

Crataegocrinus toniellii n. gen. n. sp. from the Dogger of the Central Apennines

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ABSTRACT — A new cyrtocrinid is described from the Dogger of the Central Apennines. It is named *Crataegocrinus toniellii*, and it is included in the suborder *Cyrtocrinina* Sieverts-Doreck, 1952, family *incertae sedis*. Scarcity of material, only three cups, prevents us to establish a new family.

RIASSUNTO — [*Crataegocrinus toniellii* nuovo genere e nuova specie del Dogger dell'Appennino centrale] — Viene descritto un nuovo crinoide cyrtocrinide, *Crataegocrinus toniellii* n. gen. n. sp., rinvenuto in strati del Dogger dell'Appennino Umbro-Marchigiano. La sua posizione sistematica è discussa e l'opportunità di istituire per esso una famiglia è per il momento respinta per la scarsità del materiale.

INTRODUCTION

Crataegocrinus toniellii n. gen. n. sp., Cyrtocrinid crinoid, is described from the Dogger of the Central Apennines. This crinoid, for the characteristics and the age seems very interesting for the phylogeny of the suborder *Cyrtocrinina* Sieverts - Doreck, 1952.

Three cups, two of mature specimens and one juvenile, were found in the lower part of the « Posidonia beds » outcropping along the road from Pianello to Pieia, near Gubbio. Cups of *Eugeniocrinites* sp. and stem articles of *Isocrinids* come from the same strata.

This locality is already well known in the geological literature (Centamore *et al.*, 1971; Farinacci *et al.*, 1981) and there a lacunose sequence of the Umbro-Marchean facies is outcropping.

Age of these strata can not be exactly defined neither from published papers nor from field data, nevertheless we are sure of Dogger interval; further considerations, mainly on regional scale, suggest a Bajocian age (Conti and Cresta, 1982; Farinacci *et al.*, 1981).

SYSTEMATICS

Subclassis ARTICULATA Zittel 1879
Order CYRTOCRINIDA Sieverts-Doreck 1952
Suborder CYRTOCRININA Sieverts-Doreck 1952
Family *incertae sedis*
Genus CRATAEGOCRINUS n. gen.

Type species — *Crataegocrinus toniellii* n. sp.

Description — Cup very large, broad, relatively flat, lobate in outline, with five RR, perfectly symmetric, radial articular facet for arms semilunate, wide and radially narrow, gently outwarding; interradial processes short and low, complicated by terrace-like lateral structures; articular facet for column with regularly arranged, thin crenulae, placed in deep, concave, underside of the cup (arms and stem elements unknown).

Derivatio nominis — For the likeness, in ventral view, with the hawthorn flower, *Crataegus oxyacantha* Linneo.

Remarks — The new genus is, for few aspects, similar to some forms ascribed to *Eugeniocrinites* Miller, 1821; it differs from them for the shape of interradial processes, for the dimensions and kind of arti-

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cular facet with the column, for the feature of the underside of the cup and for the total dimensions.

The new genus could be included into the Euge-niacrinitidae but seems useless make that; mostly because its characteristics suggest a functionality very different by the one of the known representatives of that family.

Therefore we prefer let open the family nomenclature of the new genus awaiting other finding or further studies.

In fact scarcity of material and lack of arms and columnalia elements prevent us to establish, at the moment, a new family also if that seems suitable.

There, it seems necessary to underline that the diagnoses of the families of the Cyrtocrinids seem not enough restrictive.

CRATAEGOCRINUS TONIPELLII n. sp.

Text-fig. 1

Description — Cup large, flat (radial-interradial diameter 15.1 mm, height 7.8 mm) with clearly lobed feature, formed by five RR, there is not trace of basal plates, not even vestiges. The outer surfaces of the radials are convex and smooth; the sutures are well distinct, overall towards ventral side, where they are more incise, while on dorsal side the radials are perfectly in contact and the sutures are distinguishable too, but not sunk. The articular facet with columnals occupies approximatly the half of the basal surface of the cup, it is placed in a deep cavity, rounded by a collar; traces of radial crenellae, regularly arranged, are preserved. The ventral side, very complex, is characterized by a definitely lobed outline.

The interradial processes, very characteristic, are

short, stout and they reach to $3/4$ of the radium of the cup measured in radial-interradial direction; in cross section and radial direction they are crescent in shape; laterally they are complicated by two terrace-like structures, petaloids in ventral view. Radial facets are tight and practically limited on the lobes by the interradial processes; between terrace-like processes they moved outwards. Elements of the facet are all very little. Elements of the arms and column are unknown.

Derivatio nominis — Dedicated to our friend R. Tonielli.

Holotype — NS 6/46.

Paratypes — NS 6/44, NS 6/45.

Type locality — The road from Pianello (Pesaro) to M. Nerone, three kilometer after Pianello.

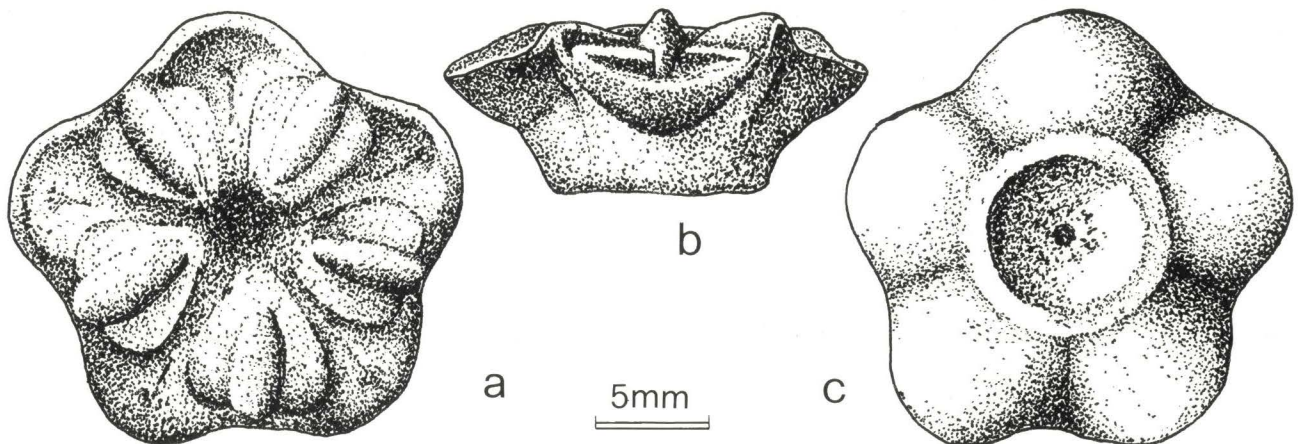
Type level — Dogger (probably Bajocian)-Lower « Posidonia beds ».

Material — Two cups of mature specimens (NS 6/45, NS 6/46) and one cup of juvenile specimen (NS 6/44).

NS 6/46 better preserved specimen, NS 6/45 used specimen with only dorsal side well preserved, NS 6/44 juvenile specimen moderately well preserved.

Preservation of the juvenile specimen permits the observation of all characters with exception of the interradial processes, deeply used; in spite of that specimen is ascribed to the new species for the perfect correspondence of all the other characters, but it is impossible to know if terrace-like structures are present in juvenile stage of life.

Remarks — Specimens preservation make us able



Text-fig. 1 - *Crataegocrinus toniellii* n. gen., n. sp. a) ventral view, b) lateral view, c) dorsal view. (NS 6/46)

to reconstruct, with very little doubts, the morphology of the ventral side of our specimens. As said, the new taxon shows comparatively little arm articular facets; the little articular facet of the cup, placed in a deep cavity and surrounded by a ring; the general shape strongly lobate of the radial facets that are large and radially little.

This morphology and the large dimensions — specimen NS 6/46 is lightly more large than known largest *Psalidocrinidae*, Zitt 1978, and it is strongly larger than all the other *Cyrtocrinina* (Zitt 1974a, 1976, 1978) — suggest a form with together ancestral and modern characters, last ones will appear later and separately in different genus and species; mostly during phases of spreading of Mesozoic stemmed crinoids. In fact the new form presents some relationships in the cup shape with ancient species found at the beginning of the stratigraphical distribution of the genus *Eugeniocrinites* Miller 1821 (Pisera and Dzik 1979; Loriol 1882-1884); it could be considered similar to the *Sclerocrinidae*, in the generalized shape formula; for short interradian processes like *Sclerocrinidae*, some *Plicatocrinidae* and the same *Eugeniocrinitidae* — cups ascribed to *Lonchocrinus*, some *Eugeniocrinites*, *Pilocrinus* (*sensu* Rasmussen 1978) — and it is comparatively similar to some *Plicatocrinidae* (Jaekel 1893) for the general feature of the articular facets.

Moreover it presents a shape strongly lobate, characteristic of *Phyllocrinidae*, *Psalidocrinidae* and probably of juveniles of *Eugeniocrinites* (this character tends to disappear in adult individuals - Zitt 1974a). To concern about articular facet with columnals and general features of dorsal part, *Phyllocrinus* (*Apsidocrinus*) *moeschi* (Zittel) and *Pilocrinus* *moussoni* (Desor) seem to have a morphology similar enough. Certainly *Crataegocrinus toniellii* doesn't show particular adaptation or abnormal development of the interradian processes as occurs in *Phyllocrinus*, *Eugeniocrinites*, *Psalidocrinus* and *Emicrinus* that are among the more specialized representatives of the subordo *Cyrtocrinina* (Zitt 1978; Rasmussen 1978); it doesn't present however more primitive characters (as vestige of basal circlet or particular asymmetries like *Plicatocrinus* and *Sclerocrinus* (Jaekel 1893; Zitt 1974). Apart this purely morphological discussion we must emphasize that the most important characters, as interradian processes (with characteristic terraces), radial facets and free surfaces of the cup, particularly developed, suggest a very different functionality as to that of more developed representatives of suborder.

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REFERENCES

- CENTAMORE, E., CHIOCCHINI, M., DEIANA, G., MICARELLI, A., PIERUCCINI, U., 1971, Contributo alla conoscenza del Giurassico dell'Appennino umbro-marchigiano: Studi Geologici Camerti, pp. 7-89, 17 tabb., 45 tavv.
- CONTI, M.A. and CRESTA, S., 1982, Considerazioni stratigrafiche e paleoecologiche sui « Livelli a Posidonie » (Auct.) dell'Appennino Umbro-Marchigiano: Paleont. stratigrafica ed Evoluzione, quaderno n. 2, pp. 73-80.
- FARINACCI, A., MARIOTTI, N., NICOSIA, U., PALLINI, G., SCHIAVINOTTO, F., 1981, Jurassic sediments in the umbro-marchean Apennines: an alternative model. In A. Farinacci e S. Elmi (Eds.). Rosso Ammonitico Symposium Proc., pp. 335-398, Tecnoscienza, Roma.
- JAEKEL, O. 1892, Ueber Plicatocriniden, *Hyocrinus* und *Saccocoma*: Deutsche Geol. Gesell., Zeitschr., v. 44, pp. 619-636 Berlino.
- LORIOLE, DE P., 1882-89, Paléontologie française, ou description des fossiles de la France, Sér. 1, Animaux invertébrés. Terrain jurassique: v. 11, Crinoïdes, Masson G. (ed.), Paris.
- PISERA, A. and DZIK, J. 1979, Tithonian crinoids from Rogoznik (Pieniny Klippen Belt, Poland) and their evolutionary relationships: Eclogae geol. Helv., v. 72/3, pp. 805-849, 5 tavv., 15 figg., Basilea.
- RASMUSSEN, H. W., 1978, Evolution of Articulate Crinoids. In R.C. Moore, Treatise on Invertebrate Paleontology, Part T, Echinodermata 2, v. 1.
- ZITT, J., 1974, *Sclerocrinus* Jaekel, 1891 and *Probolopus* Jaekel, 1907 (Crinoidea, Cyrtocrinida) from the Lower Cretaceous of Stramberk (Czechoslovakia): Sbor. Geol. Ved. Paleont., v. 16, pp. 7-32, 8 tavv., 12 figg., Praga.
- , 1974 a, *Eugeniocrinites* Miller, 1821 from the Lower Cretaceous of Stramberk: Vest. Ustr. ust. geol., v. 49, pp. 265-272, 4 tavv., 4 figg., Praga.
- , 1976, *Phyllocrinus* d'Orbigny, 1850 (Crinoidea, Cyrtocrinida) from the Lower Cretaceous of Stramberk (Czechoslovakia): Cas. Mineral. Geol., v. 23 (1), pp. 39-51, 6 tavv., 9 figg., Praga.
- , 1978, *Apsidocrinus* Jaekel, 1907 and *Psalidocrinus* Remes, 1913 (Crinoidea, Cyrtocrinida) from the Lower Cretaceous of Stramberk (Czechoslovakia): Sbor. Geol. Ved. Paleont., v. 21, pp. 107-124, 9 tavv., 6 figg., Praga.

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