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ABSTRACT BOOK

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Class Stylophora: What's new since the last IEC (Nagoya, 2018)?

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Stylophorans are a clade of Palaeozoic (Wuliuan–Bashkirian) vagile echinoderms consisting of a single articulated appendage (aulacophore) and a more or less asymmetrical flattened theca. Along with glyptocystitid rhombiferans, eocrinoids and solutans, they were one of the major components of the cosmopolitan, low diversity echinoderm assemblages typical of soft substrate communities across the Cambrian–Ordovician boundary. In the first edition of the *Treatise on Invertebrate Paleontology*, stylophorans were elevated to class level (Ubaghs, 1968), and they were subdivided into the two orders Cornuta and Mitrata originally defined by Jaekel (1918). Over the past 50 years, the debates about their anatomy, mode of life and phylogenetic position within the deuterostomes have fueled an abundant literature, so that stylophorans have become one of the most studied and best known groups of Palaeozoic echinoderms.

Since the last International Conference on Echinoderms in Nagoya (2018) and the launch of the revision of volume S of the *Treatise on Invertebrate Paleontology*, major advances have been achieved for the chapter on Stylophora. The description of exceptionally preserved soft parts in the aulacophore and the theca (ambulacral and digestive systems) of cornutes from the Fezouata Lagerstätte (Lower Ordovician, Morocco) has provided new critical data on their anatomy (Lefebvre *et al.*, 2019), which confirmed the interpretation originally proposed by Ubaghs (1968). Extensive monographic studies devoted to mitrates (Lefebvre & Ausich, 2021; Lefebvre *et al.*, 2022a) and cornutes (Lefebvre *et al.*, 2022b) summarized and updated current knowledge on stylophoran anatomy, morphology, taphonomy, plate homologies and systematics, thus providing a firm framework for the chapter on Stylophora in the revised edition of the *Treatise*. Ongoing and future research includes additional reports of exceptionally preserved soft parts, as well as the description of several Cambro–Ordovician taxa from China and Morocco, which are essential for elucidating plate homologies and stylophoran phylogeny.

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