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PENNSYLVANIAN INVERTEBRATES
OF THE MAZON CREEK AREA, ILLINOIS

THE ESSEX FAUNA AND MEDUSAE

RALPH GORDON JOHNSON
AND
EUGENE S. RICHARDSON, JR.

FIELDIANA: GEOLOGY
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THE ESSEX FAUNA AND MEDUSAE

RALPH GORDON JOHNSON

Associate Professor of Paleontology, University of Chicago
Research Associate, Field Museum of Natural History

AND

EUGENE S. RICHARDSON, JR.

Curator of Fossil Invertebrates

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THE ESSEX FAUNA

In recent years the Peabody Coal Company has opened a strip mine, Pit Eleven, near Essex, Illinois. The fossil fauna of this mine and of the older MacElvane pit adjoining it, is dominated by marine forms. For convenience of reference, we have named this fauna the "Essex concretion fauna" in contrast to the "Braidwood concretion fauna" dominated by terrestrial forms (Johnson and Richardson, 1966). The fossils from the classic Mazon Creek localities and the older strip mines may be referred to the Braidwood fauna.

Most of the species in the Essex fauna are undescribed. Richardson (1966) has described the common, wormlike fossil *Tullimonstrum gregarium* and Johnson and Richardson (1968) have described a remarkable coleoid cephalopod *Jeletzkyia douglassae* from the Essex locality. The Essex fauna contains jellyfish, polychaete annelids, crustaceans, holothurians, and other typically marine forms. An enormous number of specimens are available for study, largely due to the work of many serious amateur collectors in the area. With their help and with funds provided by the National Science Foundation (grant GB 5772), we have undertaken an extensive study of the Essex fauna.

MEDUSAE

Jellyfish occur in the ironstone concretions as impressions. The concretions containing large specimens follow in outline the form of the enclosed fossil. The preservation of such delicate structures as tentacles, even as an impression, suggests that the concretionary regime developed very early. In addition to the two species described here, there are other Essex fossils of uncertain zoological affinities which may represent medusoids.

DESCRIPTION OF SPECIES

Phylum Coelenterata

Class Scyphozoa

Order Carybdeida



FIG. 57. *Anthracom edusa turnbulli*, new species, holotype. $\times .7$. FMNH no. PE 10500.

Anthracom edusa, new genus

Since but a single species is known, the characterization of the genus must be the same as that of the species.

Genotype.—*Anthracom edusa turnbulli*, new species.

Anthracom edusa turnbulli, new species

Figures 57-59

Description.—A small to moderate sized medusa. The cuboidal bell bears many tentacles on a short pedalium at each of the four bell corners. The margins of the bell are simple. The tentacles do not exceed in length the width of the bell.

Holotype.—FMNH no. PE 10500, one-half of a large concretion collected in 1965 by James Turnbull from Pit 11 of the Peabody Coal Co., Essex, Illinois (fig. 57).



FIG. 58. *Anthracomedusa turnbulli*, new species, paratype. $\times 1$. FMNH no. PE 10501. An oblique compression.

Paratypes.—FMNH nos. PE 10501 (fig. 58), collected by James Turnbull, and PE 10951 both from Pit 11 of the Peabody Coal Co. Essex, Illinois.

Remarks.—More than 20 well-preserved specimens have been examined. The bell width varies from 28 to 100 mm. and the maximum tentacle length is 100 mm. Except for the general outline, there is little detail shown by the fossils. The holotype exhibits two faint lines running to each bell corner that probably represent septa. The cuboidal form and the cluster of tentacles borne at bell corners place *Anthracomedusa* in the order Carybdeida (Cubomedusae).

According to Hyman (1940) the Carybdeida are the most primitive of the Recent scyphozoans. Modern carybdeids are small and characteristically occur in warm, shallow waters. *Anthracomedusa* is the oldest known member of the order and may be the oldest known member of the subclass Scyphomedusae. Three imperfectly known genera from the lower Cambrian have been tentatively referred to this subclass (Harrington and Moore, 1965).



FIG. 59. *Anthracomedusa turnbulli*, new species. $\times 1$. From the collection of Mr. Francis Tully.

The trivial name is proposed in honor of Mr. James Turnbull who collected the holotype and one of the paratypes and donated them to the Museum.

Class Uncertain

Octomedusa, new genus

Figures 60-62

Since but a single species is known, the characterization of the genus must be the same as that of the species.

Genotype.—*Octomedusa pieckorum*, new species.

Octomedusa pieckorum, new species

Description.—A small octagonal medusoid bearing eight tentacles of approximately equal length. The velum (or velarium) is narrow. A large central impression of the manubrium bears a cruciform mouth. Tentacles vary in length but do not exceed the diameter of the bell.

Holotype.—FMNH no. PE 11410, one-half of a small concretion collected by Mr. and Mrs. Ted Piecko from Pit 11 of the Peabody Coal Co., Essex, Illinois (fig. 60).



FIG. 60. *Octomedusa pieckorum*, new species, holotype. $\times 5$. FMNH no. PE 11410.

Paratypes.—FMNH nos. PE 11377 (fig. 61) and PE 11411 (fig. 62) collected from Pit 11 of the Peabody Coal Co., Essex, Illinois.

Discussion.—About 15 specimens of *Octomedusa pieckorum* have been examined. The diameter of the bell was found to range from 6.5 to 17.5 mm. The maximum length of the tentacles varies from 4 to 10 mm. In no instance do the tentacles exceed the diameter of



FIG. 61. *Octomedusa pieckorum*, new species, paratype. $\times 4$. FMNH no. PE 11377. An oblique compression.

the bell. The manubrium is represented by a square central impression about 1 by 1 mm. The width of the velum is from 1 to 2 mm.

Although *Anthracomedusa* and *Octomedusa* are rare in the Essex fauna, it is our impression that *Anthracomedusa* is the more abundant of the two. The preserved features of *Octomedusa* are so general that it is not possible to assign this jellyfish to either the Hydrozoa or Scyphozoa.

The trivial name is in honor of Mr. and Mrs. Ted Piecko, who donated the holotype to the Museum and who have aided our studies of the Essex fauna in many ways.



FIG. 62. *Octomedusa pieckorum*, new species, paratype, showing cruciform mouth. $\times 2.6$. FMNH no. PE 11411.

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