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Revision of some problematic Early Cretaceous ammonite species described by H. Coquand (1880)

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ABSTRACT

The finding and analysis of the type specimens of some Barremian ammonite species described, but not depicted by Coquand (1880, Bull. de l'Acad. d'Hippone 15, 1-449), has led us to the revise their current interpretation. The purpose of the manuscript is to re-describe the three most commonly used Early Cretaceous species described by Coquand (1880, Bull. de l'Acad. d'Hippone 15, 1-449) and is to consider one species as a *nomen dubium*. The original type material of *Holcodiscus diversecostatus*, *Holcodiscus metamorphicus* and *Heinzia heinzi* shows that these species have been usually misidentified in the literature. We designate lectotypes for these species, thus amending some previous invalid designations, and fully discuss their actual status and synonymy. In addition, we conclude that the use of the nominal species *"Ammonites mazuca"* should be fully avoided, it is considered as a *nomen dubium*. The type material is apparently seems to be lost so its application is very doubtful.

1. Introduction

Henri Coquand (1813–1881) was an influential geologist of his time. Professor of Geology and Mineralogy at the universities of Besançon and Marseille, he carried out many geological and palaeontological studies in different European and North-African areas. Shortly after his death, his huge paleontological collection, mainly composed of materials from Algeria, France and Spain, was sold by his inheritors to Count Andor Semsey, the greatest patron of the Hungarian science, who immediately (in 1882) donated the collection to the Hungarian Geological Institute, where it is still held today.

In his last publication, Coquand (1880) described, among many other invertebrate fossils from the Jurassic and Cretaceous of the Constantine region (northeastern Algeria), more than 30 new species of ammonites from the "Neocomian" (in reality, Barremian and Aptian) of Djebel Ouach, Duvivier (now Bouchegouf) and some other localities. Unfortunately, Coquand provided no figures and only short diagnoses of the new taxa, which made very difficult their identification. In 1886, Charles Heinz, a local amateur palaeontologist who had collected many of the fossils studied by Coquand, printed five plates with pictures of many of the species described by Coquand. Nevertheless, as the original type specimens had remained in the Coquand Collection, then already moved to Budapest. Heinz had to trust his memory in order to identify the specimens he figured (Sayn, 1891; Papier, 1896). This would explain the patent divergences between some of the Heinz's figures and the original diagnoses by Coquand. Despite this and the fact that his plates were never effectively published, most of the subsequent authors have followed the interpretations of Heinz.

The present work has been developed in the framework of a project led by one of us (O. Szives) and set in motion in 2005 in order to review the remaining Cretaceous ammonite material of the Coquand Collection in the Geological Museum of Hungary (GMH). The scientific importance of Coquand's ammonite collections is well-known by the specialists, due to his 109 published, new Cretaceous ammonite species, from which approximately two dozens are in common use, besides the more-or-less dozen biostratigraphically important species. Unfortunately, the decades of wars and the political situation led to the slight scientific forgottening of the collection and most of the publications after Pervinquiére (1910) cited Coquand's types as "lost" items.

The purpose of the manuscript is to re-describe the four most commonly used Early Cretaceous species described by Coquand (1880), of which original types were found in the collection. Because of their important stratigraphic position and the commonly used, widespread misinterpretation of them, these specimens are taken out from the more than 30 new Early Cretaceous species of Coquand and described separately from the rest of the material hoping to be published soon in a monograph.

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Here we revise the usual interpretation of four Barremian species in the light of the rediscovered type material. These species are: *Holcodiscus diversecostatus*, *Holcodiscus metamorphicus*, and *Heinzia heinzi*. We also include *"Ammonites mazuca"* Coquand in the present discussion due to the recently published misleading statements on its type material that, unfortunately, seems to be lost from the Coquand Collection.

2. Material studied

All the specimens described below are preserved as pyritized internal moulds corresponding to early whorls of the phragmocone. They belong to the former Coquand Collection, reposited in the Geological Museum of Hungary (GMH), and are temporarily housed at the Department of Palaeontology and Geology of the Hungarian Natural History Museum. In the descriptions, the following abbreviations are used for measured parameters: (D) for the mould diameter, (U) for the diameter of the umbilicus, (Wh) for the whorl-height and (Wb) for the whorl breadth. (Wb)/(Wh) ratio is also given. All measurements are expressed in millimetres.

3. Paleontologic descriptions

Order Ammonitida Agassiz, 1847
Suborder Ammonitina Hyatt, 1889
Superfamily Perisphinctoidea Steinmann, 1890
Family Holcodiscidae Spath, 1923
Genus *Holcodiscus* Uhlig, 1882
Type species: *Ammonites caillaudianus* d'Orbigny, 1850

Holcodiscus diversecostatus (Coquand, 1880)
Plate 1, Fig. 1A and B

* 1880 *Ammonites diverse-costatus* Coquand, p. 19
non 1886 *Ammonites diverse-costatus* Coquand – Heinz, pl. 1
pars 1890 *Holcodiscus diverse-costatus* Coq. – Nicklès, p. 26; pl. 1, figs. 21–24; pl. 2, figs. 14–19; pl. 4, fig. 1; text-figs. 29–34; non pl. 1, fig. 20a, b
non 1891 *Holcodiscus diverse-costatus* Coquand – Sayn, p. 183; pl. 3, figs. 1a–d, 2a, b
non 1907 *Holcodiscus diverse-costatus* Coq. – Karakasch, p. 118; pl. 9, figs. 15a, b, 16
1907 *Holcodiscus Nicklesi* Karakasch, p. 119
non 1912 *Holcodiscus diversecostatus* Coq. – Joleaud, p. 123; pl. 1bis, figs. 24–25
1935 *Holcodiscus diversecostatus* Coq. – Tzankov, p. 82; pl. 6, figs. 8–9
non 1960 *Holcodiscus diverse-costatus* Coquand – Drushchits, p. 305; pl. 46, fig. 8a, b
? 1966 *Holcodiscus nicklesi* Karakasch – Breskovski, p. 104; pl. 10, fig. 4
non 1967 *Holcodiscus diversecostatus* (Coquand) – Dimitrova, p. 158; pl. 78, fig. 8
? 1967 *Holcodiscus nicklesi* Karakasch – Dimitrova, p. 159; pl. 78, fig. 3 (=Breskovski, 1966, pl. 10, fig. 4)
non 1985 *Holcodiscus diversecostatus diversecostatus* (Coquand) – Tzankov and Breskovski, p. 34; pl. 8, figs. 23–24
? 1985 *Holcodiscus nicklesi* Karakasch – Tzankov and Breskovski, p. 36; pl. 9, figs. 3–4 (=Breskovski, 1966, pl. 10, fig. 4)
non 1995 *Holcodiscus diversecostatus* (Coquand) – Company et al., fig. 8c
non 1995a *Holcodiscus diversecostatus* (Coquand) – Avram, p. 22; pl. 4, fig. 22
non 1995b *Holcodiscus* cf. *diversecostatus* (Coquand) – Avram, pl. 18, fig. 30a, b

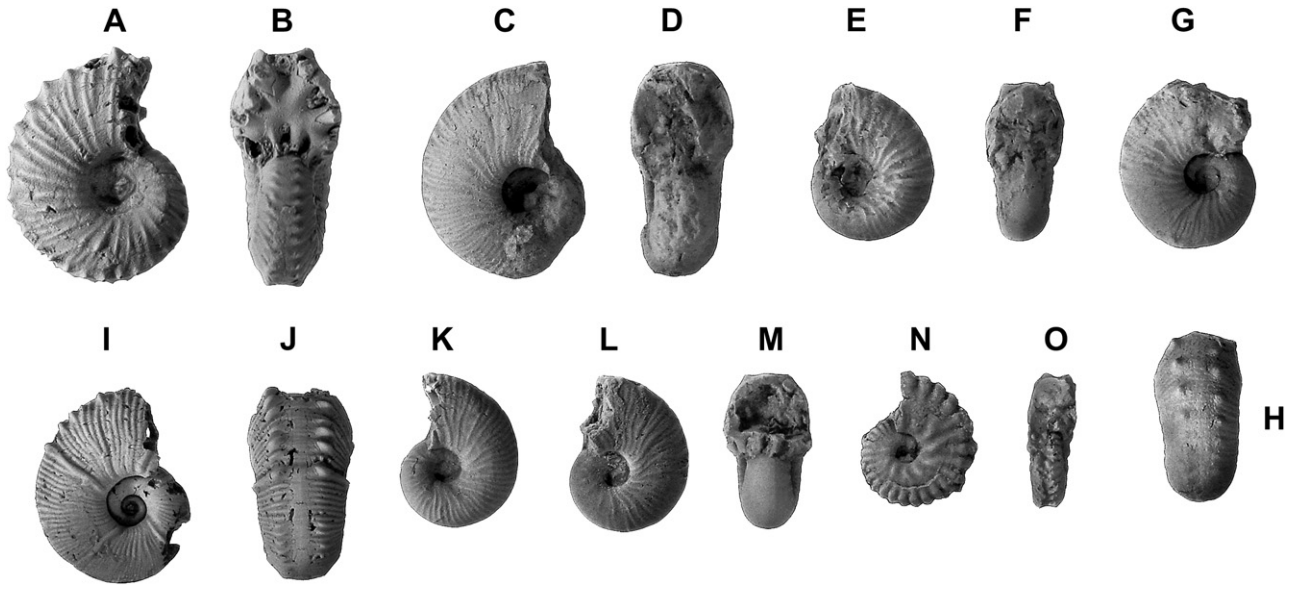

Fig. 1. (A) *Holcodiscus diversecostatus* (Coquand, 1880), lateral view, lectotype, GMH K8128, Duvivier, Algeria. (B) *Holcodiscus diversecostatus* (Coquand, 1880), apertural view, lectotype, GMH K8128, Duvivier, Algeria. (C) *Holcodiscus metamorphicus* (Coquand, 1880), lateral view, lectotype, GMH K8086a, Djebel Ouach, Algeria. (D) *Holcodiscus metamorphicus* (Coquand, 1880), apertural view, lectotype, GMH K8086a, Djebel Ouach, Algeria. (E) *Holcodiscus metamorphicus* (Coquand, 1880), lateral view, GMH K8087a, Djebel Ouach, Algeria. (F) *Holcodiscus metamorphicus* (Coquand, 1880), apertural view, GMH K8087a, Djebel Ouach, Algeria. (G) *Holcodiscus metamorphicus* (Coquand, 1880), lateral view, GMH K8127a, Duvivier, Algeria. (H) *Holcodiscus metamorphicus* (Coquand, 1880), ventral view, GMH K8127a, Duvivier, Algeria. (I) *Holcodiscus* cf. *metamorphicus* (Coquand, 1880), lateral view, GMH K8127b, Duvivier, Algeria. (J) *Holcodiscus* cf. *metamorphicus* (Coquand, 1880), ventral view, GMH K8127b, Duvivier, Algeria. (K) *Holcodiscus metamorphicus* (Coquand, 1880), lateral view, GMH K9163b, Djebel Ouach, Algeria. (L) *Holcodiscus metamorphicus* (Coquand, 1880), lateral view, GMH K9163a, Djebel Ouach, Algeria. (M) *Holcodiscus metamorphicus* (Coquand, 1880), ventral view, GMH K9163a, Djebel Ouach, Algeria. (N) *Heinzia heinzi* (Coquand, 1880), lateral view, lectotype, GMH K8029, Djebel Nador, Algeria. (O) *Heinzia heinzi* (Coquand, 1880), apertural view, lectotype, GMH K8029, Djebel Nador, Algeria. All specimens illustrated are magnified twice and temporarily borrowed and deposited in the Department of Palaeontology and Geology of the Hungarian Natural History Museum, but are repositored property of the Geological Museum of Hungary (GMH).