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Geology

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Catalogue of Type and Referred Specimens of Echinozoa (Edrioasteroidea) in Field Museum of Natural History

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INTRODUCTION

This catalogue of type and referred specimens of echinoderms includes only one echinozoan class: the edrioasteroids. The fossils are listed in alphabetical order and are followed by a catalogue of casts of types. We recognize that casts have no nomenclatural value, however, they become useful paleontological tools when the original specimens are not available.

As in previous catalogues, only holotypes are recognized as valid types; all other so-called types are considered referred specimens. The specimens formerly belonging to the University of Chicago, Walker Museum of Paleontology (now on permanent loan to Field Museum), are prefixed UC. The name of the genus and species and its author is entered as originally published; in addition, the date of publication is included. An attempt has been made to note all subsequent systematic changes: those referring to our types are listed under references; those not based upon our specimens are listed under the heading "Remarks." Stratigraphic and geographic locations are those of the authors and are supplemented with information from the Museum catalogues.

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CATALOGUE OF TYPE AND REFERRED SPECIMENS

- Aesiocystites priscus** S. A. Miller and Gurley, 1894
 Holotype, not designated, to be selected from UC 6041.
 Referred specimens: UC 6041, four specimens.
 S. A. Miller and Gurley, 1894, pp. 14–15, pl. 2, figs. 10–12.
 S. A. Miller, 1897, p. 732, text fig. 1281.
 = *Edrioaster priscus* (S. A. Miller and Gurley, 1894)
 Bassler, 1935, p. 9.
 Ordovician, Trenton Group.
 Mercer County, Kentucky; Gurley Collection.
- Agelacrinites blairi** (S. A. Miller, 1892)
 See: *Agelacrinus blairi* S. A. Miller, 1892.
- Agelacrinites cincinnatiensis** (Roemer, 1851)
 See: *Agelacrinus cincinnatiensis* Roemer, 1851.
- Agelacrinites faberi** (S. A. Miller, 1894)
 See: *Agelacrinus faberi* S. A. Miller, 1894.
- Agelacrinites holbrooki** (James, 1878)
 See: *Agelacrinus holbrooki* James, 1878.
- Agelacrinites legrandensis** (S. A. Miller and Gurley, 1894)
 See: *Agelacrinus legrandensis* S. A. Miller and Gurley, 1894.
- Agelacrinites pileus** (Hall, 1866)
 See: *Agelacrinus pileus?* Hall, 1866.
- Agelacrinus blairi** S. A. Miller, 1892
 Holotype: UC 6252.
 S. A. Miller, 1892b, p. 12, pl. 2, fig. 9.
 S. A. Miller, 1894, p. 266, pl. 2, fig. 9.
 S. A. Miller, 1897, p. 733, text fig. 1293.
 = *Agelacrinites blairi* (S. A. Miller, 1892)
 Bassler, 1936, p. 16, pl. 7, fig. 9.
 Mississippian, Keokuk Group.
 Boonville, Missouri; Gurley Collection.

Agelacrinus cincinnatiensis Roemer, 1851

Referred specimens: UC 1008C, two specimens.

Foerste, 1914, p. 476, pl. 1, fig. 6B.

= *Agelacrinites cincinnatiensis* (Roemer, 1851)

Bassler, 1915, p. 20.

Ordovician, Cincinnati Group, Maysville Member.

Cincinnati, Ohio; James Collection.

Agelacrinus cincinnatiensis Roemer, 1851 or **A. pileus** Hall, 1866

See: *Cyclocystoides* sp.

Agelacrinus faberi S. A. Miller, 1894

Holotype: UC 8821.

S. A. Miller in Miller and Faber, 1894, p. 156, pl. 8, figs. 24 and 25.

Foerste, 1914, pp. 441-444, pl. 1, figs. 3a-c, pl. 3, fig. 4.

= *Lepidodiscus fabrei* [sic] (S. A. Miller, 1894)

Cumings, 1908, p. 728, pl. 4, fig. 11.

= *Agelacrinites faberi* (S. A. Miller, 1894)

Bassler, 1915, p. 20.

= *Carneyella (Agelacrinus) faberi* (S. A. Miller, 1894)

Bassler, 1936, p. 9.

Ordovician, Cincinnatian, Richmond, Whitewater Formation.

Between Osgood and Versailles, Indiana; Faber Collection.

Remarks: *A. faberi* = *Isorophus faberi* (S. A. Miller, 1894)

Bassler, 1935, pp. 4-5.

Agelacrinus holbrookii James, 1878

Holotype: UC 1004.

James, 1878, p. 2.

James, 1887, pp. 25-26, text figs. A and B.

Foerste, 1914, pp. 446-448, pl. 1, figs. 1a, 1b and 1d; pl. 4, fig. 1.

= *Agelacrinites holbrookii* (James, 1878)

Bassler, 1915, p. 21.

Ordovician, Cincinnatian, Maysville Group.

Lebanon, Warren County, Ohio; James Collection.

Remarks: *A. holbrookii* = *Isorophus holbrookii* (James, 1878)

Bassler, 1935, pp. 4-5.

Agelacrinus legrandensis S. A. Miller and Gurley, 1894

Referred specimen: UC 6495.

S. A. Miller and Gurley, 1894, p. 15, pl. 3, figs. 13 and 14.

= *Agelacrinites legrandensis* (S. A. Miller and Gurley, 1894)

Bassler, 1935, p. 7.

Bassler, 1936, pp. 15–16.

Mississippian, Kinderhook Group.

LeGrand, Iowa; Gurley Collection.

Agelacrinus pileus? Hall, 1866

Referred specimen: UC 8825.

S. A. Miller and Faber, 1892, p. 85, pl. 1, fig. 10.

= *Agelacrinus pileus* Hall, 1866

Foerste, 1914, pl. 1, fig. 5A; pl. 2, fig. 4.

= *Agelacrinites pileus* (Hall, 1866)

Bassler, 1915, p. 21.

Ordovician, Cincinnati, Maysville.

Cincinnati, Ohio; Faber Collection.

Remarks: *A. pileus* = *Carneyella (Agelacrinus) pilea* (Hall, 1866)

Bassler, 1935, p. 4.

Agelacrinus pulaskiensis S. A. Miller and Gurley, 1894

Holotype: original designation UC 6419.

S. A. Miller and Gurley, 1894, p. 16, pl. 3, fig. 18.

= *Ulrichidiscus pulaskiensis* (S. A. Miller and Gurley, 1894)

Bassler, 1935, p. 8, pl. 1, fig. 7.

Regnéll *in* Moore, 1966, p. 171, text fig. 128,5.

Mississippian, Kaskaskia Group.

Pulaski County, Kentucky; Gurley Collection.

Carneyella (Agelacrinus) faberi (S. A. Miller, 1894)

See: *Agelacrinus faberi* S. A. Miller, 1894.

Carneyella (Agelacrinus) pilea (Hall, 1866)

See: *Agelacrinus pileus?* Hall, 1866.

Cyclocystoides sp.

Referred specimen: UC 8886.

S. A. Miller and Faber, 1892, p. 85, pl. 1, figs. 13–15.
 = *Agelacrinus cincinnatiensis* Roemer, 1851 or *A. pileus* Hall,
 1866.

Foerste, 1920, p. 60.
 Ordovician, Cincinnatian, Maysville.
 Cincinnati, Ohio; Faber Collection.

Discocystis sampsoni (S. A. Miller, 1891)
 See: *Echinodiscus sampsoni* S. A. Miller, 1891.

Echinodiscus sampsoni S. A. Miller, 1891
 Holotype: UC 7000.
 S. A. Miller, 1891, p. 76, pl. 12, fig. 16.
 S. A. Miller, 1892a, p. 686, pl. 12, fig. 16.
 Mississippian, Keokuk Group.
 Boonville, Missouri; Sampson Collection.
 Remarks: *E. sampsoni* = *Discocystis sampsoni* (S. A. Miller, 1891)
 Bassler, 1935, p. 8.

Edrioaster priscus (S. A. Miller and Gurley, 1894)
 See: *Aesiocystites priscus* S. A. Miller and Gurley, 1894.

Isorophus faberi (S. A. Miller, 1894)
 See: *Agelacrinus faberi* S. A. Miller, 1894.

Isorophus holbrooki (James, 1878)
 See: *Agelacrinus holbrooki* James, 1878.

Lepidodiscus fabrei [sic] (S. A. Miller, 1894)
 See: *Agelacrinus faberi* S. A. Miller, 1894.

Ulrichidiscus pulaskiensis (S. A. Miller and Gurley, 1894)
 See: *Agelacrinus pulaskiensis* S. A. Miller and Gurley, 1894.

CATALOGUE OF CASTS OF TYPE AND REFERRED SPECIMENS

Agelacrinites hamiltonensis Vanuxem, 1842
 Holotype: UC 781.
 Vanuxem, 1842, pp. 158 and 306, text fig. 80.
 Hall, 1872, pl. 6, figs. 14 and 15.

Clarke, 1901, p. 184, pl. 10, fig. 6.

Bassler, 1936, p. 16, pl. 1, fig. 18.

Regnéll *in* Moore, 1966, pp. 167–169, text fig. 128,6.

Devonian, Hamilton.

Hamilton, New York; Hall Collection.

Agelacrinites rectiradiatus Shideler, 1918

Holotype: UC 3386, original specimen U. S. Nat. Mus. S-3954.

Shideler, 1918, p. 58, pl. 5, fig. 30.

= *Hemicystites* (*Agelacrinites*) *rectiradiatus* (Shideler, 1918)

Bassler, 1936, p. 14, pl. 5, fig. 10.

Ordovician, Richmond, Lower Whitewater.

Olive Branch, Harshaville, Adams County, Ohio; gift of Bassler.

Agelacrinites southworthi Bassler, 1936

Holotype: UC 38359, original specimen U. S. Nat. Mus. S-3478.

Bassler, 1936, p. 16, pl. 4, fig. 12.

Devonian, Hamilton, Arkona beds 20 to 30 feet below the Encrinal Limestone.

Marsh's Mill, Arkona, Ontario, Canada; gift of Bassler.

Agelacrinites vetustus (Foerste, 1914)

See: *Agelacrinites vetustus* Foerste, 1914.

Agelacrinites kaskaskiensis Hall, 1858

Holotype: UC 15905, original specimen Univ. Illinois X-129.

Hall, 1858, p. 696, pl. 25, fig. 18.

= *Echinodiscus kaskaskiensis* (Hall, 1858)

Keyes, 1894, p. 133, pl. 18, fig. 3.

= *Discocystis* (*Agelacrinites*) *kaskaskiensis* (Hall, 1858)

Bassler, 1936, pp. 21–22.

Mississippian, Kaskaskia Limestone.

Kaskaskia, Illinois; Hall Collection.

Agelacrinites septembrachiatus S. A. Miller and Dyer, 1878

Holotype: UC 38358.

S. A. Miller and Dyer, 1878, p. 27, pl. 1, fig. 9.

= *Streptaster septembrachiatus* (S. A. Miller and Dyer, 1878)

Foerste, 1914, pl. 4, fig. 2.

Ordovician, near top of Richmond, Elkhorn Formation.
Falls west of Union Road, near Dayton, Ohio; gift of Bassler.

Agelacrinus vetustus Foerste, 1914

Holotype: UC 38356, original specimen U. S. Nat. Mus. 87162.

Foerste, 1914, pp. 439-441, pl. 3, fig. 1.

= *Agelacrinites vetustus* (Foerste, 1914)

Bassler, 1915, p. 21.

= *Carneyella (Agelacrinus) vetusta* (Foerste, 1914)

Bassler, 1936, p. 7, pl. 2, fig. 14.

Ordovician, Trenton, Cynthiana Formation.

Clay's Ferry, 14 miles southeast of Lexington, Kentucky; gift of Bassler.

Carneyella (Agelacrinus) vetusta (Foerste, 1914)

See: *Agelacrinus vetustus* Foerste, 1914.

Carneyella foerstei Bassler and Shideler, 1936

Holotype: UC 33387, original specimen U. S. Nat. Mus. S-3965.

Bassler and Shideler *in* Bassler, 1936, p. 8, pl. 6, figs. 7 and 8.

Ordovician, Richmond, Arnheim Formation, *Glyptocrinus* Zone.

Russellville, Ohio; gift of Bassler.

Carneyella nicklesi Bassler, 1936

Holotype: UC 38351, original specimen U. S. Nat. Mus. S-3191.

Bassler, 1936, p. 7, pl. 2, fig. 13.

Shimer and Shrock, 1944, p. 131, pl. 49, fig. 12.

Ordovician, Trenton, Curdsville Limestone.

Near Troy, Woodford County, Kentucky; gift of Bassler.

Carneyella ulrichi Bassler and Shideler, 1936

Holotype: UC 33388, original specimen U. S. Nat. Mus. S-3964.

Bassler and Shideler *in* Bassler, 1936, p. 8, pl. 6, figs. 5 and 6.

Ordovician, Cincinnati, Maysville-Bellevue Formation.

Railroad cut, south of Maysville, Kentucky; gift of Bassler.

Cincinnati-discus edenensis Bassler, 1936

Referred specimens: UC 33390, two specimens; original specimens
U. S. Nat. Mus. 34413.

Bassler, 1936, p. 6, pl. 3, fig. 11.

Ordovician, Cincinnati, Eden-McMicken Beds.

Cincinnati, Ohio; gift of Bassler.

Remarks: Bassler, 1936, pl. 3, fig. 11, figures both the holotype and a referred specimen but does not distinguish between them.

Cincinnatiidiscus turgidus Bassler, 1936

Holotype: UC 33389, original specimen U. S. Nat. Mus. 87628.

Bassler, 1936, p. 6, pl. 5, fig. 12.

Ordovician, Richmond, Whitewater Formation.

Oxford, Ohio; gift of Bassler.

Cooperidiscus alleganius (Clarke, 1901)

See: *Lepidodiscus alleganius* Clarke, 1901.

Discocystis (Agelacrinus) kaskaskiensis (Hall, 1858)

Referred specimen: UC 38362.

Bassler, 1936, pp. 21-22, pl. 3, fig. 4.

= *Discocystis kaskaskiensis* (Hall, 1858)

Shimer and Shrock, 1944, p. 131, pl. 49, fig. 20.

Mississippian, Ste. Genevieve Limestone.

Near Huntsville, Alabama; gift of Bassler.

See also: *Agelacrinus kaskaskiensis* Hall, 1858.

Discocystis kaskaskiensis (Hall, 1858)

See: *Discocystis (Agelacrinus) kaskaskiensis* (Hall, 1858).

Discocystis laudoni Bassler, 1936

Referred specimen: UC 38361, original specimen U. S. Nat. Mus. S-3886.

Bassler, 1936, p. 21, pl. 3, fig. 8.

Mississippian, Kinderhook, Gilmore City Formation.

Gilmore City, Iowa; gift of Bassler.

Remarks: UC 38361 is a cast of one of the "cotypes" used by Bassler, 1936.

Echinodiscus kaskaskiensis (Hall, 1858)

See: *Agelacrinus kaskaskiensis* Hall, 1858.

Foerstediscus grandis Bassler, 1935

Holotype: UC 38352, original specimen U. S. Nat. Mus. S-3191.

Bassler, 1935, p. 6, pl. 1, fig. 12.

Ordovician, Trenton, Curdsville Division.

Near Troy, Woodford County, Kentucky; gift of Bassler.

Foerstediscus splendens Bassler, 1936

Holotype: UC 33391, original specimen U. S. Nat. Mus. S-4079.

Bassler, 1936, p. 10, pl. 7, fig. 13.

Regnéll *in* Moore, 1966, p. 165, text figs. 115,1; 120,2b; 125,6; 126,5.

Ordovician, Black River, Decorah Shale, top of the *Rhinidictya* bed.

Ford plant, St. Paul, Minnesota; gift of Bassler.

Hemicystites (Agelacrinites) rectiradiatus (Shideler, 1918)

See: *Agelacrinites rectiradiatus* Shideler, 1918.

Hemicystites (?) carbonarius Bassler, 1936

Holotype: original designation UC 38363, original specimen U. S. Nat. Mus. 91837.

Bassler, 1936, p. 15, pl. 4, fig. 10.

Shimer and Shrock, 1944, p. 131, pl. 49, fig. 14.

Referred specimen: UC 38363A, original specimen U. S. Nat. Mus. 91837.

Bassler, 1936, p. 15, pl. 4, fig. 11.

Pennsylvanian, Bluefield Shale.

Railroad cut four-fifths mile east of Adds Valley, West Virginia; gift of Bassler.

Isorophus germanus Bassler, 1936

Holotype: UC 33384, original specimen U. S. Nat. Mus. S-3959.

Bassler, 1936, p. 18, pl. 6, fig. 3.

Ordovician, Richmond, Waynesville-Clarksville Division.

Morrow, Ohio; gift of Bassler.

Isorophus kentuckyensis Bassler, 1918

Holotype: UC 33383, original specimen U. S. Nat. Mus. S-3967.

Bassler, 1936, pp. 18–19, pl. 6, fig. 10.

Ordovician, Trenton, contact between Woodburn and Greendale Formations.

Lair Station, Kentucky; gift of Bassler.

Isorophus shideleri Bassler, 1936

Holotype: UC 33385, original specimen U. S. Nat. Mus. S-3958.

Bassler, 1936, p. 19, pl. 6, fig. 9.

Ordovician, Richmond, Elkhorn Formation.

Just west of Hamburg, Indiana; gift of Bassler.

Isorophus tennesseensis Bassler, 1936

Holotype: UC 38353, original specimen U. S. Nat. Mus. 91839.

Bassler, 1936, p. 17, pl. 2, fig. 1.

Ordovician, Trenton, Cannon Limestone, shaly beds.

Fayetteville, Tennessee; gift of Bassler.

Isorophus trentonensis Bassler, 1936

Holotype: UC 33382, original specimen U. S. Nat. Mus. 91843.

Bassler, 1936, p. 17, pl. 5, fig. 1.

Ordovician, Trenton, upper part Deltoidea Zone.

Trenton Falls, New York; gift of Bassler.

Lepidodiscus alleganius Clarke, 1901

Referred specimen: UC 38360.

Clarke, 1901, pp. 194–195, pl. 10, fig. 3.

= *Cooperidiscus alleganius* (Clarke, 1901)

Bassler, 1935, p. 8.

Devonian, Upper Chemung.

Two miles [published], one and one-half miles [catalogue], south of Sabinsville, Tioga County, Pennsylvania; gift of Bassler.

Remarks: UC 38360 is a cast of one of the original specimens figured by Clarke, 1901.

Streptaster septembrachiatus (S. A. Miller and Dyer, 1878)

See: *Agelacrinus septembrachiatus* S. A. Miller and Dyer, 1878.

Walcottidiscus magister Bassler, 1936

Holotype: UC 38354, original specimen U. S. Nat. Mus. 90755.

Bassler, 1936, pp. 2-3, pl. 2, fig. 2.

Cambrian, Burgess Shale.

Burgess Pass, above Field, British Columbia, Canada; gift of Bassler.

Walcottidiscus typicalis Bassler, 1935

Holotype: UC 38355, original specimen U. S. Nat. Mus. 90754.

Bassler, 1935, p. 3, pl. 1, fig. 1.

Cambrian, Burgess Shale.

Burgess Pass, above Field, British Columbia, Canada; gift of Bassler.

Xenocystites carteri Bassler, 1936

Holotype: UC 33392.

Bassler, 1936, pp. 3-4, pl. 7, fig. 14.

Devonian, Chemung, Gowanda.

Cattaraugus Creek, Versailles, New York; gift of Bassler.

REFERENCES

BASSLER, R. S.

1915. Bibliographic index of American Ordovician and Silurian fossils. Bull. U. S. Nat. Mus., **92**, 2 vols., 1,521 pp.

1935. The classification of the Edrioasteroidea. Smithsonian Misc. Coll., **93**, no. 8, pp. 1-11, pl. 1.

1936. New species of American Edrioasteroidea. Smithsonian Misc. Coll., **95**, no. 6, pp. 1-33, pls. 1-7.

CLARKE, JOHN M.

1901. New *Agelacrinites*. Bull. New York State Mus., **49**, pp. 182-198, pl. 10, 7 text figs.

CUMINGS, E. R.

1908. The stratigraphy and paleontology of the Cincinnati Series of Indiana. 32nd Ann. Rep., Indiana Dept. Geol. Nat. Res., pp. 605-1,188, pls. 1-55.

FOERSTE, AUG. F.

1914. Notes on *Agelacrinitidae* and *Lepadocystinae*, with descriptions of *Thresherodiscus* and *Brockocystis*. Bull. Denison Univ. Sci. Lab., **17**, pp. 399-487, pls. 1-6.

HALL, JAMES

1858. Geol. Surv. State of Iowa: Embracing the results of investigations made during portions of the years 1855, 1856 and 1857, vol. 1, part 2: Palaeontology, pp. 473-724, index pp. 1-3, pls. 1-29, text figs. 53-118.

1872. Description of new species of Crinoidea and other fossils from strata of the age of the Hudson River Group and Trenton Limestone. 24th Ann. Rep., N. Y. State Mus. Nat. Hist., pp. 205-224, pls. 5-8.

JAMES, U. P.

1878. Descriptions of newly discovered species of fossils from the Lower Silurian Formation—Cincinnati Group. *The Palaeontologist*, **1**, pp. 1-7. [Published by author.]
1887. *Agelacrinus holbrooki*. *Jour. Cincinnati Soc. Nat. Hist.*, **10**, no. 1, pp. 25-26, text figs. A and B.

KEYES, CHARLES ROLLIN

1894. Paleontology of Missouri, part 1, *Missouri Geol. Surv.*, **4**, 271 pp., 32 pls.

MILLER, S. A.

1891. Palaeontology. Preliminary remarks. *Advance Sheets, 17th Ann. Rept., Geol. Surv. Indiana*, pp. 1-103, pls. 1-20.
- 1892a. Palaeontology. Preliminary remarks. *17th Ann. Rept., Indiana Dept. Geol. Nat. Res.*, pp. 611-705, pls. 1-20.
- 1892b. Palaeontology. *Advance Sheets, Indiana Geol. Surv.*, **18**, 79 pp., 12 pls.
1894. Palaeontology. *18th Ann. Rept., Indiana Dept. Geol. Nat. Res.*, pp. 257-333, pls. 1-11.
1897. Second appendix to *North American Geology and Palaeontology*, pp. 719-793, text figs. 1,266-1,458.

MILLER, S. A. and C. B. DYER

1878. Contributions to palaeontology. *Jour. Cincinnati Soc. Nat. Hist.*, **1**, no. 1, pp. 24-39, pls. 1-2.

MILLER, S. A. and CHARLES FABER

1892. Some new species and new structural parts of fossils. *Jour. Cincinnati Soc. Nat. Hist.*, **15**, no. 2, pp. 79-87, pl. 1.
1894. Description of some Cincinnati fossils. *Jour. Cincinnati Soc. Nat. Hist.*, **17**, no. 3, pp. 137-158, pls. 7 and 8.

MILLER, S. A. and W. F. E. GURLEY

1894. New genera and species of Echinodermata. *Bull. Ill. State Mus. Nat. Hist.*, **5**, 53 pp., 5 pls.

MOORE, R. C., editor

1966. *Treatise on Invertebrate Paleontology, Part U, Echinodermata (3)*, 2 vols., 695 pp., 534 text figs. *Geol. Soc. Amer. and Univ. of Kansas Press*.

SHIDELER, W. H.

1918. A primitive type of *Agelacrinites* from the Richmond. *Ohio Jour. Sci.*, **19**, p. 58, pl. 5, figs. 29 and 30.

SHIMER, HERVEY W. and ROBERT R. SHROCK

1944. *Index Fossils of North America*. *New York*. 837 pp., 303 pls.

VANUXEM, LARDNER

1842. *Natural History of New York. Part 3. Geology of New York. Comprising the survey of the third geological district*, 306 pp., 80 text figs.



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