listed from the Ordovician of North America (p. 577).

Receptaculites, an Ordovician sponge of doubtful affinity, is described (pp. 301, 548). *Receptaculites oweni* from the Galena Limestone and a generalized *Receptaculites* are figured (fig. 1126, p. 300; fig. 1478, p. 546).

See also:
Grabau, A. W., 1921.


This is identical to Grabau, A. W., 1920.


The following Ordovician sponges are listed: *Nipterella paradoxica* Billings from the Canadian Romaine in the Mingan Islands; *Calathium affine* Billings from the Canadian Beekmantown in Western Newfoundland; *C. (?) passuosum* [sic] Billings from the Tremadocian; *C. (?) pannosum* Billings from the Skye in Scotland, Point Lewis, Canadian in Newfoundland, Lewis Beds in the St. Lawrence area and on Bear Island; *C. anstedti* Billings from the Canadian Beekmantown in Newfoundland and from the Dunn's Limestone in northwestern Scotland; *C. anstedti* [sic] Billings from the Balnakiel and Skye Groups in Scotland and from the Ordovician in Newfoundland; *C. formosum* Billings from the Beekmantown (Canadian) in Western Newfoundland; *C. cf. pannosum* Billings and *Calathium* sp. from the Heathcock Series on Bear Island; *Receptaculites calciferus* Billings from the Canadian Romaine on Mingan Island, from the Skye and the Dunn's Limestone in Scotland, and from the Beekmantown in the St. Lawrence area; *R. elegantulus* Billings from the Canadian Romaine on Mingan Island, from the Beekmantown in the St. Lawrence area and from the Skye and Dunn's in southwestern Scotland; *Receptaculites* sp. from Table Head and the Canadian Beekmantown in western Newfoundland; and *Nidulites* from the Trenton in northern Appalachia (pp. 376, 497, 500, 549, 555, 575, 639, 670).


The following Ordovician sponges are listed: *Calathium* from the Roubidoux and Jefferson City Formations in Missouri and from the Sabach Formation in the Clearwater Canyon section of Canada; *C. frechi* Endo from the Fengtien Wolungian (Canadian) in Manchuria; *Calathium* sp. from the Canadian Odenville in Appalachia, the Jefferson City and Cotter Limestones in Missouri, and the Sabach Formation in the Canadian Rockies; *Receptaculites* (?) and a *Receptaculites*-like form from the Sabach Formation in the Clearwater Canyon section, Canada; *Receptaculites* sp. from the Sabach Formation in the Sinclair Canyon section, Canada; and *Paseolus molliflus* from the Cambro-Ordovician Spiti region, Himalaya (pp. 142, 222–223, 260, 395, 571, 644, 672).


The following Ordovician fossils are listed among sponges from various British, Norwegian and Estonian localities: *Cyclocrinites spasskii* (= *C. roemerii*), *Ischadites micropora* (bryozoan), *Mastopora concava*, *Nidulites favus*, *Receptaculites eichwaldi* and *R. orbis* (pp. 269, 301, 337, 681, 722–724, 726, 734, 741, 796).

Grabau, Amadeus W., and Hervey W. Shimer


This is identical to the first section of Grabau, A. W., and H. W. Shimer, 1909, except for pagination.

See also:


This is identical to the first section of Grabau, A. W., and H. W. Shimer, 1909, except for pagination.

See also:


The following sponges are described: Ordovician Receptaculites oweni Hall (fig. 28) from the Galena Limestone of Illinois, Iowa, and Wisconsin; R. mammillaris Walcott from the Pogonip Group (= Chazy) in Nevada; and R. (Ischadites) iowensis (Owen) (fig. 30) from the Galena Limestone of Iowa, Wisconsin, and Minnesota; and Silurian Niagaran R. hemisphaericus Hall from Wisconsin and R. ohioensis Hall and Whitfield (fig. 29) from Ohio (pp. 18–19).

See also:


Upper Ordovician Receptaculites iowensis and R. oweni of the Upper Mississippi Valley, Lower Ordovician R. mammillaris of the Pacific province, and Lower Silurian R. hemisphaericus and R. ohioensis from the Michigan Basin are listed as Porifera (pp. 667, 674).

Graham, Alan
See:

Grant, Ulysses Sherman


The coral Receptaculites oweni Hall occurs in the Ordovician Galena Limestone of the lead and zinc region of Wisconsin (p. 307).


The coral Receptaculites oweni is reported from the Ordovician Platteville (Trenton) and is particularly abundant in two zones of the Galena Limestone of Wisconsin (pp. 37, 43–44).

Grant, Ulysses Sherman, and Ernest F. Burchard


Receptaculites oweni, present throughout the Ordovician Galena Limestone but particularly abundant in upper and lower zones, is reported from the Lancaster and Mineral Point Quadrangles of extreme southwestern Wisconsin (pp. 5–7).

Grant, Ulysses Sherman, and M. J. Perdue


Receptaculites oweni is a common fossil in the Ordovician Galena Limestone (p. 339).

Gray, John Edward


Sphaerospongia is within an order of siliceous sponges (Geodiidae and Placospongidae) (p. 504).


Order Sphaerospongia is described as a sponge (pp. 443–444, 459).

Gray, Robert, [and J. Young]

1869. Specimens exhibited, January 7th, 1868. Proceedings (and Transactions) of the Natural

A rare cystidean, Ischadites kanigii [sic], from the Silurian of the Girvan district in Ayrshire, Scotland, is exhibited.

Greacen, Katherine F.

See:


Greacen, Katherine F., and John R. Ball


The sponges Receptaculites, Ischadites, and Cerionites are present in Silurian, Niagara rocks of Cook County, Illinois (p. 418).


The following Silurian sponges, Receptaculitidae, of uncertain systematic position, are housed at Milwaukee-Downer College: Receptaculites sp., R. hemisphericus (Hall), R. tesselatus (Winchell and Marcy), Ischadites sp. (or Receptaculites?), Cerionites sp., C. dactyloides (Owen), and genus and species undetermined. Most of these are from Bridgeport and Hawthorne, Illinois, and from Racine, Wisconsin (p. 11).

Greife, John L., and Ralph L. Langenheim, Jr.


Mastopora (?) sp. [now Cyclocrinites welleri Nitecki 1970b], a dasycladacean alga from the Middle Ordovician Mazourka Formation of Inyo County, California, is described and figured and is compared with M. pyriformis and M. ovoides from the Middle Ordovician Chambersburg and Lenoir Limestones in Tennessee; Mastopora and Nidulites are discussed (pp. 566-567; pl. 63, fig. 4).

Greiner, H. R.


Receptaculites cf. arcticus from the upper carbonate member of the Ordovician Cornwallis Formation and Receptaculites sp. from the Arctic Ordovician fauna of the upper Cornwallis or lower Allen Bay Formation are found on northern Devon Island (pp. 211-212, columnar sect. 21).


Receptaculites sp. is listed from the upper dolomite member of the Upper Ordovician Allen Bay Formation near Boat Point on the north coast of Devon Island, Northwest Territories (p. 218, columnar sect. 22).

Gripp, Karl


Silurian Receptaculidae [sic] is figured from the erratic kaolin sand of the Sylt Island (pl. 25, fig. 1c).

Groessens, Eric

See:

Coen-Aubert, M., E. Groessens, and R. Legrand, 1980.


Receptaculites occurs in zones in the Prosser and Stewartville Members of the Middle Ordovician Galena Formation in the lead-zinc district of Wisconsin (p. 4, fig. 2).

NITECKI ET AL.: RECEPTACULITID ALGAE 69
Guembel, Carl Wilhelm von


The microscopic structures of Receptaculites are illustrated. Receptaculites is more closely related to Foraminifera (Rhizopoda) than to Spongozoa. Receptaculites neptuni Defrance, R. forniculatus Schloteheim, and Ischadites koenigi are figured. A bibliography and a history of study are provided. Localities, ranges, and synonymies are given for: R. australis, R. bronni, R. calciferous, R. canadensis, R. carbonarius, R. elegantulus, R. forniculatus, R. fungosus, R. globularis, R. hemisphaericus, R. infundibuliformis, R. insularis, R. jonesi, R. jowensis [sic], R. occidentalis, R. orbicularis, R. orbis, R. oweni, R. subturbinatus, Ischadites altaicus, I. bohemica, I. eichwaldi, I. grindrodi, I. koenigi, I. occidentalis, I. tessellatus, Tetragonis sulcata, T. parvivora, T. danbyi, Escharites forniculatus, Coscinopora placenta, C. sulcata, Escharipora recta, and Scyphia cornucopiae. Ischadites and Tetragonis are closely related to Receptaculites on a specific if not a sub-specific level. Protospongia is a related form.

See also:
Anonymous, 1876.

Guerich, Georg Julius Ernst


A problematic Upper Devonian fossil, Receptaculites neptuni, from the Mittel Sudeten is figured (pp. 42-43, fig. 4).

Gunia, Tadeusz


Receptaculites neptuni Defrance (phylum Porifera, class Squamiferida, family Receptaculitidae) from the upper Devonian in the Świebodzice Depression, Middle Sudetes, Poland, is described and illustrated (p. 144; pl. 2, figs. 2-5).


The sponge (?) Receptaculites neptuni Defrance is present in Upper Devonian nodules in the Świebodzice Depression of Poland (p. 365).

Gunn, William

See:
Peach, B. N., and others, 1907.

Gurley, William F. E.

See:

Gusić, I.

See:

Gutschick, Raymond C.

See:

Haas, Hippolyt Julius


Receptaculites and R. neptuni Defrance, Devonian Receptaculitidae from Chimay, are described as problematic organisms. Receptaculites neptuni is figured (p. 15, fig. 26).

Hacht, Elke von, and Hans Joachim von Hacht

Receptaculites is listed and *Coelosphaeridium* figured from the Ordovician erratics of Sylt (p. 19, pl. on p. 21).

Hacht, Hans Joachim von

See:

Hadding, Assar


*Cyclocriinus* and related *Coelosphaeridium*, *Mastopora*, and other dasycladaceans are a marked component of the Cambro-Silurian algal flora. These are known from abundant erratic boulders in East Balticum, particularly in the Wesenberg beds and in Sweden from the *Leptaena* limestone in Dalecarlia (p. 20). *Cyclocriinus* from an erratic boulder on the Island of Sylt is figured (fig. 6 on p. 18).

Hague, Arnold


Three species of *Receptaculites*, including *R. gumbeli* [nomen nudum] from the Pogonip Limestone, are present in the Cambrian [Ordovician] of the Eureka mining district, Nevada (p. 30).


Three species of *Receptaculites*, including abundant *R. mammillaris* Newberry [in Walcott, 1884], are reported from the Silurian [Ordovician] Pogonip Group of the Eureka district, Nevada (p. 261).


Receptaculites ellipticus* Walcott, *R. elongatus* Walcott, and *R. mammillaris* Newberry [in Walcott, 1884] from the Ordovician Pogonip Limestone are found in various localities in the Eureka area (pp. 51–54, 60, 109, 115, 131, 134, 191, 195, 197, 322). These species are excellent Pogonip index fossils because of their abundance and restricted vertical range (pp. 120, 123–124, 127).

Haime, Jules

See:
Milne-Edwards, H., and J. Haime, 1850.

Hall, C. W., and Frederick W. Sardeson


*Receptaculites iowensis* Owen and *R. oweni* Hall from the *Orthisina* bed and *R. oweni* from the *Maclurea* bed of the Lower Silurian [Ordovician] Galena Limestone in Minnesota are listed (pp. 364–365).

Hall, James


*Receptaculites neptunii* (?) and a new species *cyathiformis* of undetermined genus are described and illustrated as corals from the [Ordovician] Trenton Limestone at Carlisle, Pennsylvania (pp. 68–69, 72, 323; pl. 24, figs. 3a, b, c, d; pl. 25, figs. 6a, b, c). *Receptaculites neptuni* is compared with the figures of the original *Coscinoporina sulcata* Goldfuss and *C. sulcata* from the lead-bearing limestones of the West (footnote, p. 69).

The principal fossil in the Lower Silurian [Ordovician] Galena Limestone of Wisconsin, Iowa, and Illinois resembles a *Coscinopora*, but is probably a *Receptaculites* (p. 147).


*Receptaculites* occurs in the [Ordovician] Trenton Limestone at Gutenberg and Elkader Mills, Iowa (pp. 58–59, 61).


*Dictyocerinus* n. gen. (= *Dictuocerinites* Conrad) *squamifer* n. sp. from the [Devonian] Lower Helderberg Group at Schoharie, New York, are described. Their relations with the Crinoidea or Cystidae are doubtful, but satisfactory determination of their affinities cannot be made. *Receptaculites* (*Sphaerinites*) *rhombifer* Roemer is mentioned as a similar form (p. 135).

See also:
Hall, J., 1861b.


*Receptaculites neptunii* is a valid name for the fossil described and illustrated by Hall (1847, p. 74). “Genus (?) *cyathiformis*,” described and illustrated by Hall 1847, if proven distinct from *Receptaculites*, is assigned to *Selenoides cyathiformis*. *Receptaculites* is discussed (p. 76).

1861a. Report of the superintendent of the Geological Survey [of Wisconsin], Exhibiting the Progress of the Work. January 1, 1861. E. A. Calkins & Co., State Printers, Madison, Wisconsin, 52 pp. *Receptaculites* [*Selenoides* Owen] and the following species are described: *R. iowene* [sic] Owen [*Orbitolithes reticulata* Owen], *R. owei* n. sp. [*Coscinopora sulcata* Owen], *R. fungosum* n. sp., and *R. globulare* n. sp., all from the [Ordovician] Galena Limestone of the lead region of Wisconsin, Iowa, and Illinois, and *R. infundibulum* n. sp. and *R. hemisphericum* n. sp. from the [Silurian] Niagara of Racine, Wisconsin (pp. 11–17). Owen’s (1852) descriptions of *Selenoides* and *S. iowensis* are included. European *Receptaculites neptuni* and the similar American form *R. occidentalis* are mentioned.

See also:
Whitfield, R. P., 1895.


See also:
Hall, J., 1859a.

Conrad’s 1841 figure of *Dictuocrinites* (pl. 11, fig. 22) is reproduced, but not referred to in the text.


*Receptaculites oweni*, a “lead coral” characteristic of the [Ordovician] Galena Limestone in Wisconsin, is illustrated (p. 46, fig. 2).


*Receptaculitesfungosus, R. globularis, R. iowensis*, and *R. oweni* from the [Ordovician] Galena Limestone and *R. hemisphericus* and *R. infundibulum* from the [Silurian] Racine Limestone of Wisconsin are listed as Foraminifera or alcyonoid corals (?) of uncertain taxonomic position (pp. 428–429).

1863a. Notice of some new species of fossils from a locality of the Niagara Group, in Indiana; with a list of identified species from the same place. Transactions of the Albany Institute, vol. 4, art. 12, 34 pp. Advance sheets.

*Receptaculites subturninatus* n. sp. from the [Silurian] Niagaran at Waldron, Indiana, is described as a foraminifer (?). It resembles *R. hemisphericus* of the Niagara in Wisconsin (pp. 30–31).

See also:
Hall, J., 1864.


The following species of *Receptaculites* are listed and their geographic ranges discussed: Devonian *Receptaculites* sp. from the Schoharie Grit; Upper Silurian [Devonian] *R. infundibuliformis* Eaton from the Lower Helderberg Group; [Silurian] *R. infundibulum* Hall, *R. hemisphericus* Hall, and *R. subturninatus* Hall from the Niagara Group; Lower Silurian [Ordovician] *R. oweni* Hall, *R. iowensis* Owen, *R. fungosus* Hall, and *R. orbicularis* Hall from the Galena Limestone; and *R. occidentalis* Salter (= (?) *R. neptuni*) from the Trenton Limestone. Eaton’s description of *Coscinopora infundibuliformis* is given. *Receptaculites* sp. from the Schoharie Grit is described and compared with *Coscinopora sulcata* Eaton; it is similar to *R. neptuni* Defrance, as described by British palaeontologists.

1864. Notice of some new species of fossils from a locality of the Niagara Group, in Indiana; with a list of identified species from the same place. Transactions of the Albany Institute, vol. 4, art. 12, pp. 195–228.

This is identical to Hall, J., 1863a, but with different pagination (Receptaculites on pp. 224–225).


*Receptaculites hemisphaericus* Hall and *R. infundibulum* Hall (= *Ischadites tessellatus* Winchell and Marcy) from the [Silurian] Niagaran in Wisconsin, Iowa, and Illinois are listed as foraminifers (p. 395).

See also:
Hall, J., 1868a and 1871.

1868a [1870]. Appendix M. Article 3. List of...

This is identical to Hall, J., 1867 [1868], except for pagination.

See also:
Hall, J., 1871.


Receptaculites hemisphaericus Hall and R. in-fundibulus Hall (= Ischadites tessellatus Winchell and Marcy) from limestones of the [Silurian] Niagara Group in Wisconsin, Iowa, and Illinois are listed with foraminifers (p. 435).


This is identical to Hall, J., 1867 [1868], except for pagination.

See also:
Hall, J., 1868a [1870].


Receptaculites sacculus n. sp., a protozoan from the [Silurian] Niagara Formation at Waldron, Indiana, is described (pp. 1–2).

See also:
Hall, J., 1882a.


A Niagaran [Silurian] protozan, Receptaculites subturbinatus, from Conn’s Creek at Waldron, Decatur County, Indiana, is described and illustrated (pp. 99, 103; pl. 3, figs. 1–3). Receptaculites subturbinatus is similar to R. hemisphericus of the Niagara Formation in Wisconsin.

See also:
Hall, J., 1875.

1882a [1883]. Descriptions of new species of fossils from the Niagara Formation at Waldron, Indiana. Transactions of the Albany Institute, vol. 10, pp. 57–76, 1 text-fig.

This is identical to Hall, J., 1879a, except for pagination; Receptaculites is on pp. 57–58.


The protozoans Receptaculites subturbinatus Hall and R. sacculus Hall are described and illustrated from the Niagaran [Silurian] at Waldron, Indiana (pp. 221–222; pl. 1, fig. 5; pl. 2, figs. 1–3). Receptaculites subturbinatus is similar to R. hemisphericus of the Niagara of Wisconsin.

Receptaculites squamifer Hall, R. monticulatus n. sp., and R. infundibuliformis Eaton from the Lower Helderberg Group and R. bursiformis n. sp. from the Schoharie Grit, all of New York, are figured (pls. 23–24).


The original descriptions and figures of Receptaculites (of Billings 1865c) and R. oweni (of Hall 1861) are given (pp. 243–246). Receptaculites oweni from the Trenton of Iowa is figured (pl. 1, fig. 1).


Receptaculites subturbinatus Hall and the type of R. sacculus Hall from the Niagaran [Silurian] at Waldron, Indiana, are in the New York State Museum of Natural History (p. 21).


Ischadites squamifer Hall and Receptaculites infundibuliformis Eaton are listed as sponges from the Lower Helderberg of New York (p. 16).

See also:
Hall, J., 1895b.


This is identical to Hall, J., 1895a.

Hall, James, and John Mason Clarke


Tetragonis Eichwald is closely related to Ischadites Murchison. Tetragonis danbyi, T. murchisonii, and T. effeliensis are mentioned in an annotated bibliography of the Dictyospongidae (pp. 41, 43, 45, 48, 72).

See also:
Hall, J., and J. M. Clarke, 1898b, 1898c, and 1899.


This is identical to part 1 of Hall, J., and J. M. Clarke, 1898a.


This is identical to part 2 of Hall, J., and J. M. Clarke, 1898a.
Hall, James, and George B. Simpson


The following Devonian sponges from New York are described and illustrated: Receptaculites in-fundibuliformis (Eaton) Hall (= R. monticulatus Hall) from the Lower Helderberg near Clarksville; Ischadites squamifer (= Dictyocrinus squamifer Hall, = Receptaculites squamifer Hall) from the Lower Helderberg at Schoharie; and I. bursiformis (= R. bursiformis Hall) from the Schoharie Grit in Albany and Schoharie Counties (pp. 290–292; pl. 24, figs. 1–14).

Hall, James, and Robert Parr Whitfield


A foraminifer Receptaculites ohioensis n. sp. from the Silurian Niagara Group at Yellow Springs, Ohio, is described, illustrated, and compared to R. hemisphericus Hall (p. 123; pl. 6, fig. 1). The young R. ohioensis resembles R. globularis from the [Ordovician] Galena Limestone.

See also:
Hall, J., and R. P. Whitfield, 1875b.


This is a German translation of Hall, J., and R. P. Whitfield, 1875a.

Hall, Wayne E.


Receptaculites cf. elongatus Walcott is found in the Early and Middle Ordovician Pogonip Group of central Inyo County, California (p. 15).

Hall, Wayne E., and E. M. MacKevett, Jr.


“The Receptaculites” (?) sp. is reported from the Lower to Middle Ordovician Pogonip Group of Inyo County, California (p. 8).

Halle, T. G.


The Ordovician to Silurian dasycladacean Cyclocrinites is described (p. 235) and Ordovician C. porosus is figured (fig. 123).

Ham, William E.

See:

Ham, William E., and Donald Francis Toomey


The quasi-sponge Calathium is listed from Lower Ordovician carbonate mounds in western Texas and southern Oklahoma.

See also:


This is identical to Ham, W. E., and D. F. Toomey, 1966.
Hansman, Robert H., and Harold W. Scott


Paceolus (?) [sic] dactylodes (Owen), Receptaculites formosus Meek and Worthen, R. globularis (Hall ?) and Receptaculites sp., described and illustrated by Meek and Worthen, are housed at the University of Illinois in Urbana.

Hansman, Robert H., Frederick C. Shaw, and Wayne A. Pettyjohn

1962. Supplement to the Catalog of the Type Specimens of Fossils in the University of Cincinnati Museum. University of Cincinnati, Cincinnati, Ohio, 131 pp.

A plasto-hypotype of Receptaculites australis Salter from the Devonian Baton River beds of New Zealand is housed in the University of Cincinnati Museum (p. 107).

Hanson, George F.


The Middle Ordovician Galena Formation contains a lower Receptaculites oweni zone and an Ischadites zone in the Prosser Member and an upper Receptaculites oweni zone in the Stewartville Member (pp. 2, 4, 6, 12, 20).

Harbour, Robert L.


Receptaculites oweni is listed from the Upham Member of the Ordovician Montoya Dolomite in the Franklin Mountains of Texas and New Mexico (pp. 28, 89).

Harrington, John W.


Receptaculites of Russell County, Virginia, is related to sponges.

Harrington, M. W.


Receptaculites is abundant in the Lower Silurian [Ordovician] Trenton Limestone of Dodge County, Minnesota (pp. 371, 374).

Harrison, James Merritt


Receptaculites sp. is listed from the Ordovician, Richmondian (?) Red River Formation of Tramping Lake in Manitoba (p. 21).

Haughton, Samuel


Receptaculites neptuni (Defrance) from the Silurian [Ordovician ?] on the west coast of King William’s Island is figured (pl. 3, fig. 3). Receptaculites neptuni is also reported from Kunzendorf, Germany, and from Pauquette’s [sic] Rapids in Canada (pp. 56–58).

Hawkins, Edward J.

See:


Hayden, H. H.


A cystoid Pyrocystites pirum Barr. [= Apidium indicum Reed 1912] is listed from the Silurian [Ordovician] in the Spiti area of India (p. 26).
Hayes, Philip T., and George C. Cone


_Calathium fitoni_ Billings, a receptaculitid (?) sponge, occurs in the Ordovician McKelligon Limestone in San Andres Canyon, New Mexico (p. 87). _Calathium_ is present in shallow subtidal mounds in the same formation in the Franklin Mountains, Texas (p. 40).

Hayes, William C.

See:


Hazzard, John C.


_Receptaculites_ sp. is listed from the Lower Ordovician Pogonip (?) Dolomite along the west front of the Nopah Range, Nevada (pp. 276, 323).

Head, William R.


North American Palaeozoic sponges, including receptaculitids, are listed. _Calathium bridgeportensis_, _C. cornu-copiae_, _C. obconicalis_, and _Marceivia chicagoensis_ are new names introduced without descriptions or figures for Receptaculitidae from Chicago, Illinois.

Heckel, Philip H.


The quasi-sponge _Calathium_ is a major biotic constituent of Lower Ordovician carbonate buildups in Texas and Oklahoma (p. 105).

Heckel, Philip H., and Brian J. Witzke


Most receptaculitids, which are probably an extinct group of green algae, were confined to warm climatic zones in the Devonian (p. 116, text-fig. 6).

Hector, James


_Lower Silurian_ [Ordovician] _Receptaculites occidentalis_ Salter is listed from the Hudson River Group at Lower Fort Garry, Manitoba (p. 439).


_Receptaculites occidentalis_ is found in the Silurian [Ordovician] Magnesium Limestone, Hudson River Group at Lower Fort Garry in the Winnipeg basin [Manitoba] (pp. 238, 245).

Heider, Karl

See:


Heintz, Anatol, and Leif Størmer

[1937?]. _Nøkkel til planchen om Dyrelivets Utvikling._ (Oslo?), Oluf Norlits Forlag, 24 pp., 1 wall chart.
The Ordovician to Carboniferous glass-sponge *Receptaculites* is described (p. 7) and *R. [neptuni]* figured (chart, fig. 14).

**Henderson, Gerald Gordon Lewis**

See:


**Hennig, Edwin**


Silurian [Ordovician] to Carboniferous Receptaculitidae are described as addenda to Cnidaria. It consists of 21 species of *Receptaculites, Phasoeolus* [sic], *Ischadites, Cyclocrinus, Polygono-sphaerites*, and *Leptopterion* [sic]. Devonian *Receptaculites neptuni* from Silesia is figured (pp. 74, 129, 149–150, fig. 28).

**Henningsmoen, Gunnar**


*Cyclocrinus, Coelosphaeridium*, and *Coelo-sphaeridium-Mastopora* beds occur in the upper Middle Ordovician of the Oslo region (p. 143, pl. 7).

**Henriksen, Niels, and A. K. Higgins**


*Receptaculites* from the Middle Ordovician Heim Bjerke Formation in East Greenland is listed (p. 195).

**Herak, M., V. Kochansky-Devidé, and I. Gusic**


*Cyclocrinites* and *Mastopora* of the tribe Cyclo-crinacea are listed as dasycladaceous algae (pp. 144–147).

**Herbert, Paul, Jr.**

See:


**Hesse, Richard**

See:


**Heyl, Allen V., Jr.**


*Receptaculites* occurs near the base of the lower cherty member and in the middle of the upper non-cherty member of the Middle Ordovician Galena Dolomite in the Upper Mississippi Valley district (p. 436).

See also:


**Heyl, Allen V., Jr., Allen F. Agnew, Erwin J. Lyons, and Charles H. Behre, Jr.**


The Stewartville and Proser Members of the Middle Ordovician Galena Dolomite in the Upper Mississippi Valley lead-zinc district contain *Receptaculites* (pp. 8, 11, 17, 168–169).

**Heyl, Allen V., Jr., and Charles H. Behre, Jr.**

Receptaculites oweni is reported from the Ordovician Galena Dolomite in Wisconsin, Illinois, and Iowa (p. 62).

Heyl, Allen V., Jr., W. A. Broughton, and Walter S. West

Receptaculites occurs in the Prosser and Stewartville Members of the Ordovician Galena Formation in the Upper Mississippi Valley (pp. 8, 20).

Heyl, Allen V., Jr., John W. Hosterman, and Maurice R. Brock

Receptaculites occurs in the Prosser Member of the Middle Ordovician Galena Dolomite in the Upper Mississippi Valley (p. 447).

Hibbard, Donald E.
See:

Higgins, A. K.
See:

Hill, Dorothy

Cyclocrinus and Mastopora are listed from the Middle Ordovician of the Oslo region (pp. 143–144, 154).


[Ordovician] Trentonian (?) Receptaculites is listed from the coral zone in a mine in Zeehan, Tasmania (pp. 237–238).


Lower Cambrian order Heterocyathidae Bedford and Bedford 1934, genus Radiocystus Okulitch 1937, are described, and Radiocystus minor (Bedford and Bedford 1934) (p. 141, pl. 12, fig. 4) from Ajax Mine, South Australia, is figured. All are probably not archaeos.


Class Radiocystus Debrenne, H. Termier and G. Termier 1971, containing order Heteracyathida R. Bedford and J. Bedford 1937, with family Heteracyathidae R. Bedford and J. Bedford 1934, genus Radiocystus Okulitch 1937, are de-
scribed as organisms of uncertain phylum, probably not archaeocyatha (p. 141). The oldest archaeocyathid from Europe was thought by Roemer (1878) to be allied to the Receptaculitidae (p. 43).

Hinchev, Norman S.


A sponge, Receptaculites, is found in the Ordovician Kimmswick Limestone in Ste. Genevieve County, Missouri (p. 11).

See also: McQueen, H. S., and N. S. Hinchev, 1941.

Hind, Henry Youle


Receptaculites neptuni from the Silurian [Ordovician] Bird's Eye and Trenton Formations at Pine Island Lake [Manitoba] (p. 289) and Coscinospora sulcata from the Hudson River Formation at Stone Fort [Manitoba] (p. 290) are listed.

Hinde, George Jennings


Amphispongia oblonga Salter from the Silurian of the Pentland Hills near Edinburgh is described and illustrated as a lyssacine hexactinellid sponge of uncertain position (pp. 16, 154–156; pl. 33, figs. 12a–e). Calathium from the Quebec series in Canada has been referred to sponges, but its true character remains doubtful (p. 10).


The receptaculitid siliceous hexactinellid sponges are described and the taxa comprising the family are revised; their stratigraphic and geographic distributions and history are reviewed and amended. Acanthochonia n. gen., A. barrandei n. sp., and Ischadites lindstroemi n. sp. are described and figured. Ischadites koenigii, Sphaerospongia tessellata and Receptaculites are figured. Several genera previously considered receptaculitids are removed from the family. [This is a major paper on receptaculitids, and it is here greatly abbreviated.]

See also: Follman, O., 1885.


Family Receptaculitidae Eichwald is amended and placed in group Lyssakina Zittel, sub-order Hexactinellidae, and order Silicispongiae (p. 91). The following are illustrated and described: [Silurian] Wenlock and Lower Ludlow Ischadites koenigii Murchison from Dudley and Ludlow; [Silurian] Wenlock J. lindstroemi from Malvern; [Silurian] Wenlock Receptaculites neptuni Deffrance from Malvern; Devonian R. neptuni and Middle Devonian Sphaerospongia tessellata Phillips from Devonshire; and [Silurian] Upper Ludlow Amphispongia oblonga Salter from the Pentland Hills near Edinburgh (pl. 2, figs. 1–3; pl. 3, fig. 3; pl. 4, figs. 1–2). An annotated bibliography and discussions of the ecology, anatomy, and preservation of sponges, including receptaculitids, are given. Receptaculites occidentalis Salter is figured (fig. 6d) and described (p. 75).
See also:
Hinde, G. J., 1888.


The following sponges are described: Ordovician and Silurian Ischadites Murchison and I. koenigii Murchison; Silurian I. lindstroemi Hinde, Aniphispongia Salter, and A. oblonga Salter; Devonian Sphaerospongia Pengelly and S. tessellata Phillips; Ordovician to Devonian Receptaculites Defrance, and Silurian to Devonian R. neptuni Defrance (pp. 119–122, 126–132, 135–140; pl. 2, figs. 1–3; pl. 3, fig. 3; pl. 4, figs. 1–2). The following are listed: Ischadites, Receptaculites, Acanthochonia, and Sphaerospongia; Ischadites koenigii, I. antiquus, I. tessellatus, I. lindstroemi, and I. grindrodii; Sphaerospongia (= Sphaerites Phillips), Puceolus and Polygonosphaerites; Scyphia cornucopiæae Goldfuss; Puceolus rathi Kayser, and Dictyophyton gerolsteinense F. Roemer [probably Sphaerospongia]; Sphaerospongia sculpta, S. vichtensis, and S. megarhaphis; Receptaculites neptuni and R. occidentalis. Dictyophyton danbyi, formerly referred to Receptaculites and Tetragonis (= Ischadites), differs markedly from those genera. Ischadites micropora Salter and Sphaerospongia hospitalis Salter are doubtful species (pp. 179, 182, 187). Ischadites makes its first appearance in the Lower Llandeilo at Garn, Arenig, Wales (p. 97). Anmphispongia is limited to a horizon of the Upper Ludlow at a single locality in the Pentland Hills of Edinburgh (p. 96). Sphaerospongia occurs in the Devonian in Devonshire (p. 97).

See also:
Hinde, G. J., 1887.


The siliceous sponge Calathium is compared to Archaeocyathus. Calathium, C. formosum, and C. anstedi Billings, are described (pp. 126, 141–142, 144). The lithistid sponge Nipeterella n. gen. (= Calathium paradoxicum Billings) is described (pp. 144–145, pl. 5, fig. 15).


The lithistid sponge Nipeterella n. gen. (= Calathium (?) paradoxicum Billings) and the siliceous sponge Calathium Billings are found in the highest Cambrian [Ordovician] Calciferous Formation in the Mingan Islands, Newfoundland, and the Dunness Limestone in Scotland (p. 374). They are not related to Archaeocyathus.

Hinman, Eugene E.


A receptaculitid and an ischaditid are found in the Silurian Niagara Gower Dolomite in Brady Quarry, Cedar County, Iowa (pp. 33, 47).

Hints, Linda

See:

Hintze, Lehi F.

1951a. Lower Ordovician detailed stratigraphic sections for western Utah. Utah Geological and Mineralogical Survey Bulletin 39, 99 pp., 11 text-figs. Receptaculites and R. mammillaris Walcott are reported from the Lower Ordovician Kanosh Shale of the Pogonip Group in western Utah. Receptaculites elongatus Walcott occurs in the Lower Ordovician Fillmore Limestone of the Pogonip Group and in the Garden City Formation (pp. 19, 52, 56, 62, 66, 76–77, 92, 94).


Receptaculitids occur in unit V of the Ordovici-
cian Pogonip Group, within the Chazyan of central Utah (p. 40).


The stratigraphic and geographic distributions of the Ordovician sponges Receptaculites mammillaris Walcott and R. elongatus Walcott in Utah and Nevada are given.


Receptaculites sp. is found in the Ordovician Kanosh Shale of the Pogonip Group in the southern Egan Range, eastern Nevada (p. 59).


In the Ordovician Pogonip Group in the Ibex area of Utah, a Calathium reef occurs in the Fossil Zone 1 at the base of the Calathium calcisilite member of the Fillmore Formation. Receptaculites is found in Fossil Zone M, 100 feet above the base of the lower member of the Kanosh Shale (p. 51).


Receptaculites is found in the Middle Ordovician Kanosh Shale and Swan Peak Formation, and Calathium in the Lower Ordovician Garden City and Fillmore Limestones of northwestern Utah (pp. 121–123, 133, 135).

1973c. Lower and Middle Ordovician stratigraphic sections in the Ibex area, Millard County, Utah. Brigham Young University. Geology Studies, vol. 20, part 4, pp. 3–36, 6 text-figs., 2 tables.

Calathium ("Receptaculites elongatus" of Hintze, 1951) forms a 10-foot reef at the base of the Calathium calcisilite member of the Lower Ordovician Fillmore Limestone in the Ibex area, Utah (pp. 3, 6, 10–11, 22, 26). Ischadites and receptaculites occur in the lower Ordovician Kanosh Shale of the same area (pp. 6, 31).


Calathium occurs in four members of the Fillmore Formation and in the Wah Wah Limestone, and Receptaculites occurs in the Kanosh Shale. All are Lower Ordovician sponges of the Ibex area of western Utah (p. 16).

Hintze, Lehi F., L. F. Braithwaite, David L. Clark, Raymond L. Ethington, and Rousseau H. Flower


Sponge-like Calathium characterizes the upper two-thirds of the Fillmore Limestone in Utah. Receptaculites mammillaris Walcott and related species occur in the Kanosh Shale of the Ibex area, Utah, and are useful zonal forms for much of the Great Basin (pp. 23–24).

Hinxman, L. W.

See:

Peach, B. N., and others, 1907.

Hisinger, W. [Wilhelm, von]

1823. Anteckningar i Physik och Geognosi under resor uti Sverige och Norrige. Tredje haeftet [Volume 3]. Palmblad & C. Upsala [issued in 5 volumes, 1819-1840], 103 pp., 2 tables, 1 map, 5 pls.

Alcyonium sp. [Coelosphaeridium sphaericum (Kjerulf 1865)] is described and figured as a bryozoan (pp. 87–89, pl. 3) from [Ordovician, Fangberg Formation] shale in Mjøsa district, Norway.

1837. Letheaea Svecica seu Petrificata Sveciae, Iconibus et Characteribus Illustrata. Norsted
Oslo. FIELDIANA: Oslo, the resemblance gae branched figured Holandet four 77, Hochstetter, Graptolithus 1841 «Hi». Apidium A Coelosphaeridium, 1936a. Mjosa 90; from area; dovician nary cember seum 4, Naturvidenskapelig Trondheim 3 no. vol. 35, pp. 349–358.

Silurian Receptaculites clarkii is listed from Port Stephens, Australia (p. 355).

Høeg, Ove Arbo


Middle Ordovician Cyclocrinus is listed from the Mjøsa District in Norway (p. 3).


Apidium rotundum n. sp. from the Ordovician Holandet Limestone in Norway is described and figured as a probable dasycladaceous alga (pp. 76–77, 90; pl. 7, figs. 4–6, text-fig. 9, table 3). It has branched tubes and its cortical cells have some resemblance to those of Cyclocrinus. The shape and internal anatomy differ considerably from the four previously described species of Apidium.


Coelosphaeridium, Cyclocrinus, Apidium, and Mastopora, Middle Ordovician dasycladaceous algae from Norway, are described (pp. 17–19), and Coelosphaeridium (fig. 8a), Cyclocrinus (figs. 7, 8b), and Mastopora (fig. 8c) are figured.

See also: Høeg, O. A., 1936b and 1966.


This is identical to Høeg, 1936a, except for pagination.

See also: Høeg, O. A., 1966.


Four Ordovician dasycladaceous algae, Cyclocrinus, Mastopora, Coelosphaeridium, and Apidium (= Pasceolus) are described. Cyclocrinus and Coelosphaeridium are characteristic of the upper Middle Ordovician of the Oslo region (Hadeland and the Mjøsa area). Mastopora concava Eichwald occurs in the Middle Ordovician, although the genus is chiefly Silurian. The ecology of these algae is discussed (pp. 107–108).


Cyclocrinus, Coelosphaeridium, and Mastopora, Ordovician dasycladaceous algae from Norway, are illustrated and discussed (pp. 26–28, 88, figs. 7–8). Apidium is mentioned (p. 26).

See also: Høeg, O. A., 1936a and 1936b.

Hoelder, H.


The opinion of the International Commission on Zoological Nomenclature concerning the name Receptaculites is summarized. Receptaculites De-france 1828 [sic] is considered a plant.

Hoernes, Rudolf


Silurian [and Ordovician] Ischadites Murchison, Cyclocrinus Eichwald, Pasceolus Billings, and Devonian Polygonosphaerites Roemer belong to the Receptaculitidae (pp. 43–44).


The Receptaculitidae, a problematic group (foraminifers?), are united with Dactyloporeidae by F. Roemer and Zittel. Receptaculites Defrance from the Silurian [Ordovician] and Devonian of Europe and North America is described. Silurian [and Ordovician] Ischadites Murchison, Cyclocrinus Eichwald, Pasceolus Billings, and Devonian Polygonosphaerites Roemer belong to the Receptaculitidae (pp. 43–44). Calathium Billings and Amphiporgia Salter are sponges (Dictyonina, Euretidae) (p. 77).

Hogberg, Rudolph

See:

Holland, C. H.


The paleoequatorial distribution of receptaculitid algae from the Ordovician through the Devonian appears more restricted than of other benthonic groups of equivalent age.

Holloway, D. J.

See:
Campbell, K. S. W., D. J. Holloway, and W. D. Smith, 1974.

Holt, Stephen P.


An upper Receptaculites zone occurs at the base of the Middle Ordovician Stewartville Member of the Galena Formation near Galena, Illinois (p. 12, table 2).


An upper Receptaculites zone occurs at the base of the Stewartville Member of the Middle Ordovician Galena Formation near Galena, Illinois (p. 5, table 1).

Holtedahl, Olaf


Coelosphaeridium cycloocrinophilum F. Roem., Mastopora concava Eichwald, Cyclocrinus sp., C. schmidtii Stolley, C. oelandicus Stolley, C. vanhoeffeni Stolley and C. balticus Stolley characterize a Chasmos-Siphoneen-stratum and other zones in the Mjøsa Ordovician Stage 4. Coelosphaeridium and Cyclocrinus are locally very abundant. This area is compared with other regions in southern Norway, Estonia, and the British Isles. Receptaculites sp. is listed as a bryozoan; Cyclocrinus sp., Coelosphaeridium, and Mastopora occur in the Oslo region and Cyclocrinus and Nidulites favus in the British Isles (pp. 11, 15–18, 23–27, 30–38, 42, 50, 57, 61–62, 64–70, 75).

1912. On some Ordovician fossils from Boothia Felix and King William Land collected during the Norwegian expedition of the Gjoa, Captain Amundsen, through the Northwest Passage. Videnskaps-selskaps Skrifter. 1. Matematisk-Naturvidenskapelig Klasse, 1912, no. 9, 11 pp., 4 pls., 1 map.

A typical Trenton (Galena) Receptaculites oweni Hall from King William Land is described, figured, and compared with R. occidentalis Salter and R. arcticus Etheridge (pp. 4, 6, 11; pl. 1, figs. 1–2; pl. 4, fig. 3).

1913. The Cambro-Ordovician beds of Bache

Receptaculites occurs in Niagaran or Clinton [Silurian] limestones at Cape Harrison, Arctic Canada (p. 12).


Calathium occurs in the Canadian Ordovician Heclahook System on Bear Island (p. 100, footnote).


The sponges Calathium cf. pannosum and Calathium sp. (similar to C. canadense) from the Middle Ordovician Heclahook System of Bear Island are described and figured (p. 127; pl. 12, figs. 4–5).


Newlandia is possibly like Receptaculites (p. 204).

1924. On the rock formations of Novaya Zemlya with notes on the Paleozoic stratigraphy of other Arctic lands. Report of the Scientific Results of the Norwegian Expedition to Novaya Zemlya, 1921, no. 22. Videnskaps-selskapes i Kristiania [later Norske Videnskaps-akademi i Oslo], Kristiania, 183 pp., 44 pls.

The following Ordovician fossils are listed: Calathium sp. and C. cf. pannosum from the Heclahook System on Bear Island, Receptaculites oweni from Boothia and King William Land, Receptaculites spp. from Cape Louis Napoleon in the Arctic Archipelago, and Receptaculites (R. oweni) from Greenland (pp. 113, 119–121).

1934. The Lower Paleozoic sedimentary series.


Coelosphaeridium and Mastopora occur in the lower part of Zone 4b in the Mjøsøn district of Norway. Cyclocrinus is found in the upper part of the zone in the same area. These are typical Middle Ordovician algae of Estonia (p. 326).


Coelosphaeridium cyclocrinophilum (fig. 74.8) and Mastopora concava (fig. 74.14) from the Middle Ordovician Chasmops-series of the Oslo region are figured. These calcareous algae occur in Cyclocrinus, Cyclocrinus-Coelosphaeridium, Coelosphaeridium, Mastopora, and Coelosphaeridium-Mastopora beds in which Cyclocrinus is a characteristic fossil (p. 198; fig. 75, pl. 5).

Hopper, Richard H.


Sponges of the genus Receptaculites are the only fossils found in an (upper Ordovician?) Ely Springs dolomite in the Panamint Range of California. Receptaculites sp. has also been identified from near the top of a Cambrian and Lower Ordovician dolomitic series, just below the Eureka quartzite (p. 407).

Horne, John

See:

Peach, B. N., and J. Horne, 1899 and 1930.
Peach, B. N., and others, 1907.

Horowitz, Alan S.

See:


Hosterman, John W.

See:


House, M. R.

1975. Faunas and time in the marine Devonian. Proceedings of the Yorkshire Geological So-

The sponges Receptaculitidae became extinct in the Devonian (p. 462).

Hovey, Edmund O.

See:

Whitfield, R. P., and E. O. Hovey, 1898, 1899, and 1900.

Howe, Herbert J.


Receptaculites is listed from the basal Upman Limestone and the Cable Canyon Sandstone of the Ordovician Montoya Group in several West Texas localities (pp. 2290, 2294, 2299–2302, 2321–2323, 2327–2329).


Receptaculites is found in the Upman Dolomite of the Ordovician Montoya Group in the Florida Mountains, New Mexico (p. 237, text-fig. 2).

Howe, Wallace B., and John W. Koenig (eds.)


Receptaculites oweni characterizes the Ordovician Kimmswick Formation in Missouri (p. 28).

Howell, Benjamin F.


Receptaculites mammillaris Walcott, which resembles R. occidentalis Salter, is described and illustrated from the Ordovician Tank Hill and Pogany Formations in the Ely Springs Range and Eureka district of Nevada. Possible modes of life for these problematic organisms are discussed.


Ishadites infundibulum Hall, I. ohiensis (Hall and Whitfield), I. reticulatus (Owen), and Cerionites dactioloides (Owen) are described and illustrated. Name priorities are established for I. reticulatus and C. dactioloides. The following are mentioned: Ishadites, I. canadensis, I. koenigi, Receptaculites, R. infundibulum, R. neptuni, R. occidentalis, R. oweni, R. fungosum, R. globulare, Lunulites, L. dactioloides, Pasceolus, Apidium, Cerionites, Cyclocrinus, Selenoides, S. iowensis, Orbitulites, and O. reticulata.


Sphaerospongia teicherti n. sp. from the late Middle or early Late Devonian in Western Australia is described, illustrated, and placed in family Receptaculitidae of lyssacine hexactinellid sponges. A similar species, S. tessellata (Phillips), is mentioned from the Middle Devonian of England and possibly Ontario and Manitoba.

Hucke, Kurt, and Ehrhard Voigt


The problematic Receptaculites and Ishadites are sponges (p. 55). Cyclocrinus, Coelosphaeridium, and Mastopora are Ordovician calcareous algae (p. 58). Mastopora concava Eichwald, Coelosphaeridium cyclocrinophilum Roemer, Cyclocrinus porosus Stolley, and Ishadites koenigi Murchison are listed and figured (pl. 8, figs. 2–3; pl. 9, figs. 1–3; pl. 10, fig. 8). Most specimens are Baltic glacial erratics of Middle Ordovician from the siliceous Backsteinkalk in Holland and are housed in the museum in Denekamp, Holland.

Huepsch, Johann Wilhelm Carl Adolph von

1805. Naturgeschichte des Niederdeutschlands und anderer Gegendten. Teil 2. Gabriel Nicolaus Raspe, Neurnberg, 1 p., pls. 8–15. [The text of this part was never published.]

The [earliest known] figures of unnamed fossils [now identified as Receptaculites neptuni] Defrance
and *Tetragonis murchisoni* Eichwald] are given (pl. 13, fig. 65; pl. 14, figs. 67–68; pl. 15, figs. 69–72).

**Huffman, George Garrett**


*Receptaculites* sp. is found in the upper shaly “Ottossee” Formation at Rye Cove in Scott County, Virginia (p. 154).

**Hughes, N. F.**

See:


**Hume, George S.**


*Receptaculites oweni* occurs in the Middle Ordovician Haileybury Formation in the Lake Timiskaming district of Ontario, Canada (p. 302).


*Receptaculites oweni* from the Ordovician Liskeard Formation around Lake Timiskaming, Ontario and Quebec, is figured (pp. 18, 20–21; pl. 4, fig. 1). This hydrozoan is also found in the Galena Formation of Minnesota and the Galena-equivalents of Baffin Island and Manitoba (p. 24).


Ordovician *Receptaculites* sp. resembling *R. oweni* is described and illustrated from the north arm of Great Slave Lake in the Northwest Territories (pp. 60–62; pl. 12, pp. 122–123).

**Humphrey, Fred L.**


*Receptaculites mammillaris* and *R. elongatus* occur in member 4 of the Lower Ordovician Pogonip Formation in the Eureka area, Nevada. Abundant *R. mammillaris* forms a *Receptaculites* zone (pp. 18, 20–21, 23).

**Hunt, Charles B.**


*Receptaculites* is associated with *Palliseria* and Maclurites in Lower and Middle Ordovician limestones of the Pogonip Group in Death Valley, California (p. 91).

**Hunt, Charles B., and Don R. Mabey**


*Receptaculites* occurs in the Lower and Middle Ordovician Pogonip Group in Death Valley, California (pp. 10, 34–35). Its occurrence in the Upper Ordovician Ely Springs Dolomite may be in a fault block from the upper part of the Pogonip Group (p. 38).

**Hurst, J. M.**

See:

Peel, J. S., and J. M. Hurst, 1980.

**Hushmand-Zadeh, A.**

See:


**Hussey, Russell C.**


Ordovician *Receptaculites* sp. from Putnam Highland, Baffin Land, is listed (p. 75).

Receptaculites oweni Hall, an Ordovician sponge, occurs in the Chandler Falls section on the Escanaba River in Delta County, Michigan (p. 8).


Receptaculites oweni (Hall) is listed from the Middle Ordovician Chandler Falls Member of the Trenton Formation at Chandler Falls, Michigan. Receptaculites sp. is figured (pp. 26, 86–87; pl. 10, fig. 16).

Huttrer, Gerald W.

See:

Huxley, Thomas Henry, and Robert Etheridge


The following are housed in the Museum of Practical Geology in London: Ischadites from the Woolhope Beds in Malvern and from the Wenlock in Dudley; I. antiquus from the Llandeilo flags in Carn Arenig; I. koenigii from the Lower Ludlow in Ledbury, from the Woolhope Beds in Buildwas and from the Upper Ludlow in Ludlow; Sphaerospongia from the Caradoc in Onny, Cheney, Longville and Acton Scot; S. tessellata from the Middle Devonian in Newton Bushell; and Nidulites favus from the Lower Llandovery in Haverford West, Mullocks Hill, Ayrshire (pp. 24, 27, 34, 57, 64, 69, 76, 96).

Hyatt, Alpheus


Calathium, a probable sponge, is found in the Quebec Group near Port au Port, Newfoundland. It is believed to have given rise to Lower Silurian [Ordovician] forms.

Hyde, Jack H., and Gerald W. Huttrer


Receptaculites sp. is listed from the Ordovician Pogonip Group of east-central Nevada (p. 506).

Ingels, Jerome J. C.


A Silurian sponge, Calathium (?) sp., from flank deposits of the Thornton reef complex in northeastern Illinois is figured (p. 417; pl. 2, fig. 3).

See also:


This is identical to Ingels, J. J. C., 1963.

See also:

Ingham, J. Keith

See:
Ross, R. J., Jr., and J. K. Ingham, 1970.

Irish, E. J. W.


Receptaculites sp. occurs in the late Llandovery (Early Silurian) or earliest Wenlock (Middle Silurian) of northeastern British Columbia (p. 818).


NITECKI ET AL.: RECEPTACULITID ALGAE
Silurian *Receptaculites* sp. is listed from northeastern British Columbia (p. 29).

Isbister, A. K.


*Receptaculites neptunii* is found in the Lower Silurian [Ordovician] of Lake Winnipeg, Canada. A coral of uncertain age, possibly *Receptaculites*, occurs along northern Hudson's Bay (Igloolik, Melville Peninsula, and Amherst Island) (pp. 507-508).

See also:
Isbister, A. K., 1856.


This is identical to Isbister, A. K., 1855, except for pagination.

Ivanov, Alexei Nikolajevich, and Elizaveta Ivanovna Miagkova


Ordovician to Carboniferous *Receptaculites* Defrance is described, and *R. meandriformis* Ivanov from the Middle Ordovician of River Kosva in the Urals is described and figured as belonging to Porifera (?) (p. 9, pl. 1, fig. 1, text-figs. A and B).

Jaanusson, Valdar


In Estonia the Ordovician *Mastopora concava* is a characteristic element of Idavere rather than Kukruse beds (p. 221).

Jack, Robert Logan, and Robert Etheridge, Jr.


The Upper Silurian to Devonian? Gympie Beds in Queensland contain *Receptaculites* (p. 95).

Jackson, Margie

See:

Jaffrezo, Michel

See:

James, Jack A.

See:

James, Joseph F.

1881. Catalogue of the Fossils of the Cincinnati Group. [Published by the author], James Barclay, Cincinnati, Ohio, 27 pp.


The sponge order *Receptaculitidae* consists of *Ischadites* Murchison, *Sphaerospongia* Pengelly, *Acanthochonia* Hinde, and *Receptaculites* Defrance. *Pasceolus, Ischadites (= Lepidolites) dick-
Astylospongia 91

Astylospongia 91

A. tumida U. P. James [Cyclocrinites darwini], Pasceolus Billings, P. globosus Billings, P. darwiniis S. A. Miller (= P. claudii S. A. Miller), Ischadites Murchison (= Lepidolites Ulrich), I. dickhauti (Ulrich) (= Lepidolites dickhauti Ulrich = L. elongatus Ulrich), Receptaculites Defrance (= Anomaloides Ulrich) and R. reticulatus Ulrich (= Anomaloides reticulatus Ulrich) (pp. 244, 248–250).


Cyclocrinites(?), a cystidean from the Lower Silurian [Ordovician] Cincinnati Group, is listed (p. 6).

1873. Additions to catalogue of Lower Silurian fossils, Cincinnati Group. Palaeontology. Published by the author, Cincinnati, Ohio, pp. 15–17.

James, Uriah Pierson

1871. Catalogue of the Lower Silurian fossils, Cincinnati Group, found at Cincinnati and vicinity—within a range of forty or fifty miles. Palaeontology. Published by the author, Cincinnati, Ohio, 14 pp.

Cyclocrinites(?), a cystidean from the Lower Silurian [Ordovician] Cincinnati Group, is listed (p. 6).


Pasceolus sp. (?), P. claudii S. A. Miller, and P. darwiniis S. A. Miller of uncertain class from the Lower Silurian [Ordovician] Cincinnati Group are listed (p. 8).


A sponge, Astylospongia tumidus James [= Cyclocrinites darwini (Miller)], from the Lower Silurian [Ordovician] Cincinnati Group is described (p. 1).

1879. Supplement to catalogue of Lower Silurian fossils of the Cincinnati Group, found at Cincinnati and within a radius of forty or fifty miles. Containing new genera and about 150 new species, described since the publication of the catalogue, April 1875, and other identified species, synonyms, etc. Palaeontology, no. 4, pp. 29–32. Published by the author, Cincinnati, Ohio.

A sponge, Astylospongia tumidus James [= Cyclocrinites darwini (Miller)], and Lepidolites dickhauti Ulrich and L. elongatus Ulrich (class uncertain) are listed from the Lower Silurian [ Ordovician] Cincinnati Group (pp. 29, 32).

James, W. Calvin

See:

Jameson, Robert


[This is the first description of receptaculitids from North America.]

"A species of a new genus [Fisherites reticulatus] of coral was found in a piece of limestone by . . . Mr. Stokes who communicated the following account of it: - The new fossil coral is a flat lobe, covered on both sides with pores, which are obscurely laminated, and each pore or cell is continued through the substance of the coral. The cells are arranged in curved radii from a centre, like the lines upon an engine-turned watchcase, and (which is unusual in corals) increase in size as they are more distant from the centre. On one surface the cells appear to be all four-sided, in which respect also they differ from all other corals." [Ordovician], Mountain Limestone, Igloolik Island (p. 222).

Jell, J. S.

See:

Jicha, Henry L., Jr.


The sponge Calathium is abundant in the Bat Cave Formation of the Lower Ordovician El Paso Group in the Cooks Range, New Mexico. Receptaculites, a characteristic fossil of the Upham Dolomite, is found in the same region in the upper part of the Cable Canyon Sandstone of the late Middle and Upper Ordovician Montoya Group (pp. 10, 12, 14).

Johnsen, John H.


Cyclocrinites (= Pasceolus) globosus (Billings) has been reported from the upper limit of the Denmark Formation and the base of the Hallowell Member of the Cobourg Formation in Jefferson County, New York (pp. 26, 28).

Johnson, G. A. L.

See:

Johnson, H. M.

See:

Johnson, J. Harlan


Receptaculites sp. is listed from the Ordovician Fremont Limestone in the Mosquito Range, Colorado (p. 23).


See also:


Receptaculites sp. and R. oweni are reported from the Upper Ordovician Fremont Limestone of the Sawatch Range, central Colorado (pp. 324, 364).

The Ordovician Fremont Formation in Colorado contains *Receptaculites oweni* Hall near Canon City and *Receptaculites* sp. in the Bonanza District and in Gunnison County (pp. 26, 29).


*Cyclocrinus* Eichwald (= *Pasceolus*), *Coelosphaeridium Roemer, Apidium Stolley and Mastopora Eichwald (= *Nidulites Salter*) of tribe *Cyclocrinacea* of the Dasyycladaeae are described. The following Ordovician species are listed: *Cyclocrinus spasskii* Eichwald, *C. roemerii* Stolley, *C. planus* Stolley, *C. membranaceus* Stolley, *C. balticus* Stolley, *C. porosus* Stolley (pl. 5, figs. 1–2), *C. oelandicus* Stolley, *C. vanhoffeni* Stolley, *C. pyriformis* Stolley (pl. 4, fig. 6), *C. multicusus* Stolley, *C. mickvitzii* Stolley, *C. schmidtii* Stolley (all European); *C. billingsi* Roemer, *C. claudii* Miller, *C. darwini* Miller, *C. globosus* Billings, *C. hospitalis* Salter, *C. mellifluous* Salter (all American); *Mastopora concava* Eichwald, *M. fava* Salter, *M. parva* Nicholson and Etheridge, *M. pyriformis* Bassler (pl. 12, figs. 1–5), *Coelosphaeridium cyclocrinophilum* Roemer (pl. 6; pl. 8, fig. 1) (Ordovician from Norway); *C. excavatum* Stolley, *C. wesenbergense* Stolley and *C. (Pasceolus) shianensis* Reed, *Apidium krausei* Kiesow (from the Baltic Provinces); *A. indicum* Reed (from India); *A. pygmacuem* Stolley (from Estonia); *A. rotundum* Hoege (figured from Norway), and *A. sorosis* Stolley (from the Baltic region).


Dasyycladaeae algae of tribe *Cyclocrinacea* are discussed. Ordovician *Cyclocrinus pyriformis* Stolley, *C. porosus* Stolley, *Coelosphaeridium cyclocrinophilum* Roemer from Norway, and *Mastopora pyriformis* Bassler are figured (pp. 70–71; pl. 31, fig. 6; pl. 32, figs. 1–2; pls. 33–34).


This is a supplement to J. H. Johnson 1943, listing selected published references to the Ordovician *Apidium, Coelosphaeridium, Cyclocrinus, Mastopora* and *Nidulites* (pp. 4, 14, 36, 44).

See also:


*Apidium Stolley, Coelosphaeridium Roemer, Cyclocrinus Eichwald, and Mastopora Eichwald are described. Stratigraphic and geographic ranges and Ordovician species of each genus are listed (pp. 36, 39–40, 43, 45–46, 48). Apidium indicum* from India, *A. rotundum* from Norway, *Coelosphaeridium sphaericum* from Wales, *C. cyclocrinophilum* from Norway, *Cyclocrinus porosus*, *Mastopora pyriformis*, and *Nidulites* are figured (pls. 14, 16–18).


*Coelosphaeridium Roemer, Cyclocrinus Eichwald, and Apidium Stolley, the Ordovician members of the tribe *Cyclocrinacea*, are described (pp. 125–128). Coelosphaeridium cyclocrinophilum, Cyclocrinus pyriformis, C. porosus, Apidium rotundum, Mastopora pyriformis, and Nidulites are figured.*


*Receptaculites australis* is listed from the Lower to Middle Devonian Nubrigny Formation in New South Wales, Australia (p. 98).


The annotated bibliography of fossil algae, 1956–1965, includes references to certain receptaculitids and cyclocrinitids.
See also:
Johnson, J. H., 1943 and 1957.

Johnson, J. Harlan, and M. E. Dorr

Silurian [Ordovician] dasycladaceans of subtribe Cyclocrineae, tribe Cyclocrineae, Coelosphaeridium F. Roemer and Apidium Stolley, are described (pp. 64, 68).

Johnson, J. Harlan, and Kenji Konishi

Ordovician to Silurian Mastopora of tribe Cyclocrineae is described and its Silurian distribution is given (pp. 51–52). Mastopora fava and M. parva are figured (pl. 6, figs. 1–9). Cyclocrinus (= Pasceolus halli Billings) is the only Silurian member of that genus (p. 11). Mastopora (= Nidulites), Apidium Stolley, and Epimastopora Pia form subtribe Mastoporinae. Lower Silurian Mastopora sp. Kiaer from Norway, M. fava from Wales, Scotland, and Norway, Ordovician (?) Coelosphaeridium cyclocrinophilum and C. [sic] spasskii from the Netherlands and Goldsonia burntensis are listed (pp. 13–15, 24, 26, 28).

Johnson, Markes E.

Cyclocrinites dactioloides (Owen), a dasycladaceous alga from the Cyclocrinites beds of the Lower Silurian Hopkinton Dolomite in eastern Iowa, is figured and listed (pl. 2, fig. 4; pp. 132, 135–136, 138).


The Cyclocrinites beds of the Lower Silurian Hopkinton Dolomite in eastern Iowa are mentioned (pp. 84–85).


Calcereous green algae Cyclocrinites dactioloides is listed from Early Silurian Llandoveryian Cyclocrinites beds in eastern Iowa (pp. 197, 201–206, 209).

See also:

Johnson, Markes E., and Gregg T. Campbell

The green alga Cyclocrinites is reported from the Lower Laminated Beds of the Silurian Schoolcraft Formation in Michigan (p. 1045). Cyclocrinites occurs in the Silurian Hopkinton Formation of Iowa (p. 1053).

Johnson, Meredith E., and Bradford Willard

Receptaculites occidentalis Salter occurs in the lowest beds of the Ordovician Jacksonburg Limestone at several localities in New Jersey and Pennsylvania (p. 11).

Johnson, Mike S., and Donald E. Hibbard

Receptaculites elongatus Walcott and R. mamilaris Walcott are present in the Early to Middle Ordovician Pogonip Group at the Atomic Energy Commission proving grounds, Nevada (p. 348).

Johnson, R. D.
See:
Johnston, William Alfred


Receptaculites occidentalis Salter is listed from the [Ordovician] Cobconk and Kirkfield Limestones at Carden, Ontario, and the Kirkfield Limestone at Fenelon Falls, Ontario (pp. 256–259). Ischadites sp. occurs in the Prasopora beds of the Kirkfield Limestone near Brechin, Ontario (p. 261).

Jones, C. R., D. J. Gobbett, and Teiichi Kobayashi


Mastopora sp. from Ordovician rocks in Pulau Langkawi in Malaya is listed (p. 311).

Jones, E. C.

See:


Jones, Herbert Llewelyn


Sphaerospongia cornucopiae Goldfuss occurs in the upper member of the Middle Devonian Winneposig Formation of Saskatchewan (pp. 22, 26–27; pl. 18, fig. i, text-fig. 14). The stratigraphic and geographic distributions of S. cornucopiae, S. tessellata, S. cf. hortini, and Sphaerospongia sp. are discussed (p. 27).

Jones, Owen Thomas


Nidulites favus is characteristic of the Lower Llandoveryian (Silurian) Gasworks Mudstone near Narberth and Haverfordwest, South Wales (p. 94).

Jones, Thomas Rupert


The following [receptaculitids] from the British Isles, Gotland, Estonia, Bohemia, North America, Northern India, and Belgium are housed with Foraminifera at the British Museum (Natural History): Silurian Sphaerospongia (Nidulites), S. (Nidulites) favus, S. hospitalis, S. (Ischadites), S. inosculans, S. melliflua, Ischadites koenigi, Receptaculites, R. orbis, R. occidentalis, R. arctica, R. neptuni?, R. oweni, and Sphaeronites; Devonian Sphaeronites tessellatus and Receptaculites neptuni. Notes on the Receptaculitidae, particularly Receptaculites, are included (pp. 2–4, 83).

See also:

Anonymous, 1876.

Jonker, H. G.


The following [Ordovician] fossils are listed from the erratic rocks of Germany and the Netherlands: Coelosphaeridium sp., C. cyclocrinophilum, C. cyclocrinophilum var. convextianum, Cyclocrinus sp., C. spaskii, C. porosus, Mastopora concava, and Apidium ? sp. (pp. 51, 53–58, 62, 66–67, 74–76).

Kaljo, D. L.


Receptaculites infundibulum Schrenk from the Llandoveryian (Silurian) of Estonia is listed with Squamiferida (p. 173, table 20).

Kampner, Erwin

1958. Ueber das System und die Stammesgeschichte der Dasycladaceen (Siphonae verticillatae). Annalen des Naturhistorischen

The dasycladacean tribe Cyclocrineae ranges from Ordovician to Permian and consists of two subtribes: Cyclocrineae and Mastoporinae. Cyclocrineae consists of Ordovician Coelosphaeridium Roemer 1883, Permian Mizziness Schubert 1907, and Ordovician Cyclocrinus Eichwald 1860. Mastoporinae consists of Ordovician Mastopora Eichwald 1840, Ordovician Apidium Stolley 1896, Lower Carboniferous Konickopora Lee 1912, and Permian Epimastopora Pia 1922. All these taxa are described (pp. 97, 102, 104, 107–108, and table).

Karsten, Gustav


The following Silurian [Ordovician] fossils from the Baltic erratics are described: Receptaculites Defrance, of such unknown affinities that it cannot be decided whether it is a plant or an animal (p. 8); R. bronni Eichw. (pp. 8–9, pl. 1, figs. 4a–c); Receptaculites sp. a (pp. 8–9; pl. 2, figs. 6a–e; pl. 25, fig. 21); Receptaculites sp. b (p. 10, pl. 25, figs. 20a–b); Cyclocrinus Eichw. (pp. 20–21) of unknown affinities; C. spaskii Eichw. (pp. 21–23, pl. 7, figs. 10a–e; pl. 25, figs. 22a–b); C. exilis Eichw. (p. 22, pl. 7, figs. 11a–b); Cyclocrinus sp. (p. 22); and Ischadites koenigi (p. 9).

Katz, Michael


Kay, G. Marshall


[Ordovician] Ischadites sp. occurs at the Sherman Fall-Lower Cobourg contact at Lowville, New York, and near Ameliasburg, Ontario (p. 229). Nidulites pyriformis Bassler characterizes the upper members of the [Ordovician] Chambersburg Formation (p. 232).


Receptaculites zones of R. oweni Hall occur in the Ordovician Prosser and Stewartville Formations in the Upper Mississippi Valley; Ischadites cf. iowensis (Owen) is listed from the Stewartville (pp. 563, 565, 567–569, 571–572, 574–577, 580). Receptaculites oweni is listed from the Ordovician Lower Cobourg Formation in New York (p. 580).


Receptaculites oweni Hall and Ischadites iowensis (Owen) occur in the Prosser Formation in the Upper Mississippi Valley (p. 291).


Pasceolus globosus Billings, Receptaculites occidentalis Salter, and R. oweni Hall are listed from various Trenton Ordovician localities (pp. 256–259, 261–263, 278, 281, 300; pl. 9). Pasceolus globosus is figured (pl. 10).


The Ordovician Galena Group in the Upper Mississippi Valley lead and zinc district (Wisconsin-Illinois) contains an upper Receptaculites zone at the base of the Stewartville Formation and a lower Receptaculites zone in the Prosser Formation (pp. 27–28).


Ordovician Receptaculites occidentalis Salter is
found in the Rocklandian Cloche Island Limestone in the Manitoulin district, Ontario (p. 590).


Receptaculites occidentalis Salter is listed from the Rockland Limestone at several eastern Canadian localities and below the Sherman Fall Limestone in the Ameliasburg inlier (pp. 595, 598, 601–602, 631).


Ordovician Nidulites is common in the Mercersburg Limestone of the Cumberland Valley, but relatively rare in the Nealmont Formation of Pennsylvania. Receptaculites occidentalis Salter, typical of the Rockland Formation, is not found in the Nealmont (pp. 106–108).


The stratigraphic and geographic distributions of Ordovician Receptaculites and the sponge Nidulites in Virginia and West Virginia are given (pp. 65–66, 69, 73–75, 78–79, 81, 91–93).


Receptaculites occurs in the Isle la Motte Limestone of the Ordovician Highgate Springs Sequence in Vermont (p. 86).


Nidulites (?) sp. is listed from the sponge beds of the Ordovician Antelope Valley Limestone in Ikcs Canyon and Yellow Gulch in Nevada (p. 1424).


Receptaculites is listed from the Ordovician, Rocklandian Chaumontian Limestone at Packenham Quarry, Ottawa Valley, Ontario (p. 167).

See also:

Kay, G. Marshall, and Edwin H. Colbert

Middle Ordovician Mastopora or Nidulites from Virginia is figured as green alga (pp. 664, 666, fig. 26-35).

Kayser, [Friedrich Heinrich] Emanuel


Keefer, William R., and J. A. Van Lieu

The Ordovician Bighorn Dolomite in the central Wind River Mountains of Wyoming contains Receptaculites sp. and Cyclocrinites sp. in the Lander Sandstone Member and R. arcticus in the Leigh Dolomite Member (p. 25). Receptaculites sp. oc-
curs in the Bighorn in the Sweetwater Canyon and Windy Gap sections.

Kelley, Vincent C., and Caswell Silver
1952. Geology of the Caballo Mountains. University of New Mexico Publications in Geology, no. 4, 286 pp., 19 pls., 26 text-figs.

_Calathium anstedi_ occurs in the Ordovician Bat Cave Formation and Receptaculites sp. in the Devonian Sly Gap Formation of southern New Mexico (pp. 50, 75).

Kellogg, Harold E.

The Ordovician Pogonip Group in the Egan Range of eastern Nevada contains Receptaculites n. sp. and _R. elongatus_ Walcott in the Canadian Shingle Limestone, and _R. elongatus_ and _R. mammillaris_ Newberry in the Chazyan lower Kanosh Shale (pp. 693–694, pl. 1).

Kempen, Th. M. G. Van

_Calathium_ sp. of Dake and Bridge (1932) from the Canadian Ordovician in Texas, and the _Calathium_ of Weller and St. Clair (1928) from the Lower Ordovician Jefferson City Formation in Missouri are probably the sponge _Archaeoscyphia_ (p. 315).

Kempton, John

See:

Kennerly, J. B.

See:

Kent, Donald M., Barry Bannatyne, and Hugh R. McCabe
1972. Industrial and non-metallic minerals of Manitoba and Saskatchewan (Central Plains).


_Receptaculites_ is found in the Selkirk member of the Upper Ordovician Red River Formation at Garson, Manitoba (p. 11).

Keroher, Grace C.


The Lower Silurian (Ordovician) Receptaculite Limestone of Shumard in Missouri now constitutes the Kimmswick Subgroup of the Galena Group (pp. 23, 36–37).

Keroher, Grace C., and others

_Receptaculites_ zones occur in the Prosser and Stewartville Members of the Middle Ordovician Galena Dolomite in the lead-zinc district [of Wisconsin-Illinois-Iowa] (p. 1453).


_Receptaculites_ occurs in the upper Prosser and lower Stewartville Members of the Middle Ordovician Galena Dolomite in Fillmore County, Minnesota, and the zinc-lead district [Iowa-Illinois-Wisconsin], respectively (pp. 3144, 3722).

Kerr, J. William


Ordovician _Receptaculites_ sp. is found in the Smith Creek and Burns Creek Sequences of the
Eureka Quartzite in the Seetoya Mountains, Nevada (p. 445).


**Ordovician Receptaculites** sp. is reported from the Cornwallis, Thumb Mountain, and Irene Bay Formations in the Cornwallis Group on Ellesmere Island.


**Receptaculites** sp. from the Thumb Mountain and Irene Bay Formations, *R. arcticus* from the Croker Bay Limestone, and *Cyclocrinites* sp. from the Irene Bay Formation are found in the Ordovician of the Canadian Arctic (pp. 47, 49, 53–55, 74).


Receptaculitids are part of the Arctic Ordovician fauna in the Upper Ordovician (Edenian and Maysvillian?) Irene Bay Formation of the Bathurst Island Group, Arctic Canada. *Receptaculites* sp. is found in the Lower Devonian (early Emsian?) Stuart Bay Formation (pp. 18–19, 136).

See also:

**Kesling, Robert V., and Alan Graham**


*Ischadites* is described as a dasycladacean alga. *Ischadites iowensis* (Owen) is described and illustrated (text-figs. 1–2; pls. 135–136). A history of classification of *Ischadites* is given. The presence of gametocysts dispels all questions of the affinities of receptaculitids.

**Keyes, Charles Rollin**


The hexactinellid sponge *Receptaculites oweni* Hall from the Silurian [Ordovician] Trenton Limestone of Jefferson, Pike, and St. Louis Counties, Missouri, is described and illustrated. Part of Whitfield's (1882) description is reprinted (pp. 91, 103; pl. 12, figs. 2a–b).


*Receptaculites* is common in the Ordovician from Cape Girardeau to Kimmswick and along the Missouri River nearly to Jefferson City, Missouri (p. 61).

**Keyserling, Alexandre de**

See:
Murchison, R. I., É. de Verneuil, and A. de Keyserling, 1845.

**Keyte, I. A.**

See:
Brainerd, A. E., H. L. Baldwin, Jr., and I. A. Keyte, 1933.

**Kiaer, Johan [Aschehoug]**


The Ordovician algae *Apidium* Stolley, *A. sororis* Stolley, and *Nidulites* n. sp. are listed from Stage 5 of the Oslo region (pp. 9, 71).

See also:
Kiaer, J., 1897b.


This is identical to Kiaer, J., 1897a.

1901. Etage 5 i Asker ved Kristiania. Studier over den norske Mellem-silur. Norges Geo-
logiske Undersøkelse. Aarbog. 1902, no. 1, 111 pp., 6 text-figs., charts and tables.

*Ischadites* sp. and *Apidium sororis* Stolley are found in [the Upper Ordovician] stages 5a and 5b in the Oslo region (pp. 12, 57, 82, 89–90).


*Mastopora* sp., *M. fava* Salter, and two species of *Receptaculites* are listed as plants from the Upper Silurian of Christianity [Oslo] in Norway (p. 583).


Floras of calcareous algae from the Ordovician and Silurian of Norway are described. The Middle Ordovician *Cyclocrinus* flora in the Mjøsen district consists of *Coelosphaeridium*, *Cyclocrinus*, and *Mastopora*. The Lower Silurian *Mastopora* flora contains *Mastopora*, *Apidium*, which occurs in the Oslo district, belongs to the Upper Ordovician *Isotelus* group. The following "Verticellate Siphono-er" and their zonations are listed: Middle Ordovician *Mastopora concava* Eichwald, *Coelosphaeridium cyclocrinophillum* F. Roemer, *Cyclocrinus schmidtii* Stolley, *C. oelandicus* Stolley, *C. vanhoefeni* Stolley, *C. balticus* Stolley, and *Cyclocrinus* sp.; Upper Ordovician *Apidium* sp. and *Cyclocrinus* sp.; and Lower Silurian *Masto- pora* sp. and *M. fava* Salter.


Stratigraphy of Ordovician siphonous algae *Coelosphaeridium* and *Cyclocrinus* in Norway is discussed.


This is identical to Kiaer, J., 1921a.


Ordovician (Caradocian?) *Ischadites* from below the Kalstad Limestone but above the Hovin sandstone in Meldalen (p. 24); *Apidium rotundum Høeg from the Hølandet shale and limestone in the Trondheim area (p. 36); and *Nidulites* and *Mastopora* from the Hovin sandstone in Trond- heim are listed (p. 49).


*Ischadites* sp. A, resembling the *I. iowensis* Owen from the [Ordovician] Galena-Trenton in Iowa, Wisconsin and Minnesota, is described and fig- ured from the Ordovician Kalstad Limestone west of Meldalen in the Trondheim area of Norway (pp. 103–105; pl. 12, figs. 1–2). It also resembles *Receptaculites hadelandiae* (Kjerulf 1865) from southern Norway, the holotype of which is missing. *Receptaculites hadelandiae* is probably an *Ischadites*, and it is found in the *Cyclocrinus* shale, together with *Ischadites* sp. A. *Ischadites* sp. B is found in the Upper Ordovician Lower Champsos Shale in Ringerike. *Ischadites* sp. C is reported from the Upper Ordovician of Baerum and Rin- gerike. *Ischadites*, a calcareous alga (?), occurs over much of the northern hemisphere throughout Middle and Upper Ordovician from Chazy to "high up in the Silurian" (p. 104).

Kielan-Jaworowska, Zofia (ed.)


Receptaculitids (Receptaculitidae) are described and [E. Billings' 1865 figure] illustrated as Ordovician to Carboniferous cosmopolitan problematic organisms which may belong with sponges (pp. 160–161, fig. on p. 160).
Kiesow, J.


The cyclocrinids Coelosphaeridium cyclocrinophilum Roemer, C. conventzianum n. sp., Pasceolus krausei n. sp., Cyclocrinus spaskii Eichwald, and C. concavus Eichwald [Mastopora concava] from Ordovician glacial erratics are described and figured as cystoids (pp. 74–81; pl. 1, figs. 1–12; pl. 2, figs. 1–4).


The stratigraphies of the following Ordovician fossils from the various Baltoscandian localities are given: Coelosphaeridium, C. cyclocrinophilum, C. conventzianum, Cyclocrinus, C. concavus (= Mastopora concava), C. aff. spaskii, and Pasceolus krausei (pp. 20–28).


Cyclocrinus, Coelosphaeridium, Mastopora, Receptaculites, Pasceolus and Apidium are not siphonous algae. Coelosphaeridium is related to Cyclocrinus, which may be related to cystoids. The following are described and figured: Coelosphaeridium cyclocrinophilum (fig. 5), C. conventzianum, Apidium krausei, A. sororis, Pasceolus krausei, Mastopora concava, M. odini, Cyclocrinus concavus, C. odini, C. spaskii, C. roemer (fig. 1), C. roemer var. mutabilis n.var. (figs. 2–3), C. subtilis, C. subtilis var. roemer, C. planus (= C. roemer), C. membranaceus (= C. roemer), C. balticus (= C. roemer), C. porosus (fig. 4), C. oelandicus (= C. porosus), C. vanhoefteni (= C. porosus), C. schmidtii, C. pyriformis, C. multicavus, and C. mickwitzii.

Kilfoyle, Clinton F.


The sponge Ischadites squamifer (Hall) from the New Scotland beds of Clarksville, New York, is housed in the New York State Museum in Albany (p. 50).

Killey, Myrna M.

See:


Killey, Edward M.

1898. A catalogue of the fossils of Indiana, accompanied by a bibliography of the literature relating to them. Indiana Department of Geology and Natural Resources, 22nd Annual Report, pp. 407–514.

The following coelenterates from Indiana are listed: Receptaculites elrodi Miller from the Devonian Corniferous and Hamilton Formations, and R. hemisphericus Hall, R. sacculus Hall, and R. subturbinatus Hall from the Silurian Niagara and Waterlimes Formations (p. 418).


Sphaerospongia tessellata (Phillips) occurs in the Devonian Winnipegosan Dolomite north of Whi- teaves point in Dawson Bay, Lake Manitoba (pp. 252–253).


A coelenterate, Ischadites cf. squamifer (Hall), occurs in the Devonian Gaspe Sandstone on the eastern Gaspe Peninsula (pp. 31, 35, 41).


Ordovician Receptaculites oweni Hall is found in the Trenton of Baffin Land (p. 188) and in the Nelson River Limestone along the Nelson River in the Hudson Bay region (p. 200). Devonian Sphaerospongia tessellata (Phillips) is found in the Winnipegosan Dolomite (Stringocephalus Dolomite) at Salt Point at the mouth of Steeprock River on the east shore of Lake Manitoba, Manitoba (p. 212).

Kindle, Edward M., and Victor H. Barnett


Receptaculites subturbinatus Hall and R. sacculus Hall are listed as sponges from the Silurian Waldron of southern Indiana (p. 404).

King, Phillip B.


The sponge Calathium cf. formosum is found in the Monument Spring Dolomite Member of the Ordovician Marathon Limestone in the Marathon Region of West Texas (p. 1069).


A sponge, Calathium cf. formosum, is found in the Monument Spring Dolomite Member of the Lower Ordovician Marathon Limestone in Monument Spring Quadrangle, Texas (p. 30).


The sponges Calathium and Receptaculites are found in the Sierra Diabolo region of Texas in the Lower Ordovician El Paso Limestone and the Upham Member of the Montoya Dolomite, respectively (pp. 32–33, 37, pl. 3).

Kirk, Edwin


Receptaculites occurs in the basal sandstone of the Ordovician Bighorn Dolomite in Wyoming (p. 461).


Calathium cf. C. anstedi Billings is listed from the Piloceras-Calathium zone of the lower El Paso Limestone in El Paso, Texas (pp. 450–451). Calathium sp. is found in the Ordovician El Paso Formation of New Mexico, the Yellow Hill Limestone of southern Nevada, the Garden City Limestone of Utah, and in Newfoundland and Scotland (pp. 452, 454, 456, 460). An Ordovician “Receptaculites” fauna occurs in the Pioche and Eureka districts and the Las Vegas Quadrangle of Nevada and in British Columbia (pp. 454–456). Calathium sp. identified by Duke and Bridge (1932) from the Ellenburger Limestone of Texas is believed to be Archaeoscypnia (p. 457).

Kjerulf, Theodor


The following Norwegian fossils from Stage 4 are listed and figured: the [Middle or Upper Ordovician] sponge Receptaculites hadelandiae [n. sp.] from the Hadeland District (p. 11, fig. 25 on p. 14); the zoophyte Chaetetes (?) sphaericus [Coeosphaeridium sphaericum] from the [Middle Ordovician, Hovindsholm Formation] of Hovinds- holm (p. 11, fig. 24 on p. 14); and Chaetetes petropolitanus var. hemisphericus [growing on Cyclocrinus sp. from the middle Ordovician Furuber- berg Formation] in Furuberg (fig. 23 on p. 14). The bryozoan Nidulites favus from Stage 5 [basal Silurian] on Malmö Island is also listed and figured (p. 15, fig. 30 on p. 21).

Kleinhampl, Frank J.

Klement, Karl W.


Klemie, Harry, and Walter S. West


The sponge Receptaculites oweni Hall from the Ordovician Galena Dolomite in Wisconsin is described (pp. 379-381).

Kloeden, K. F.


Problematic fossils [Coelosphaeridium sphacelatum], possibly representing the inner parts of Echinosphaerites pomum, from the Silurian [Ordovician] erratics of Mark Brandenburg and from Norway, are described and figured (pp. 285-286, pl. 6, figs. 6a-b).

Knechtel, Maxwell M.


Sponglike Receptaculites is reported from the Upper Ordovician lower half of the Bighorn Dolomite in the northern part of the Little Rocky Mountains in Montana (p. 729).

Knight, Robert D.


Knopf, Adolph


Knox, J.


Kobayashi, Teiichi


A lower Piloceras-Calacium [sic] zone is present in the Canadian [Ordovician] (p. 22).

1959. On some Ordovician fossils from Northern Malaya and her adjacence. Journal of the Faculty of Science, University of Tokyo, sect. 2, vol. 11, part 4, pp. 387-408, pls. 24-27, 3 text-figs., 1 table.

A lower Ordovician (?) Archaeoscyphia-like sponge [calathid] from a small island off the west coast of Northern Malaya is illustrated (figs. 2a-b).


The external mold of Receptaculites (?) sp. (formerly called Dictyonema (?) sp.) from Cho Bo, east Tonkin, Viet Nam, is described and figured (p. 41; pl. 5, fig. 8).

See also: Jones, C. R., D. J. Gobbett, and T. Kobayashi, 1966.

Koch, Lauge


Ordovician Receptaculites and R. oweni are common in Peary Land, Arctic Greenland (pp. 192, 195-197).


Ordovician Receptaculites is found along the north coast of Greenland (p. 280).

1929a. The geology of the south coast of Washington Land. Meddelelser om Grønland, Bind 73, Iste Afdeling, Nr. 1, 39 pp., 3 pls., 15 text-figs.
The following Ordovician sponges or algae are found on the south coast of Washington Land, Greenland: *Receptaculites* in the Gonioceras Bay Formation; *R. arcticus* in the Troedsson Cliff Formation; and *R. arcticus*, *Ischadites* (2 spp.), *Cyclocrinites* cf. *darwinii* Miller, and *C. cf. claudiei* Miller in the Cape Calhoun Formation (pp. 6, 25–28, 30, 37).


*Receptaculites* occurs in the Trenton (?) Ordovician Troedsson Cliff Formation and the Upper Ordovician Cape Calhoun Formation in North Greenland (pp. 235–236).

**Kochansky-Devidè, V.**

See:

**Koenig, Carl Dietrich Eberhard**

1825. Icones Fossilium Sectiles. Regent Street Centuria Prima, London, 4 pp., 19 pls. (with 248 figs.). [The descriptive letterpress refers only to pls. I–VIII (figs. 1–100).]

*Blumenbachium* n. gen. *globosum* n. sp., [which may be a receptaculitid] is described and figured (p. 3; pl. 5, fig. 69). *Leucophthalmus* n. gen. *strangwaysii* n. sp. [a cyclocrinid] is described and figured (p. 1; pl. 1, fig. 1).

**Koenig, John W.**

See:

**Koenig, John W., James A. Martin, and Charles W. Collinson**


*Receptaculites* is common in the upper part and rare in the lower part of the Ordovician Kimmswick Limestone in the Hannibal Quadrangle, Ralls County, Missouri (p. 14).

**Kolata, Dennis R.**

See:

**Koltun, V. M.**

See:

**Konishi, Kenji**

See:

**Konjuschkov, Konstantin N.**

See:

**Korde, Kira Borisovna**


Seleтонellaceae n. fam. differs from family Dasycladaceae and consists of tribes: Cambroporelleae, Amgaelleae, Seleтонellae, Rhabdoporelleae n. nom., Cyclocrineae, and Primicorallineae.


All Paleozoic tribes of algae which have been assigned to Dasycladaceae are now placed in the new family Seleтонellaceae. They are: Cambroporelleae, Amgaelleae, Seleтонellae, Rhabdoporelleae n. nom., Cyclocrineae, Primicorallineae, and Macroporelleae n. trib.

1973. Vodorosli Kembrija [Cambrian Algae]. Nauka, Moskva [issued as vol. 139 of Trudy of the Paleontological Institute of the USSR
Academy of Sciences], 349 pp., 69 pls., 65 text-figs.

The history of study and the stratigraphic and geographic distribution of cyclocrinitids is given (pp. 49–52). The tribe Cyclocrininae Pia 1927, with subtribes Cyclocrininae Pia 1927 and Mastoporinae Pia 1927, ranges from Ordovician to Upper Permian. Cyclocrininae consists of Cyclocrinus Eichwald 1860, Coelosphaeridium Roemer 1883, Apidium Stolley 1896, and Mizia Schubert 1908. Mastoporinae consists of Mastopora Eichwald 1840, Ajakmalajosia Korde 1957, Koninkopora Lee 1912, Unjella Korde 1951, Epimastopora Pia 1922, and Eogoniolina Endo 1953. Cyclocrininae, together with seven other tribes, are placed in the Lower Cambrian to Middle Triassic family Selentonellaceae Korde [1972 on p. 51, and 1971 on p. 239]. The family is described (p. 239) and assigned to Dasycladales of class Chlorophyceae. Various receptaculitid genera are listed (p. 50) but are not considered to belong among Dasycladales.

Korshunov, V. I.


[Radiocyathid] Gonamispongia ignorabilis n. gen. and n. sp. is described and figured (figs. 1a–d) as a sponge from the [Cambrian] upper Tommotian Aldai of the Siberian Platform, in the basins of rivers Uchur, Gonam, and Algoma in southwest Siberia.

Kottlowski, Frank E., Rousseau H. Flower, Marcus L. Thompson, and Roy W. Foster

1956. Stratigraphic studies of the San Andres Mountains, New Mexico, New Mexico State Bureau of Mines, Memoir 1, 132 pp., 5 pls., 15 text-figs., 6 tables.

The sponge Calathium is found in the Lower Ordovician, Upper Canadian El Paso Group in the San Andres Mountains (p. 20). The Middle Ordovician Upham Dolomite of the Montoya Group in the same area contains Receptaculites, which also occurs in the Middle Ordovician Cable Canyon Sandstone in southwestern New Mexico (pp. 23–24).

Kottlowski, Frank E., and E. L. Trice


Receptaculites is listed from the Ordovician Cable Canyon Formation of the Montoya Group in New Mexico (fig. 2, p. 27).

Koucky, Frank L.

See:


Krause, Paul Gustaf


The Silurian [Ordovician] Coelosphaeridium cyclocrinophilum F. Roemer and Mastopora concava Eichwald are listed from the Cyclocrinus Limestone in the glacial erratics of Holland (pp. 365, 367–369).

Krey, Frank


The typical index fossil Receptaculites is most abundant in the upper part of the Ordovician Kimmswick Limestone in Illinois and Missouri immediately adjoining the Mississippi River (p. 22).

Krishtofovich, Afrikan Nikolaevich


Silurian [Ordovician] siphonous dasyclad algae Coelosphaeridium, Cyclocrinus, Mastopora, and Apidium are listed (p. 331); Cyclocrinus is described (p. 142), and Cyclocrinus sp. from the Baltic area is figured (figs. 89b–c).

1957. Paleobotanika. 4-e ispravlennoe i dopol-
The siphonous algae *Coelosphaeridium*, *Cyclocrinus*, *Mastopora*, and *Apidium* are listed as Silurian Chlorophyceae.

**Krueger, H. H.**

See:


**Krul, H.**


The following calcareous algae are described and figured from the Siluro-Ordovician erratic rocks in the Twente district in the Netherlands: *Coelosphaeridium* (fig. on p. 23); *Cyclocrinophillum* (figs. on p. 26 and front-piece); *Mastopora*, *M. concava* (fig. on p. 23); *Cyclocrinus*, *C. spaskii*; and *C. planus* (pp. 25-27, 31). Receptaculida are described as possible sponges and *Ischadities* sp. is described and figured (pp. 41-42, fig. on p. 41).

**Krumbein, William C.**

See: 


**Kruse, Peter D.**

See:


**Kruse, Peter D., and P. W. West**


*Radiocysthus* Okulitch and *R. minor* (Bedford and Bedford) from Early Cambrian of Mount Baldwin Formation from Ross River, Mopunga Range in Georgina Basin of central Australia are described and figured as *incertae sedis* (pp. 178-179, figs. 13G-I).

**Kuekenthal, Willy**

See:


**Kuemmel, Henry B., and Stuart Weller**


*Receptaculites*, probably *R. occidentalis*, characterizes a faunal zone in the Ordovician Trenton Limestone of New Jersey (p. 158).

**Kummerow, E. H. Egmont**


The Ordovician alga *Receptaculites* Defrance from erratic boulders of the Orthocerenkalke in Germany is described. *Receptaculites* and *Ischadities* are compared with dasycladaceae algae. The following Ordovician dasyclads from Germany are described: *Coelosphaeridium*, *Cyclocrinus*, *Mastopora*, *Apidium*, *A. pygmaeum* Stolley (pl. 21, fig. 5), *A. ampullaceum* n. sp. (pl. 21, figs. 10-11), *A. geinitzi* n. sp. (pl. 21, figs. 12-16), and *R. orbis* Eichwald (= *R. cassidiformis* Patrunky = *R. pocillum* Patrunky) (pl. 21, figs. 4-5). *Receptaculites bronni* and *R. damesi* are discussed.

**Kupsch, Walter Oscar**


A sponge, *Receptaculites* sp., is the most common fossil in the Ordovician Red River Formation in east central Saskatchewan (pp. 14, 21, 23-24). *Receptaculites* cf. *oweni* Hall (fig. 6) and *Cyclocrinites* cf. *globosus* Billings (*incertae sedis*) occur in the basal sandstone of the Ordovician Winnipeg Formation near Amisk Lake, Saskatchewan (p. 17).

**Kurtén, Bjorn**


*Receptaculites* is described as a non-sponge in the Ordovician and Silurian (pp. 60, 65).
Kurtz, Vincent Ellsworth, Andrew Hamilton McNair, and Donald B. Wales


Receptaculites arcticus is a characteristic fossil in the Middle Ordovician Croker Bay Limestone of Devon Island and the Gonioceras Bay Limestone of Ellesmere Island and northwest Greenland (pp. 640–641, 652).

Kutorga, Stepan Semenovich


Zamia rossica is described and illustrated as a plant from the Ural Mountains of Russia (pp. 7–9; pl. 2, figs. 3a–c).


Calamopora patellaria n. sp. [cyclocrinitid] is described and figured as a coral from [Ordovician] in Wochana near Gatschina [near Leningrad] (pp. 128–129, pl. 8, fig. 1).

Ladd, Harry Stephen

1929. The stratigraphy and paleontology of the Maquoketa Shale of Iowa. Iowa Geological Survey. Volume 34. Annual Report, 1928, with accompanying papers. Published by the State of Iowa, Des Moines, Iowa, pp. 305–448, pls. 4–17, text-figs. 64–76.

The upper Receptaculites zone is present in the Ordovician Galena Formation throughout the northeast Iowa region. Ischadites occurs in the Galena at Elkader, Iowa (p. 346).

Laird, Wilson M.


The Ordovician Stony Mountain-Red River Formation in the vicinity of Winnipeg, Manitoba, contains very large Receptaculites (p. 15).

Laird, Wilson M. (ed.)


A coral, Receptaculites sp., is present in the Selkirk Member of the Ordovician Red River Formation at Garson, Manitoba (p. 7).

Lalicker, Cecil G.

See:


Lamont, Archie


Silurian Amphispongia oblonga Salter and Ischadites aff. antiquus Salter are present in the Pentland Hills, Scotland. Ischadites aff. antiquus, a receptaculitid sponge, differs from I. lindstroemi Hinde and I. koenigi Murchison (p. 194).


Amphispongia oblonga and Ischadites aff. antiquus are found in the Deerhope siltstones of the Silurian Upper Llandovery Series. The type locality is in the Pentland Hills of Peebleshire [Scotland].

Lang, William Dickson, Stanley Smith, and Henry Dighton Thomas


Coscinopora infundibuliformis (Goldfuss 1826, p. 30, pl. 9, fig. 16, and pl. 30, fig. 10) [not receptaculitid] from the Upper Cretaceous, Greensand and Chalk, and from Westphalia, Germany, is chosen as genolectotype. Three—including the genolectotype—of the four genosyntypes, are Me-
sozoic sponges. The fourth, *C. placenta* (Goldfuss 1826, p. 31, pl. 9, fig. 18) from the ? Devonian [sic], Eifel district, Germany, is possibly a coral (p. 41).

Langenheim, Ralph Louis, Jr.

See:

Langenheim, Ralph Louis, Jr., J. A. Barnes, Knoxie C. Delise, Wayne A. Ross, and J. M. Stanton


*Receptaculites* sp. is found in the Ordovician Mazourka Formation (?) in the Quartz Spring area of California (p. 2089).

Langenheim, Ralph Louis, Jr., F. T. Barr, S. E. Shank, L. J. Stensaas, and E. C. Wilson


Middle Ordovician *Receptaculites mammillaris* Walcott is abundant in the lower and middle Lehman Limestone in White Pine County, Nevada (pp. 149–150).

Langenheim, Ralph Louis, Jr., B. W. Carss, J. B. Kennerly, V. A. McCutcheon, and R. H. Waines


*Receptaculites* sp. characterizes the faunal assemblage in the uppermost unit of the Ordovician Pogonip Group in the Arrow Canyon Quadrangle, Nevada (pp. 596, 598).

Langenheim, Virginia A.

See:

Lapham, Increase Allen


A coral resembling *Coscinopora sulcata* Goldfuss is found in the [Ordovician] Galena Limestone in Wisconsin (p. 169).

Lapparent, Albert F. de

See:

Larousse, Pierre (ed.)


*Receptaculites* is a polyp (p. 772).

Laseron, Charles F.


A sponge, *Receptaculites*, is characteristic of the Devonian in Australia and is found in many places (p. 89).

See also:

1969. Ancient Australia. The History of its Past
LeCompte, Marius


Receptaculites neptuni occurs in the Upper Devonian F2b in the Dinant Basin of Belgium (p. 6).


Receptaculites and R. neptuni are listed from various zones in the Devonian, Frasnian Dinant basin in Belgium (pp. 12, 15–16, 24, 31–32, pl. 1).


Devonian sponge Receptaculites is listed from below the zone of turbulence in the Belgium reefs (p. 1051).


Devonian Receptaculites is listed from Frasnian reefs in Dinant Basin in Belgium (pp. 387, 389).


Receptaculites from Middle Devonian Frasnian bioherms in the Franco-Belgian Ardenne region is listed (pp. 34–35).

Le Conte, Joseph


Receptaculitis [sic] is a characteristic Silurian [and Ordovician] calcareous sponge or a compound rhizopod. Receptaculites formosus and R. [sp.] are figured (pp. 290–291, figs. 287–289).

The revised and enlarged edition appeared in
1882, then multiple editions were issued until the fifth edition, revised and enlarged, 1903 [last?]. The sections on *Receptaculites* are almost identical in the 1879, 1882, 1891, 1893, 1896 and 1903 editions, with minor changes in spelling and pagination. The fifth edition was revised and rewritten in part by Herman LeRoy Fairchild. This is almost identical to LeConte, J., 1879, 1882, 1891, 1893, 1896, and 1903.


See also:
LeConte, J., 1877, 1879, 1891, 1893, 1896, and 1903.


See also:
LeConte, J., 1877, 1879, 1891, 1893, 1896, and 1903.


See also:
LeConte, J., 1877, 1879, 1882, 1893, 1896, and 1903.


See also:
LeConte, J., 1877, 1879, 1882, 1891, 1896, and 1903.


See also:
LeConte, J., 1877, 1879, 1882, 1891, 1893, and 1903.


See also:
LeConte, J., 1877, 1879, 1882, 1891, 1893, and 1896.

LeConte, Joseph, and Herman LeRoy Fairchild


See also:
LeConte, J., 1877.

Lee, Derek G., and W. G. E. Caldwell


A dasycladacean, *Cyclocrinites bilobatus* n. sp., from the Upper Ordovician Thumb Mountain and Irene Bay Formations of the Cornwallis group on Cornwallis and adjacent islands, Northwest Territories, is described and figured. It is compared with *C. halli* (Billings), *C. gregarius* (Billings), *C. globosus* (Billings), *C. welleri* Nitecki, *C. dactioloides* (Owen), *C. spaskii* Eichwald, *C. darwini* (Miller), and *C. pyriformis* (Bassler). The morphology and ecology of dasyclads is discussed. Other occurrences of algal associates of the “Arctic Ordovician” fauna published previously are discussed. *Receptaculites*, now believed to be a dasycladacean alga, is a recurrent element in the Arctic Ordovician assemblage (p. 53).

Lee, Robert Edward


The Ordovician to Permian family *Receptaculitidae of Dasycladales* is described. Silurian *Ischadites abbottae* is described and figured (pp. 412–413, text-fig. 15-41).
Leech, Geoffrey Bosdin


_Receptaculites_ sp. is listed from the basal beds of the Upper Ordovician Beaverfoot Formation in the Hughes Range, British Columbia (pp. 22-23).

LeGrand, Robert


Lehmann, Ulrich


_Receptaculitids_, an independent group closely related to sponges, are described. _Ischadites koenigi_ Murchison (= _Receptaculites bronni_ Eichwald) from an erratic boulder near Harburg [Hamburg], Germany, probably originating in the [Ordovician] Backsteinkalk, is described and illustrated.

Leighton, M. M., and J. Marvin Weller


_Receptaculites oweni_ is found in the upper part of the Ordovician Kimmswick Limestone in the Valmeyer Quarry, Valmeyer, Illinois (p. 23).

Le Maître, Dorothee


Lower Devonian _Receptaculites_ sp. from the lower Emsian at Saoura, Algeria, is described, illustrated (pl. 21, fig. 54), and compared with _Receptaculites eifeliensis_.

LeMmon, Dwight M.


_Receptaculites_ cf. _articus_ [sic] Etheridge is found in the Pusignajoaq Hill, and _R. articus_ [sic] in the Crocker [sic] Bay Limestone at Dundas Harbour in Baffin Island (pp. 73-74).

LeMone, David V.


The sponge _Calathium_ is listed from the McKelligon Canyon Formation of the Ordovician El Paso Group (p. 152). _Receptaculites oweni_, a questionable sponge, occurs in the Ordovician Red River Upham Dolomite of the Montoya Group (p. 156).

See also: LeMone, D. V., 1969b and 1969c.


This is nearly identical to LeMone, D. V., 1969a.

See also: LeMone, D. V., 1969c.


This is nearly identical to LeMone, D. V., 1969a.

See also:
LeMone, D. V., 1969b.

Leonard, Arthur Gray


Receptaculites oweni Hall is common in the [Ordovician] Galena Limestone of Iowa (p. 23).


Ischadites iowensis is abundant in the Ordovician upper Trenton near Elkader, Iowa (p. 254). Receptaculites oweni, the most common fossil in the Galena Limestone, is found in Clayton County, Iowa (pp. 260, 266).

Lesley, J. Peter


The following are listed: Receptaculites circularis Emmons from the [Devonian] Hudson River Formation; [Ordovician] R. iowensis (= Sele- noides iowensis) (Owen) from Turkey River, Iowa; R. infundibuliformis Hall from the [Devonian] Lower Helderberg at Clarksville, New York; R. neptuni Defrance from the [Ordovician] Trenton Formation; R. ohioensis Hall and Whitfield from the [Silurian] Niagara Limestone at Yellow Springs, Ohio; R. oweni Hall from the Trenton (Galena) Limestone of the west and the Niagara Limestone of Indiana; R. reticulatus (Owen) (= Orbituloides reticulata), R. succinctus Hall, and R. subcircularis Hall from the Niagara Limestone; and Paseoelus halli Billings from the [Silurian] Anticosti Group in the Gulf of St. Lawrence. All except R. reticulatus are illustrated (pp. 603, 852–855). Ischadites squamifer, I. bursiformis, Receptaculites hemisphericus, R. globularis, and Coscinopora sulcata (pp. 852–855) are listed.


The sponges Receptaculites and Calathium grew in a spiral (p. 1246).


Ordovician Receptaculites oweni Hall, R. neptuni (Defrance), R. iowensis, and R. circularis are figured (pls. 32, 40). Receptaculites oweni is characteristic of the Galena division of the Trenton Group (p. 517).

Levin, H. L.


Receptaculitids, green algae of the family dasycladaceae, are common in Ordovician and sparse in the Silurian and Devonian. Receptaculites [R. biconstrictus] is figured (p. 293, figs. 10–34).

Levorson, Calvin O.

See:
Levorson, Calvin O., and Arthur J. Gerk


The Ordovician Galena Group of Winneshiek County, Iowa, contains *Receptaculites oweni* zones in the Wise Lake and Dunleith Formations and an *Ischadites iowensis* zone in the Dunleith Formation (pp. 114–115, 117, 120–121).


The Ordovician Galena Group of Winneshiek County, Iowa, contains *Receptaculites oweni* zones in the Dunleith and Wise Lake Formations and an *Ischadites iowensis* zone in the Dunleith Formation (pp. 3, 5–6, 9–13, 16).

Lewis, Ronald D., and Ellis L. Yochelson


Receptaculitids are common in the Oil Creek Formation (Whiterockian stage of the earliest Middle Ordovician) in the Arbuckle Mountains of Oklahoma and in association with *Macurites* and *Palliseria* in Nevada and western Canada (p. 47).

Liberty, Bruce A.


*Receptaculites* occurs in Black River Leray and Trenton (probably Rockland-Hull beds) in southern Ontario (p. 4).


*Receptaculites occidentalis* is found in the Ordovician Cloche Island beds on Great Cloche Island, Ontario (p. 10).


*Pasceolus globosus* is found in the Middle Ordovician Cobourg beds in southern Ontario (p. 2).


The Middle Ordovician of Ontario contains *Receptaculites* sp. in Map-units 3, 4, and 5 correlative with the Leray, Rockland-Hull, and Sherman Fall, and *Pasceolus globosus* in Map-units 5, 6, and 7, the latter two correlative with the Cobourg (pp. 3–6).


*Receptaculites occidentalis* occurs in the Bobcaygeon and Verulam Formations of the Middle Ordovician Simcoe Group in southeastern Ontario. *Pasceolus globosus* is listed from the Verulam Formation (pp. 7–8, 10).


*Receptaculites occidentalis* from the Bobcaygeon and Verulam Formations of the Middle Ordovician Simcoe Group and *Pasceolus globosus* from the Verulam Formation are listed (pp. 19–20, 28, 30).

See also:


1965. Middle Ordovician stratigraphy of the

This is identical to Liberty, B. A., 1964.


The Bobcaygeon Formation of the Middle Ordovician Simeco Group on Recollet Point, St. Joseph Island, Ontario, contains Receptaculites (p. 154).


Receptaculites occidentalis is found in the Middle Ordovician Bobcaygeon and Verulam Formations, and Pasceolus globosus in the Verulam Formation of the Simeco Group in Central Ontario (pp. 176, 178).


Receptaculites occurs in the Ordovician Bobcaygeon Formation on Manitoulin Island (p. 28).


The following Ordovician sponges from the Lake Simeco area of Ontario, Canada, are listed: Receptaculites occidentalis, Pasceolus globosus, and Receptaculites sp. from the Bobcaygeon Formation (pp. 43, 48, 178, 180) and Ischadites sp. from the Verulam Formation (pp. 56, 185).


Receptaculites occidentalis in the Bobcaygeon Formation and R. occidentalis and Pasceolus globosus in the Verulam Formation are reported from southeastern Ontario (pp. 6–7).


Lightbody, Robert


Sphaerospongia hospitalis Salter is mentioned (p. 25).

Lincoln, Francis C.


Lindstroem, Gustaf

See: Anonymous, 1885, 1888a, and 1888b.

Lochman, Christina, and Donald Duncan


Upper Cambrian calcareous alga from Montana, comparable to the Ordovician Apidium from Europe, is described and figured (pp. 79–80, pl. 4, figs. 17–18).

Logan, William E.


114
A coral which resembles "Receptaculite de Neptune" of De Blainville is found in a [Trenton?] limestone at Pocket's [sic] Rapids along the Ottawa River in southeastern Canada (p. 66).


Receptaculites neptuni occurs in the Trenton [Ordovician] bituminous limestone between Bay St. Paul and Murray Bay, Quebec (p. 13).

Longwell, C. R., E. H. Pampeyan, Ben Bowyer, and R. J. Roberts

The sponge Receptaculites occurs in Clark County, Nevada, in the upper unit of the Lower and Middle Ordovician Pogonip Group, the equivalent of the Antelope Valley Limestone of the Eureka District (p. 22).

Lord, Clifford Symington

Calathium sp. is found in the Upper Ordovician (Richmond) near the mouth of the La Martre River in the Northwest Territories (p. 38).

Love, John David
1939. Geology along the southern margin of the Absaroka Range, Wyoming. Geological Society of America, Special Papers, no. 20, 134 pp., 17 pls., 3 text-figs.

Receptaculites sp. occurs in the Leigh Dolomite Member of the Upper Ordovician Bighorn Formation at Windy Gap, Wyoming (p. 20).

Lovering, Thomas Seward
See:

Low, Albert Peter

Fossils from Series Db of Silurian age along the southern coast of Ellesmere Island include Receptaculites [sic] sp. (p. 218).

Lowenstam, Heinz A.

The Niagaran Silurian aberrant sponges Ischedites, Cerionites, and Receptaculites are well adapted for the rough water (pp. 236–237, 239, 241, 245).

Luchinina, V. A.
See:

Zhuravleva, I. T., and V. A. Luchinina, 1977.


Luther, D. Dana
See:
Clarke, J. M., and D. D. Luther, 1904

Lydekker, Richard
See:

Lynch, Betty M.
See:

Lyons, Erwin J.
See:


Lyubtsov, V. V.

Precambrian organic remains similar to dasy cladaceous algae of the tribe Cyclocrininae [not cyclocrinid] from the Kola Peninsula, USSR, are figured (fig. 2).

See also:
Lyubtsov, V. V., 1964.


This is an English translation of Lyubtsov, V. V., 1962.

Mabey, Don R.
See:

MacKevett, E. M., Jr.
See:

MacQueen, R. W.
See:

Maegdefrau, Karl

Silurian [Ordovician] Coelosphaeridium, Cyclocrinus, Apidium, and Mastopora are figured as dasy cladaceous algae (fig. 189, after Pia, 1923).

Maennil, Ralf Martovich

*Mastopora concava* is listed from three Ordovician zones of Estonia (p. 241).


The following Ordovician siphonous algae are listed and their stratigraphy given: from Estonia, Cyclocrinites (p. 151), Coelosphaeridium (p. 151), *Mastopora concava* Eichw. (pp. 49, 61), and from the Oslo region, Norway, Coelosphaeridium (pp. 65, 72), *C. cyclocrinophilum* Roem. (p. 66), *Mastopora* (pp. 65, 72) and *M. concava* Eichw. (p. 65). Ischadites sp. is listed from [Lower Caradoc] from southeastern Estonia (p. 45).

See also:

Mahaiev, V. N.

Silurian [Ordovician] dasy cladaceous algae *Cyclocrinus, Coelosphaeridium*, and *Mastopora* are listed from the Baltic region (p. 66).

Maher, John C.

*Receptaculites* and *Receptaculites (?)* are reported from the Ordovician Fremont Formation in Fremont County, Colorado (pp. 5, 7).

Maillieux, Eugène
Receptaculites neptuni occurs in the Devonian Frasnian near Baussu-en-Fagne and Dourbes, Belgium (p. 83).


Receptaculites neptuni is listed from the Devonian Frasnian in Belgium (pp. 112-114).


The sponges Receptaculites spp., associated with Stromatactis, and Ischadites are present in Frasnian [Devonian] reefs near Chimay, Belgium. Receptaculites neptuni occurs in the Frasnian just below the reefs in the same area (pp. 116-117, 119-120, 122).


Receptaculites neptuni Defense is listed from Devonian Frasnian levels C (improperly called the Receptaculites neptuni zone), D, E, and F (F 2i) in the Phillippeville "massif" of Belgium (pp. 103-105, 107-108).

Maillieux, Eugène and Felix Demanet


Receptaculites neptuni is found in the Upper Devonian Frasnian F2b of Belgium (table 2).

Majewski, Otto P.


Ordovician spongelike Receptaculites sp. from Virginia is described and figured (caption to pl. 101, fig. 2).

Malchevskaya, T. M., L. V. Romanovskaya, and P. N. Varfolomeev


Ordovician receptaculitid types of A. N. Ivanov and E. I. Miagkova from the Middle Urals, and the receptaculitids of F. N. Chernuishev, Lower Devonian, in the Western Urals, are in the CNIGR Museum in Leningrad (p. 22).

Mann, C. John


Receptaculites (?) is common in the Fremont Limestone of Fremont County, Colorado (p. 155).

Mansfield, George Rogers


Receptaculites sp. is listed from the Ordovician Garden City Limestone in southeastern Idaho (p. 57).

Manum, Svein B.

1967. Paleobotanikk. Forelesninger til kurs i paleobotanikk (Gp. 9) ved Universitetet i Oslo, Universitetsforlaget, Oslo, 95 pp., 10 pls.

The Norwegian Paleozoic dasyclads Cyclocrinus, Coelosphaeridium and Mastopora are described and compared with Apidium. Ordovician cyclocrinitid is figured as a green alga (Frontispiece, p. 26, pl. 3, fig. 4).


Ordovician cyclocrinitid green alga is reconstructed (p. 18).

NITECKI ET AL.: RECEPTACULITID ALGAE
Marcy, Oliver

Mark, Elga

Marr, John Edward

The amorphozoans Ischadites koenigi Murchison, I. bohemica Barrois, Nidulites favus Salter, Tetragonis danbyi McCoy, and T. murchisoni Eichwald are listed (pp. 122, 134).

Marr, John Edward, and T. Roberts

Nidulites favus is abundant in the Silurian Lower Llandovery of Haverfordwest (pp. 486, 489).

Marshall, F. C.

Martin, James A.

Martin, James A., Robert D. Knight, and William C. Hayes

The index fossil Receptaculites occurs near the top of the Ordovician Kimmswick Formation in St. Charles County, Missouri (pp. 27–28).

Martin, K.

Cyclocrinus spaskii is described from an erratic boulder in Holland.

Maslov, A. B.

Maslov, Vladimir Petrovich

The Baltic siphonous algae Coelosphaeridium, Cyclocrinus and Mastopora (listed as corallines on p. 209) are in tribes Mastoporinae and Cyclocrininae of the subfamily Cyclocrininae (pp. 20, 57, 209, 250–251).


Kopetdagaria sphaerica n. gen. and n. sp. from the Cretaceous of Turkmenia is described, illustrated, and placed in tribe Cyclocrininae, family Dasycladaceae, order Siphonales.


This is the English translation of Maslov, 1960.

*Cyclocrinus* and *Mastopora* of tribe Cyclocrinidae, are described and *Mastopora* is figured (pp. 21–22; pl. 15, fig. 7).

Mather, Kirtley F.


The sponge *Receptaculites occidentalis* Salter, listed from the Ordovician Trenton Limestone at Marysville, Wolfe Island, Ontario, is a characteristic fossil of the Rockland Formation near Ottawa, Ontario (p. 34).

See also:

Wilson, Alice E., and K. F. Mather, 1916.

Matthews, William H., III


*Receptaculites*, a Paleozoic sponge from Texas, is illustrated (pl. 14).


*Receptaculites*, a fairly common sponglike fossil from the Middle Ordovician of Missouri, Minnesota, Wisconsin, and Nevada, is figured (p. 202, fig. 93).

Matyja, Bronisław A., Hanna Matyja, and Michał Szulczewski


*Receptaculites* is found in the Upper Devonian of the Holy Cross Mountains in Central Poland (p. 137).

Matyja, Hanna

See:


McAllister, James F.


*Receptaculites* sp. defines a *Receptaculites* zone in the Lower Ordovician Pogonip Group of the Quartz Spring area, California (p. 11).

McCabe, Hugh R.

See:


McCallum, Malcolm E.

See:


McCoy, Frederick


Devonian *Sphaeronites tesselatus* (Phillips) from Plymouth, described as a cystidean echinoderm, may be conspecific with *Receptaculites neptuni* (p. 77). *Tetragonis danbyi* [not a receptaculitid?] from Upper Ludlow [Silurian] rocks in Great Britain is described and illustrated as a cystidean (p. 62; pl. 1D, figs. 7–8).

McCUTCHEON, V. A.

See:


McFarlan, Arthur C.

1961. Outline of the geology of the Cement Creek area, Gunnison County, Colorado; pp. 125–

Receptaculites is found in the Ordovician Fremont Formation on the flanks of Cement Mountain in the Crested Butte Quadrangle of southwestern Colorado (p. 130).

McFarland, Herdis B.

See:

McGerrigle, Harold William


The sponge Receptaculites occidentalis (?) Salter is listed from the Trenton or earlier Ordovician of the Simard area (p. 74).

McGill, Peter

See:

McInnes, William


Ordovician Receptaculites oweni Hall is found at Deschambault and Bigstone Lakes in eastern Saskatchewan (p. 173).


Pasceolus (Cyclocrinus) spaskii (? ) Eichwald and Receptaculites oweni are listed from Ordovician limestone north of the Saskatchewan River in Saskatchewan, Canada (pp. 60–61).

McKee, Edwin H.


Receptaculites is diagnostic of the Ordovician Antelope Valley Limestone in the Toquima Range, Nevada (p. 11).

McKinney, [Frank] Kenneth

See:

McLaren, Digby J.


Receptaculites sp. A and sp. B are found in the Middle Devonian Blue Fiord Formation on southwestern Ellesmere Island, Northwest Territories (pp. 321, 323, columnar sect. 30).

McLaughlin, Robert E.


Receptaculites (?) and R. oweni Hall from faunal zones of the Lower Blountian subphase and Receptaculites sp. from Zone IV at Raccoon Valley, Knox County, Tennessee, are algae (pp. 44–46, 48, 55, 57). Nidulites pyriformis Bassler and N. ovoides are listed from Zone III at Raccoon Valley (pp. 53, 55).

See also:

McLearn, F. II.


A large Receptaculites similar to R. oweni is found
in a well core in the Trenton (Galena) Formation in Winnipeg, Manitoba (p. 72).

McNair, Andrew Hamilton

See:
Kurtz, V. E., A. H. McNair, and D. B. Wales, 1952.

McQueen, Henry S.


Receptaculites occurs in the Ordovician Kimmswick Formation at Cape Girardeau, Missouri (p. 61, fig. 17).

McQueen, Henry S., and Norman S. Hincheey


Receptaculites is common in the Ordovician Kimmswick Formation near Saline City, Howard County, Missouri (p. 24, fig. 9).

Meek, Fielding Bradford

See:
Worthen, A. H., and F. B. Meek, 1875.

Meek, Fielding Bradford, and Amos Henry Worthen


Receptaculites globularis Hall, Receptaculites sp., and R. oweni Hall from the Lower Silurian [Ordovician] Galena Limestone in Illinois are described and illustrated as Protozoa (pp. 301–303; pl. 2, figs. 1–3). Receptaculites oweni occurs at the same horizon in Wisconsin and Iowa (p. 303). Pasceolus (?) dactylioides [sic] (Owen) from the Upper Silurian Niagara Group in Carroll County, Illinois, is described and illustrated as a sponge of uncertain position (pp. 345–346; pl. 5, figs. 2a–c). Billings believes this taxon to be a new genus intermediate between Pasceolus and Receptaculites (p. 346). If it is found to be distinct from Cyclo- crinites Eichwald and Receptaculites, with which it is compared, the new name Cerionites is proposed for it (p. 346).


The foraminifer (?) Receptaculites formosus n. sp. from the Upper Silurian (Niagaran) of Bridgeport, Illinois, is compared with R. globularis from the [Ordovician] Galena (pp. 22–23).

Melville, R. V., and W. E. China


The names Receptaculites Deshayes 1828 and neptuni Defrance 1827 are placed on the official list of generic names in zoology; the name Recep- tacules Defrance 1827 is suppressed and rejected as invalid.

Memeley, Robert

See:

Mensink, H.

See:

Merklín, R. L.

See:

Merriam, Charles Warren

Geological Survey Professional Paper 423, 67 pp., 2 pls., 8 text-figs., 2 tables.

The Ordovician Pogonip Group of the Antelope Valley area, Nevada, contains Calathium (?) sp., Receptaculites mammilaris [sic] Walcott, and R. elongatus Walcott in the Chazyan Antelope Valley Limestone and Receptaculites cf. occidentalis Saltier in the Upper Chazyan Copenhagen Formation (pp. 25-26).

See also:

Merritt, Clifford A.
See:

Meshkova, N. P.
See:

Meyer, H. V.
See:

Miagkova, Elizaveta Ivanovna

Early Ordovician Soanitidae n. fam. of unknown order is described. Receptaculites and Ischadites are discussed. Soanites n. gen. bimuralis n. sp. from the Lower Ordovician Chunya Stage on the Siberian Platform along the Moyyero, Moyyerkani and other rivers is described and illustrated.

See also:
Miagkova, Ye. I., 1966.


Ordovician Soanites are important components of bioherms in the Siberian platform. Soanites overgrown by stromatolites are found in growth position with their open cups upward. The stratigraphic position of the soanitid bioherms is detailed and cross sections of the bioherms are illustrated.


The classification of receptaculitids by Eichwald 1840, 1860; Rauff 1892; Sushkin 1958, 1962; Laubftenels 1955; Eaton 1960; Byrnes 1968; Nitecki 1968-1971; Mueller 1968; and Rietschel 1969 is summarized.

See also:


Miagkova, Elizaveta Ivanovna, H. E. Nestor, and R. F. Einasto

Soanites bimuralis Miagkova occurs in the Lower Ordovician along the Moiero River in the northwestern part of eastern Siberia (p. 118, table 3).

Mickleborough, John, and Albert Gallatin Wetherby

Astylspongia [now Cyclocrinites] tumida James (a sponge) and Pasceolus claudei Miller and P.
**darwinii** Miller (of uncertain affinities) are listed from the Lower Silurian [Ordovician] Cincinnati Group (p. 81).

**Mierzejewska, Grażyna, and Piotr Mierzejewski**


*Receptaculites abhorrens* n. sp. is described and illustrated from the Upper Devonian of Górný Mokrzeszow, Lower Silesia, Poland. *Receptaculites neptuni*, *R. scyphioides* Quenstedt, and *R. crassiparies* Rauff from the Upper Devonian of Lower Silesia have been described, but only *R. crassiparies* and *R. abhorrens* n. sp. (often included in *R. neptuni*) are present. *Receptaculites abhorrens* combines features of *Receptaculites* and *Ischadites*. Receptaculitids are algae (?) of uncertain taxonomic position.

**Mierzejewski, Piotr**


**Mikulic, Donald G.**


The Cyclocrinites beds of the [Lower Silurian] Hopkinton Formation at Monticello, Iowa, are mentioned (p. 13).

**Miller, Arthur K.**


*Receptaculites arcticus* (?) Etheridge from the Massive Dolomite Member of the Bighorn Formation in the central Wind River Range (pp. 201–202, 204–205) are mentioned. The lower faunal zone in the Bighorn Formation is characterized by *R. arcticus* (p. 209).


*Receptaculites arcticus* (?) Etheridge is found in the Lander Sandstone and Massive Dolomite Members of the Ordovician Bighorn Formation in the Wind River Mountains of Wyoming (pp. 204, 206–207).

See also:


**Miller, Arthur K., and John B. Carrier**


Ordovician *Receptaculites* occurs in the Stewartville Formation of the Upper Mississippi Valley and in the Bighorn Formation of the Bighorn Mountains, Wyoming (p. 533).

**Miller, Arthur K., and William M. Furnish**


*Receptaculites* is present in the Dolomite Member of the Ordovician Whitewood Formation in the northern Black Hills (p. 536).


Lower and upper *Receptaculites* zones occur in the Ordovician Prosser Limestone and basal Stewartville Formation near McGregor, Iowa (p. 11).

**Miller, Arthur K., Walter Youngquist, and Charles W. Collinson**

The following Ordovician Receptaculitidae from Baffin Island are listed: Receptaculites spp. (figured, pl. 6, figs. 5–6), R. (?) fieldi Roy, R. cf. arcticus Etheridge (pl. 6, figs. 7–8), Lepidolites aff. dickhauti Ulrich (pl. 6, figs. 1–4), R. cf. arcticus Etheridge, and R. cf. occidentalis Salter (pp. 8, 10, 20, 22–24, 26, 81). Receptaculites, R. arcticus Etheridge, R. oweni Hall, and Receptaculites sp. are listed from other localities in Arctic Canada (pp. 28–30, 33–38, 40). The upper Receptaculites zone of the Stewartville Dolomite is mentioned (p. 40).

Miller, Ralph LeRoy


Ordovician Receptaculites occidentalis Salter is found at several localities in the Jacksonburg Limestone of New Jersey, the Hull of New York, the Rockland of Ontario, and the Black River of New Jersey (pp. 1696, 1706–1707).


The sponge Receptaculites occidentalis Salter occurs at several localities in the Ordovician Jacksonburg Formation of Northampton County, Pennsylvania (p. 255).

Miller, Samuel Almond


Ordovician Pasceolus Billings, P. darwini n. sp. from Cincinnati, Ohio, and Maysville, Kentucky, and P. claudi n. sp. from Maysville are described and illustrated. Ischadites koenigi, Pasceolus halli, P. globosus, Cyclocrinus, C. spaskii, C. exilis, Sphaerontites tesselatus, Sphaerospongia, Receptaculites, R. calciferus, and Lunulites (?) dactiloides are discussed.


The following are listed: the sponges Calathium Billings 1865, C. affine Billings 1865, C. anstedti Billings 1865, C. formosum Billings 1865, C. pannosum Billings 1865, C. canadense Billings 1865, C. fittoni Billings 1865, C. paradoxicum Billings 1865, Pasceolus Billings 1857 (incertae sedis), P. claudi S. A. Miller 1874, P. darwini S. A. Miller 1874, P. globosus Billings 1857, P. gregarius Billings 1866, P. halli Billings 1857, P. intermedius Billings 1866; the rhizopods Receptaculites Deprance 1827 (= Selenoides Owen 1852), R. calciferus Billings 1865, R. canadensis Billings 1863 (= Ischadites canadensis), R. dactiloides Owen 1840 (= Lunulites dactiloides), R. elegantulus Billings 1865, R. formosus Meek and Worthen 1870, R. fungosus Hall 1861, R. globularis Hall 1861, R. hemisphericus Hall 1861, R. infundibulus Hall 1861 (= Ischadites tesselatus), R. insularis Billings 1866, R. iowensis Owen 1852 (= Selenoides iowensis), R. jonesi Billings 1865, R. neptuni Defrance 1827, R. occidentalis Salter 1859, R. oioensis Hall and Whitfield 1875, R. oweni Hall 1861 (= Coscinopora sulcata), R. reticulatus Owen 1840 (= Orbituloides reticulata), R. subturbinatus Hall 1863, R. sulcatus Owen 1844; and the cystoids Dictyocrinus Conrad 1841 (= Dictuocrinites) and D. squamifer Hall 1859 (pp. 42–44, 65, 77).


Pasceolus Billings, P. claudi Miller, and P. darwini Miller are listed as rhizopods (p. 29).


Calathium from the Calciferous, Quebec, and Chazy Groups, Receptaculites from the Calcifer-
uous, Trenton, Hudson River, and Niagara Groups, and *Pasceolus* from the Trenton and Hudson River Groups are listed as protists (pp. 277, 284).


1889. North American Geology and Palaeon-toLOGY for the Use of Amateurs, Students, and Scientists. [Western Methodist Book Concern], Cincinnati, Ohio, 664 pp., 1194 text-figs.


*Receptaculites elroi* n. sp. from the lower Middle Devonian Upper Helderberg Group of Indiana is described and illustrated as a sponge of family Receptaculitidae and is compared to *Ischadites* (pp. 3–4; pl. 1, figs. 1–3).

See also: Miller, S. A., 1894.

1892b. First appendix, 1892 [to S. A. Miller, 1889, North American Geology and Palaeontology]. [Published by the author?], Cincinnati, Ohio, pp. 665–718, text-figs. 1195–1265.

The protozoan *Receptaculites elroi* S. A. Miller 1892 is listed (p. 668).

This is identical to Miller, S. A., 1892a, except for pagination.


Anomalospongia (= Anomaloides Ulrich 1893), Receptaculites devonicus, R. dixonensis Miller and Gurley 1896 (text-figs. 1267–1268), R. eatoni (= nomen nudum), and R. monticulatus Hall (= R. infundibuliformis) are listed.

MILLER, Samuel Almond, and William F. E. Gurley


Ordovician Receptaculites dixonensis n. sp., a sponge from the Galena Group near Dixon, Illinois, is figured and described and compared with R. globularis. Receptaculites ohioensis, R. subtrabiniatus, and Ischadites koenigii are mentioned (pp. 47–50; pl. 5, figs. 21–22).

Milne-Edwards, Henri


Silurian [Ordovician] Cyclocrinites and C. spaski are described as Cnidaria (pp. 452–453).

Milne-Edwards, Henri, and Jules Haime


Cyclocrinites Eichwald is described as Zoantharia incerta sedis (p. lxxiv).

MINTZ, Leigh W.


Receptaculitids are dasycladaceous algae, common during the Ordovician. Cylocrinus, Ischa-
dites, and Receptaculites are figured (pp. 109–110, 347–348, 350; figs. 7.18–7.19, 15.26).

Mistiäen, Bruno


Receptaculites are present in the Devonian of Hazarajat, central Afghanistan; R. chardini is mentioned (pp. 107–109).

Mitchell, George Hoole, Walter Mykura, W. Tulloch, J. Knox, J. R. Earp, R. B. Wilson, and J. D. D. Smith


Amphispongia oblonga Salter is common in the North Esk Silurian inlier (p. 138).

See also:
Salter, J. W., 1861.

Modzalevskaia, E. A.


The Ordovician alga Cyclocrinus, overgrown by bryozoan, is described and figured (pp. 132–133, text-fig. 6).

Montenat, Christian

See:

Moore, L. R.

See:

Moore, Raymond C.

Ordovician Receptaculites and Silurian Ischadites are listed as sponges but may represent a distinct class of organisms (p. 198).

See also:


The section on receptaculitids is nearly identical to that in Moore, R. C., 1933.

See also:
Moore, R. C., 1933 and 1958.


The sponges (?) Receptaculites (Ordovician) and Ischadites (Silurian) are important index fossils (p. 291).

See also:
Moore, R. C., 1933 and 1949.

Moore, Raymond C., Cecil G. Lalicker, and Alfred G. Fischer

The following spongelike organisms of uncertain taxonomic position are described: Ordovician to Devonian Ischadites and Receptaculites and Devonian Sphaerospongia of class Receptaculitida; and Ordovician Nidulites, possibly a calcareous alga, but not a sponge, of class Nidulitida (pp. 89, 94–97). Middle Ordovician I. iowensis, R. oweni, and N. pyriformis and Middle Devonian S. tesselata are figured (figs. 3-5, 3-12).

Moret, Léon

Receptaculitidae, aberrant sponges of uncertain position, are hexactinellids (p. 338). Receptaculites is described and illustrated. Receptaculites neptuni (related to the dictyosponges), Ischadites Murchison, Polygonosphaerites Roemer, and Leptoterion [sic] Ulrich are listed (pp. 356–358).


Morgan, George Dillon

Two species of Calathium in the Ordovician Arbuckle Limestone and Receptaculites n. sp. in the Ordovician Simpson Formation are listed from the Stonewall Quadrangle of Oklahoma (pp. 23, 27).

Moritz, C. A.
See:

Mørk, Atle, and David Worsley

The dasycladacean alga Cyclocrinites is common in the Silurian Solvik Formation but rare in the Ryteraker Formation of the central Oslo Region, Norway (pp. 340–344, figs. 2, 5–6). Mastopora sp. and M. fava from the Silurian of this region are probable synonyms of Cyclocrinites (p. 341). The thallus-covering membrane of recent dasycladaceans is preserved in specimens of C. halli and Anomaloides reticulatus. The modes of preservation and paleoecology of Cyclocrinites are discussed.

Morningstar, Helen

A paratype of Silurian, Niagaran Receptaculites ohiensis Hall and Whitfield from Ohio is housed in the Geological Museum at Ohio State University (p. 59).

Morris, Hal Tryon
1957. General geology of the East Tintic Mountains, Utah. Guidebook to the Geology of

“Receptaculites” is found in the Lower Ordovician Opohonga Limestone of the East Tintic Mountains south of Salt Lake City, Utah (p. 11).

Morris, Hal Tryon, and Thomas Seward Lovering

The problematic sponge “Receptaculites” is reported from the upper part of the Lower Ordovician Opohonga Limestone in Black Rock Canyon, near Eureka, Utah (p. 55).

Morris, John
1854. A Catalog of British Fossils: Comprising the Genera and Species Hitherto Described; with References To Their Geological Distribution and to the Localities In Which They Have Been Found, 2nd ed. Published by the author, London, 372 pp.

Nidulites Salter 1851, N. favus Salter from the Silurian of Ayrshire, Receptaculites Defrance, and R. neptuni (= Ischadites koenigi Murchison) of uncertain taxonomic position from the Devonian of Eifel and Belgium and the Silurian Ludlow are listed (pp. 362–363). Tetragonis Eichwald 1842, T. danbyi McCoy from the Silurian at Kendal, and Devonian Echinosphaerites tessellatus Phillips are listed as British echinoderms (pp. 79, 89–90).

Morrow, D. W., and J. W. Kerr

Cyclocrinitids, probably green algae of the family Dasycladaceae, which resemble Cyclocrinites pyriformis (Bassler), occur in the Middle and Upper Ordovician Thumb Mountain and Irene Bay Formations of the Cornwallis Group on Devon Island, Arctic Canada. Several zones contain abundant cyclocrinitids (pl. 1D, p. 11). Large colonies of an alga (?), Receptaculites, are listed from the upper Thumb Mountain Formation and the Irene Bay Formation (pp. 10, 17, 76, 105, 111, 115–116, 118).

Moskalenko, T. A.
1952. Mutovchatie sifonnikov vodorosli or dovika pribaltiki i ikh stratigraficheskoye znachenie. Leningradskii Gosudarstvennyi Ordena Lenina Universitet Imeni A. A. Zhdanova, Leningrad, 12 pp., 1 table.


The following members of the Ordovician tribe Cyclocrinaceae of family Dasycladaceae from various localities in the Baltic region are described and figured: Coelosphaeridium Roemer 1883, C. cyclocrinophilum Roemer 1883, C. wesenbergense Stolley 1898, Cyclocrinus Eichwald 1840, C. jevensis n. sp., C. ornatus (Stolley 1896), Mastopora Eichwald 1840, and M. concava Eichwald 1840 (pp. 232–247, figs. 1–13, tables 1–2).


Cyclocrinus Eichwald 1840, Coelosphaeridium Roemer 1885, and Mastopora Eichwald 1840, are
described and illustrated and placed in tribe Cyclocrineae. Ordovician *Cyclocrinus* sp. and *Mastoporacconavacava* from the Baltic Region are figured (pl. 14, figs. 2–4).

**Mueller, Arno Hermann**


*Receptaculites* and *Sphaerospongia tessellata* are figured (figs. 148–149) and are described together with *Ischadites*. Receptaculitids are a group of sponges of uncertain taxonomic position (pp. 148–150).


Upper Devonian *Receptaculites neptuni* from Saxonia is described and illustrated. A taxonomic relationship of *R. neptuni* to any known group of organisms cannot be made, but its similarities with archaeocyathids are discussed.


*Receptaculitida* n. ord. containing Receptaculitidae Eichwald and Ischaditidae n. fam. may be related to Porifera and Archaeocyatha. The Receptaculitidae and the Ischaditidae are described. *Receptaculites neptuni* is figured.

**Mueuerisepp, K.**

See:


**Muellenburg, Garrett A., and Jack A. James**


*Receptaculites* is listed from the Ordovician Kimmswick Limestone at Cape Girardeau, Missouri (p. 17).

**Muir, M. D.**

See:


**Muir-Wood, Helen M.**

See:


**Mullens, Thomas E. (ed.)**


*Receptaculites oweni* forms a *Receptaculites* zone in the Stewartville and Prosser Members of the Ordovician Galena Formation in southwestern Wisconsin (pp. 2, 4, 6, 12, 20).

**Mullens, Thomas E.**


*Receptaculites oweni* Hall occurs in the Prosser, Stewartville, and Dubuque Members of the Ordovician Galena Dolomite in the lead-zinc mining district of Wisconsin and Illinois (pp. 462–463).

**Muller, J. E.**


*Receptaculites* sp. is reported from the Devonian Kaskawulsh Group in the southwest Yukon Territory (p. 29).

**Murchison, Roderick Impney**

1839. The Silurian System, Founded on Geological Researches in the Counties of Salop, Hereford, Radnor, Montgomery, Caermarthen, Brecon, Pembroke, Monmouth, Glou-

NITECKI ET AL.: RECEPTACULITID ALGAE 129

_Iscadites_ n. gen. _koenigii_ n. sp., of unknown affinities, is described and illustrated from the Silurian Lower Ludlow near Ludlow, Great Britain (pp. 697–698; pl. 26, fig. 11).


_Nidulites favus_ Salter is illustrated as a Lower Silurian [Ordovician] zoophyte (p. 178). _Iscadites koenigii_, a cystidean (?), is figured (p. 217; pl. 12, fig. 6).

See also:

Murchison, R. I., 1859, 1867, and 1872.


A North American foraminifer, _Receptaculites_, is discussed. _Nidulites favus_ is a problematic organism and _Sphaeromites tessellatus_ De la Beche may be a complex sponge. _Iscadites koenigii_ is figured as a probable cystidean (pp. 203–204, 228, 298, 535–536, 542).

See also:

Murchison, R. I., 1854, 1867, and 1872.


The following are listed as amorphozoans: _Amphispungia oblonga_ Salter from the Ludlow, _Iscadites antiquus_ Salter from the Llandeilo, _I. koenigii_ Murchison (pl. 12, fig. 4) from the Llandeilo, Wenlock, and Ludlow, _I. tessellatus_ Salter MS and _Sphaerospongia hospitalis_ Salter from the Caradoc, and _Tetragonis? danbyi_ McCoy from the Ludlow. _Nidulites favus_ Salter (fig. 30.3 on p. 188) is listed as a polyzoan (p. 509).

See also:

Murchison, R. I., 1854, 1859, and 1872.


_Receptaculites_, a strange fossil of North America, and _Nidulites favus_ are listed as amorphozoans. Other entries [on receptaculitids] are identical to those in Murchison, R. I., 1867.

See also:

Murchison, R. I., 1854, 1859, and 1867.

Murchison, Roderick Impey, Édouard de Verneuil, and Alexandre de Keyserling


Devonian crinoid _Echinospaerites [Sphaerospaeridae] tessellatus_ from the area around River Jolva, near Bogoslof sk, and Altai, Russia, is figured and described. It is compared with the Devonian fossils from Plymouth, England. Silurian [Ordovician] crinoid _Cyclocrinites spaskii_ is listed from _Munelias_ and Dago (pp. XV, 381, 383, pl. 27, fig. 7).

Myagkova, Ye. I. [Miagkova, Elizaveta I.]


This is an English translation of Miagkova, E. I., 1965.

Mykura, Walter

See:


National Research Council (Ordovician Sub-committee of the Committee on Stratigraphy)

See:

Neave, Sheffield Airey (ed.)


The original references are given for the following animals: *Acanthochonia* Hinde (p. 13), *Amphispongia* Salter (p. 160), *Anomaloides* Ulrich (p. 211), *Cerionites* Meek and Worthen (p. 645), *Cyclocrinites* Eichwald (p. 917).


The original references are given for the following animals: *Dictuocrinites* (Conrad MS) Hall = *Dictycrinus* (p. 78), *Ischadites* Lonsdale in Murchison (p. 786), *Lepidolites* Ulrich (p. 899).


The original reference for the animal *Pasceolus* Billings is given (p. 622).


The original references are given for the following animals: *Receptacules* Defrance (p. 17), *Receptaculites* Blainville (p. 17), *Sphaeronites* Phillips (p. 241), *Sphaerospongia* Pengelly (p. 242), and *Tetragonis* (Tetragonis) Eichwald (p. 445).

Neben, W., and H. H. Krueger


The following Ordovician fossils from the glacial erratics are figured and their depository given:

*Receptaculites orbis* Eichwald 1860 from Vagnatenkalk (pl. 19, figs. 16–17) and *R. cassidiformis* Patrunky 1919 from Orthocerenkalk (pl. 33, fig. 24).


The following Ordovician calcareous algae from the glacial erratics are figured and their depository given: from Backsteinkalk: *Cyclocrinus spasskii* Eichwald 1840 (pl. 52, fig. 29), *Mastopora concava* Eichwald 1840 (pl. 52, figs. 31–32), *Receptaculites damesi* (Raufl 1892) (pl. 56, fig. 1), *Receptaculites* sp. (pl. 56, figs. 2–3, 10), *R. orbis* Eichwald 1840 (pl. 56, figs. 4, 17), *R. eichwaldi* Schmidt (pl. 56, figs. 5–6), R. aff. *Ischadites koenigi* Murchison 1839 (pl. 56, fig. 15), *Ischadites cf. murchisoni* Eichwald 1842 (pl. 56, figs. 7–9), *Ischadites* sp. (pl. 56, figs. 11–13), *I. koenigi* Murchison 1839 (pl. 56, fig. 16), *Tetragonis murchisoni* Eichwald 1842 (pl. 56, fig. 14), *Mastopora concava* (pl. 57, fig. 12), *Cyclocrinus* sp. (pl. 57, figs. 14–15), C. cf. *porosus* Stolley 1896 (pl. 57, fig. 13), *Colosphaeridium cyclocrinophilum* F. Roemer 1861 (pl. 57, figs. 16–17); from Macouruskalk: *Cyclocrinus* sp. (pl. 65, fig. 16); from west Baltic: *Cyclocrinus spasskii* Stolley 1896 (pl. 66, fig. 34); from Ostseekalk: *Colosphaeridium wesenbergensis* Stolley 1896 (pl. 73, fig. 22); from Sylt: *Cyclocrinus porosus* Stolley 1896 (pl. 87, figs. 1–5), *C. porosus var. ornata* Stolley 1896 (pl. 87, figs. 6–7), *C. multicaudus* Stolley 1896 (pl. 87, fig. 8), *C. pyriformis* Stolley 1896 (pl. 87, figs. 9–11), C. cf. *pyriformis* Stolley 1896 (pl. 87, fig. 12), C. cf. *porosus* Stolley 1896 (pl. 87, figs. 13–14), C. sp. (pl. 87, fig. 15), *C. spasskii* Eichwald 1840 (pl. 87, figs. 16–17), C. cf. *spasskii* Eichwald 1840 (pl. 87, fig. 18), *C. subtilis* Stolley 1896 (pl. 87, figs. 19–20), *C. planus* Stolley 1896 (pl. 87, fig. 21), *Colosphaeridium* sp. (pl. 87, figs. 22–23).


The following Ordovician calcareous algae from the glacial erratics are figured and their depository given: from East Prussia zone DII: *Cyclocrinus* sp. (pl. 125, fig. 24), *C. vanhoeffeni* Stolley 1896 (pl. 125, figs. 25–26), and unidentified *Cyclocrinus* (pl. 125, 131)
fig. 21); from Kaolinsand of Sylt: *Receptaculites* sp. (pl. 140, fig. 1), *Coelosphaeridium* cf. *cyclocrinophillum* F. Roemer 1861 (pl. 144, fig. 16), *Coelosphaeridium* sp. (pl. 145, fig. 1), *Cyclocrinus multicavus* Stolley 1896 (pl. 145, fig. 2), C. cf. *porosus* Stolley 1896 (pl. 145, figs. 3, 6–8), *Cyclocrinus ?* (pl. 145, fig. 4), C. cf. *spasskii* (pl. 145, fig. 5), C. *porosus* [sic] var. *ornata* Stolley 1896 (pl. 145, fig. 9), and *Mastopora concava* Eichwald 1840 (pl. 145, fig. 10).

Nelson, Robert B.


*Receptaculites* sp. is listed from the Kanosh Shale of the Ordovician Pogonip Group in Deep Creek Range along the Nevada-Utah state line (p. 932).

Nelson, Samuel J.


The Middle (?) or Upper Ordovician Red River fauna contains *Receptaculites*. The lower *Receptaculites*-bearing beds of the Beaverfoot Formation of British Columbia may be contemporaneous with the Red River (p. 45).


The sponge (?) *Receptaculites*, diagnostic of and restricted to the Middle or early Upper Ordovician Red River equivalents in western Canada, is figured (pp. 51–52, 54; pl. 1, fig. 1).


*Receptaculites* sp. of uncertain taxonomic position is listed from the Portage Chute Formation of the Middle or Late Ordovician Bad Cache Rapids Group in the northern Hudson Bay Lowland (pp. 9–12). The “Arctic” or “Boreal” fauna, characterized by *Receptaculites*, has both Middle and Late Ordovician affinities and is present in the Bad Cache Rapids Group, the Red River Formation of Manitoba, the Whitewood Formation of South Dakota, the Bighorn Formation of Wyoming, the Fremont Formation of Colorado, and the Frobisher Bay outlier of Baffin Island (pp. 21, 27).


*Receptaculites* sp. is found in the Ordovician, Red Riveran Portage Chute Formation at several localities in the Hudson Bay Lowland of Manitoba (pp. 8–9, 11, 13).

Nelson, Samuel J., and R. D. Johnson


*Receptaculites* sp. is reported from the Late Ordovician Portage Chute beds on the North Knife River near Churchill, Manitoba, and from equivalent beds on Southampton Island to the north (pp. 537, 543, 565–566).

Nestor, H. E.

See:


Nestor, Viiu


The following Ordovician type specimens from Estonia are housed in the Geological Museum of the Estonian Academy of Sciences in Tallinn: *Coelosphaeridium kohtlenense* Bekker 1924, from the Kohla in Jaerve; *C. excavatum*, *C. wesenbergense*, *Cyclocrinus mickwitzii*, and *C. roemeri* Stolley 1898 (pp. 13, 26).

Neuman, Robert B.


*Nidulites pyriformis* Bassler occurs in the Ordovician Chambersburg (= Edinburg = Shippensburg) Limestone of Virginia, Maryland, and Pennsylvania (pp. 300, 311, 315–317).

Neumayr, M.


Receptaculitids, genera *Ischadites*, *Receptaculites*, *Acanthochonia*, and *Sphaerospongia* are described and *R. occidentalis* is figured, as hexactinellid sponges. *Amphispongia* is listed as a lyssakine sponge (pp. 216, 228, 230–232, fig. 43).

Newton, Edwin Tulley


Nicholson, Henry Alleyne


Upper Cambrian [Ordovician] *Calathium* and Silurian *Amphispongia* are described as sponges (pp. 68–69). *Receptaculites* is described and figured as a Silurian [and Ordovician] fossil of doubtful affinities, probably related to sponges. Silurian [and Ordovician] *Ischadites* is allied with or identical to *Receptaculites* (pp. 71–72, 517).

See also:


The following are described (pp. 126–128, 135–136, 140, 148, 297–299) and figured: the Silurian sponges *Amphispongia*, *A. oblonga* (figs. 33c–d) and [Ordovician] *Calathium*; and the organisms of uncertain zoological position, but possibly protozoans: *Receptaculites* (fig. 28), *R. neptuni* (fig. 29), *Ischadites* (= *Receptaculites*), *Tetragonis* (= *Receptaculites*), *Pasceolus*, *P. halli* (fig. 176a), *P. globosus* (fig. 176b), *Cyclocrinus*, *C. spaskii* (figs. 176e–h), *Nidulites*, *N. favus* (fig. 176i), *Sphaerospongia*, *S. tessellatus*, and *S. melliflua* (figs. 176c–d).


Lower Silurian [Ordovician] *Receptaculites* and *Ischadites* may be gigantic foraminifers. Upper Silurian *Amphispongia* is a sponge (?) and *Ischadites* a protozoan (pp. 98–99, 118).

See also:

Nicholson, Henry Alleyne, and Robert Etheridge, Jr.


The *Rhizopoda Pasceolus*, *Cyclocrinus*, *Sphaerospongia*, *Nidulites*, and *Ischadites* are congeneric and probably related to *Receptaculites*. *Nidulites* Salter, *Ischadites* Murchison, and *I. koenigi* are described. *Nidulites favus* Salter, *Pasceolus halli*, *P. globosus*, *Sphaerospongia melliflua*, and *Cyclocrinus spaskii* are illustrated (pl. 9, figs. 15–22, text-fig. 1). *Sphaeronites tessellatus*, *Receptaculites canadensis*, *Ischadites antiquus*, *I. grindrodi*, *I. micropora*, and *I. tessellatus* are listed (pp. 10–21).

Nicholson, Henry Alleyne, and Richard Lydekker

1889a. A Manual of Palaeontology for the Use of Students with a General Introduction on

Silurian *Amphispongia* is described (pp. 176–177) and figured (figs. 68c–d) as a hexactinellid sponge. *Calathium*, a lithistid sponge, occurs in the Calciferous of Canada. Related forms occur in the Durness Limestone of Britain (p. 166). The Ordovician to Devonian hexactinellid sponges of family Receptaculitidae, consisting of *Receptaculites* (fig. 62), *R. neptuni* (fig. 61), *Ischadites, Acanthochonia*, and *Sphaerospongia*, are described (pp. 170–173). *Tetragonospongia* belongs in part to *Ischadites* and in part to *Dictyophyton. Pasceolus, Cyclocrinus, and Nidulites (= *Mastopora*)* are described (pp. 186–189) as of uncertain affinities, possibly calcareous algae (*Siphonae verticillatae*). Ordovician *Pasceolus halli, P. globosus, P. (?) melilflua, Cyclocrinus spaskii, C. (Nidulites) favus* and Silurian *Nidulites* are figured (pp. 73–74).

See also:


Rauff's (1888) observations about receptaculitids are summarized. *Receptaculites, Ischadites (= Acanthochonia), and Polygonosphaerites (Sphaerospongia) are in family Receptaculitidae of calcareous sponges (pp. 1563–1564). Mastopora (Nidulites) and Cyclocrinus are unrelated to the Receptaculitidae but similar to the Polyzoa.*

See also:

Nickles, John M.


Ordovician *Pasceolus globosus* of uncertain taxonomic position from the Utica, Lorraine and Richmond Groups, the sponges *Lepidolites dickhauti* from the Lower Utica Beds of the Utica Group, and *Anomalospongia reticulata* from the Mt. Hope beds of the Lorraine Group are listed from the Cincinnati area (pp. 66, 69–70, 76–77, 90).

Nicolas, Frank J.


References to [receptaculitids] in Canadian publications from 1885 to 1906 are included (pp. 223, 451, 694, 773, 876).


References to [receptaculitids] in Canadian publications from 1905 to 1916 are included (pp. 75, 138, 193, 206, 228, 257).


References to [receptaculitids] in Canadian publications from 1847 to 1916 are included (pp. 42, 69, 76, 139, 183, 207, 227, 245–246, 260, 264, 292).


References to [receptaculitids] in Canadian publications from 1917 to 1926 are included (pp. 417, 433, 443).

Nikitin, I. F., M. B. Gnilevkaja, I. T. Zhuravleva, V. A. Luchinina, and E. I. Miagkova


The following Middle to Upper Ordovician Dasycladaceae of the tribe Cyclocriineae from Kazakhstan are described and illustrated: *Cyclocrinites nikitini* Gnilevkaja, *Mastopora reticulata* Gnilevkaja, *M. nana* Gnilevkaja, and *Apidium parvulum* Gnilevkaja (pp. 153–157; pl. 26, figs. 134
2–4; pl. 27, figs. 1–2; pl. 28, figs. 1–3; pl. 29, figs. 1–5; pl. 30, figs. 1–4; text-fig. 34). Apidium Stoley and Coelosphaeridium are mentioned as Middle to Upper Ordovician Dasycladales (pp. 127–144).

Niklas, Karl J.


The facets of the dasyclad alga Mastopora pyriformis [sic] Bassler are accreted in a whorl-like arrangement (pp. 340–343, 351–352).

Niles, A. E.


Pasceolus (= Cyclocrinites Eichwald) halli Billings from Anticosti Island, Quebec, is probably a cysteidean in the family Sphaeronitidae.

Nitecki, Matthew H.


The following [receptaculitid] types of uncertain taxonomic positions are in the Field Museum collections: Pasceolus claudel Miller 1874, P. darwini Miller 1874, P. globosus Billings 1857, Receptaculites cornutiformis Bradley 1930, R. dixoniensis Miller and Gurley 1896, R. elrodi Miller 1894, R. (? ) fieldi Roy 1941, R. bursiformis Hall 1883, R. monticulatus Hall 1883, Receptaculites sp., Seleioide s iwensi s Owen 1852, Ischadites iwensis (Owen) and I. tessellatus Winchell and Marcy 1866.


Application is made to the International Commission on Zoological Nomenclature to validate the generic name Receptaculites Deshayes 1828 and to suppress the earlier name Receptacules De France 1827.

See also:


Dasycladaceae receptaculitids include Cyclocrinites, Calathium and the Receptaculites-Ischadites complex.

See also:
Nitecki, M. H., 1968d.


Receptaculitid algae are divided into two groups, one containing Cyclocrinites, Anomaloides, Lepidolites, and Mastopora and a second consisting of Calathium, Ischadites, and Receptaculites.


Cyclocrinites, small Ordovician and Silurian marine calcareous algae, are represented in North America by Anomaloides (= Anomalospongia), Cyclocrinites (= Cyclocrinus, Lunulites, Cerionites, Pasceolus, Mastopora, and Nidulites), and Lepidolites.

See also:
Nitecki, M. H., 1969e.


The holotype of Calathium paradoxicum Billings 1865, which forms the basis of the genus Nipterella Hinde 1889, is a cherty concretion, not a fossil.


This is identical to Nitecki, M. H., 1967b.

America, North-Central Section, 1969, part 6, pp. 33–34.


Silurian *Ischadites koenigi* Murchison 1839 from England is described and illustrated as a dasycladaceous alga. *Ischadites Murchison 1839 is described in the new tribe Receptaculitae.


Receptaculitids, consisting of the tribes Cyclocrinitae, Calathiae, and Receptaculitae, are described. The following North American species are illustrated: Ordovician *Cyclocrinites darwini* (Miller), *C. pyriformis* (Bassler), *C. spaskii* Eichwald, *Ischadites iowensis* (Owen), and *Anomaloides reticulatus* Ulrich; Silurian *Calathium sp.*, *Ischadites ohioensis* (Hall), *I. koenigi* Murchison, and *Cyclocrinites dactioloides* (Owen).


Lower Ordovician to Silurian calathids found in Asia, Europe, and North America, consisting of *Calathium* Billings 1865, Soanianidae Miagkova 1965, and certain species of *Receptaculites* Deshayes 1828, are dasycladaceous receptaculitids.


This is identical to Nitecki, M. H., 1968b.


Lower Devonian *Ischadites elrodi* from Indiana is described and illustrated as a dasycladaceous alga closely related to Silurian *Ischadites koenigi* Murchison 1839.


North American Ordovician and Silurian dasycladaceous cyclocrinitid algae are described as a basal receptaculitid stock. The following are described, illustrated, and their synonymies given: *Anomaloides* (= *Anomalospongia*), *A. reticulatus* Ulrich 1878, *Cyclocrinites* (= *Cyclocrinus, Lunulites, Cerionites, Passageul, Mastopora* and *Nidulites*), *C. hall* (Billings 1857), *C. globosus* (Billings 1857), *C. gregarius* (Billings 1866), *C. welleri* n. sp., *C. dactioloides* (Owen 1844), *C. spaskei* Eichwald 1840, *C. darwini* (Miller 1874), *C. pyriformis* (Bassler 1915), *Cyclocrinites sp.* and *Lepidolites dickhautii* Ulrich 1879.


*Amphispongia oblonga* Salter 1861 is a Silurian problematic organism from Scotland originally described as a sponge. It formed a base of the lyssakid family Amphispongiiidae Rauff 1894. Finks’ (1967) suggestion that it may be an alga is accepted, and *Amphispongia* is described as a dasycladacean alga within the family Receptaculitaceae Eichwald 1860. A new tribe Amphispongioseae comprising *Amphispongia* Salter 1861 and *Anomaloides* Ulrich 1878 is erected. *Amphispongea* is probably related to the Cambrian *Pirania* Wallcott 1920.


Middle Devonian *Ischadites stellatus* (= *Ehlersospongia stellata* Fagerstrom 1961) from Bruce County, Ontario, is described and illustrated as a dasycladaceous alga. Its stratigraphic range is extended to the Silurian Niagaran. The ecology of Silurian receptaculitids and the position of gametangia on *I. stellatus* are discussed.
1971c. Algae are man’s best friends. Field Museum of Natural History Bulletin, vol. 42, no. 2, pp. 6–9, 6 text-figs.

Silurian Cyclocritinae dactiolooides and Ordovician Calathella anstedi are figured.


Ischadites abbottae n. sp., a dasycladaceous alga from Silurian reefs in northeastern Illinois, southeastern Wisconsin, and southwestern Ohio, is described and its stratigraphic position discussed. It is closely related to I. koenigii Murchison and I. hemisphericus (Hall). The family Dasycladaceae is divided into four tribes: Amphispongieae, Cyclocriniteae, Calathieae, and Receptaculiteae. Representatives of each tribe are illustrated.


This is an abstract of Nitecki, M. H., 1972d.


The presence of gametangia in the Silurian North American receptaculitid Ischadites hemisphericus (Hall 1861) strengthens the argument in favor of the algal nature of Receptaculitaceae. The position of gametangia is compared with possible positions in other receptaculitids and Pia’s (1920) phylogenetic interpretation is now unacceptable.


The family Receptaculitaceae is a coherent group that possesses anatomical characters similar to modern Dasycladales. The geographic and stratigraphic distribution of Silurian receptaculitids is along the reef belt in a narrow zone from Iowa to Newfoundland. The ecological distribution of most Silurian species is within the reef complex; a few species are found in the carbonate interreef facies and a few in shaly rocks.

The Silurian receptaculitids in North America are represented by three tribes, four genera, and twelve species. The tribe Cyclocritinae is represented by Cyclocritites dactiolooides and C. gregarius; Calathieae by Calathium egerodae n. sp.; and Receptaculitae by Receptaculites and Ischadities. Receptaculites is represented by R. sculcus and Receptaculites sp., and Ischadities by I. koenigii, I. stellatus, I. abbottae, I. hemisphericus, I. burntensis, I. subturbinatus, I. planoconvexus n. sp., I. prismatricus n. sp., and Ischadities (?) sp. These taxa are illustrated.


Receptaculitaceae, a family within Dasycladales, inhabited warm, tropical, shallow seas, especially reefs, and also muddy environments. Receptaculitids are found on all continents except Antarctica, but are most common in North America, Europe, and Australia. A few have been reported from the Arctic, Siberia, Afghanistan, Manchuria, southeast Asia, West Africa, and South America. Receptaculitids range from Ordovician to Permian, are most common in the Ordovician, decline in the Devonian, and in the Carboniferous and Permian are known from single localities. Ordovician Cyclocritites darwini (Miller 1874) from Ohio is illustrated.

See also:
Nitecki, M. H., 1972a.


The cyclocrininitid and ischadid similarities to the dasyclads warrant their assignment to the complex of siphonous green algae. The differences between them, however, necessitate placing cyclocrininitids and ischadids in a separate order from Dasycladales.

Receptaculitid structures interpreted as reproductive organs are described.


Receptaculitids are siphonous green algae related to Dasycladales but forming an order independent from them. Cyclocrinitids are also distinct from the dasyclads.

See also:

Nitecki, Matthew H., and Charles C. Dapples

*Ischadites tenuis* n. sp. shows well-preserved head elements illustrated with scanning electron microscope. These structures do not depart from the general dasycladaceous pattern, but show that receptaculitids are not sponges.

Nitecki, Matthew H., and Françoise Debrenne

Radiocyathids, previously considered aberrant archaeocyathids or unknown organisms, are small benthonic organisms found in the Lower Cambrian of Africa, Australia, and the Soviet Union. Their anatomy implies a close relationship of archaeocyathids to receptaculitids. Receptaculitids are described and compared with radiocyathids, archaeocyathids, sponges, and green algae. Ordovician *Ischadites iowensis* (Owen 1852), *Receptaculites oweni* Hall 1861 from Illinois and Wisconsin, *Calathella* sp. from Nevada, and Cambrian *Radiocyathus minor* (Bedford & Bedford 1934) from Australia are figured and described.

Nitecki, Matthew H., and Gerald G. Forney

Ordovician *Receptaculites camacho* n. sp. from the San Juan Formation in Talacasto Gorge, San Juan Province, Argentina, is described and illustrated. It is a probable ancestor of *R. oweni* from the Galena-Kimmnswick (Caradocian) of North America. Devonian *R. bolivianus* from Bolivia is mentioned. The paleoecology of Lower Ordovician calathids in western Texas, Ordovician receptaculitids in the Appalachian region, and Ordovician *R. oweni* are discussed.

Nitecki, Matthew H., and Markes E. Johnson

*Cyclocrinites dactioloides*, a receptaculitid alga from the Lower Silurian (Llandoverian) Hopkinton Dolomite in eastern Iowa and northwestern Illinois, is described and illustrated. It bridges the gap between ischaditids and extant dasyclads. *Cyclocrinites gregarius* from the Silurian Gun River Formation on Anticosti Island, Quebec, and *Ischadites koenigi* from the Silurian Racine Dolomite in Chicago are figured, and *Cyclocrinites, C. spaskii, C. darwinii, C. pyriformis*, and *C. welleri* are discussed.

Nitecki, Matthew H., and Albert F. de Lapparent

Upper Devonian, Frasnian *Receptaculites chardini* n. sp. is described and illustrated from Central Afghanistan; it may occur in adjoining regions of Iran and Pakistan. It is a green alga of family *Receptaculitaceae* Eichwald 1860 and order *Receptaculitales* Sushkin 1962. *Receptaculites chardini* is compared with *R. neptuni* (Defrance 1827) and with modern Siphonales.

Nitecki, Matthew H., and Donald Francis Toomey

The geographic and stratigraphic distribution of calathids is given. *Calathium* Billings 1865 and *Soanites* Miagkova 1965 are mentioned.

If receptaculitids were animals, they could only have been members of Parazoa. However, their anatomy, polar growth, presence or absence of body openings, and the interpretation of their possible mode of life are consistent with algal morphology. Whether archaeocyathids, which appear related, were also algae is still unresolved. Receptaculitids are a class of green algae that ranged throughout the Paleozoic. The class consists of three orders and ten families, and includes the Cambrian radiocyathids and certain Lower Paleozoic cyclocrinitids which were previously considered dasyclads. The following classification of receptaculitids is proposed:

Division (phylum) Chlorophyta
Class Receptaculitophyceae Weiss 1954
Order Receptaculitales James 1885
Family Receptaculitidae Eichwald 1860
Family Sphaerospongidae Rietschel 1969
Family Tetragonaceae Rietschel 1969
Family Soanitaceae Miagkova 1965
Order Radiocytaceae Debrenne, Termier & Termier 1971
Family Radiocytaceae Okulitch 1955
Family Uransphaeraceae Bedford & Bedford 1936
Family Girvanovellaceae Debrenne, Termier & Termier 1971
Order Cyclocrinitales nov. ord.
Family Cyclocrinitaceae nov. fam.
Family Pascoaceae Miller 1889
Family Amphipsongiaceae nov. fam.

Nolan, Thomas B., Charles W. Merriam, and James Steele Williams

A zone of abundant Receptaculites, including *R. mammillaris* and *R. elongatus*, occurs in the Ordovician Antelope Valley Limestone of the Pogonip Group near Eureka, Nevada (pp. 25, 29). The genus ranges to the Middle Devonian.

Norford, B. S.

*Receptaculites* sp. is listed from the late Early or early Middle Silurian Sandpile Group in northeastern British Columbia (p. 7).


*Receptaculites* is listed from the Ordovician Caradoc on Ellesmere Island (pp. 4, 11–12).


*Receptaculites* is listed from the lower Middle Ordovician Skoki Formation in the southern Canadian Rocky Mountains (pp. 21, 38, 60).

See also: Aitken, J. D., W. H. Fritz, and B. S. Norford, 1972.


The sponge *Receptaculites* is listed from the Ordovician Wilderness-age Chaumont and Rockland Formations and their equivalents in eastern Canada and from the *Anomalorthis* brachiopod zone of western and northern Canada (pp. 602, 604). *Receptaculites occidentalis* Saltier from the Wilderness Stage in Ontario is figured (pl. 4, fig. 4).

Norris, A. W.

*Sphaerospongia tessellata* (Phillips) is diagnos-
tic of the Middle Devonian Methy Formation of the Elk Point Group on the Clearwater River in northeastern Alberta and northwestern Saskatchewan (pp. 17, 20, fig. 5).


Receptaculites (?) is listed from the Upper Silurian Read Bay Formation on Baffin Island (p. 154, columnar sect. 15).


Receptaculites sp. is listed from the Ordovician Cornwallis Formation on southern Ellesmere Island (pp. 342–343, columnar sects. 33, 35).


Sphaerospongia sp. occurs in the Devonian Winnipegosis Formation of Manitoba, Canada (p. 99).


The Middle Ordovician along the shores of Great Slave Lake contains Ischadites sp. in the La Martre Falls Formation and Ischadites? sp. in the La Martre Falls and Chedabucto Lake Formations (pp. 20, 26, 109).


The Middle Devonian of the northern Yukon and northwestern District of MacKenzie, Canada, contains Sphaerospongia sp. in the Hume Formation and Receptaculites sp. in the Michelle, Ogilvie, and Hume Formations (pp. 7–8, 112, 114, 116–117, 126, 128, 169).


Receptaculites sp. is listed from the Middle Devonian, Eifelian Ogilvie Formation in the District of MacKenzie, Canada (p. 773).


Receptaculites sp. occurs in the Lower to lower Middle Devonian Michelle Formation and in beds very low in the Middle Devonian Ogilvie Formation. Receptaculites sp. and Sphaerospongia sp. are found in the upper Middle Devonian Hume Formation (pp. 17, 31, 34, 48, 91, 168–169). All are from the northern Yukon Territory and northwestern District of MacKenzie.

Norris, A. W., and T. T. Uyeno


Sphaerospongia tessellata (Phillips) is listed from the Middle Devonian Winnipegosis Formation near Lakes Winnipegosis and Manitoba in Manitoba, Canada (p. 213).

North, Frank Kenneth, and Gerald Gordon Lewis Henderson

1954. Summary of the geology of the Southern Rocky Mountains of Canada, a review of the structure and Palaeozoic stratigraphy of Canadian Rocky Mountains between latitudes 49° 30' and 52° 30'. Guide Book. Fourth Annual Field Conference. Alberta Society of Pe-

*Calathium* (?) sp. and *Receptaculites* (?) sp. are reported from the Ordovician Sarbach Formation in the Clearwater region of Alberta.

**Oakley, Kenneth P., and Helen M. Muir-Wood**


Ordovician *Receptaculites* is listed as a sponge (p. 11).

**Odom, I. Edgar**


**Odom, I. Edgar, and George M. Wilson**


Ordovician *Receptaculites oweni* and *Ischadites iowensis* are figured (unnumbered pl.).


Ordovician *Ischadites iowensis* and *Receptaculites oweni* from Illinois are figured (unnumbered pl.).

**Odom, I. Edgar, George M. Wilson, and Guy Dow**


The sponge *Receptaculites oweni* forms prominent zones in the Prosser and Stewartville Members of the Ordovician Galena Formation in northern Illinois (p. 4).


The sponge *Receptaculites oweni* is listed from the Ordovician Kimmswick Limestone (p. 3).

**Odom, I. Edgar, George M. Wilson, Guy Dow, Thomas C. Buschbach, William C. Smith, and Paul B. Du Montelle**


Ordovician *Receptaculites oweni* and *Ischadites iowensis* are figured.

**Odom, I. Edgar, George M. Wilson, Guy Dow, John Kempton, and Grover Emrich**


*Receptaculites oweni* from the Ordovician Galena Group is listed as a sponge (p. 6).

**Oepik, A.**


Ordovician *Coelosphaeridium kohtlense* Bekker in the Kukruse beds of Estonia is an alga attached to the bottom in the photic zone (p. 8).


This is identical to Oepik, A., 1925.

et Commencationes Universitatis Dorpatensis, vol. A12, no. 2, pp. 1-70, 1 pl., numerous text-figs. and maps.

Ordovician Coelosphaeridium sp. from Kukruse, and Cyclocrinus spasskii probably from Johvi or Rakvere are listed from Estonian islands (pp. 31, 33).


Ordovician Coelosphaeridium kohtlense Bekker occurs in the Kukruse section in Estonia (pp. 10, 18).

Okla, Saleh M.

See:

Okulitch, Vladimir J.


Dana's (1846) view that the Ordovician Tetradium from North America is close to Receptaculites is untenable (pp. 51, 68).


This is an abstract of Okulitch, V. J., 1937b.


The preoccupied name of pleosponge Hetteryacyathus (Heterocyathidae) Bedford is replaced with Radiocyathus.


Receptaculites occidentalis is present in the upper Coboconk Formation of the Ordovician Trenton Group in Ontario (pp. 335, 337-338).


New subclass Uranocyatha with order Uranosphaerina Bedford, family Uranosphaeridae Bedford, and Uranosphaera Bedford; and order Hetairacyathina Okulitch, family Hetairacyathidae Bedford, and Hetairacyathus (Bedford 1934) are described as pleosponges (pp. 47-50).


Lower Cambrian order Hetairacyathida Okulitch 1943, family Radiocyathidae Okulitch 1937, and Radiocyathus Okulitch 1937 are described, and R. minor (Bedford and Bedford) is figured, as aberrant archaeocyathids from Australia (p. 18, fig. 13-2).

See also:
Raymond, P. E., and V. J. Okulitch, 1940.

Oliveira, Michael E.


Calathium occurs in the Lower Ordovician Fillmore Limestone in the Fish Springs Range of Utah (p. 73).

Ollerenshaw, N. C., and R. W. MacQueen


The sponge Receptaculites sp. (probably R. oweni Hall) occurs in the Middle or Upper Ordovician Liskeard Formation in the Timiskaming outlier and in the Red River Formation, Silliman's Fossil Mount, the Nelson River Limestone, and the Stewartville Formation (p. 106).

Olson, Everett C.

Receptaculites sp. from Illinois is illustrated as a sponge.

Opitz, Rudolf


A Lower Devonian holothurian (?) is described and illustrated from the Huensrueck Shale in Bundenbach, Germany (pp. 114–117, text-figs. 112–113). [This is a receptaculitid—see Seilacher, 1961a and 1961b.]

Oraspold, A. I., and Arvo K. Ruumusoks [Ruumusoks]

1956. O vasalemmaskon gorizonte (DIII) v estonskoi SSR i v leningradskoi oblasti. Vasa-

lamma lademest (DIII) Eesti NVS-S ja leningr-


The Ordovician Cyclocrinites sp. from D1 and DII of Estonia and from the correlatives of the Johvi and Keila beds of Leningrad district, and Mastopora sp. from Keila to Vasalemma of Leningrad district are listed (p. 297).

Orbigny, Alcide d’


The amorphozoan Palaeospongia d’Orb. 1848 is described; P. cyathiformis d’Orb. 1848 = Porites [sic] cyathiformis Hall 1847, Echinosphaerites tessellatus from Russia and Great Britain are listed as Devonian crinoids (pp. 26, 102).

Orviku, K.

See:


Osadchaja, D. V.

See:


Osgood, Richard G., Jr., and Alfred G. Fischer


Mastopora (= Nidulites) pyriformis (Bassler), a close relative of Cyclocrinus Eichwald, is described and figured as an Ordovician dasycladacean alga from the Chambersburg Limestone of Virginia. The central vesicle and supposed gametocytes are figured. Mastopora, M. concava, M. favosa, Nidulites, N. favus, and Paceolus are mentioned.

Ostrom, Meredith E.


Receptaculites occurs in the Middle Ordovician Galena Formation of Wisconsin.

Ostrom, Meredith E., Richard A. Davis, Jr., and Lewis M. Cline


Receptaculites occurs in the Middle Ordovician Galena Formation of Wisconsin (p. 7, text-fig. 4).

Owen, David Dale


Coscinopora sp. is listed from Iowa, Wisconsin, and Illinois (p. 67).

See also:

Owen, D. D., 1844 and 1845.

1844. Report of a geological exploration of part of Iowa, Wisconsin, and Illinois, and made

*Lumulites (?) dactioloides* n. sp. and *Orbitulites (?) reticulata* n. sp. from Iowa are described and illustrated (pp. 69–70; pl. 13, fig. 4; pl. 18, fig. 7). *Orbitulites reticulata* resembles *Ischadites koenigi*. *Coscinopora sulcata* Goldfuss from the [Ordovician] lead-bearing beds is illustrated as a coralline (pp. 40, 67; pl. 7, fig. 5).

See also:
Owen, D. D., 1840 and 1845.


The text is identical to Owen, 1840. Plates of *Lumulites dactioloides*, *Orbitulites reticulata*, and *Coscinopora sulcata* are identical to Owen, 1844 (pl. 13, fig. 4; pl. 18, fig. 7; pl. 7, fig. 5).


[Ordovician] *Selenoides* n. gen. (?) and *iowensis* n. sp. are described and figured as foraminifers from the Upper Magnesian at Turkey River, Iowa (pp. 586–589; pl. 2B, fig. 13). *Coscinopora sulcata* is found in the Magnesian Limestone of the Dubuque and Mineral Point districts of Iowa and Wisconsin and the [Ordovician] Red River Limestone near Lower Fort Garry, Manitoba (pp. 41, 181, 633). The *Coscinopora* from Manitoba is the same as the coral characteristic of the lower beds of the Upper Magnesian Limestone of Wisconsin (p. 181).


Figure of *Selenoides iowensis* n. sp. (pl. 2B, fig. 13) is identical to Owen, D. D., 1852a.

Paeckelmann, Werner


Upper Devonian *Receptaculites neptuni* Defence from the Dorper Kalk in Knoppertsbush is described as a sponge (?) (pp. 49, 350).

Paige, Sidney


*Calathium anstedii* is listed from the Lower Ordovician El Paso Limestone in the Silver City Quadrangle of New Mexico.

Pajchlowa, Maria


The sponge *Receptaculites neptuni* Defence is listed from the Devonian of Poland.

Palmer, Allison Ralph

See:

Pampeyan, E. H.

See:
Parona, Carlo Fabrizio

Sphaerospongia permotessellata n. sp. from the Permian of Pietra di Salomone is described and illustrated and is placed tentatively among lyssacine sponges. The new species is compared with Sphaerospongia tessellata (Phillips) and Scyphia cornucopia Goldfuss (pp. 28–30; pl. 1, figs. 9–11).

Patrunky, H.

Receptaculites orbis Eichwald and Receptaculites n. sp. [R. cassidiformis Patrunky 1927] from a glacial erratic of Ordovician Orthocerenkalk (which also contains Cyclocrinus spaskii) are described.


Receptaculites bronni Eichwald and R. orbis Eichwald are described; R. cassidiformis n. sp. (= Receptaculites n. sp. Patrunky 1909) and R. pocilium n. sp. are described and figured from Ordovician glacial erratics in northern Germany.

Paull, Rachel Krebs, and Richard A. Paull

The sponglike Receptaculites common in the Middle Ordovician Galena Dolomite in Wisconsin may be a colonial alga (pp. 46, 177–178, 183, fig. 7-4).

Paull, Richard A.
See:

Pavlova, M. V.

Receptaculida from around the Baltic area are described as calcareous sponges of phylum Coelenterata [sic]. Receptaculites, R. orbis, R. neptuni, Ischadites murchisoni, and Sphaerospongia tesellata are described. Receptaculites orbis and R. neptuni are figured (pp. 50–51, figs. 53A–B).

Payne, J. Norman
See:

Peach, Benjamin Neeve

The siliceous sponge Calathium is found in the Calciferous of Newfoundland and Canada and in the two uppermost Cambrian [Ordovician] Croisaphuil groups in the North-west Highlands (pp. 380–381).

See also:

Peach, Benjamin Neeve, and John Horne

The rhizopods Cyclocrinus sp. from the Caradoc, and Nidulites favus from the Llandeilo, Caradoc, and Llandovery; the sponges Amphispongia oblonga from the Wenlock-Ludlow, Ischadites antiquus from the Llandovery, I. koenigi from the Llandovery, Llandeilo, Wenlock-Ludlow, and Caradoc, and Ischadites sp. from the Caradoc and Llandovery are listed from Scotland (pp. 509–510, 543, 667–668, 686, 698, 700, 708).

1930. Chapters on the Geology of Scotland. Ox-

Four species of the sponge *Calathium* occur in the Cambrian [Ordovician] Durness Limestone in the Balnakiel and Croisaphuill Group in Scotland (p. 96).


The following Cambrian [Ordovician] fossils from above the *Olenellus* zone in the Northwest Highlands of Scotland are listed (p. 629): *Calathium (Receptaculites) anstedii* [sic] Billings from the Balnakiel Group and the Skye; *C. (R.) califerum* Billings and *C. (R.) elegantulum* Billings from the Skye and Calciferous (Mingan Island, Canada); *C. (R.) pannosum* Billings from the Skye and the Quebec Group (Point Levis, Canada); and *C. (R.)* sp. from the Balnakiel and Croisaphuill Groups and the Skye.

See also:
Peach, B. N., 1907.

Peck, Joseph H., Jr., and Herdis B. McFarland


Holotypes of the sponges *Receptaculites devonicus* Whitfield from the Devonian Upper Helderberg Group near Columbus, Ohio, and *R. ohioensis* Hall and Whitfield from the Silurian Niagara Group of Yellow Springs, Ohio, are housed at the University of California (pp. 299–300). Type specimens of *Cerionites dactyloides* Owen and *R. hemisphericus* Hall, whose repository was to be the University of California (Whitfield, 1899), were never received (p. 298).

Peel, John S., Peter R. Dawes, and Johannes C. Troelsen


*Receptaculites* occurs in the Ordovician Wandel Valley Limestone in North Greenland (p. 20).

Peel, John S., and John M. Hurst


Abundant *Receptaculites* are found in the Ordovician Troedsson Cliff Formation (previously *Receptaculites* Limestone, p. 20) in Washington Land, western North Greenland (p. 22).

Pelman, Y. L.

See:


Péneau, Joseph


*Receptaculites neptuni* is found in the Upper Devonian at d'Angers (Maine-et Loire), west central France (p. 103).

Pengelly, William


*Sphaerospongia tesselatus* from Devonian limestones near Torquay and Newton is described and figured as a coral (?) (pp. 340–341, pl. 5).

Percival, James Gates


[Ordovician] *Coscinopora* is found in the Upper Magnesian Limestone of Wisconsin (p. 13).

The [Ordovician] Coscinopora is characteristic of the Upper Magnesian Limestone of Wisconsin (pp. 72, 75-76).

Perdue, M. J.


Petersen, Morris S., and J. Keith Rigby


Middle Ordovician to Devonian and Pennsylvanian Receptaculites is figured (p. 100).

Petryk, Allen A.


Receptaculites cf. arcticus Etheridge and Receptaculites sp. are found in two Arctic Ordovician faunas (early Late Ordovician and slightly older) of the Brodeur Group, northwestern Baffin Island (p. 8).

Pettyjohn, Wayne A.


Phillips, John


The echinoderm Sphaeronites tessellatus from south Devon, England, is described and figured, and is compared with Echinospherites Wahlenberg (Sphaeronites Hisinger), Hemicosmites Von Buch and Cryptocrinites Von Buch (pp. 135-136, pl. 59). Broderip suggests that it is related to the tunicate mollusc, Chelysoma macleayanum.

Pia, Julius


The branches of dasycladaceous Coelosphaeridium and Cyclocrinus are of the phliophore type. Coelosphaeridium, Cyclocrinus, Apidium, and Mastopora are Silurian [Ordovician to Silurian] forms that gave rise only to the Upper Carboniferous Mizzia.


The following Lower Silurian [Ordovician] Cyclocrinacea are figured as dasyclads: Coelosphaeridium, Cyclocrinus, Apidium, Mastopora. Permian Mizzia and Epimastopora are descendants of Coelosphaeridium and Mastopora (pp. 64-66).


Cyclocrinus, an Ordovician dasycladaceus alga, is described. Cyclocrinus porosus Stolley from [Ordovician?] Upper Silurian glacial erratics in northern Germany is illustrated (fig. 44).


The following are described: Tribe Cyclocrininae, Subtribe Cyclocrininae, Coelosphaeridium Roemer, Cyclocrinus Eichwald (= Paseculus Billings = Cerionites Meek and Worthen), Subtribe Mastoporinae, Mastopora Eichwald (= Nidulites Salter), and Apidium Stolley. The following species are listed: Coelosphaeridium cyclocrinophilum Roemer (fig. 41), C. excavatum Stolley, C. weisenbergense Stolley, Paseculus shianensis Reed, Cyclocrinus spasskii Eichwald, C. roemeri Stolley, C. planus Stolley, C. subtilis Stolley, C. membranaceus Stolley, C. balticus Stolley, C. porosus Stolley (fig. 43), C. oelandicus Stolley, C. vanhoeffeni Stolley, C. pyriformis Stolley, C. multi-cavus Stolley, C. mickwitzii Stolley, C. schmidtii Stolley, C. billingsii (Roemer), C. claudei (Miller), C. darwini (Miller), C. globosus (Billings), C. hospitalis (Salter), C. mellilusus (Salter), C. camdensis [sic] (Foerste), C. dactylioides (Owen), C. goughii
(Salter), C. gregarius (Billings), C. halli (Billings), C. intermedium (Billings), C. sedgwicki [sic] (Salter), Mastopora concava Eichwald, M. fava Salter, M. odini Stolley, M. parva (Nicholson and Etheridge), M. pyriformis (Bassler) (fig. 44), Apidium krausei (Kiesow), A. sororis Stolley, A. pygmaeum (Stolley), and A. indicum Reed.


Cyclocrinus is listed as a dasycladaceous alga (p. 230).


Cyclocrinus, Coelosphaeridium, Mastopora, and Apidium are mentioned as Ordovician members of family Dasycladaceae (pp. 11, 13).


Coelosphaeridium, Cyclocrinus, Mastopora, and Apidium are listed as Ordovician green algae (p. 16).


Cyclocrininitids are used as climatic indicators (p. 154).


Receptaculites and Calathium are found in the [Ordovician] Pogonip Group of the Arrow Canyon Range, Nevada.

Piveteau, Jean


Plodowski, G.


Pocta, Filip


Palaeozoic Receptaculitidae are poorly known organisms. Receptaculites and Ischadites are common in Czechoslovakia (pp. 1-2).

Poignant, Alain-Francois


Cyclocinutes and Mastopora are mentioned (p. 121).


Pokrovskaja, N. V.


Polma, I., L. Sarv, and Linda Hints


Ordovician Mastopora concava is listed from the subsurface in Latvia (table facing p. 116).
Poole, F. G.

See:
Byers, F. M., Jr., H. Barnes, F. G. Poole, and R. J. Ross, Jr., 1961.

Poort, J. M.


Ordovician to Devonian Receptaculites and Devonian Sphaerospongia are figured as sponges (p. 27).

Pray, Lloyd C.


Receptaculites is listed from the Upham Formation of the Upper Ordovician (? Montoya Group in the northern Franklin Mountains, Texas (p. 39).

Prest, V. K.


The sponge Receptaculites arcticus Etheridge is found in the Ordovician (Richmond) limestone in Maury Bay, along the eastern shore of Ellesmere Island (p. 7).

Prezbindowski, Dennis R.

See:

Pribyl, Alois


Lower Devonian Ischadites ovatus n. sp. from Bohemia is described and illustrated. Ischadites (= Acanthochonia Hinde) is a sponge. Acanthochonia barrandeii Hinde is a lower portion of I. koenigii, the most common representative of the genus Ischadites in the Bohemian Silurian. Receptaculites neptuni Defrance is found in the Lower Devonian of Bohemia. Ischadites cf. koenigii is figured.

Prouty, Chilton E.


The Lower Middle Ordovician in the Appalachian Valley of Virginia and Tennessee contains Nidulites pyriformis Bassler in the Nidulites beds of the Ward Cove and Athens Formations, Receptaculites in the Benbolt Limestone, Receptaculites sp. in the Ward Cove Formation, and R. biconstrictus in the Receptaculites zone of the Wardell Limestone (pp. 1146, 1151–1154, 1156–1158, 1163, 1167, 1169).


Receptaculites is reported from the Ordovician (Black River) Wardell Formation in Virginia and Tennessee and the Sevier Shale in Tennessee. The middle Sevier is characterized by numerous small Receptaculites, and the upper Sevier by large Receptaculites (pp. 1598, 1613).

See also:
Cooper, B. N., and C. E. Prouty, 1943.

Quenstedt, Friedrich August von


Devonian Receptaculites neptuni Defrance from Belgium and Silesia (pl. 60, fig. 18) is described as a problematic sponge and compared with [Silurian] Ludlow Ischadites koenigii Murchison (pp. 670–671).

_Cyclocrinus spaskii_ is described (p. 703) as a cystoid.

See also:
Quenstedt, F. A., 1876b.


_Cyclocrinus spaskii_ from the Vaginaten-kalk is figured (pl. 114, fig. 49).

See also:
Quenstedt, F. A., 1876a.


The following are described and figured as sponges: _Receptaculites_; [Ordovician] _R. jowensis_ [sic] (pl. 142, fig. 17) from the Galena of Dubuque, Iowa; Devonian _R. neptuni_ from Chimay, Belgium; _R. occidentalis, R. orbis, R. oweni_; Devonian _R. scyphioides_ (pl. 142, fig. 15) from Ober-Kunzendorf; _Receptaculites_ sp. (pl. 142, figs. 18–19); _Ischadites_, and _I. koenigi_ (pp. 586–592).

Raasch, Gilbert O.


Two zones of the sponge _Receptaculites oweni_ are present in the Prosser Member of the Ordovician Galena Dolomite in Jo Daviess County, Illinois (p. 5).


_Receptaculites oweni_ is listed as a sponge from the Prosser Member of the Ordovician Galena Limestone in northern Illinois (p. 1).


Ordovician _Ischadites_ [iowensis] and _Receptaculites_ [oweni] are figured (unnumbered pl.).

Radugin, K. V.


_Receptaculites_ (?) _radiatus_ n. sp. is described and illustrated as a coeleterate from the basin of the Amzass River in the mountainous district of Gornoya Shoria, West Siberia (pp. 90–91, 102, 105; pl. 2, fig. 15).

Rauff, Hermann


Receptaculitids (_Receptaculites, Ischadites, and Polygonosphaerites_), calcareous organisms of uncertain systematic position, are described. _Ischadites_ (= _Acanthochonia_), _I. vichtensis_ (= _Sphaerospongia vichtensis_ Schlucker), _Polygonosphaerites_ (= _Sphaerospongia_), and _P. tesselatus_ (= _Dictiphyton gerolsteinense_) are discussed. Archaeocyathids and the bryozoans _Mastopora, Cyclocrinus_, and _Coelosphaeridium_ are not related to the receptaculitids.


Receptaculitids are described and compared with recent dasyclads. _Ischadites, I. koenigi, I. murchisoni, Polygonosphaerites, Receptaculites, R. occidentalis_, and _R. crassiparies_ are described.

1892b. Untersuchungen ueber die Organisation und systematische Stellung der Receptaculitiden. Abhandlungen der Mathematisch-Physikalischen Klasse der Koeniglich Bayerisch-
Receptaculitids are described as calcareous organisms of uncertain systematic position. The following are illustrated: Receptaculites neptuni Defrance, R. crassiparies Rauff, R. orbis Eichwald, R. damesi Rauff, Ischadites koenigi Murchison, I. rectus Rauff, I. murchisoni Eichwald, I. cf. murchisoni Eichwald, I. vichtensis Schlueter, and Polygonosphaerites tessellatus Phillips.

See also:
Anonymous, 1892b.

1893. Ueber Polygonosphaerites. Neues Jahrbuch für Mineralogie, Geologie, und Palaeontologie, Band 1, Heft 1, pp. 43–49, 8 text-figs.

Whiteave’s (1892) study of Sphaerospongia tesselata, and Rauff’s (1892b) study of Receptaculites, Ischadites, and Polygonosphaerites (= Sphaerospongia) are summarized. The following are the synonyms of S. tesselata: S. cornu copiae Goldf., S. cf. cornu copiae, S. rathi Kayser, S. cf. rathi, S. sculpta Schlueter, S. megaphris Schlueter, (?) S. cf. gerosteinensis, and Sphaerospongia spp. Sphaerospongia vichtensis Schlueter and Acanthochonia devonica Schlueter are transferred to Ischadites. Receptaculites efijienensis Schlueter is the same as R. neptuni Defrance. All are algae.


Amphipsongia Salter, A. oblonga Salter, Calathium (?) (Calathella) anstedi Billings, C. formosum Billings, Nipeterella Hinde (a tectinellid sponge), and N. paradoxia (Billings) are described or illustrated (pp. 241, 275–278; pl. 1, figs. 11–16; pl. 7, figs. 1–4; text-figs. 56–57). A text [never published?] to accompany the Calathium illustrations was to be included in Palaeontographica, volume 41. The family Amphipsongiidae Rauff is erected for the aberrant lyssacine hexactinellid sponge, Amphipsongia Salter 1861. Subgenus Calathella Rauff is erected for Calathium anstedi.

Raymond, Percy E.


Nidulites sp. from the Ordovician Quebec City Formation of Quebec is identical to that of the Chambersburg Limestone in eastern Pennsylvania (p. 356).


Nidulites occurs in an Ordovician lower Trenton fauna in Quebec City, Canada (p. 43).


Ordovician upper Trenton beds at Ottawa, Ontario, contain a fauna similar to the Black River, including Ischadites iowaensis [sic] (p. 159).


Receptaculites orientalis [occidentalis ?] is listed from the Ordovician Trenton Group in the Quebec City area of Canada (pp. 342–343).


The following Ordovician fossils are listed: Cyclocrinites spasski from the Kegel, Jewe, and Wiesenberg Formations of the Baltic provinces of Russia and from Norway; C. balticus, C. schmidtii, C. nickwitsi, and C. roemeri from the Baltic provinces; Receptaculites from the Chambersburg Limestone of Pennsylvania and the Ottosee Limestone of Virginia; R. occidentalis from the Rockland Formation of Ontario and the Black River Formation of Pennsylvania; Nidulites favus from Chambersburg Limestone of Pennsylvania; Mas-
topora concava, Coelosphaeridium, and C. cyclo-
crinophilum from the Baltic provinces and Chris-
tiania [Oslo], Norway (pp. 200–201, 203–205, 211, 238–239, 241, 244–245, 255).

1922a. Trenton of central Tennessee and Ken-
tucky. Bulletin of the Geological Society of

Receptaculites occidentalis is listed from the
Curdsville of the Ordovician Trenton in Ken-
tucky, which is sometimes correlated with the Le-
ray of New York (p. 573).

1922b. The Ceratopyge fauna in Western North

Receptaculites appears about midway in the Po-
gonip [Ordovician] of the Eureka District, Nevada
(p. 205).

Raymond, Percy E., and Vladimir J. Okulitch

1940. Some Chazyan sponges. Bulletin of the
Museum of Comparative Zoology, Harvard
College, vol. 86, no. 5, pp. 195–214, 7 pls., 4
text-figs.

The sponge genus Exochopora is erected for
Ordovician Calathium canadensis Billings and C. in-
felix Ulrich and Everett (p. 208).

Read, J. F.

1980. Carbonate ramp-to-basin transitions and
foreland basin evolution, Middle Ordovician,
Virginia Appalachians. Bulletin of the Ameri-
can Association of Petroleum Geologists, vol.
64, no. 10, pp. 1575–1612, 19 text-figs.,
2 tables.

Receptaculitids and (alga?) Nidulites are listed
from sub-surface base deep ramp and deep flank
downslope buildups (p. 1587); Nidulites is listed
from deep ramp facies and from slope and basin
facies in the Middle Ordovician Lantz Mills and
Liberty Hall/Rich Valley beds in Virginia (pp.
1597, 1600).

Reed, F. R. Cowper

1902. Woodwardian Museum notes: Salter's un-
described species. Geological Magazine,
Dec. 4, vol. 9, no. 8, pp. 337–342, pl. 18.

Pasceolus (?) hospitalis (Salter) of uncertain
taxonomic position is described and illustrated (pp.
338–339; pl. 18, figs. 6–7). Sphaerospongia and S.
tessellata are mentioned.

1908. II.—Sedgwick Museum notes: new fossils
from Girvan. Geological Magazine, n. ser.,

Silurian Ischadites antiquus Salter, I. koenigi
Murchison, I. lindstroemii Hinde, and Ischadites
sp. from Great Britain are discussed (pp. 291–
292). Silurian, Middle Llandovery Receptaculites
grayi n. sp. from Scotland is described and illus-
trated and compared with R. occidentalis Salter,
R. orbis Eichwald, R. neptuni, Ischadites sp., and
I. koenigi (pp. 292–294; pl. 12, figs. 1–2). Recep-
taculites girvanensis n. sp. from the [Ordovician]
starfish bed of Thraive Glen is described and illus-
trated and compared with R. occidentalis Salter
and R. orbis Eichwald (pp. 294–295; pl. 12, figs.
3–6).

1912. Ordovician and Silurian fossils from the
Central Himalayas. Memoirs of the Geologi-
cal Survey of India. Palaeontologia Indica,

Pasceolus melliifluous (Salter), P. (?) shianensis n.
sp., and Apidium indicum n. sp. from Ordovician
and Silurian localities in the Central Himalayas
are described and figured. All are of uncertain
taxonomic position. Ischadites (?) inosculans (Sal-
ter) is described, and Sphaerospongia, S. tessellata
(= Sphaeronites tessellatus), Ischadites, Recepta-
culites, Cyclocrinus, C. porosus, Mastopora, Pas-
ceolus, Apidium, A. krauset, and A. pygmaeum are
mentioned (pp. 117–121, 144, 146, 149–151, 153–
154; pl. 16, figs. 13–20).

Reeds, Chester Albert

1907. Geologic features; pp. 18–28. In Bowman,
Isaiah, and Chester Albert Reeds, Water Re-
sources of the East St. Louis district. Illinois

Receptaculities [sic] is found in the Ordovician
Kimmswick (Trenton) Limestone between
Kimmswick and Glen Park, Missouri (p. 20).

See also:
Bowman, I., and C. A. Reeds, 1907.

Reeves, Corwin C., Jr.

1958. Stratigraphy of northwestern Wind River
Basin and Range, Dubois area, Fremont

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Receptaculites is found in the Ordovician Bighorn Dolomite in the Dubois area of Wyoming (p. 2404).

Regnéll, Gerhard


Ordnovician algae Coelosphaeridium, C. cyclocrinophilum, Cyclocrinites, Cyclocrinus and Masstopora have in the past been confused with the cystoidean Sphaeronites (p. 11).

Reichenbach, Renst Freiherr Stromer V.


Silurian [Lower Ordovician] to Carboniferous Receptaculida is described and placed together with Archaeocyathida in class Cenophora. The Devonian Sphaerospingia tesselata Phillips from Winnipegosis, Middle Devonian Receptaculites neptuni Defr. from Eifel, and Middle Devonian Polygonosphaerites tesselatus Phillips from Nassau are described and figured (pp. 95, 98, 103, 105; figs. 125-127).

Reinertsen, David L.


Reinertsen, David L., Dwain J. Berggren, and Myrna M. Killey


See also: Reinertsen, D. L., D. J. Berggren, and M. M. Killey, 1973a.


This is identical to Reinertsen, D. L., D. J. Berggren, and M. M. Killey, 1972.


Ordovician Ischadites [iowensis] and Receptaculites [oweni] are figured (unnumbered plate).

See also: Reinertsen, D. L., D. J. Berggren, and M. M. Killey, 1974.


This is identical to Reinertsen, D. L., D. J. Berggren, and M. M. Killey, 1973b.

Reinertsen, David L., and Myrna M. Killey


Ordovician Receptaculites [oweni] and Ischadites [iowensis] are figured (unnumbered plate).

Renaud, Alzine


Receptaculites sp., R. seunesi, and R. eifeliensis
are found in the Middle Devonian Couvinien of the “synclinorium médian Brest-Laval” in Brittany (pp. 123, 128, 147, 149–151).


The sponges (?) Receptaculites seunesi, R. nep- tunti, and R. eifeliensis are present in the Middle Devonian Couvinien of the “synclinorium médian Brest-Laval” in Brittany (pp. 307, 384–385). Receptaculites eifeliensis is figured (pl. 12, fig. 1).

Reso, Anthony


Receptaculites is abundant and widespread in the Upper Limestone Formation of the Ordovician Pogonip Group in the Pahranagat Range, Nevada (p. 906).

Reynolds, Robert Ramon

See:

Rexroad, Carl B.

See:

Rezak, Richard


The Ordovician Dasycladaceae Cyclocrinites and Coelosphaeridium exhibit verticillate rays that have an orderly arrangement in whorls.

Rezvoi, P. D., Inessa T. Zhuravleva, and V. M. Koltun

Amphispongiidae is a family of lyssacine sponges (p. 41).

Rhodes, Frank H. T., and Paul S. Shaffer


Receptaculites occurs in association with Neurodontiformes (p. 449).

Rhodes, Frank H. T., Herbert S. Zim, and Paul R. Shaffer


Ordovician to Devonian Receptaculites [oweni] of uncertain taxonomic position is figured as a sponge (p. 76).

This is a translation of Rhodes, F. H. T., et al., 1962.

This is a translation of Rhodes, F. H. T., et al., 1962.

This is a translation of Rhodes, F. H. T., et al., 1962.

This is a translation of Rhodes, F. H. T., et al., 1962.

Richards, Paul W.


Receptaculites is characteristic of the Ordovi-
Richardson, Eugene S., Jr.


Orдовician *Ischadites* is described and figured as a sponge (fig. 10).

Richardson, George B.


Orдовician *Calathium* n. sp., a coral-like sponge from the El Paso Limestone, and *Receptaculites oweni* from the Galena beds of the Montoya Limestone in the trans-Pecos region of Texas are listed (pp. 478–479).


*Receptaculites oweni* Hall is found in the Middle to Upper Orдовician Montoya Limestone in the Franklin Mountains near El Paso, Texas.


The Orдовician Garden City Limestone in the Bear River Range of northern Utah contains *Receptaculites* sp. (p. 409).

Richardson, James


*Receptaculites neptuni* occurs in the Lower Silurian [Ordovician] on Lake St. John, Gaspe Peninsula (pp. 85, 87).

Richardson, John


*Receptaculites neptuni* found in the Silurian [Ordovician?] near Pine Island Lake [Manitoba?] is compared with *Uphantenia chemungiensis*, *Receptaculites neptuni*, and *Eschadites* [sic] *konigi* (pp. 75–76).

See also:

Richardson, John, 1852.


The section on *[receptaculitids]* (p. 54) is identical to that in Richardson, J., 1851.

Riding, Robert


Receptaculitid morphology and previous views on their classification are discussed. Receptaculitids are green algae but not dasyclads (pp. 205, 208–209).


The Receptaculitaceae may be chlorophytes related to dasycladaceans (pp. 141–142); they occur in the Devonian open shelf facies (p. 143, text-fig. 1).

burg, Pennsylvania, 886 pp., numerous text-figs.

*Coelosphaeridium*, a Paleozoic dasycladaceous alga, and the Receptaculitidae, previously regarded as sponges, are described. Cyclocrineae and Receptaculitidae are dasyclad-like groups (pp. 15–16, 20).

**Riding, Robert, and Donald Francis Toomey**


The problematic sponge-like *Calathium* Billings is found in Lower Ordovician organic mounds in Texas and Oklahoma (pp. 509, 511–512, 518, fig. 3). The sponge/algal mounds in the principal *Calathium* zone of the lower Kindblade Limestone in the Wichita Mountains are illustrated (p. 511, fig. 2).

**Rietschel, Siegfried**


* Cyclocrinus* Eichwald is a Paleozoic dasycladacean (p. 203).


Devonian “Receptaculites?” and *R. neptuni*, and Ordovician *R. orbis* and *Ischadites biconstrictus* are figured.


The Lower Cambrian heteractinellid sponge family *Uranosphaeridae* Bedford and Bedford from South Australia consists of *Uranosphaera* Bedford and Bedford, *U. polyaster* Bedford and Bedford, and *U. hexaster* (pp. 25–27). *Leptopoterion* Ulrich and Receptaculitida Rauff are listed.


*Receptaculites neptuni*, *R. (?) biconstrictus* Balsler, *Tetragonis* aff. *orbis*, and *Ischadites koenigi* are figured, and the anatomy and growth pattern of receptaculitids are discussed.


The plant features of receptaculitids are described, and it is concluded that receptaculitids are calcareous algae, but not dasyclads.

See also: Ziegler, B., and S. Rietschel, 1970.

**Rigby, J. Keith**

1958. Geology of the Stansbury Mountains, eastern Tooele County, Utah; pp. 1–134, pls. 1–9, text-figs. 1–20, table 1. In Guidebook to the Geology of Utah. Number 13. Geology of the Stansbury Mountains, Tooele County,
Utah. Utah Geological Society, Salt Lake City, Utah (distributed by Utah Geological and Mineralogical Survey), 175 pp.

Receptaculites elongatus is found in the Ordovician Garden City Formation in the Stansbury Mountains south of Great Salt Lake, Utah (p. 30).


Receptaculites is a long-lived sponge.


Canadian [Ordovician] receptaculitids occur in the Pogonip Group in western Utah and eastern Nevada.


Calathium occurs in reefs in the Ordovician Fillmore Limestone of western Utah.

See also:


The sponges (?) Receptaculites (?) sp. and Calathium (?) sp. are listed from the Ordovician, Canadian Sarbach Formation in the Clearwater Canyon region of western Canada (p. 172).


This is identical to Rigby, J. K., 1965a.


Calathium, probably a receptaculitid rather than a sponge, occurs in mounded structures in many parts of the world, including the Ordovician of Texas, Oklahoma, Utah, Nevada, and California (p. 1378).

See also:


Rigby, J. Keith, and Raymond C. Gutschick


Receptaculites occidentalis Salters 1859 and Ischadites iowensis Hall 1861 from the Middle Ordovician Bromide Formation in the Criner Hills of Oklahoma may be dasycladaceous algae rather than sponges (p. 79).

Rigby, J. Keith, and Matthew H. Nitecki


References to Ordovician and Silurian receptaculitids are included, although receptaculitids are not related to sponges.


Cambrian Uranosphaera Bedford and Bedford is closely related to the primitive chancellorid sponges (pp. 333, 336).

Rigby, J. Keith, and Donald Francis Toomey


The receptaculitid alga Calathium Billings is found in organic buildups in the Lower Ordovi-
cian Kindblade Formation of the Arbuckle and Wichita Mountains in southern Oklahoma (pp. 501–502).

Riley, G. C.


The sponges Calathium anstedi Billings and C. fittoni Billings are listed from the Ordovician St. George Group in the Stephenville area of Newfoundland (pp. 19, 22, 64).

Riva, John

See:

Roberts, R. J.

See:

Roberts, T.

See:
Marr, J. E., and T. Roberts, 1885.

Robertson, David

See:
Armstrong, J., J. Young, and D. Robertson, 1876.

Robertson, Forbes, and F. C. Marshall


Ordovician to Devonian and Mississippian (?) Receptaculites [sic] is figured and described (pp. 130, 148; pl. 1, fig. E2). It is placed with Porifera, although its classification is uncertain.

Robinson, Charles S.


Receptaculites oweni Hall is found in the upper Middle Ordovician Fremont Dolomite in the Monarch district of Colorado (p. 122).

See also:

Roddick, J. A.

See:

Rodionova, N. M.

See:

Roemer, [Carl] Ferdinand von

1844. Das Rheinische Uebgangsgebirge. Hahn’schen Hofbuchhandlung Hannover, 96 pp., 6 pls.

The coral Receptaculites neptuni and the crinoids Sphaeronites sp. and S. tesselatus Phillips are found in the Middle Devonian of Germany (pp. 59–60, 64).


The following Silurian [Ordovician] to Devonian amorphozoans are described as Receptaculites: Receptaculites neptuni Defrance from Switzerland, the Ober Kunzendorf in Silesia, and the Devonian in Chimay (Belgium), Belgium (unspecified locality), Eifel, Aachen, Rheinland (two Eifel-age shales), and Germany; [Ordovician] Receptaculites orbis Eichwald (= Escharites formic-ulosus Schlotheim) from Reval; [Ordovician] Receptaculites sp. from Galena, Illinois; [Ordovician] Receptaculites bronni Eichwald from Reval, and a similar form from the Silurian [Ordovician] in Galena, Illinois; and Scyphia cornucopiæa Goldfuss from Eifel. Ischadites koenigi Murchison from
England and *Tetragonis murchisoni* Eichwald (locality unknown) are listed (pp. 157–159).

See also:


Lower Silurian [Ordovician] *Cyclocrinites spaskii* from the glacial erratics of northern Germany is listed, described, and compared with the *C. spaskii* from the [Ordovician] Munnelas Limestone of Estonia. *Receptaculites* from the same German area is listed (pp. 587–588, 591–592, 614, and table facing p. 618).


*Receptaculites* is a common Silurian [Ordovician] to Devonian genus. In Germany it is found in erratic boulders. *Receptaculites carbonarius* n. sp. from the Carboniferous Limestone in County Glatz is described and compared with *R. neptuni* (p. 42).


Lower Silurian [Ordovician] *Cyclocrinus spaskii* Eichwald from Wesenberg, Estonia, and Upper Devonian *Receptaculites neptuni* Defrance from Chimay, Belgium, are illustrated (pl. 3, figs. 21a–c; pl. 35, figs. 7a–c).


*Receptaculites* is related to *Archaecyathus*.


*Dictyophyton gerolsteinense* of uncertain systematic position is described and illustrated from the Gerolstein Limestone in Gerolstein, Rhenish Prussia, and is compared with *Tetragonis murchisoni* from Russia. *[D. gerolsteinense] may be the interior of Sphaeropsporia tessellata* (Hinde, 1887, p. 38).

1885. Lethaea erratica, oder Aufzeichnung und Beschreibung der in der Norddeutschen Ebene vorkommenden Diluvial-Geschiebe nordischer Sedimentaer-Gesteine; pp. 248–420. *In Dames, Wilhelm, and Emanuel Kayser*

*Pasceolus* Billings is a synonym of *Cyclocrinus* Eichwald. *Pasceolus billingsii* is similar to *C. spaskii*.

See also:

Roemer, Friedrich Adolf

*Receptaculites* (*Sphaerites?*) *rhombifer* n. sp. from the Devonian Iberger Kalk in the northwestern Harz Mountains of Germany is described and illustrated (p. 30; pl. 4, fig. 21). *Receptaculites neptuni* is found in the Devonian “Receptaculiten Schiefer” (p. VI).

Rogers, Wiley S., Margie Jackson, and [Frank] Kenneth McKinney

A *Calathium*-like sponge occurs in the Middle Ordovician Odenville Limestone in Alabama (p. 136).

Rolfe, Deette

*Receptaculites* is illustrated (p. 43).

Romanenko, Elena Vasilevna

Lower Cambrian [radiocyathid?] *Kuraya* n. gen. *sphaerica* n. sp. is described and figured as a sponge of family Octactinellidae, order Heteractinellida from the Lenna zone of Upper Altai, river Balhash (pp. 134–137, figs. 1–2).

Romanovskaya, L. V.
See:

Rønning, Knut

The spherical calcareous algae *Coelosphaeridium* and *Mastopora* are characteristic fossils of the Middle Ordovician shale unit 4b.

Roomusoks, Arvo [K.]

*Coelosphaeridium*, *C. cyclocrinophilum*, *C. kohtlensis*, *Cyclocrinus*, *C. porosus*, *C. spaskii*, *Ischadites*, *I. murchinsoni* (= *Tetragonis murchisoni*), *Mastopora*, *M. concava*, *Receptaculites*, and *R. orbis* are listed from various Estonian Ordovician localities as Varia [undetermined?]..

See also:

Rose, J. N.

*Receptaculites*, a spongellike index fossil from the Prosser and Stewartville Members of the Ordovician Galena Formation in Iowa, is figured (pp. 7–8, 35–36, 39, 43, 114–115; pl. 4, fig. 3).

Ross, Donald C.
1966. Stratigraphy of some Paleozoic formations in the Independence Quadrangle, Inyo County, California. United States Geological
Survey, Professional Paper 396, 64 pp., 5 pls., 19 text-figs.

A receptaculitid is listed from the Ordovician, Trentonian Johnson Spring Formation in Inyo County, California (p. 23).

Ross, Reuben James, Jr.


*Receptaculites* is abundant in the Ordovician Garden City Formation in northeastern Utah (pp. 20, 23).


Upper Ordovician *Receptaculites* sp., *R. cf. oweni*, *Cyclocrinites* sp., and *C. cf. intermedius* are present in the Red River Formation or Bighorn Dolomite of the Bighorn Group in the Williston Basin, eastern Montana (pp. 451–453, 457, 459, 462, 468–469). Middle to Upper Ordovician *Cyclocrinites* is described (p. 488).


Ordovician *Receptaculites* characterizes the Red River and lower Bighorn Formations and the Whitewood Dolomite (p. 443).


Ordovician *Receptaculites* from the Antelope Valley Limestone, the Pogonip Group, and the Badger Flat Limestone of the Mazourka Group and *R. oweni* from the Ely Springs Dolomite are present in southernmost Nevada and adjacent California (pp. 10–12, 19, 38, 50–53, 55, 60, 66).


*Receptaculites oweni* is found in dolomite of the Middle Ordovician Eureka Quartzite in the Arrow Canyon Range, Nevada (pl. 11).

See also:

Barnes, H., 1967.


*Receptaculites* is abundant at some horizons in the Antelope Valley Limestone of the Ordovician Pogonip Group in the Groom Range and the Lone Mountain section of Nevada. *Receptaculites* sp. is found in the Copenhagen Formation south of Water Canyon in Horse Heaven Mountain quadrangle, Nevada, and in the Antelope Valley Limestone at the Lone Mountain section (pp. 12, 30, 34, 37).


The alga (?) *Receptaculites* is found in Ordovician, Cincinnatian, Middle Caradoc to Ashgill formations in the western United States (p. 91).

See also:

Ross, R. J., Jr., 1976b.


This is identical to Ross, R. J., Jr., 1976a, except for pagination.

See also:

Byers, F. M., Jr., H. Barnes, F. G. Poole, and R. J. Ross, Jr., 1961.
Ross, Reuben James, Jr., and J. Keith Ingham

Receptaculites is found in the Ordovician Kanosh Shale of the Ibex area in Utah (table 1).

Ross, Reuben James, Jr., and Frederick C. Shaw

Ordovician Receptaculites sp. from the Copenhagen Formation at Antelope Valley, Nevada, and from the dolomite unit of the Eureka Quartzite (Burns Creek sequence) in the Independence Mountains of Nevada is listed as a sponge (pp. 4, 9).

Ross, Wayne Alexander

See:

Rowley, Robert Roswell

The protozoans Receptaculites globularis and R. oweni are listed from the Ordovician Trenton Limestone of Pike County, Missouri. The Trenton is equated with the Kimmswick Limestone because of the occurrence of Receptaculites (pp. 12, 14–16).

Roy, Sharat Kumar

The following Ordovician fossils are listed: Receptaculites (pp. 42–43) and R. mammillaris (p. 43) from the Pogonip of White Pine district, Nevada; and R. oweni Hall (p. 50) from the Trenton of King William Land.


Receptaculites Defrance of uncertain taxonomic position is described, and a relationship between Receptaculitidae and Archaeocyathinae is suggested. Receptaculites spp. (resembling R. arcticus and Ischadites murchisoni) and R. (?) fieldi n. sp. are described and illustrated from the Ordovician, Richardsonian Silliman’s Fossil Mount on Frobishier Bay, Baffin Land (p. 66, fig. 32). Receptaculites (?) fieldi resembles Ischadites koenigii and R. jonesi. Receptaculites, R. occidentalis, R. oweni, R. pearyi, and Ischadites are discussed. Nidulites gregarius is listed from the Ordovician Red River Formation in southern Manitoba. Receptaculites sp. and I. iowensis are figured (pp. 59–68, 177, 182, 185, 193–195; text-figs. 29–33).

Rozanov, Alexei Yu.

See:

Ruddy, Thomas
1885. List of Caradoc or Bala fossils found in the neighbourhood of Bala, Corwen and Glyn Ceiriog. Proceedings Chester Natural History Society, vol. 1, no. 3, pp. 113–124, 1 text-fig.

A very rare sponge Ischadites tessellatus Salter MS; and an actinozoan Nebulipora lens McCoy [= Coelosphaeridium sphaericum?] are listed from [Ordovician] Caradoc or Bala Series, south of Llangollen, Bala District, in North威尔士, U.K. (p. 117).

Ruedemann, Paul

A sponge, Calathium sp. (p. 485), from the Lower Ordovician (Canadian) Ellenburger Limestone in the Ouachita province, and Ischadites iowensis from the Simpson Group of the Arbuckle Mountains are listed (p. 489).
Receptaculites is listed from the Trenton [Ordovician] near Albany, New York (p. 501).

See also:

Ruedemann, R., 1902.


Receptaculites may be calcareous algae (p. 2).

See:

Clarke, J. M., and R. Ruedemann, 1903 and 1904.

Ruamusoks [Roomusoks], Arvo K.


Ordovician Coelosphaeridium is listed from bed VIII in the type Kukkuse section in Estonia (p. 104).


The following Ordovician algae are listed from various Estonian localities: Coelosphaeridium excavatum Stolley possibly in three zones of Aseri stage (p. 45), Receptaculites orbis (p. 67), and Receptaculites sp. (pp. 51, 55–56) in Kallaste (= Phosphorit-Kaikistei) subhorizon of Lasnamagi (= Lasnaimae) stage; in the Lasnamagi stage: Coelosphaeridium excavatum Stolley, Mastopora odini Stolley, and Receptaculites orbis Eichwald (p. 79); and in the Ubari zone, Coelosphaeridium (p. 110), and Coelosphaeridium sp. (p. 125). In the Kukruse (= Kukerski = Kuckerssche) stage the following are listed: Coelosphaeridium (p. 128), C. kohtlense (p. 157), C. kohtlense Bekker and Ischadites sp. (p. 183). The following are listed in the Kurna subseries: Idavere (= Itfersche) horizon: Mastopora concava (pp. 186, 190), Ischadites murchisoni and M. concava (p. 193), Coelosphaeridium sp., Ischadites sp. (p. 194), I. murchisoni (p. 212), Coelosphaeridium sp., I. murchisoni (Eichwald), and M. concava Eichwald (p. 221); in Ojamaa (= Ojma) subhorizon: Coelosphaeridium sp. and I. murchisoni (p. 203); in Johvi (= Jewe’sche = Ihvicki): Mastopora concava (pp. 225, 231, 249).
I. murchisoni (pp. 230–231, 249), Ischadites n. sp. (p. 249), Ischadites sp. (pp. 231, 249), Coelosphaeridium cyclocrinophilum Roemer (p. 249), Cyclocrinus porosus Stolley (p. 249), Cyclocrinus n. sp. (p. 249), and Receptaculites damesi Rauff (p. 249); in Keila (= Kegelsche = Keilaskii): Cyclocrinus sp. (pp. 255, 257–258, 260, 262, 281, 298), Mastopora concava (pp. 264, 270, 273, 298), Cyclocrinus porosus (p. 273), and Ischadites sp. (p. 298); and in the Oandu (= Oandiskii) horizon Ischadites sp. (pp. 302–303, 324, 332).

See also:

Sabina, A. P.

Receptaculites is present in the Ordovician south of Tramping Lake, Manitoba (p. 51).

St. Clair, Stuart
See:

Salisbury, Rollin D.
See:
Chamberlin, T. C., and R. D. Salisbury, 1905 [1907] and 1909.

Salter, John William

Silurian [Ordovician] Nidulites favus Salter from Llandeilo flags of Pembrokeshire and from Havenfordwest is described (pp. 174–175) as possibly a bryozoan or as eggs of gastropods. Specimens from the shaly sandstones in Mulloch Quarry, Dalquharran, are figured (pl. 9, figs. 16–17b).

1852. Note on the fossils above mentioned, from the Ottawa River. Report of the twenty-first meeting of the British Association for the Ad-
vancement of Science; held at Ipswich in July 1851. London, pp. 63–65.

Receptaculites, different from R. neptuni of Europe, is described from the Lower Silurian [Ordovician], probably Trenton, of Allumette Island on the Ottawa River (p. 64).

1859a. Figures and descriptions of Canadian organic remains. Decade I. (Fossils from the Calciferous, Chazy, and Trenton Formations at Paquette Rapids and Allumette Island, Ottawa River, Pontiac County; and Beauhar
nois, Beauharnois County, Quebec.) Geological Survey of Canada, Separate Report 423, 47 pp., 10 pls.

The foraminifers Receptaculites occidentalis n. sp. from Paquette Rapids, Quebec, and R. australis n. sp. from the Upper Silurian of Yarra
dong, New South Wales, are described and illustrated (pp. 45–47; pl. 10, figs. 1–10). Receptaculites and R. neptuni are discussed.

See also:
Salter, J. W., 1859b.


This is identical to Salter, J. W., 1859a.


The calcareous sponge Amphispongia n. gen. oblonga n. sp. is described and illustrated and compared with recent Grantia. Sphaerospongia n. gen. is proposed for the Devonian Sphaeronites pomum. Amphispongia, Ischadites, Favospongia, Stromatopora, Tetragonis, and Receptaculites belong to the same family and illustrate the relationship between sponges and foraminifers (pp. 135–136).

See also:

1864. On some new fossils from the Lingulaflags of Wales. Quarterly Journal of the Geo-
Amphipspongia, a Silurian sponge from the Pentland Hills of Edinburgh, Ischadites, and Tetragonis are mentioned (pp. 238–239).

The sponge Ischadites sp. from Upper Llandeilo rocks (Llandeilo flag proper) in Garn, east of Ar- enig in North Wales, and a similar form from the Caradoc of Sweden are listed. Ischadites antiquus n. sp. from Upper Llandeilo in the Arenig Mountains is described and figured as an amorphozoan (pp. 258–259, 282, fig. 4).

Upper Cambrian [Ordovician] Sphaerospongia, Ischadites, and Nidulites (?) and Silurian Ischadites, Pasceolus, and Tetragonis are listed as Amorphozoa (p. xli). The following are listed: Sphaerospongia hospitalis, Ischadites (?) micropora n. sp., and Ischadites (?) sp. from the [Ordovician] Middle Bala Group; Nidulites from the [Ordovician] Llandovery Group; N. fava from the [Ordovician] Upper Bala Group; Ischadites konigi from the Silurian Wenlock Shale; and Pasceolus goughii and Tetragonis danbyi from the Silurian Upper Ludlow. A representative of each genus is figured (pp. 40, 72, 100, 175–176).

Salter, John William, and Henry Francis Blanford


The sponges Sphaerospongia n. gen., S. melliflua (pl. 5, figs. 4–6), and S. inosculans (pl. 5, figs. 7–9) are described from the Lower Silurian [Ordovician] of Niti, Northern India. Ischadites, Receptaculites, Amphipspongia, Nidulites, and Sphaerontites pomum Phillips are mentioned as sponges (pp. 47–49). [From the text it appears certain that Salter is sole author of these descriptions.]

Sandberg, Philip A.


Ordovician Receptaculites sp. from Missouri and Heiskellites [nom. nud.] niditus [nom. nud.] from Virginia are illustrated as Porifera (pp. 14–15).

Sandberger, Fridolin

See:


Sandberger, Guido, and Fridolin Sandberger


The Middle Devonian "proboscis of a crinoid" [Sphaerospongia tessellata Whiteaves 1892, p. 259] from Germany is described, figured, and compared with Sphaerospongia tessellata (pp. 384–385, 2 figs.).

Sanford, John T.


Receptaculites, of uncertain taxonomic position, is a common fossil in the Ordovician Bobcaygeon Formation, Cloche Island beds, on Manitoulin Island, Ontario (p. 34).

Sardeson, Frederick W.


1896. The fauna of the Magnesian Series. Bul-

A Receptaculites-like structure from the Ordovician Shakopee Dolomite of Minnesota is figured (pl. 6, fig. 13).


The Ordovician Galena Dolomite is characterized by a Receptaculites oweni zone (pp. 23, 35). Ischadites is present in the Ordovician Maquoketa series in northeastern Iowa, Minnesota, and Illinois (p. 22).


Receptaculites oweni Hall, which resembles Coscinopera sulcata Goldfuss, is a common index fossil for the Ordovician Galena Formation of Illinois and Wisconsin (pp. 185–186, 188).


Receptaculites oweni Hall is a characteristic fossil in the Ordovician Galena Dolomite of the Minneapolis-St. Paul district.

See also:
Hall, C. W., and F. W. Sardeson, 1892.

Sarv, L.

See:

Savage, Thomas Edmund


Receptaculites oweni Hall and Ischadites iowensis Owen are found in the Ordovician Galena-Trenton stage in Fayette County, Iowa (p. 462).


Receptaculites oweni is characteristic of the Ordovician Galena Dolomite in Jackson County, Iowa (pp. 595–596). Cerionites dactylioides is found in the Silurian Niagara Limestone in Jackson County (pp. 615–616, 618).


Receptaculites oweni is common throughout the Ordovician Galena Limestone in southwestern Illinois (p. 109).

See also:
Savage, T. E., 1908b.


Receptaculites oweni is abundant in the Ordovician Galena Formation of southwestern Illinois (pp. 432, 443).

See also:
Savage, T. E., 1908a.


Receptaculites oweni is found in the Ordovician Kimmswick Limestone of southwestern Illinois (p. 511).

See also:

Savage, Thomas Edmund, and Francis M. Van Tuyl


Receptaculites oweni is common in the Middle
Ordovician Nelson River Limestone along the Nelson River near the Upper Limestone Rapids, the Galena Limestone of the Upper Mississippi Valley, and the Trenton Limestone of the Lake Winnipeg region (pp. 344, 347–349). Cerionites sp. is found in the [Upper] Ordovician Shammatawa Limestone along the Shammattawa River (p. 350).

Schaeffer, Frederick E.


Receptaculites sp. is found in the Kanosh Shale of the Ordovician Pogonip Group in the Silver Island Range of northwestern Utah (pp. 42, 45).

Schei, Per


Receptaculites sp. occurs in the Devonian Series Db of Ellesmere Land (p. 459).

Schlotheim, Ernst Friedrich von


Escharites forniculosus (= Eschara forniculosa Pall.) from the Ordovician of Reval, Estonia, is described (p. 343). [Escharites is a bryozoan genus, but E. forniculosus is identical to Receptaculites orbis Eichwald (Roemer, 1854, p. 158; Patrunkly, 1927, p. 183).]

Schlueter, Clemens August Joseph

1887a. Ueber Scyphia oder Receptaculites cornu copiae Goldfuss contains two taxa of which one is a receptaculitid. Sphaerospongia is a receptaculitid distinct from Receptaculites. Sphaeropsgnia cornu copiae (= Scyphia cornu copiae Goldfuss 1832 and 1848 = Receptaculites cornu copiae Goldfuss?) and Bronn and Roemer 1856), S. sculpta n. sp., S. vichtris n. sp., S. megaphil n. sp., and Receptaculites eifeliani n. sp. are described and illustrated. S. rathi (= Pasceolus rathi Kayser 1875 = Polygonosphaerites rathi Roemer 1880 = Sphaerospongia tessellata Hinde 1884 = Dictyophytton gerolsteinense Roemer 1883), S. cf. gerolsteiniensis (= Dictyophytton gerolsteinense Roemer 1883), and Acanthochonia devonica n. sp. are described. Pasceolus, P. halli, Sphaeropsgnia, Sphaerontes tessellatus, Ischadites, Receptaculites, R. neptuni, Acanthochonia, A. barrandei, Tetragonis, and T. eifeliani are mentioned.


A pear-shaped Acanthochonia barrandei is described.

Schmidt, Friedrich


This is the first part of Schmidt, F., 1858a.


The following are listed from various Estonian Ordovician horizons: Receptaculites Eichwald (p. 49); Cyclocrinites spasskii Eichw. (pp. 50, 99–101, 103, 106–107, 118, 120, 123, 128, 136); R. infundibulum Schrenk (p. 233); Receptaculites orbis (pp. 93, 125–126, 129); R. Eichwaldi (pp. 98–99, 101, 104–106, 108); and Receptaculites sp. (pp. 121, 144). The following Estonian Ordovician corals
are described: *Receptaculites orbis* Eichw. Zone 1 (4 localities); *R. ? eichwaldi* n. sp. from Jewe stage (9 localities); *Receptaculites* sp. from Jewe stage (1 locality); *Cyclocrinites spaskii* Eich. from Brandschiefer stage (2 localities), from Jewe (6 localities); zone 2 (4 localities), and from Lyckholm stage (2 localities) (pp. 232–233).


Lower Silurian [Ordovician] *Receptaculites orbis* Eichwald, *R. (?) eichwaldi* n. sp. (= *Ischadites koenigi* Eichwald 1855b) and *Cyclocrinites spaskii* Eichwald are described from the Baltic area. *Nidulites favus* Salter and *Mastopora concava* are listed from the same region (pp. 232–233).


This is identical to Schmidt, F., 1858a, except for pagination.


This is identical to Schmidt, F., 1858a.


The Silurian [Ordovician] *Receptaculites orbis* Eichw. is listed from calcareous flagstones or “Pleta,” and *Cyclocrinites Spaskii* Eichw. from the Second Limestone in Estonia (p. 46).


*Receptaculites orbis, R. eichwaldi, Mastopora concava*, and *Cyclocrinites spaskii* are listed from various [Ordovician] localities in the Baltic region (pp. 26, 31–35).

Schmitt, Joseph


*Receptaculites insularis* Billings, an Ordovician protozoan, is listed from Anticosti Island.

Scholten, G. H.


The algae *Coelosphaeridium cyclocrinophilum* and *C. spaskii* are listed from Silurian [Ordovician] limestones of the Twenthe region, Netherlands.

Schrenk, Alexander Gustav

See: Anonymous, 1854.

Schuchert, Charles


*Receptaculites* n. sp., *R. infundibiliformis* (Eaton), and *Ischadites squamifer* (Hall) are sponges from the Devonian New Scotland beds of New York (p. 278). *Ischadites squamifer* is also found in Tennessee.


*Receptaculites arcticus* Etheridge, *R. occidentalis* Salter (= (?) *R. oweni*), and *R. oweni* from Baffin Land are Lower Silurian [Ordovician] horizon markers (pp. 147–151). Lower Silurian [Ordovician] *R. oweni* Hall and *Ischadites iowaensis* [sic] (Owen) are described. *Receptaculites* n. sp. (= (?) *R. oweni*) and Silurian *R. neptuni* Defrance and *R. oweni* from Baffin Land are listed (pp. 147, 149, 151–153).


The types [lost during World War II] of Receptacles (= Receptaculitites) neptuni DeFrance 1827 are described and figured. The original diagnoses of DeFrance 1827 and Blainville [1830] are reproduced.


[Receptaculitids] listed by state, age, and formation include: Receptaculites, R. occidentalis, R. biconstrictus, R. brevistriatus (Raymond MS), R. oweni, R. arcticus (?), Nidulites, N. pyriformis, Pasceolus claudei, P. darwini, Ischadites iowensis, and Calathium. All are Middle Ordovician, except for Upper Ordovician Pasceolus claudei and P. darwini, and Lower Ordovician Calathium (pp. 47, 140–141, 195, 214–215, 250, 252, 318, 323, 358, 476–477, 508, 554, 598, 625, 669, 724–726, 746, 775, 846, 874, 909–911).

See also:

Schuchert, Charles, William Healey Dall, Timothy W. Stanton, and Ray S. Bassler

The following Ordovician type specimens are housed in the U.S. National Museum: Anomaloides reticulatus Ulrich (= Anomalospongia reticulata) from the Lorraine Formation and Lepidolites elongatus Ulrich (= L. dickhauti) from the Utica Formation, both at Covington, Kentucky; Receptaculites ellipticus Walcott, R. elongatus Walcott, and R. mammillaris (Newberry) Walcott from the Upper Poginip Group of Nevada (pp. 50, 350, 565).

Schuchert, Charles, and Carl O. Dunbar
1934. Stratigraphy of western Newfoundland. Geological Society of America Memoir, 1, 123 pp., 11 pls., 8 text-figs.

Receptaculites from the Lower Ordovician St. George series and Calathium fittoni from the Middle Ordovician Table Head series in western Newfoundland are listed (pp. 54, 68).

Schuchert, Charles, and William H. Twenhofel

Pasceolus from the Silurian Gun River Formation, P. halli Billings and Pasceolus sp. from the Ordovician Ellis Bay Formation, and Ischadites from the Ordovician Mingan Formation are found on the Mingan and Anticosti Islands in the Gulf of St. Lawrence (p. 692, 702–703, 709–710).

Schulze, Franz E., Willy Kueckenthal, Karl Heider, and Richard Hesse


Schwartz, George M.

An Ordovician sponge (?) Receptaculites oweni, is listed from the Decorah Shale and Galena (Prosser) Limestone in Minneapolis-St. Paul, Minnesota (pp. 55–56).
Schwartz, George M., and George A. Thiel

Receptaculites is figured from the Middle Ordovician Galena Limestone (pp. 131–132).

Scott, Harold W.

Scott, William Berryman

Receptaculites fungosus Hall is illustrated as an Ordovician sponge (pl. 4, fig. 4).

Scudder, Samuel H.
1882. Nomenclator Zoologicus. An alphabetical list of all generic names that have been employed by naturalists for Recent and fossil animals from the earliest times to the close of the year 1879. Bulletin of the United States Museum, 19; Part 1, Supplemental List, 376 pp.; Part 2, Universal Index, 340 pp.

This is an alphabetical list of known generic names in zoology and paleontology to 1879 [including receptaculitids].

Segonzac, Geneviève

Seilacher, Adolf

The “holothurian” of Opitz (1932) is Receptaculites (p. 5).


The holothurian (?) of Opitz (1932) is a receptaculitid to be redescribed in the future (p. 66).

Sellards, Elias Howard

The sponges Calathium sp. from the Lower Ordovician El Paso Formation and the Jefferson City equivalent (?) of the Ellenburger Group and Receptaculites from the Upper Ordovician Montoya Formation are found in Texas (pp. 72, 74–75).

Selwyn, Alfred R. C.

Receptaculites occidentalis Salter occurs in the Trenton Limestone of Ottawa, Ontario (p. 19).

Semeniuk, Vic

The Ordovician algae Ischadites, and I. cf. lindstroemi are listed (pp. 16, 18–20) and figured (pl. 1, figs. 2–3; pl. 2, fig. 2) from the “Ischadites unit” of the Daylesford Formation, Bowan Park Group in the Bowan Park Area in Central-Western New South Wales, Australia.


The large dasycladacean alga Ischadites is listed in the Ordovician, Bowan Park Group, Daylesford Formation in the Bowan Park area in New South Wales, Australia (pp. 79–80, 82).


The dasycladacean alga Ischadites occurs in the Manooka Limestone member of the Ordovician
Daylesford Limestone in central western New South Wales (p. 459).

Semeniuk, Vic, and John G. Byrnes

*Ischadites lindstroemi* Hinde 1884 from the Ordovician Daylesford Formation of central western New South Wales is described and illustrated. It inhabited a shallow, off-shore, lime-mud environment; it is compared to *I. lindstroemi* from the Silurian of Gotland and to *I. koenigi*. *I. struzi*, *I. mammillaris*, and *I. iowensis*. *Ischadites* belongs to the “problematical” family Receptaculitaceae, which is related to the dasycladaceous algae.

Sepkoski, J. John, Jr.

Receptaculitids, which may have affinities to algae, and Archaeata are mentioned (p. 230).

Seward, Albert Charles

The Ordovician alga *Cyclocrinus* is discussed (p. 107).

Shaffer, Paul R.
See:

Shank, S. E.
See:

Shaver, Robert H.

Middle Silurian *Receptaculites* sp. is present in the interreef facies of the Salamonie Dolomite and in the reef facies of the Liston Creek Member of the Wabash Formation in Indiana (p. 309).


Receptaculitids are present in Silurian, Niagaran reef and nonreef facies in northern Indiana (figs. 5, 8).

See also:


This is identical to Shaver, R. H., 1974b.


Receptaculitids are part of the reef fauna in the Silurian Liston Creek and Mississinewa Members of the Wabash Formation in northern Indiana (p. 9, fig. 9). *Cyclocrinites* beds occur in a reef in the Early Silurian Llandoverian Hopkinton Dolomite of Dubuque County, Iowa (p. 12, fig. 11).

Shaw, Eugene Wesley
See:

Shaw, Eugene Wesley, and Arthur C. Trowbridge
Iowa, no. 200, 13 pp., 13 pls., 9 text-figs., 4 maps.

*Receptaculites oweni* is figured from upper and lower *Receptaculites* zones in the Ordovician Galena Limestone of northwestern Illinois (pp. 4–5, pl. 12).

**Shaw, Frederick C.**

See:
- Ross, R. J., Jr., and F. C. Shaw, 1972.

**Shaw, James**


*Receptaculites sulcata* is a characteristic coral of the Lower Silurian [Ordovician] Galena Limestone of northwestern Illinois (p. 17).


*Receptaculites oweni*, a characteristic Lower Silurian [Ordovician] fossil, is less abundant in Jo Daviess County than in adjacent counties of northern Illinois (p. 37).


*Receptaculites sulcata* and *R. orbicularis* are found in the Lower Silurian [Ordovician] Galena Limestone in Stephenson County, Illinois (p. 69).


*Receptaculites sulcata* is the only abundant fossil in the Lower Silurian [Ordovician] Galena Limestone Member of the Trenton Formation in Winnebago County, Illinois (p. 88).


*Receptaculites sulcata* is characteristic of the Lower Silurian [Ordovician] Galena Limestone Member of the Trenton Formation in Boone County, Illinois (p. 99).


*Receptaculites oweni* (= *Coscinopora sulcata*) and *R. globularis* occur in the Galena Limestone Member of the [Ordovician] Trenton Limestone in Lee County, Illinois (p. 133).


*Receptaculites orbicularis* is mentioned from the [Ordovician] Galena Limestone of Whiteside County, Illinois (p. 155).

**Shearsby, A. J.**


*Receptaculites australis* Salter (?) and *Ischadites lindstroemi* Hinde occur in the Silurian Barrandella shales (Hume beds) of the Yass district, Australia (p. 115).
A calcareous red alga, *Goldsonia* n. gen. *burntensis* n. sp. [*Ischadites burntensis*] is described and illustrated from the Silurian Pike Arm Formation of northern Newfoundland (pp. 245, 247; pl. 27, figs. 2–4).


*Receptaculites* and *Ischadites*, problematic organisms related to the Porifera, are characteristic of the lower and middle Paleozoic (pp. 92–95). *Receptaculites, R. oweni*, and *Ischadites iowensis* are illustrated (p. 93, figs. 3–13–3–14).

**Shumard, Benjamin Franklin**


*Receptaculites* is found in the Lower Silurian [Ordovician] Receptaculite Limestone of Ste. Genevieve County, Missouri (p. 410).

**Siemiradzki, Josef von**


*Sphaerospongia podolica* n. sp. from the Polish Podolia is described and illustrated (p. 278; pl. 21, fig. 35). The species, based upon a single Silurian (?specimen of unknown stratigraphic position, is compared with *S. tesselata* Phillips.

**Silver, Caswell**


**Simon, Jack A.**


**Simpson, George B.**

See: Hall, J., and G. B. Simpson, 1887.
Sinclair, G. Winston


Receptaculites occidentalis is abundant in basal Trenton (?) beds at Pont Rouge, Quebec, Canada. Its occurrence suggests correlation with the Ottawa Valley Rockland (pp. 71, 74).


The sponge Receptaculites occidentalis Salter occurs in the Middle Ordovician Kirkfield Formation in central Ontario and in the Rockland and Hull Formations in the Ottawa Valley of Canada. Receptaculites occidentalis is rare in the Hull, but is abundant in the lower beds (pp. 34-35, 37).


Nomenclatural and stratigraphical errors in the Treatise on Invertebrate Paleontology (Part E. Poirera, Laubenfels, M. W. de, 1955) involving Receptaculites neptuni, Dictyocrinus, Lepidolites dickhauti, and Anomaloides reticulatus are corrected.


The presence of Receptaculites sp. near Clearwater Lake, New Quebec, indicates a Middle or Upper Ordovician (Edenian or Maysvillian) age (pp. 15-18).


Receptaculites occidentalis Salter from the "Le-ray beds" at Paquette Rapids, Ontario, is figured (pp. 40-41; pl. 4, fig. 2).

See also:


This is identical to Sinclair, G. W., 1964.

See also:

Singleton, F. A.


Two hypotypes of the sponge Receptaculites australis Salter from the Lower Devonian of Australia are housed in the Geological Museum of Melbourne University (p. 232).

Skjeseth, Steinar


Coelosphaeridium cyclocrinophilum and Mastopora sp. are found in the Coelosphaeridium shale. Cyclocrinus is found in the Cyclocrinus shale and limestone (pp. 65, 74). The Cyclocrinus and Coelosphaeridium beds in the Mjøsa district are zone 4b [Chasmospis series] or Middle Ordovician, Caradocian (p. 61).

Sloan, Robert E.

See:

Sloan, Robert E., and Malcolm P. Weiss


*Receptaculites oweni* from the Stewartville, Prosser, and Cummingsville Members and *Ischadites* and *Receptaculites* from the Cummingsville Member of the Galena Formation in southeastern Minnesota are listed (pp. 99–100, 105, 108).

**Sloss, Laurence L., and C. A. Moritz**


The Ordovician Bighorn Dolomite east of the Madison range in Montana contains *Receptaculites* (p. 2148).

**Smith, Allyn G., and Donald Francis Toomey**


A zone of abundant *Calathium* Billings, a quasisponge, occurs in the Lower Ordovician Kindblade Limestone in the Arbuckle Mountains of southern Oklahoma (pp. 5–9, 15, 24–25, 29, 41).

**Smith, J. D. D.**

See:


**Smith, Stanley**

See:

Lang, W. D., S. Smith, and H. D. Thomas, 1940.

**Smith, W. D.**

See:

Campbell, K. S. W., D. J. Holloway, and W. D. Smith, 1974.

**Smith, William C.**

See:


**Sollas, Igera B. J.**


The Receptaculitidae are believed to be early lyssacine hexactinellid sponges abundant in the Silurian and Devonian. The morphologies of *Ischadites* and *Receptaculites* are discussed and *Acanthoconia barrandei* is figured (pp. 207–208, fig. 102).

**Solms-Laubach, Hermann**


*Cyclocrinus, Receptaculites*, and allied forms may be Dasyycladeae (p. 43).

**Sougy, Jean**


A Middle Devonian *Receptaculites* cf. *neptuni* Defrance from West Africa is described and illustrated as a sponge (pp. 391, 400, 402, 448, 466; pl. 41, fig. 4).

**Spencer, Joseph William Winthrop**


*Receptaculites (?)* is found in a Devonian limestone along Dawson Bay in Lake Winnipegosis (p. 68).

**Spjeldnaes, Nils**

The dasycladacean alga *Coelosphaeridium sphaericum* (?) from the Ordovician of Gelli Grin in the Bala District of N. Wales and in Norway is compared to *C. excavatum* and *C. wesenbergense*. *Coelosphaeridium sphaericum* is a guide fossil for the shallow-water facies of the middle Caradocian.


Calcareous algae *Coelosphaeridium* from the Middle Ordovician (p. 20) and *Mastopora* from Middle Ordovician and Silurian Lower Llandovery (pp. 17, 27) are listed as calcareous algae from the Oslo region.

**Sproule, James, and Bruce M. Bell**


Receptaculitids are reported from the Middle Ordovician Bromide Formation in the Arbuckle Mountains of southern Oklahoma (p. 87).

**Sproule, John Campbell**


The sponge *Ischadites* sp. is present in the Cobourg Formation of the Ordovician Trenton Group in Ontario and New York (pp. 98, 104).

**Squires, Donald F., and Edward J. Hawkins**


**Stainbrook, Merrill A.**


*Receptaculites neptunii* Defrance is found in the Devonian Sly Gap Formation of New Mexico (pp. 785, 788) and in the Frasnian Limestone of Belgium (p. 786). *Receptaculites* sp. also occurs in the Sly Gap Formation.

**Stanton, J. M.**

Sec:


**Stanton, Timothy W.**

See:


**Stauffer, Clinton R.**


The rare *Receptaculites devonicus* is the only sponge in the Middle Devonian of Ohio (p. 187).


*Receptaculites neptunii* Defrance from the Devonian Hamilton beds of Ontario is listed as a sponge (p. 229).

See also:


**Stauffer, Clinton R., and George A. Thiel**


*Receptaculites oweni* from the Ordovician Galena Limestone of Minnesota is listed (p. 66).

The following Ordovician sponges from southeastern Minnesota are listed: *Ischadites iowensis* (or *I. cf. iowensis*) and *Receptaculites oweni* from the Stewartville, Prosser, and Decorah Shale Members of the Galena Formation; and *I. iowensis* and *Receptaculites* sp. from the Wykoff Member of the Maquoketa Formation (pp. 72, 85, 87–90, 92–93, 152–154, 160, 185, 198, 229, 231, 235).

**Steele, H. Miriam, and G. Winston Sinclair**


Ordovician *Receptaculites occidentalis* Salter is listed from Paquette Rapids in the Ottawa River, Ontario (pp. 4, 6).

**Steinmann, Gustav**

1880. Zur Kenntnis fossiler Kalkalgen (Siphonoeen). Neues Jahrbuch für Mineralogie, Geologie, und Palaeontologie, Band 2, pp. 130–140, pl. 5.

*Cyclocrinus* and *Receptaculites* are algae without Tertiary or Recent analogues (p. 138). *Cyclocrinus* has characteristic sterile branches (p. 139).


The Mastoporidae, including *Cyclocrinus* and receptaculitids, are separate from the Dasycladaceae.


The systematic position of Receptaculitidae is uncertain, but the organisms may be coelenterates. The anatomy and orientation of radials [meroms] are described. Lower Silurian [Ordovician] *Ischadites murchisoni* Eichwald, Silurian *I. koeingi* Murchison from Bohemia (figs. 214A–D), Middle Devonian *Receptaculites neptuni* Defrance from Eifel (fig. 214E) and Upper Silurian [Ordovician?]

*R. occidentalis* Salter (= *R. orbis* Eichwald) are listed.

**Stelck, Charles Richard**

See:


**Stensaas, L. J.**

See:


**Stephenson, John P.**


An Ordovician ajacicyathid (?) pleospone [a receptaculitid] is found in the Lenoir Limestone in Knox County, Tennessee.

**Stephenson, John P., Kenneth R. Walker, and R. E. McLaughlin**


An archaeocyathid-like pleospone [*Calathium* sp.], which is described and figured, and *Receptaculites* sp. are found in the Middle Ordovician Lenoir Limestone in Knox County, Tennessee (p. 123, figs. 6F–G).

**Stevens, Richard P.**


A new species of *Receptaculites* unlike *R. occidentalis* Salter or the species from the Galena Limestone is present in Lower Silurian [Ordovician] rocks at Frobisher Bay in the Canadian Arctic.

See also:

Stevens, R. P., 1865.

1865. Appendix 10. Mineralogical and geolog-

This is identical to Stevens, R. P., 1863, except for pagination.

Stevenson, Frank V.


Receptaculites n. sp. is tentatively identified from the Devonian Sly Gap Formation near Hot Springs, New Mexico (p. 237).

Stieglitz, R. D.

See:


Stirton, Ruben Arthur


Ordovician to Devonian Receptaculitida are spongelike fossils of uncertain systematic status (p. 122). Late Ordovician Receptaculites oweni is figured (fig. 98h on p. 177).

See also:


This is identical to Stirton, R. A., 1959.

Stoeklin, Jovan, J. Eftekhar-Nezhad, and A. Hushmand-Zadeh


Receptaculites sp. and R. neptuni are listed from the Lower Upper Devonian Shistu Formation and the “Cephalopod Beds” of East Iran (pp. 12–13).

Stolley, Ernst


The following are listed from various [Ordovician] stratigraphic erratics from Schleswig-Holstein: Coelosphaeridium, C. conwentzianum, C. cyclocrinophylum, Cyclocrinus, C. aff. spasskii, Ischadites, Mastopora, M. conaca, M. sp., PASCEO- 


The Silurian [Siluro-Ordovician] dasycladaceans algae Coelosphaeridium, Cyclocrinus and Masto- pora are described from Estonia and from the err- ratic boulders of the southern shores of the Baltic Sea (pp. 175–177).


1897. Die silurischen Algenfacies und ihre Ver-

The distribution of Ordovician and Silurian algal limestones in the Baltic Sea region, including those containing Cyclocrinus, Coelosphaeridium, and Mastopora, is discussed (pp. 110–114).


Coelosphaeridium cyclocrinophilum: Roemer, C. excava.tum n. sp., C. wesenbergenae n. sp., Cyclocrinus balticus n. sp., C. schmidtii n. sp., C. mickwitzi n. sp., C. roemer Stolley, C. spasskii Eichwald, C. porosus Stolley, C. eolandicus n. sp., C. vanhoeffeni n. sp., and Mastopora odini n. sp. are described, and all but Cyclocrinus porosus are figured. The following are mentioned: Cyclocrinus sp., C. planus, C. pyriformis, C. multicaudus, C. subtilis, C. aff. spasskii, C. membranaceus, C. porosus var. kiesowi, C. porosus var. ornata, Mastopora sp., M. concava, M. fava, Apidium krausei, A. sororis, A. pygmaeum, Coelosphaeridium sp., and Cyclocrinophilum var. convenziana.

Stoley, Hilda M. M.


Calathella dictyonemoides n. sp., an alga from the Upper Permian Magnesian Limestone series in northern England is described. C. krauselj Flörin from the Permian Upper Zechstein at Frankenberg and Saxony, Germany, is listed and compared with C. dictyonemoides (pp. 301, 305, 307–310, text-figs. 1–2, pl. 36, fig. 4). [This is not Calathella, nor a receptaculitid.]

Størmer, Leif


The following Norwegian calcareous algae are listed from the [Middle Ordovician] Chasmons shale (4b): Cyclocrinus from Hadeland and Mjosa, Coelosphaeridium from Hadeland, and Mastopora concava (pp. 390, 392–394).


The following Middle Ordovician calcareous algae are found in the Mastopora-Coelosphaeridium or Coelosphaeridium-Cyclocrinus zones, Oslo Region, Norway: Cyclocrinus sp., C. schmidtii, Mastopora sp., M. concava, Coelosphaeridium sp., and Cyclocrinophilum (pp. 74–75, 81, 90–92, 95–97, 103–104, 110–111, 125–126, 136). Coelosphaeridium sp. is figured (text-fig. 9).


Coelosphaeridium cyclocrinophilum and Mastopora concava are figured from the Middle Ordovician Zone 4b (p. 26, figs. 7.8, 7.14).

See also:
Størmer, L., 1957.


This is an English version of Størmer, L., 1955.

See:
Heintz, A., and L. Størmer, [1937?].

Stose, George W.


The following occur in the Chambersburg Quadrangle of southern Pennsylvania: Ordovician Calathium sp. from the lower Beekmantown Limestone, and Receptaculites cf. occidentalis Salter.
and *Nidulites cf. favus* from the Chambersburg Limestone (pp. 707, 711–712).


The following occur in the Ordovician of the Chambersburg Quadrangle of Pennsylvania: *Nidulites favus* from the *Nidulites* bed, *Receptaculites cf. occidentalis* from the Chambersburg Limestone, and *Calathium* sp. from the Beekmantown Limestone.

**Stovall, John W., and Howard E. Brown**


*Receptaculites oweni* Hall is illustrated as a sponge.

**Stricker, Gary Dale, and Albert V. Carozzi**


*Receptaculites* sp. and a *Calathium* bioherm are present in the Ordovician Pogonip Group of the Arrow Canyon Range in Nevada (pp. 505, 511).

**Stromer, Ernst Freiherr von Reichenbach**


Lower Silurian [Ordovician] to Carboniferous *Receptaculida* from Europe and North America, although considered problematic coelenterates or calcareous algae, are described and placed among ctenophorans (pp. 95, 98, 105). Devonian *Sphaerospongia tesselata* Phillips from Winnipegosis, Canada, Middle Devonian *Receptaculites neptuni* Defr. from Eifel [Germany], and Middle Devonian *Polygonosphaerites tesselatus* Phillips from Nassau [Germany] are figured (text-figs. 125–127).

**Strong, Moses**


The "lead coral" *Receptaculites oweni* is characteristic of the [Ordovician] Galena Limestone in the lead region of Wisconsin (pp. 684–685).


The "lead coral" *Receptaculites* is found along the Little Kickapoo River in Wisconsin (pp. 76, 81).

**Suchomel, Diane M.**


**Sushkin, M. A.**

1958. Novye dannye o receptakulitah Silura i Devon. [New data on Silurian and Devonian receptaculitids.] Vesosoyuzny Nauchno-Issel’datel’skii Geologorazvedochnyi Nefteyanoi Institut (VNIGNI), Trudy, Tom 9, pp. 3–18, 6 pls., 3 text-figs.

The morphology, skeletal reconstruction, and systematics of receptaculitids are discussed. *Receptaculitidae* Eichwald 1860 is placed in the new class *Squamiferida* of *Porifera incerta sedis. Receptaculites* Defrance and *Ischadites* Murchison are discussed. Devonian *R. neptuni* Defrance, *R. kukkulensis* n. sp., *Receptaculites* sp., *I. sukurensis* n. sp., *I. uralica* n. sp., and *Ischadites* sp. from Ural are described and illustrated. Ordovician *I. rectus* Rauff from Estonia is figured.


*Receptaculites* Defrance and *Ischadites* Murchison are described (p. 83). The following are placed in phylum *Porifera incerta sedis*, class *Squamiferida*, new order *Receptaculitidae*, family *Receptaculitidae: Receptaculites* Defrance 1827, *Ischadites* Murchison 1839 (*Tetragonis* Eichwald 1842), *Acanthochonia* Hinde 1884, *Sphaerospon-
gia Pengelly 1861 (= Sphaeronites Phillips 1841), Ceritonites Meek and Worthen 1868, Dictyocrinus Hall 1859 (= Dictyocrinites Hall 1859), Lepidolites Ulrich 1889, Nidulites Salter 1851, Anomaloides Ulrich 1878, and Pasceolus Billings 1857. Receptaculites neptuni Defrance, R. kukkanulensis Sushkin, and Ischadites sukurensis Sushkin are illustrated (figs. 121–124; pl. 9, figs. 9–10).

See also:


This is an English translation of Sushkin, M. A., 1962.

Swann, D. H.

See:

Swartz, Frank M.


The alga or sponge Nidulites is present in the Ordovician, Black River Chambersburg Limestone in the Hagerstown-Chambersburg region of Maryland and Pennsylvania (p. 1578).

Sweet, Walter C.


Receptaculites cf. arcticus Etheridge is widespread in the Ordovician Fremont Formation of central Colorado (pp. 294–295, 300–301).


Receptaculites is found in the Ordovician Fremont Formation in central Colorado (p. 72).


Receptaculites is found in the lower Massive Dolomite Member of the Middle to Upper Ordovician Fremont Formation in Fremont County, Colorado (p. 19).

Sweet, Walter C., and Arthur K. Miller


Concentrations of Receptaculites arcticus Etheridge are found in the Middle or Upper Ordovician Cornwallis Formation on southwestern Cornwallis Island (p. 7).

Szulczewski, Michał

See:

Taff, Joseph A.


Two Calathium spp. undet. from the Ordovician Arbuckle Limestone and Receptaculites n. sp. from the upper part of the Ordovician Simpson Formation are reported from the Indian Territory [Oklahoma].

1904. Preliminary report on the geology of the Arbuckle and Wichita Mountains in Indian Territory and Oklahoma. United States Geo-
logical Survey Professional Paper 31, 97 pp., 8 pls., 1 text-fig.

Two Calathium spp. from the Cambro-Ordovician upper Arbuckle Limestone and Receptaculites n. sp. from the Ordovician upper Simpson Formation are found in the Arbuckle Mountains of Oklahoma (pp. 22, 25).

Talent, John A.


An unnamed new genus of the family Receptaculitidae from the Devonian (?) Wentworth Group in eastern Victoria, Australia, is described and illustrated. The genus is distinct from Receptaculites and Sphaerospongia. Receptaculites australis Salter is mentioned. Family Receptaculitidae are part of an uncertain class of sponges (pp. 37–38; pl. 10, figs. 7–9).

Tappan, Helen


The Receptaculitales, a problematic order of green algae, are described (pp. 852–859) and their classification given (pp. 891–892). The following taxa are described (pp. 852–859) and figured (figs. 10.41–10.47): Ischadites sp. and Receptaculites sp.; Ordovician Tetragonis orbis Eichwald, Ischadites murchisoni Eichwald, and Cyclocrinus porosus Stolley from Germany; Silurian Acanthochonia barrandi Hinde from Czechoslovakia, Calathium egerodae Nitecki from Illinois, Amphispongia oblonga Salter from Scotland, and Ischadites hemisphericus from Ohio; and Devonian Receptaculites neptuni Defrance from Germany.

Taylor, Alfred R.


Ischadites, Receptaculites, and R. oweni Hall are found in the Prosser Member of the Ordovician Galena Dolomite. Receptaculites oweni is common in the Stewartville Member (pp. 301–302, pl. 21).

Teall, J. J. H.

See: Peach, B. N., and others, 1907.

Teichert, Curt


Receptaculites occurs in the Ordovician Receptaculites limestone of Koch (1929) in Washington Land, North Greenland (p. 25).


Ordovician Receptaculites sp. and R. cf. occidentalis Salter from Melville Peninsula (pp. 14–15, 17, 34, 36), R. cf. occidentalis from Iglulik Island (pp. 13, 18, 34, 36), R. neptuni, R. oweni, R. cf. oweni, and Receptaculites sp. from King William Land (pp. 23, 26), and Receptaculites sp. from Cockburn Land (p. 21) are listed. Ordovician R. cf. occidentalis Salter from Melville Peninsula is described and illustrated as a sponge and is compared with R. arcticus. Receptaculites oweni, R. occidentale [sic], and R. occidentalis are mentioned (pp. 48–49; pl. 1, figs. 1, 4–5). Silurian Receptaculites sp. from King William Land is described and illustrated as a sponge (pp. 122–123; pl. 1, figs. 2, 3, 6).


Receptaculites and Sphaerospongia cf. tessellata are found in Middle Devonian reef formations in western Australia (pp. 78, 81, 92, 170). Sphaerospongia was previously known only from the upper Middle Devonian Stringocephalus limestone of Germany and Manitoba. Receptaculites also occurs in the Upper Devonian of western Australia (pp. 84, 86).

Teller, Edgar E.

The types of *Receptaculites fungosus* Hall, *R. globularis* Hall, *R. hemisphericus* Hall, *R. infundibulum* Hall, and *R. oweni* Hall are from Wisconsin. The latter three sponges are in the American Museum of Natural History (p. 187).

**Templeton, Justus Stevens, Jr.**


A sponge, *Receptaculites oweni* Hall, is listed from the Prosser and Stewartville (members) of the Galena Formation in LaSalle and Morris Quadrangles.

**Templeton, Justus Stevens, Jr., and Harold Bowen Willman**


*Receptaculites* is found in the Ordovician Galena Group in central northern Illinois (pp. 10, 22, 24, 32, 36). *Receptaculites oweni* is abundant in the basal Sherwood and Rivoli Members of the Dunleith Formation in the type section at East Dubuque.


The sponge *Receptaculites oweni* is ubiquitous in the Ordovician Dunleith and Wise Lake (= Ion, Prosser, and Stewartville) Formations of the Kimmiswick subgroup (Galena Group) of the upper Mississippi Valley; it also occurs in the Guttenberg and Cobourg Formations of Minnesota and New York, respectively. *Receptaculites* zones occur in the Fairplay, Rivoli, and Sherwood Members of the Dunleith Formation and in the Stewartville Member of the Wise Lake Formation. *Ichadites iowensis* occurs below the Wise Lake-Dubuque and Steuben-Hillier contacts (pp. 40, 97–98, 156–157, 238–240).

**Termier, Geneviève**

See:


**Termier, Geneviève, and Henri Termier**


*Receptaculites* sp. from an unknown level at Remaha, Morocco, is listed and illustrated as a siliceous sponge. The specimen is similar to *Receptaculites oweni* Hall from the Trenton Limestone (pp. 53, 124; pl. 7, fig. 19).


Radiocysthids, which have developed from prokaryotes, and receptaculitids, which are placed with stromatolites, are sponges (pp. 515–517, tables 1–2).

**Termier, Henri**

See:


**Termier, Henri, and Geneviève Termier**


The Ordovician archaeocyathid (?) *Soanites bimuralis* Miagkova (p. 26) from Siberia and *Receptaculites occidentalis* from Montreal are figured (figs. 34–35, 41). Receptaculitids are described, and *Ichadites* and *Receptaculites* are mentioned.


*Receptaculites* is a monoblastic organism from the Ordovician Lower Trenton (Ordovicien XII)
in Canada near Montreal and in southern Quebec (pp. 99, 110).

Terry, Owen W., and Francis C. Lincoln


A “lower Receptaculites zone” occurs [in the Middle Ordovician Galena Formation] in the Wisconsin zinc-lead district (fig. 2).

Thein, Myint Lwin


Receptaculites is a typical Ordovician fossil in the Wunby Formation of the Pindaya Group in the Southern Shan State, Burma (pp. 149, 155).

Thiel, George A.

See:

Thiel, George A., and Clinton R. Stauffer


Ordovician Receptaculites oweni is listed from the Prosser Member of the Galena Limestone in Minnesota.

Thomas, Abram Owen


Cerionites dactyloides [sic] occurs in the Silurian of Iowa. Receptaculites oweni Hall and Ischadites iowensis (Owen) are found in the Ordovician Galena Dolomite of Iowa (p. 85). Fragments resembling R. occidentalis Salter are found in the Silurian (p. 85).

Thomas, Henry Dighton

See:
Lang, W. D., S. Smith, and H. D. Thomas, 1940.

Thompson, Marcus Luther

See:

Thorslund, Per

1936. Siljansomraadets braennkalkstenar och kalkindustri. Sveriges Geologiska Undersokning, serie C, number 398, aarsbok 30, no. 5, 64 pp., 2 pls., 2 maps, 29 text-figs. & tables.

The following are listed from Siljan, central Sweden: calcareous algae Mastopora concava Eichw. from the Ordovician Kullsbergkalk, Apidium sororis Stoll. from Ordovician-Silurian Bodakalk, and Cyclocrinites-like fossil from both limestones; and the sponge Receptaculites from the Ordovician-Silurian Bodakalk (p. 25).

Thorsteinsson, Raymond


Receptaculites sp. on Little Cornwallis Island and R. arcticus Etheridge on Cornwallis Island are components of the Arctic Ordovician fauna, which characterizes the upper 500 ft. of the Middle Ordovician (Edenian and/or Maysvillian) Cornwallis Formation. Receptaculites arcticus is also found in the Ordovician of Silliman’s Mount on Baffin Island and in the Cape Calhoun Formation of Greenland (pp. 36, 39, 41–42). Ischadites sp. is present in member A of the Silurian Read Bay Formation on Cornwallis Island (p. 49).


Receptaculites arcticus Etheridge is found in the Late Ordovician to Middle Silurian Allen Bay For-
mation of southern Cornwallis Island in the Northwest Territories (p. 7).


Receptaculites from the Arctic Ordovician fauna is found in the Middle Ordovician Crocker Bay Formation at Dundas Harbour on Devon Island, Northwest Territories, and in the upper Cornwallis Formation of Cornwallis Island (pp. 33, 39).


A receptaculitid sponge is found in the Ordovician Cornwallis Formation of the northern Grinnell Peninsula, Devon Island (p. 253).


Receptaculites sp. occurs in the Arctic Ordovician fauna of the upper part of the Middle Ordovician Cornwallis Formation at Parrish Glacier on southern Ellesmere Island, Northwest Territories (p. 393).

See:

Thorsteinsson, Raymond, and Brian F. Glenister

Receptaculites is found in the upper 100 feet of the Ordovician Cornwallis Formation on the east central coast of Bathurst Island (p. 588).

Thorsteinsson, Raymond, and Edward T. Tozer

Receptaculites sp. is part of the Arctic Ordovician fauna along the east coast of Victoria Island in the Canadian Arctic (pp. 42, 44).


Receptaculites is part of the Arctic Ordovician fauna, possibly from the Cornwallis Formation on Somerset Island in Arctic Canada (p. 118).


Barneveld Ordovician Receptaculites is listed from the Thumb Mountain Formation of the Cornwallis Group in the Canadian Arctic (p. 557).

Ting, T. H.

The Calciferous sponge Calathium Billings from Newfoundland is described and compared with archaeocyathids (p. 351).

Toghill, Peter
See:

Tolmachoff, Innocentii Pavlovich
1926. On the fossil faunas from Per Schei’s Series D from Ellesmere Land with exception of brachiopods, corals, and cephalopods. Report of the Second Norwegian Arctic Expedition in the “Fram” 1898–1902, no. 38. Pub-
lished by Det Norske Videnskaps-Akademi
Oslo (Videnskapselskapet i Kristiania). A. W.
Brogers Boktrykkeri A/S, Oslo, Kristiania,
106 pp., 8 pls.

*Ischadites polaris* n. sp. from the Devonian Db
horizon of Ostre Borgen, Ellesmere Land, is
described and illustrated. It consists of one fragment
and is compared with *Receptaculites neptuni* (pp.
12, 16, 83–84, 91, 106; pl. 8, figs. 15–16).

Tomlinson, Charles Weldon
1917. The Middle Paleozoic stratigraphy of the
central Rocky Mountain region. Part 1. Jour-
nal of Geology, vol. 25, no. 2, pp. 112–134,
5 text-figs.

*Receptaculites oweni* Hall is listed from the Mid-
dle Ordovician Bighorn Formation in Montana
and Wyoming (p. 130).

Toomey, Donald Francis
1964. Ellenburger (Lower Ordovician) sponge
beds of central Texas. Tulsa Geological So-
ciety Digest, vol. 32, pp. 98–111, 3 pls., 2 text-
figs.

The distribution of Calathium in the Ellenbur-
ger Group in central Texas is documented (pp. 99–
102, 104–106). Calathium is probably more closely
allied to the archaeocyathids or receptaculitids than
to the true sponges, perhaps representing a con-
necting link between these two groups.

1967. Additional occurrences and extension of
stratigraphic range of the problematical mi-
cro-organism Nuia. Journal of Paleontology,
vol. 41, no. 6, pp. 1457–1460, pl. 185.

Spongelike *Receptaculites* Blainville is abundant
in biostromal layers of the Middle Ordovician
Bromeide Formation in southern Oklahoma (p.
1458). Calathium is common in North American
Lower Ordovician carbonate mounds (p. 1457).

1970. An unhurried look at a Lower Ordovician
mound horizon, southern Franklin Moun-
tains, West Texas. Journal of Sedimentary
Petrology, vol. 40, no. 4, pp. 1318–1334, 15
text-figs., 2 tables.

*Calathium*, a quasi-sponge, is a dominant
framebuilder of the biotic mounds in the Lower
Ordovician El Paso Group of the southern Frank-
lin Mountains, West Texas (pp. 1321–1326, 1329–
1330, 1332, figs. 6, 10).

in West Texas and Southeastern New Mexico.
Guidebook No. 1, 188 pp., 137 figs. Cities
Service Company. Energy Resources Group,
Southwest Region, Midland, Texas.

A silicified receptaculitid alga, *Calathium*, is
listed (pp. 49–50, 52, 60 and in fig. 27) from the
Lower Ordovician José Formation and Mc-
Kelligon Canyon Formation in the Franklin
Mountains of West Texas, and is figured from
McKelligon Canyon in West Texas (figs. 31C, 33B,
38K).

1980. Distribution of Lower Ordovician Cera-
topea (gastropod opercula) in the Kindblade
Formation, Wichita Mountains, south-
western Oklahoma. Oklahoma Geology Notes,
vol. 40, no. 1, pp. 19–29, 4 text-figs.

The receptaculitid alga *Calathium* occurs in the
Lower Ordovician Kindblade Formation in the
Wichita Mountains of southwestern Oklahoma (pp.
24, 27–28).

See also:
Ham, W. E., and D. F. Toomey, 1966 and
1968.
Nitecki, M. H., and D. F. Toomey, 1979a and
1979b.

Toomey, Donald Francis, and William E. Ham
1967. *Pulchrilamina*, a new mound-building or-
ganism from Lower Ordovician rocks of
West Texas and southern Oklahoma. Journal
of Paleontology, vol. 41, no. 4, pp. 981–987,
pls. 127–128, 2 text-figs.

The quasi-sponge *Calathium*, together with *Ar-
chaeoscyphia* and *Pulchrilamina* form reef-like
mounds in the Lower Ordovician El Paso Group
of Texas and in the Arbuckle Group of Okla-
home.

Toomey, Donald Francis, and Jerome J. C. Ingels
1964. Reported Silurian occurrence of *Calat-
thium* from the Thornton Reef, Illinois: a cor-

FIELDIANA: GEOLOGY
Toomey, Donald Francis, and Karl W. Klement

The quasi-sponge Calathium sp. is a primary mound builder in the Lower Ordovician El Paso Group of West Texas (p. 1310).

Toomey, Donald Francis, and David V. LeMone

Calathium Billings, a problematical organism that may be a dasycladaceous alga, is one of three dominant framework builders in carbonate mounds of Lower Ordovician horizons in southern Oklahoma, West Texas, and southern New Mexico. These horizons include the El Paso Group (McKelligon Canyon Formation) and Arbuckle Group (pp. 352, 356). The Upper Ordovician Upham Dolomite of the Montoya Group in West Texas contains abundant Receptaculites, also a possible dasycladaceous alga (p. 358).

Toomey, Donald Francis, and Matthew H. Nitecki

The receptaculitid alga Calathium is figured from numerous Texas and Oklahoma localities. Although Calathium Billings 1856 from Newfoundland differs from Calathium in the Ordovician buildups in Texas and Oklahoma, the name Calathium is tentatively retained for both.

Tozer, Edward T.

Receptaculites cf. arcticus Etheridge is listed from the upper part of the Ordovician Cornwallis Formation on western Ellesmere Island (p. 374, columnar sect. 42).

See also:

Trettin, Hans Peter

Early Late Ordovician or slightly older Receptaculites cf. arcticus Etheridge is listed from northern Baffin Island (p. 17).


Receptaculites occurs in zone Ib and R. cf. arcticus Etheridge in zone Ic of the Ordovician Brodeur Group on northwestern Baffin Island (pp. 164–165).


Receptaculites and R. cf. arcticus Etheridge from the Arctic Ordovician fauna are found in member B of the early Late Ordovician and slightly older Baillarge Formation of the Brodeur Group, northwestern Baffin Island (pp. 29, 35, 50).


Receptaculites sp. from the Richmond Ordovician Zebra Cliffs Formation and Receptaculites (?) sp. from the Silurian or Ordovician (?) Marvin Formation are listed (pp. 32, 41–42).

Receptaculites, R. cf. arcticus Etheridge, and cyclocrinitids are reported as algae from the upper Middle and/or Upper Ordovician on the Melville Peninsula and Baffin Island (pp. 20, 23, 39, 43, 49, 51, 53, 56-58, 63, 69, 78, 83; text-figs. 13-15; table 1, pp. 131-136; table 2, pp. 137-141). Cyclocrinitids are figured (pls. 33-35).

Trice, E. L.

See:

Troedsson, Gustaf T.


Receptaculites oweni Hall and R. pearyi Whitfield are listed from the Ordovician of the Arctic Archipelago (pp. 9-10). Receptaculites is mentioned from the Gonioceras Bay Formation ("Receptaculites limestone") (p. 12).

See also:
Troedsson, G. T., 1926b.


This is identical to Troedsson, G. T., 1926a.


The morphology, systematic position, and Arctic distribution of Receptaculites are discussed (pp. 140-143, 151, 155, 157-160, 162-163, 165, 167, 169, 171). Receptaculites, Ischadites, Leptopoterion, and Polygonosphaerites are sponges of uncertain taxonomic position. Receptaculites arcticus, R. pearyi, R. occidentalis, and R. oweni from Grinnell Land are tentatively assigned to R. arcticus Etheridge, which is described and figured (pp. 143-145; pl. 48; pl. 49, figs. 1-5; pl. 50, figs. 1-3). Ischadites sp. and the calcareous algae Cyclocrinites Eichwald (= Pasceolus Billings), C. cf. darwini Miller, and C. cf. claudiei Miller are described and figured from the Ordovician Cape Calhoun beds of northern Greenland (pp. 145-147; pl. 50, figs. 4-5; pl. 51, figs. 1-4). Receptaculites neptuni, R. occidentale, R. orbis, Cyclocrinites schmidtii, C. oelandicus, C. spasski, C. pyriformis, Pasceolus halli, P. darwini, P. globosus, P. claudiei, P. tumidus, P. camdenensis, and the Receptaculites limestone (or Gonioceras Bay Series) are discussed (pp. 140-145, 156-157).

See also:
Troedsson, G. T., 1928b.


This is identical to Troedsson, G. T., 1928a.

Troelsen, Johannes Christian


Receptaculites arcticus Etheridge from the head of Bay Fjord in central Ellesmere Island and Receptaculites from the Gonioceras Bay Formation (= Receptaculites Limestone of Koch) and from the Ordovician Cape Calhoun Formation of northwest Greenland are listed (pp. 53-55, 58).


Receptaculites in Greenland is common in the Ordovician Cape Calhoun Limestone (p. 15) and in Middle-Upper Ordovician Troedsson Cliff Formation (p. 88); R. arcticus Etheridge is common in Middle Ordovician Gonioceras Bay Limestone (p. 38). Receptaculites Limestone is now divided into Cape Calhoun Limestone (p. 15),

FIELDIANA: GEOLOGY
Gonioceras Bay Limestone (pp. 38, 76), and Troedsson Cliff Formation (pp. 15, 76).

See also:
Peel, J. S., P. R. Dawes, and J. C. Troelsen, 1974.

Trowbridge, Arthur C. (ed.)

Zones of Receptaculites oweni Hall occur in the Prosser Limestone and basal Stewartville Dolomite of the Ordovician, Trenton Galena Group throughout the upper Mississippi Valley (pp. 59–60, 72, 78, 428, 456).

Trowbridge, Arthur C.

Trowbridge, Arthur C., and Eugene Wesley Shaw

Receptaculites oweni, a supposed sponge, is illustrated (pl. 5, figs. 8–9). Zones of R. oweni are good horizon markers for the Ordovician Galena Formation (pp. 40–41, 48–49, 51–52, 55, 71).

Tsчернышев, Thomas
See: Chernuishev, T. N., 1893.

Tufford, Sarah, and Rudolph Hogberg

Problematic sponges Ischadites and Receptaculites from the Ordovician Galena Formation of southeastern Minnesota are illustrated (pp. 4, 7–8).

Tulloch, W.

Twenhofel, William Henry

The following are from Anticosti Island, Quebec: Cyclocrinites halli and Ischadites (?) insularis from the Ordovician Ellis Bay Formation, Cyclocrinites halli from the Silurian Becscie River Formation and Cyclocrininitis [sic] gregarius, C. intermedius, and Ischadites koenigi from the Silurian Gun River Formation (pp. 9, 12–13).


Cyclocrinites spasski (?) Eichwald is listed from the Ordovician Lyckholm Formation of Estonia (pp. 299, 305–306).


The siphonous algae (?) Cyclocrinites Eichwald, Ordovician C. halli (Billings), and Silurian C. gregarius (Billings) and C. intermedius (Billings) are described, and C. intermedius is figured (pp. 100–102; pl. 1, fig. 10). Ischadites (?) insularis (Billings) and I. cf. koenigi Murchison are described as sponges, and the former is figured (pp. 102–103; pl. 1, fig. 9). All are from Anticosti Island, Quebec.


Ischadites rhomboideus n. sp. is described and figured (pp. 36–37; pl. 6, fig. 4). The original descriptions of Nipterella paradoxica (Billings), Receptaculites calciferus Billings, and Receptaculites (?) elegantulus (Billings) are given (pp. 37–38). Hinde's assignment of Nipterella to sponges is questioned. All are sponges from the Mingan and Romaine Formations of the Mingan Islands, Quebec (p. 30).

Receptaculites pedunculatus n. sp. from the Silurian Racine Formation or coral beds of eastern Wisconsin is described and figured. Receptaculites hemisphericus Hall and R. tessellatus Winchell and Marcy are known from the Silurian of Wisconsin.

Twenhofel, William Henry (Chairman, Ordovician Subcommittee of the Committee on Stratigraphy, National Research Council)


The following Ordovician fossils are listed and their distributions given: Nidulites pyriformis, Calathium, Receptaculites, R. arcticus, R. mammillaris, R. biconstrictus, R. oweni, and Nidulites (pp. 265, 270, 272, 276–277, 286).

Twenhofel, William Henry

See:

Twenhofel, William Henry, and Robert R. Shrock


Lower and Middle Paleozoic Receptaculites and Ischadites are sponges (?) of uncertain biologic affinities (pp. 66, 70). Middle Ordovician R. oweni from Illinois and I. iowensis from Iowa are figured (p. 67, text-fig. 67). Paleozoic Cyclocrinites, Nidulites, and Pasceolus are probably algae rather than sponges (p. 68).

Tynan, Eugene J.

See:

Tyrrell, Joseph Burr


The Middle Devonian protozoan Sphaerospon-

gia tessellata Phillips, found along Dawson Bay and Lake Manitoba, is characteristic of the Strin-
gocephalus zone of the Winnipegosan Formation (pp. 173–175, 179–180, 185–186, 197, 205).


Receptaculites oweni Hall from Cambro-Silurian boulders on the banks of the Big River in Canada is listed (p. 19).


Receptaculites oweni Hall is listed from Trenton-age [Ordovician] boulders along the eastern shore of Sturgeon Lake on the northwest coast of Hudson Bay (p. 101).

1902. Report on explorations in the northeastern portion of the District of Saskatchewan and adjacent parts of the District of Kee-

The Middle Devonian protozoan Sphaerospon-

Ulrich, Edward O.

1878. Descriptions of some new species of fos-

Anomaloides n. gen. reticulatus n. sp. from the [Ordovician] Cincinnati Group at Covington, Kentucky, is described and illustrated as an echi-

1879. Descriptions of new genera and species of fossils from the Lower Silurian about Cin-

*Lepidolites* n. gen., *L. dickhauti* n. sp., and *L. elongatus* n. sp. are described and illustrated from the [Upper Ordovician] Hudson River Group near Covington, Kentucky (pp. 20–22; pl. 7, figs. 16–17). *Lepidolites*, although similar to *Pasceolus*, belongs to a new family or order.


*Leptopoterion* n. gen. *mammiferum* n. sp. [a receptaculitid] is described from the Lower Silurian [Ordovician] Cincinnati Group (p. 239).


*Calathium canadense* Billings and *C. infelix* Ulrich and Everett may be the nearest relatives of a new sponge genus, *Syringophyllum* (p. 250).


*Anomalospongia* n. gen. (= *Anomaloides*) reticulata from Covington, Kentucky, is described and illustrated as a sponge. A new, unnamed order is proposed to include *Anomalospongia, Amphipospongia*, and Receptaculitidae.


This is identical to Ulrich, E. O., 1893.


The following are listed: *Receptaculitidae* oewi from the Ordovician Kimmswick Limestone in the vicinity of Thebes, Illinois, and Cape Girardeau, Missouri (pp. 309–310); *Calathium* from the Ceratopea zone in the Witchita Mountain section of southwestern Oklahoma (p. 667); and *Nidulites favor* from Pennsylvania, Tennessee, and Kentucky (pp. 327, 329, 515). *Nidulites* zones are stratigraphic markers in the Chambersburg Limestone of southern Pennsylvania (pp. 322, 324–328).

See also:
Anonymous, 1888c.
Ulrich, Edward O., and Oliver Everett


Caltharium (?) (? Zitteellia) infelix Ulrich and Everett [sponge] from the Trenton Limestone of Dixon, Illinois, is described and figured (pp. 274–275; pl. 5, figs. 1, 1a).

Unfer, Louis, Jr., and George H. Fraunfelter (eds.)


Receptaculites oweni from the Ordovician Kimmswick Limestone in southeastern Missouri is listed (pp. 13, 18).

Unklesbay, Athel Glyde


Receptaculites, an index fossil for the Ordovician Kimmswick Formation in Missouri, is listed and illustrated as a sponge (?) (pp. 30–31; pl. 1, fig. 2).

Upham, Warren


Receptaculites is found in the glacial drift in Cottonwood County, Minnesota (p. 510).

Uyeno, T. T.

See:

Vachard, Daniel

See:

Van Cleve, John W.


A description and illustration of the coral Coscinopora sulcata Goldfuss from the lead region in Iowa is claimed to be ready for publication in Van Cleve's "Fossil zoophytes of western Ohio, with a few additions from other western localities" [never published].

Van Lieu, J. A.

See:

Van Tuyl, Francis M.

See:
Savage, T. E., and F. M. Van Tuyl, 1919.

Varfolomeev, P. N.

See:

Verneuil, Édouard de [Phillippe Édouard Pouletier de Verneuil]

See:
Archiac, [E. J. A. D.], and É. de Verneuil, 1842.
Murchison, R. I., É. de Verneuil, and A. de Keyserling, 1845.

Verniory, René


Receptaculitids are dictyonine hexactinellid sponges (p. 36).

Verrill, Addison Emory


Pascieolus halli Billings from Anticosti Island, Quebec, is a cystidean, rather than an ascidian as suggested by Billings.
Vigrass, Laurence W.


Receptaculites is found in the basin margin facies of the Middle Ordovician Winnipeg Formation in Manitoba and Saskatchewan (p. 232).

Vlasov, A. N.


Class Receptaculitida is described, and Sushkin's 1955 figure is reproduced.

Vogeltanz, Rudolf


Receptaculites neptuni (Defrance) from a Devonian oolitic limestone in Owir An, West Pakistan, is described and illustrated.

Vogeltanz, Rudolf, and M. A. Diemberger-Sironi


Receptaculites neptuni from the Upper Devonian of the Chitral region of Pakistan is mentioned.

Voigt, Ehrhard

See:


Vokes, Harold E.


Spongelike Nidulites pyriformis of uncertain biologic affinities is figured from the Middle Ordovician Chambersburg Limestone of Maryland (pp. 78, 194; pl. 2, figs. 7–8, after Bassler, 1919).

Vologdin, Aleksandr Grigorevich


Coelosphaeridium, Cyclocrinus, Mastopora, and Apidium are listed as Paleozoic Dasycladacea (p. 58).

Vologdin, Aleksandr Grigorevich, and A. B. Maslov


Suvorovellidae n. fam. and Suvorovella n. gen. and Majaella n. gen. of uncertain taxonomic position may have given rise to certain receptaculitids.

See also:


This is an English translation of Vologdin, A. G., and A. B. Maslov, 1960.

Vosmaer, G. C. J.


The family Receptaculitidae (suborder Lyssakina) consists of: Ischadites Murchison (= Tetragonis Eichwald = Zamia), Sphaerospongia Pen- gelly (= Sphaeronites Phillips = Pasceolus Kayser = Polygonosphaerites Roemer = Protocrinites = Echinospaerites), Acanthochonia Hinde, and Re-

NITECKI ET AL.: RECEPTACULITID ALGAE
ceptaculites Defrance (pp. 275, 405). Ischadites konigii Murchison is figured (pl. 25, figs. 4–5) and Sphaerospongia is redescribed (pp. 228, 231). The following are listed: Cyclocrinites Eichwald, Cyclocrinus Eichwald, Amphiscopnia Salter, Calathium Billings, and Pasceolus Billings (pp. 258, 393, 400).

Waines, R. H.

See:

Walcott, Charles D.

Receptaculites mammillaris n. sp. Newberry MS (pl. 11, fig. 11), R. elongatus n. sp. and R. ellipticus n. sp. (pl. 11, fig. 12) from the upper part of the Lower Silurian [Ordovician] Pogonip Group in the Eureka district and other parts of Nevada are described. Receptaculites fungosum, R. infundibulus, R. insularis, R. jonesi, R. neptuni, and Ischadites tessellatus are rhizopods (pp. 4, 65–67).

Lower Silurian [Ordovician] Receptaculites, including R. mammillaris, are found in the Upper Cambrian [Ordovician] Pogonip Limestone of the Eureka district, Nevada (pp. 316–317).

Ordovician rhizopods Receptaculites ellipticus Walcott, R. elongatus Walcott, and R. mammillaris Newberry from the Upper Eureka, and R. mammillaris from the Upper White Pine of Nevada are listed (p. 322).

The protozoans Receptaculites sp. and R. oweni Hall are found in the Silurian [Ordovician] Fremont Limestone near Canon City, Colorado (p. 159).

Receptaculites sp. occurs in the Silurian [Ordovician] Beaverfoot Formation and the Ordovician Sarbach (?) Formation (Sinclair Canyon Section) of the Beaverfoot-Brisco-Stanford Range, British Columbia (pp. 13, 16, 35).


Wales, Donald B.

See:
Kurtz, V. E., A. H. McNair, and D. B. Wales, 1952.

Walker, Kenneth R.

A pleosome [Calathium] is present in the Ordovician Carters reef (p. 8.7).

See also:

Walker, Kenneth R., and Leonard P. Alberstadt


Calathid sponges are found in the colonization stage of a community succession within the Middle Ordovician Carters Formation of Tennessee (p. 241).

Wallace, Robert Charles

1925. The geological formations of Manitoba. Natural History Society of Manitoba, Winnipeg, Manitoba, 58 pp., 8 pls., 1 map.

Receptaculites oweni (Hall) from the Ordovician Lower and Upper Mottled Limestones on Lake Winnipeg, Manitoba, is listed and figured (pp. 16, 18; pl. 4, fig. 1).

Walossek, Charles


Receptaculites neptuni is abundant in the Middle Devonian near Bruehlborn, Germany.

Walter, M. R., J. H. Shergold, M. D. Muir, and Peter D. Kruse


Radiocysthus minor (Bedford and Bedford) is listed (p. 308).

Walton, E. K.


Nidulites favus occurs in the Silurian Mulloch Hill Formation of the Newlands Group in the Craighead inlier of Scotland (p. 192).

Walton, John


Ordovician Cyclocrinus is related to living Dasycladaceae (p. 18).

See also: Walton, J., 1953.


The entry on Cyclocrinus (p. 18) is identical to Walton, J., 1940.

Warren, Percival Sidney


Sphaerospongia tessellata (Phillips) from the Middle Devonian Stringocephalus zone of the Ramparts Limestone in the Lower MacKenzie Valley, Canada, is discussed and figured.


The Middle Devonian sponge Sphaerospongia tessellata (Phillips) is present in the Stringocephalus zone along the Red River in Manitoba and on Great Slave Lake (p. 571).

Warren, Percival Sidney, and Charles Richard Stelck


Devonian Sphaerospongia sp. and S. tessellata (Phillips) from the Hare Indian River Shale of the MacKenzie Valley, Arctic Canada, and Sphaerospo-ngia sp. from the Winnipegosan Dolomite of Manitoba are listed (pp. 74–76).

Sphaerospongia sp. and S. tessellata (Phillips) from the Devonian Hare Indian Shale of the Northwest Territories are figured (pl. 1, fig. 9; pl. 2, fig. 11; pl. 3, fig. 1).

Washburn, Albert Lincoln


Receptaculites manitobensis [nom. nud.] is present in Terror Bay, King William Island, in Upper Ordovician rocks correlated with the Bighorn Limestone or Selkirk Formation (p. 24).

Washburn, Robert H.


Receptaculites is found in the Ordovician Antelope Valley Limestone at Toiyabe Peak, Nevada (p. 281).

Waterlot, Gérard


Devonian Receptaculites neptuni Defrance from France and Belgium is described and illustrated. Systematic interpretations are discussed and receptaculitids are considered calcareous sponges related to lyssacine siliceous sponges.

Waterlot, Gérard, Alphonse Beugnies, Antoine Bonte, Jean-Marie Charlet, and Paul Corsin


Devonian Frasnian Receptaculites neptuni is listed from three localities (pp. 22, 68, 79) and figured (pl. 4, fig. 7) from Ardennes.

Webb, Gregory W.


Receptaculites sp. and R. mammillaris Walcott are found in the Middle Ordovician of western Utah and eastern Nevada: the Pogonip Group (un-divided), the Kanosh Shale of the Pogonip Group, and the Swan Peak Formation. Receptaculites mammillaris also characterizes trilobite zone M (pp. 40, 48–49, 51, 53–55, 59, 61, 68).


Ordovician Receptaculites sp. is found in the Lehman and Copenhagen Formations and the Pogonip Group in eastern Nevada, and the Kanosh Shale in Utah. Receptaculites elongatus occurs in the Garden City Limestone in Utah.

Webers, Gerald F.


The Middle Ordovician Galena Formation of southeastern Minnesota contains problematic Receptaculites oweni in the Cummingsville Member, Ischadites iowensis in the Prosser Member, and Receptaculites in the Stewartville Member (pp. 477, 479–480).

See also: Webers, G. F., 1979.


This is identical to Webers, G. F., 1972.

Weeks, Fred Boughton

1902. North American geologic formation names: bibliography, synonymy and distri-

The Silurian [Ordovician] Receptaculites limestone of Shumard (1857) was referred to as the Receptaculite limestone in subsequent Missouri Geological Survey reports (p. 345).

Weiss, R. A.

See:

Weiss, Malcolm P.


Ischadites iowensis (Owen) from the Ordovician Prosser Member of the Galena Formation is described and figured (pl. 41, figs. 1–2) and compared with I. ottawaensis Wilson and Receptaculites oweni. Ischadites sp. is present in the uppermost Stewartville Member of the Galena Formation, and R. oweni in the basal and top parts of the Ischadites zone. The class Receptaculitida is placed in the phylum Porifera.


Receptaculites oweni, which defines the lower Receptaculites zone, occurs throughout the Cummingsville Member (new name) of the Ordovician Galena Formation in southeastern Minnesota (pp. 764–766).


The distribution of the sponges Receptaculites oweni Hall, Ischadites iowensis (Owen), and Ischadites sp. in the upper Middle Ordovician Galena Formation in Fillmore County, Minnesota, and adjacent areas is discussed. The New York and Minnesota distributions of Receptaculites sp. are compared (pp. 1037–1039, 1042, 1044, 1048, 1054–1056, 1058–1059, pl. 5, tables 1–2).

See also:

Weiss, Malcolm P., and W. Charles Bell


Receptaculites oweni Hall from the Cummingsville, Prosser, and Stewartville Members and Ischadites iowensis from the Prosser Member of the Galena Formation in Minnesota are listed (pp. 66–67, 69). Upper and lower Receptaculites zones contain R. oweni.

Welch, James R.

See:

Weller, J. Marvin


Receptaculites and Ischadites of uncertain taxonomic position are illustrated and described (pp. 582–583, fig. 583).

See also:

Weller, Stuart


The Ordovician sponge Receptaculites occidentalis Salter from the Trenton of New Jersey is described and figured (pp. 40–41, 45–47, 135–136; pl. 6, figs. 2–4).


Receptaculites, probably R. oweni, is abundant in the Ordovician Kimmswick ("Receptaculite") Limestone of Calhoun County, Illinois (p. 223).

1907b. The pre-Richmond unconformity in the
Mississippi Valley. Journal of Geology, vol. 15, no. 6, pp. 519–525, 1 text-fig.

Receptaculites is abundant in the Ordovician Kimmswick Limestone of Jefferson County, Missouri (p. 524).


Receptaculites oweni and Receptaculites spp. are found in the Ordovician Galena Formation in Illinois, Wisconsin, Iowa, and Minnesota, the Trenton Limestone of the eastern U.S., and the upper Kimmswick Limestone (= Receptaculite Limestone) of Missouri (p. 228).

See also:

Weller, Stuart, and Stuart St. Clair


Receptaculites oweni is common in the Ordovician Kimmswick Limestone (Receptaculite Limestone) in Missouri (pp. 112–113, 115). Receptaculites sp. and R. oweni from the Kimmswick Limestone at Glen Park and Calathium sp. (?) from the Jefferson City Formation are listed (pp. 80, 116).

Wells, Jack S.

See:

Wells, John W.


A receptaculitid sponge, Sphaerospongia cf. testellata (Phillips) from the Middle Devonian (?) Tully Limestone in Onondaga County, New York, is described and illustrated. It also occurs in the Givetian Stringocephalus zone of Devonshire and Manitoba. Sphaerospongia cornucopiae (Goldfuss) occurs in the Middle Devonian of the Eifel region.


The problematic sponge-like Receptaculites aff. monticulatus from the Upper Devonian Sherburne Formation of New York is described and figured. Lower Devonian Receptaculites and Ischadites from the Helderberg Group are discussed. The name Receptaculites is [for the first time correctly] credited to Deshayes, 1828, rather than Blainville, 1830.


The following species, listed by Eaton (1832) as Upper Cretaceous or Jurassic, are now known to be Devonian: New Scotland Coscinopora (= Receptaculites) macropora Goldfuss and Helderbergian C. infundibuliformis Goldfuss (= R. monticulatus Hall) and C. (= Receptaculites) sulcata Goldfuss (p. 54).

West, P. W.

See:

West, Walter S.

See:

West, Walter S., and Philip M. Blacet


Receptaculites oweni in Receptaculites zones are common in the Prosser and Stawterville Members of the Ordovician Galena Group in Grant County, Wisconsin.

West, Walter S., and R. A. Weeks


*Receptaculites* occurs in the Prosser and Stew artville Members of the Middle Ordovician Galena Dolomite in Wisconsin (pp. 138–139).


*Receptaculites* occurs in two units of the Middle Ordovician Galena Dolomite in Wisconsin.

**West, Walter S., Jesse W. Whitlow, C. Ervin Brown, and Allen V. Heyl, Jr.**


*Receptaculites oweni* occurs in *Receptaculites* zones in the Prosser and Stewartville Members of the Ordovician Galena Group in Grant County, Wisconsin.

**Westgate, Lewis G., and Adolph Knopf**


*Calathium* sp. from the Ordovician Beekman-townian Yellow Hill Limestone, and *Receptaculites ellipticus* and *R. mammillaris* from the Ordovician Chazyan Tank Hill Limestone are found in the Ely Springs Range, Nevada (pp. 14–15).

**Wetherby, Albert Gallatin**


*Receptaculites* sp. is listed from the *Orthis* bed of the [Ordovician] Trenton Limestone south of High Bridge, Kentucky (p. 147).

See also:

Mickleborough, J., and A. G. Wetherby, 1878.

**Weyland, Hermann**

See:


**Wheeler, Harry E., and Dwight M. Lemmon**


Ordovician *Receptaculites ellipticus* Walcott, *R. elongatus* Walcott, and *R. mammillaris* Newberry are present in the "Pogonip" Limestone in the Eureka district of Nevada (p. 28).

**White, Charles A.**


An [Ordovician] foraminifer, *Receptaculites* sp. (?), is described from Utah (p. 50).

**White, Charles A., and Henry Alleyne Nicholson**


Selected references to receptaculitids are included.

See also:


This is a supplement to White, C. A., and H. A. Nicholson, 1878.

Whiteaves, Joseph Frederick


*Receptaculites oweni* Hall (= *Coscinopora sulcata* Owen) is found along the Red and Nelson Rivers of Canada (pp. 45, 47).


*Receptaculites oweni* Hall is found in the “Galena Limestone” of Manitoba.

1889. On some fossils from the Hamilton Formation of Ontario, with a list of the species at present known from that formation and Province. Contributions to Canadian Palaeontology, vol. 1, part 2, pp. 91–125, pls. 12–16.

The sponge *Receptaculites neptuni* Defrance is present in the Middle Devonian Hamilton Formation of Ontario (p. 120).


*Sphaerospongia tessellata* Phillips is found in the Devonian of Lakes Manitoba and Winnipegosis, Canada (p. 95).


Devonian *Sphaerospongia tessellata* Phillips, of the family *Receptaculitidae*, from Dawson Bay, Lake Winnipegosis, Manitoba, is described and illustrated. *Polygonosphaerites* Roemer is a synonym of *Sphaerospongia* Pengelly and *Scythia cornucopiae* is a synonym of *Sphaerospongia tessellata*. *Sphaerospongia megarchaphis* is mentioned (pp. 259–263; pl. 33, figs. 1–10).


The *Receptaculitidae* *Receptaculites oweni*, *Ischadites iowensis*, and *Pasceolus gregarius* (?) from the Ordovician Galena-Trenton and Black River Formations of the Lake Winnipeg area are reported and their synonyms are given (pp. 131–133, 142–145). *Receptaculites oweni* is found in the Winnipeg and Red River Limestones (p. 136). *Pasceolus gregarius* (?) Billings (= (?) *Cyclocrinites spaskii*) is found in the “Silurian” of Anticosti Island (pp. 144–145).


*Receptaculites neptuni* Defrance from the [Devonian] Hamilton Formation near Widder, Ontario, is listed as a sponge (p. 412).


*Sphaerospongia tessellata* Phillips is present in the *Stringocephalus* zone of the Middle Devonian of Manitoba. Receptaculitidae are considered sponges (pp. 433–434).


*Receptaculites oweni* Hall is found in the Trenton Formation of Akpatok Island, Ungava [Northwest Territories].

1906. The fossils of the Silurian (Upper Silurian) rocks of Keewatin, Manitoba, the north east-

A sponge, Receptaculites sp. (= Sphaerospongia tessellata Whiteaves, 1892, p. 259), is compared with Sphaerospongia tessellata (p. 276).


Receptaculites oweni is found in the Winnipeg Limestone near Winnipeg, Manitoba (p. 108).

Whitfield, Robert Parr


A protozoan, Receptaculites devonicus, from the Devonian Upper Helderberg Group in Columbus, Ohio, is described and compared to R. oweni Hall. Silurian R. infundibuliformis (= Coscinium infundibuliformis Eaton) from the Lower Helderberg Group of New York and R. dactyloides (= Dictyocrinus dactyloides Conrad) are mentioned (pp. 198–199).

See also: Whitfield, R. P., 1891 and 1893.


Receptaculites oweni from the [Ordovician] Galena Limestone and R. hemisphericum and Cerionites dactyloides from the [Silurian] Niagara Group are described and illustrated (pp. 239–241, 267–270; pl. 10, fig. 7; pl. 13, figs. 1–4). Cerionites is compared to Pasceolus, R. globulare, and R. hemisphericus. R. globularis and R. iowensis from the Galena Limestone and R. infundibuliformis from the Niagara Group are listed as Wisconsin foraminifers (p. 350).


The following are listed as foraminifers: Receptaculites globularis Hall, R. iowensis Owen, and R. oweni Hall from the [Ordovician] Galena Formation; R. hemisphericus Hall, R. infundibuliformis Hall, and Ceryonites [sic] dactyloides Owen from the [Silurian] Niagara Formation (p. 362).


Whitfield’s 1882a description of Receptaculites devonicus is supplemented by an illustration (pp. 519–520, 538; pl. 6, fig. 10).

See also: Whitfield, R. P., 1893.


Receptaculites is listed as a foraminifer of Trenton and Galena [Ordovician] age (p. 25).


This is identical to Whitfield, R. P., 1891.


Hall’s [1861a] descriptions of Receptaculites Defrance, R. oweni, R. globularis, R. fungosus, R. infundibulum, and R. hemisphericus are given, and specimens are figured (pp. 43–47; pl. 5, figs. 1–8).

1899. List of fossils, types and figured specimens, used in the palaeontological work of R. P. Whitfield, showing where they are probably to be found at the present time. Annals of the

The following protozoa are listed: Receptaculites devonicus Whitfield from the [Devonian] Upper Helderberg Limestone of Ohio; R. oweni Hall from the [Ordovician] Galena Formation; R. ohioensis from the [Silurian] Niagara Formation of Ohio; and R. hemisphericus Hall and Cerionites dactyloides from the Niagara Formation of Wisconsin (pp. 144–145).


[Ordovician] Receptaculites pearyi n. sp. from Cope’s Bay, Princess Marie Bay, in the North American Arctic is described, figured, and compared with R. oweni Hall of the Galena Limestone.

See also: Hall, J., and R. P. Whitfield, 1875a and 1875b.

Whitfield, Robert Parr, and Edmund O. Hovey


The following [Ordovician] Trenton types or figured specimens are housed at the American Museum in New York: Receptaculites cyathiformis Hall and R. neptunei [sic] (Defrance) Hall from Pennsylvania; R. fungosus Hall and R. globularis Hall from Illinois; R. oweni Hall from Illinois and Wisconsin; and genus (?) cyathiformis Hall (pp. 16–17).


Types of figured specimens of the following Plesiospongiae are housed at the American Museum in New York: Receptaculites hemisphericus Hall and R. infundibulum Hall from Wisconsin; R. infundibuliformis (Eaton) Hall from New York; R. ohioensis Hall and Whitfield from Ohio; and R. subturbinatus Hall from Indiana. Receptaculites infundibuliformis is [Devonian] Lower Helderberg; the others are [Silurian] Niagaran (pp. 78–79).


The type of Niagaran (?) [Ordovician] Receptaculites pearyi Whitfield from Princess Marie Bay is housed at the American Museum in New York (p. 350).

Whitlow, Jesse W.

See:

Whitlow, Jesse W., and C. Ervin Brown


Receptaculites zones occur in the Proser and Stewartville Members of the Ordovician Galena Dolomite in the lead-zinc mining district. Receptaculites oweni is common in the middle and upper Receptaculites zones (pp. 151–153, pl. 11).

Whitlow, Jesse W., and Walter S. West


Receptaculites oweni is common in Receptaculites zones in the Proser and Stewartville Members of the Middle Ordovician Galena Group in the Kieler Quadrangle, Wisconsin and Illinois.


Receptaculites oweni is common in Receptaculites zones in the Proser and Stewartville Members of the Middle Ordovician Galena Group in the Kieler Quadrangle, Wisconsin and Illinois.
Receptaculites zones in the Prosser and Stewartville Members of the Middle Ordovician Galena Group in Grant County, Wisconsin.


Receptaculites oweni Hall is common in Receptaculites zones in the Prosser and Stewartville Members of the Galena Dolomite in the lead-zinc mining district of Wisconsin and Iowa (pp. 551-553, pl. 34).

Whitney, Josiah Dwight


Receptaculites is characteristic of the [Ordovician] Trenton Galena Limestone in Iowa. Receptaculites (= Selenoides) iowensis Owen occurs in the Galena of Iowa (pp. 300, 313-314).


The "sunflower coral" Coscinopora, considered a Receptaculites by James Hall, is a characteristic fossil of the Lower Silurian [Ordovician] Galena Limestone in the lead region of Iowa and adjoining states (p. 355).


Receptaculites, a foraminifer (?), is characteristic of the [Ordovician] Galena Limestone in the Upper Mississippi Valley lead region (pp. 176-177).

See also:
Whitney, J. D., 1862b.


This is identical to Whitney, J. D., 1862a.


The foraminifer Receptaculites (= Coscinopora) is abundant in the Lower Silurian [Ordovician] Galena Limestone of the lead region of Illinois (p. 172). Selenoides, a close relative of Receptaculites, is rare in the Galena.

Willard, Bradford

See:

Williams, Harold


Goldsonia burntensis [Ischadites burntensis (Shrock and Twenhofel)] is found in argillites of the Silurian Goldson Formation on Burnt Island in Notre Dame Bay, Newfoundland.

Williams, James Steele

See:

Williams, James Stewart

See:

Williams, Merton Yarwood

Receptaculites occidentalis and R. oweni occur along Lake Timiskaming, Canada. The stratigraphy and correlation of the rocks in which they occur are discussed (pp. 4, 6, 8).


The holotype of the sponge Receptaculites canadensis Billings from the Silurian Cabot Head Shale at Limehouse, Ontario, is figured (p. 35; pl. 5, fig. 1).


The sponge Receptaculites is restricted to the Ordovician (p. 26).

Willis, Bailey


The following Ordovician fossils are reported: the coral-like sponge Calathium n. sp. and Receptaculites oweni Hall from the El Paso and Montoya Limestones, respectively, in Texas; R. oweni from Lake Winnipeg, Manitoba; and R. occidentalis Salt and Pasceolus globosus Billings from the Black River and Trenton Formations, respectively, at Ottawa, Ontario (pp. 77, 158, 199–200, 218). Silurian Receptaculites sp. from Ellesmere Land is listed (p. 267).

Willman, Harold Bowen

See:


Willman, Harold Bowen, and Thomas C. Buschbach


The alga Receptaculites is figured as a typical Ordovician fossil (pp. 54, 74). Lower and middle Receptaculites zones of the Fairplay, Rivoli, and Sherwood Members of the Dunleith Formation and the upper Receptaculites zone of the Stewartville Member of the Wise Lake Formation (all of the Ordovician Galena Group) are characterized by abundant R. oweni (pp. 77–80).

Willman, Harold Bowen, and Dennis R. Kolata


Receptaculites oweni occurs throughout the Dunleith and Wise Lake Formations of the Ordovician Galena Group in northern Illinois; Ischadites iowensis is common in the Dunleith Formation in northwestern Illinois and the northern Mississippi Valley (pp. 34, 47–48, 52, fig. 11). Receptaculites oweni and I. iowensis are figured (figs. 17M–N, T). Receptaculites is present in the Dunleith and Wise Lake Formations in northern Illinois and southern Wisconsin (pp. 57, 60–61, 63–66, 68, 70–72). Widespread “blooms” of Receptaculites during Dunleith and Wise Lake time is probably due to cyclic environmental effects (p. 40).

Willman, Harold Bowen, and J. Norman Payne


The sponge Receptaculites oweni Hall is present in the Prosser and Stewartville Members of the Ordovician Galena Formation in north-central Illinois (p. 364).


Receptaculites is common in the Ordovician Galena Formation of the Fox River Valley in northern Illinois (p. 539).

See also:


1943b. Early Ordovician strata along Fox River

This is identical to Willman, H. B., and J. N. Payne, 1943a.

Willman, Harold Bowen, and Robert Ramon Reynolds


Zones of the sponge Receptaculites in the Stewartville and Prosser Members of the Ordovician Galena Formation are discussed (pp. 9–10, pls. 1–2).

Willman, Harold Bowen, Robert Ramon Reynolds, and Paul Herbert, Jr.


Upper and lower Receptaculites zones are present in the Stewartville and Prosser Members, respectively, of the Ordovician Galena Formation in the zinc-lead district of northwestern Illinois (p. 12).

Willman, Harold Bowen, Jack A. Simon, Betty M. Lynch, and Virginia A. Langenheim


References to Illinois receptaculitid species are included.

Willman, Harold Bowen, Lewis Edwin Workman, and Alfred Hannah Bell


Receptaculites oweni is a characteristic fossil in the upper Kimmswick Limestone in southwestern Illinois (pp. 27–28).

Willmarth, M. Grace


Receptaculites oweni is mentioned in definitions of the Middle Ordovician Kimmswick and Prosser Limestones (pp. 1095, 1736). "Receptaculites limestone" is a paleontologic term applied in early Missouri reports to the Kimmswick limestone of present nomenclature (p. 1781).

Wilson, Alice E.


[Ordovician] Receptaculites occidentalis Salter of uncertain taxonomic position is found in the Leray and Rockland Members of the Black River and Trenton Formations, respectively (pp. 30, 41). Receptaculites from the Trenton Limestone at Rockland, Ontario, is listed (pp. 26, 30).


Ordovician Receptaculites sp. A and R. cf. occidentalis of uncertain taxonomic position are listed from Baffin Island (p. 124).


Ordovician Receptaculites cf. arcticus Etheridge and R. occidentalis Salter of uncertain taxonomic position are described and illustrated from Baffinland, and are compared with R. arcticus, R. orbis, and R. oweni (pp. 288–292; pl. 1, figs. 1–4).

Ischadites Murchison, Pasceolus Billings, Receptaculites Defrance, R. oweni Hall, R. arcticus Etheridge, I. iowensis (Owen), I. ottawaensis n. sp., I. jonesi Billings, P. globosus Billings, P. halli Billings, and R. occidentalis Salter from various formations, particularly the Ottawa Formation in the Ottawa-St. Lawrence Valley, are described and figured as sponges of uncertain taxonomic position (pp. 4, 24-29; pl. 12, figs. 5–6; pls. 13–14; text-fig. 2). Cyclocrinus is compared with Pasceolus. Ischadites koenigi and R. neptuni are mentioned.


Ordovician Receptaculites from the Black River Leray-Rockland beds and Pasceolus and Ischadites from the Trenton Cobourg beds are “near-sponges.” Receptaculites oweni is figured and described (pp. 38, 49; pl. 2, fig. 1).

Wilson, Alice E., and Kirtley F. Mather

Ordovician Trenton Receptaculites and R. occidentalis Salter are described as Porifera (pp. 20, 24). Receptaculites occidentalis is found at Marysville, Wolfe Island, Ontario (p. 19).

Wilson, Andrew Gordon

Cerionites dactylioides Owen is abundant in the Upper Silurian Pentamerus beds of northeastern Iowa (pp. 278–279).

Wilson, E. C.

See:

Wilson, George M.


Receptaculites is present in the Ordovician Galena Dolomite near Pecatonica in northern Illinois (p. 2).

See also:


Ordovician Ischadites [iowensis] and Receptaculites [oweni] are figured (unnumbered plate).


This is almost identical to Wilson, G. M., 1956.

See also:

Wilson, George M., and I. Edgar Odom

Ordovician Receptaculites [oweni] and Ischadites [iowensis] are figured (unnumbered plate).

Wilson, George M., David L. Reinertsen, and William E. Cote

Zones of the sponge (?) Receptaculites oweni oc-
occur in the Wise Lake and Dunleith Formations of the Ordovician Galena Group in northwestern Illinois (pp. 2, 9).

**Wilson, James L.**


Ordovician *Calathium* is listed from zones B1 and B2 of the El Paso Formation in the Franklin Mountains of West Texas and from the Monument Springs Member of the Marathon Formation at Marathon, West Texas (p. 2458).

**Wilson, Morley Evans**


*Receptaculites occidentalis* Salter is found in the Ordovician Trenton Limestone in Torbolton and Fitzroy Townships, Ontario (pp. 53, 56).

**Wilson, R. B.**


**Wiman, Carl**


The Silurian [Lower Ordovician] *Tetragonis murchisoni* Eichw. is listed from the “variety C” of the Baltic Limestone of the Uppsala region (p. 73).


The Silurian [Ordovician] *Coelosphaeridium wessenbergense* Stoll., and *Cyclocrinus schmidtii* Stoll., are reported from the Wesenberger Limestone and the Baltic Limestone, and *Masstopora concava* Eichw. from the North Baltic area and zones C3 and D1 in Estonia (p. 23).


The algae *Cyclocrinus sp.*, *C. balticus*, *C. spaskii*, *Coelosphaeridium wessenbergense*, *Masstopora aff. odini* and problematicum *Tetragonis murchisoni* are listed from various Ordovician localities in Norway and in the North Baltic region (pp. 122, 128, 148–149, 155–156, tables 6, 8).

**Winchell, Alexander, and Oliver Marcy**


*Ischadites tessellatus* n. sp. is described and illustrated as a foraminifer from the Silurian of Chicago, Illinois (pp. 85–86; pl. 2, fig. 3). It is compared to *I. koenigi* Murchison, *I. canadensis* Billings, *Dictyoecrinitus* Conrad, *Tetragonys* [sic] Eichwald, and *Receptaculites*.

**Winchell, Newton H.**


In Fillmore County, Minnesota, the “lead fossil” *Receptaculites* occurs as low as the green shale of the “Upper Trenton” limestone, but is considered characteristic of the Lower Silurian [Ordovician] Galena Limestone (pp. 297–299).


**Winchell, Newton H., and Charles Schuchert**


See also:


This is identical to Winchell, N. S., and C. Schuchert, 1893.

See also:
Ulrich, E. O., 1893 and 1895.

Winchell, Newton H., and Edward O. Ulrich


A bibliography from 1823 to 1892 of the Lower Silurian [Ordovician] of the Upper Mississippi Valley includes references to receptaculitids.


The following Lower Silurian [Ordovician] sponges are listed from Minnesota: Receptaculites sp. and Calathium (?) hexagonalis Ulrich from the Richmond Group; and Receptaculites oweni Hall, Ischadites iowensis Owen, and Calathium (?) clavatum Ulrich from the Trenton Group (pp. 87, 95, 99, 101, and 111 of the introduction).

Winder, Charles Gordon


The highest of three zones in the Ordovician Black River Leray beds in southern Ontario contains Receptaculites. This zone was previously considered lowest Trenton or "transitional" (pp. 6-7).


The sponge Receptaculites is present in the Ordovician Black River Leray beds at Healey Falls, southern Ontario (p. 8).

Wingard, Paul S.

See:

Winkler, Henry von


The following [receptaculitids] are listed: Receptaculites orbis Eichwald as a sponge from Upper Oolitic beds, Echinospheraeites stage of Lower Ordovician (p. 64); Mastopora odini Stolley from Tallinn and Coelosphaeridium excavatum Stolley from Jaegala as sponges from Lowermost Middle
Or dovician, Echinospaerites beds (p. 66); plant Mastopora odini Stolley from ESSU and sponge Ischadites murchisoni Eichwald from Tal- linn listed from Kukruse stage, middle of Middle Ordovician (p. 79); plants Mastopora (Nidulites) odini Stolley from Idavere and M. concava Eichwald from Johvi stage, Middle Ordovician (p. 96); problematic Receptaculites eichwaldi Schmidt = Styloliid Schmidt from Keila stage [Johvi] of Devonian [Middle Ordovician] (p. 99, fig. 43); sponge Ischadites murchisoni Eichwald from Tal- linn, Receptaculites damesi Rauff from Kukruse, Keila [Johvi] stage Devonian [Middle Ordovician] (p. 99); crinoid Cyclocrinus spasskii Eichwald from Keila from Wasalema [Keila], Devonian [Middle Ordovician] (p. 101); crinoid Cyclocrinus spasskii Eichwald from Rakwere [Wasalema] stage, Devonian [Upper Middle Ordovician] (p. 103); crinoid Cyclocrinus spasskii Eichwald from Luekholm stage, Devonian [Upper Ordovician] (p. 111); sponge Ischadites rectus Rauff from Luekholm stage in Luekholm, Devonian [Upper Ordovician] (p. 112); sponge Receptaculites infundibulum Schrenk from Vaendra stage from Estoonus [Adavere] stage, Silurian (p. 129); anthozoans Coelosphaeridium wesenbergense Stolley from Riste, Cyclocrinus balticus Stolley from Seals, C. mickwiti Stolley from Kobila; and C. roemerii Stolley, C. schmidtii Stolley, and C. spasskii (Eich.) Stolley, from Rakwere stage (p. 105).

Winsnes, Thore S.


A sponge Receptaculites sp. is described and figured from the Ordovician Raasutupet Limestone in Sørkapp Land, Spitsbergen (p. 24, pl. III, fig. 10).

Witzke, Brian J.

See:

Wood, Alan

1943. The algal nature of the genus Koninkko- pora Lee; its occurrence in Canada and western Europe. Quarterly Journal of the Geolog-


Mastopora (= Nidulites Salter), Apidium, and Koninkkopora constitute the Mastoporinae, a well-marked tribe of the subfamily Cyclocrineae, a somewhat isolated and rather precocious group of Dasyycladaceae.

Woods, Henry


The following fossils of uncertain taxonomic position are housed in the Woodwardian Museum in Cambridge: Ischadites (?) micropora from the Middle Bala at Llansantffraid; Pasceolus goughi from the Upper Ludlow at Benson Knot; and Sphaerospongia hospitalis from the Bala Beds at Onny River. Ischadites koenigi is listed as a sponge from the Wenlock Limestone at Dudley (pp. 1–2, 8).


Ischadites, Receptaculites, and Sphaerospongia may not be sponges (p. 33).

See also:


This is similar to Woods, H., 1893.

See also:


The sponge Ischadites, which appeared in the Ordovician Llandeilo, is abundant in the Silurian. Ischadites, Receptaculites, and Sphaerospongia may not be Hexactinellida (p. 49).

See also:

1937. Palaeontology: Invertebrate, 7th ed. Cam-
bridge University Press, Cambridge [England], 475 pp., 221 text-figs.

This is similar to Woods, H., 1926.

See also:


*Ischadites*, *Sphaerospongia*, and *Receptaculites*, if sponges, are Calcarea (p. 49).

See also:

**Woodward, Anthony**


The bibliography of Foraminifera through 1885 includes references to receptaculitids.

**Woodward, Henry**


The problematic sponges *Amphispongia oblonga* from the Silurian of England and *Receptaculites, Ischadites*, and *Sphaeraespongia* from the Silurian and Devonian of Belgium, North America, and England, are in the British Museum (Natural History) (pp. 121, 123).

**Woodward, Herbert P.**

1951. Ordovician System of West Virginia. West Virginia Geological Survey [Reports], vol. 21, 627 pp., 38 pls., 43 text-figs.


**Worcester, Phillip George**

See:

**Workman, Lewis Edwin**

See:

**Workum, Robert H., Thomas E. Bolton, and Christopher R. Barnes**


*Receptaculites* sp., *R. arcticus* Etheridge and *R. oweni* Hall are present in the Ordovician of Akpatok Island, Northwest Territories (pp. 161, 163). A *Receptaculites-Maclurites-Hormotoma* assemblage is typical of the Red River Arctic fauna of North America (p. 164).

**Worsley, David**

See:

**Worthen, Amos Henry**


The Lower Silurian [Ordovician] Trenton Group of Illinois contains *Receptaculites* sp. near Rockford and *R. sulcatus* (?) in Alexander County (pp. 145, 149).


*Receptaculites owenana* [sic] is characteristic of the [Ordovician] Trenton Limestone (p. 280).
Yakovlev, N. N.

*Machaeridia* [Sphaerospongia], a genus of unknown organisms [receptaculitids], is described and figured from rocks ranging from Ordovician to Devonian in Novaya Zemlya. Ordovician *Machaeridia* is listed from the Eastern Urals. *Machaeridia* is compared with cirripedes and echinoderms.

Yochelson, Ellis L.

See:

Young, George E.


The sponge *Calathium* occurs in two members of the Lower Ordovician Fillmore Limestone of Utah, including the *Calathium-Presbynileus* member, in which it forms a reef (p. 94).

Young, J. [John?]

See:
Gray, R., [and J. Young], 1869.
Etheridge, R., [J.? Young], and R. Etheridge, Jr., 1873.

Young, John

See:
Armstrong, J., J. Young, and D. Robertson, 1876.

Youngquist, Walter

See:

Zadorozhnaja, N. M.

See:
Zhuravleva, Inessa T.


Receptaculitida (=Squamiferida Sushkin 1962) and Soanitidae Miagkova 1965 are similar to archaeocyaths (Dokidocyathidae). The Receptaculitida, Soanitidae, archaeocyaths, and certain other minor forms could be included in Archaeozoa, a subdivision of Metazoan (pp. 56–57).

Zhuravleva, Inessa T. (ed.)


Hetairocyathus Bedford, and Heterocyathus Bedford and Bedford, and H. minor are described as archeocyaths from Lower Cambrian of South Australia (pp. 169–170).


Radiocyathus Okulitch and R. minor (Bedford) from Lower Cambrian in South Australia are described as archeocyaths (p. 58).

Zhuravleva, Inessa T.


Zhuravleva, Inessa T., and V. A. Luchinina


Mastopora is an Ordovician and Silurian reef-building green alga (p. 536).

Zhuravleva, Inessa T., Konstantin N. Konjuschkov, and Alexei Yu. Rozanov


[Radiocyathid] Dokidocyathina georgensis Rozanov n. sp. is figured and described from the Lower Cambrian of Tuva (pp. 100–101; pl. 16, fig. 8; text-fig. 59). [Radiocyathid] Alphacyathus macdonelli [sic] (Bedford and Bedford 1936) is described and figured from Lower Cambrian of southern Australia (p. 91, text-fig. 55).

Zhuravleva, Inessa T., N. P. Meshkova, V. A. Luchinina, and Y. L. Pelman


Radiocyaths are probably a group of sponges restricted to the middle early Cambrian (p. 19).

Zhuravleva, Inessa T., and Elizaveta I. Miagkova


Archaeocyathi, Aphrosalpingoida, Squamiferida, and Soanitidae are united into a group Archaeata.


This is an abstract of Zhuravleva, I. T., and E. I. Miagkova, 1974b.

FIELDIANA: GEOLOGY

Lower Cambrian archaeocyathids, Ordovician Soanitidae, Ordovician to Carboniferous (?) Squamiferida, and Silurian Aprosalsipingidea are placed in a new kingdom (?) Archaeata. Archaeata, family Soanitidae consisting of Soanites and Calathium, and class Squamiferida (Receptaculitida) consisting of Receptaculites, Ischadites, and Sphaerospongia are described.


The role of soanitids in organic buildups is discussed (p. 118). Lower Ordovician Soanites bimuralis from eastern Siberia is figured (pl. 14, fig. 4; pl. 15, figs. 1–2).


Receptaculites, Soanites, Soanitidae, Squamiferida, Tetragonis murchisoni and Soanites bimuralis are figured and their relationship to Archaeata is discussed. Archaeata is a kingdom which includes Ordovician Soanitidae, Ordovician to Carboniferous Squamiferida, Cambrian archaeocyathids, and Silurian Aprosalsipingida.


Soanitidae are mentioned in the discussion of the formation of organic buildups.


Archaeata is described as an independent kingdom consisting of Radiocyatha, Receptaculitida, Soanitida, Aphrosalsipingata, and Archaeocyatha. Skeletal morphology of these groups is compared with that of sponges and the algae Cyclocrinitida. Soanites and Receptaculites are described, and Ordovician S. bimuralis Miagkova from Siberia and Receptaculites sp. from Estonia are figured (figs. 2B, 4B).
Calathium is a Silurian [Ordovician] hexactinellid sponge from the Quebec Group of Canada (p. 373).


The hexactinellid sponges Calathium from the Silurian [Ordovician] Quebec Group and Amphispongia (?) are listed. Coscinopora is described as a hexactinellid sponge; C. infundibuliformis [non Goldfuss 1826], and C. macropora [non Goldfuss 1826] are listed from the Cretaceous.


This is an English translation of Zittel, 1877b, by W. S. Dallas.


Receptaculites Defrance (= Ichsadites Murchison = Tetragonis Eichwald) is an imperforate calcareous foraminifer of family Dactyloporidae with shell of complicated structure. Cyclocrinus Eichwald (= Nidulites Salter = Mastopora Eichwald), Polygonosphaerites Roemer (= Sphaeronites Phillips = Pasceolus Kayser = Sphaerospongia Salter), Dictyocrinus Hall, Pasceolus Billings, and Sphaerospongia Pengelly may also be Dactyloporidae, but Cyclocrinus, Dictyocrinus, and Pasceolus (Billings) may belong with Cystoidea. Calathium Billings and Amphispongia Salter are not well known and are probably hexactinellid sponges of the family Euretidae. In a postscript Receptaculites and its allies are considered to be of uncertain taxonomic position.

1883. Traité de Paléontologie. Tome I. Paléozoologie. Partie I. Protozoa, Coelenterata, Echinodermata et Molluscoidea. Avec la collaboration V. Ph. Schimper & A. Schenk, translated by Charles Barrois with collabora-


The following organisms of unknown affinities are described and their distributions are given: Receptaculites Defrance (= Ichsadites Murchison [partim]), Tetragonis Eichwald [partim], Ichsadites Murchison, I. koenigi Salter, Cyclocrinus Eichwald (= Nidulites Salter), C. spaskii Eichwald, Pasceolus Billings, P. halli Billings, Polygonosphaerites Roemer (= Sphaeronites Phillips, Sphaerospongia Salter, Pasceolus Kayser), P. (Sphaeronites) tesselatus Phillips, Dictyocrinus Hall (= ? Mastopora Eichwald), ? Sphaerospongia Pengelly, and Tetragonis Eichwald (pp. 105, 106). Receptaculites neptuni is figured (fig. 46). Calathium Billings and Amphispongia Salter are sponges of the family Euretidae (p. 179).


The Receptaculitidae Receptaculites, Leptopoterion, Pasceolus, Ichsadites, and Polygonosphaerites, a group of unknown systematic position, are included in a footnote to the section on sponges (p. 67).

See also:
Zittel, K. A. von, 1913.


Silurian [Ordovician] to Carboniferous receptaculitids of uncertain systematic position are described. They consist of Receptaculites Defrance, Leptopoterion Ulrich, Ichsadites Murchison, and Polygonosphaerites Romer. Middle Devonian R. neptuni Defrance from Eifel, Lower Silurian [Or-
dovician] I. murchisoni Eichwald from Reval, and Middle Devonian P. tesselatus are figured. The Silurian lyssacine sponge Amphispongia is listed from England (pp. 58, 69–70; figs. 102–104).

See also:


See also:


References to receptaculitids are almost identical to Zittel, K. A. von, 1910 (pp. 67, 73, 87-88, text-figs. 115-117).


This is a Russian translation of Zittel, 1924.

See also:

Zurawski, Ronald P.


The Dasycladaceous alga *Mastopora (?)* is present in a reef in the Middle Ordovician Carters Limestone of central Tennessee.

See also: