PROPOSALS TO CONSERVE OR REJECT NAMES

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(2607) Proposal to conserve the name Heterocapsa (Dinophyceae) with a conserved type

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We analysed Ehrenberg’s original material of G. triquetrum at the Institut für Paläontologie, Museum für Naturkunde, Berlin (BHUPM), with the conclusion that Stein never consulted any original material of G. triquetrum before publishing the new combination H. triqueta. The confusion associated with the name H. triqueta, and its fatal nomenclatural consequences, are surveyed in detail in Gottschling & al. (l.c.). These authors noted that Stein (l.c.) considered Heterocapsa to be a flagellate and an animal, and so its publication falls under the rules of the ICZN (Ride & al., Int. Code Zool. Nomencl., ed. 4. 1999 & http://www.nhm.ac.uk/hosted-sites/iczn/code/). This is important for two reasons:

(i) Because Stein included more than one species in Heterocapsa, Art. 38.5 of the ICN (McNeill & al. in Regnum Veg. 154. 2012) does not apply. The description applicable explicitly to the taxon at generic level is very brief: “Am Hinterleibe konnte ich nur schwache Spuren von Gliederung wahrnehmen” (at the abdomen, I observed weak structures only), but Stein (l.c.: 13) provided clear diagnoses against Glenodinium having no shell: “[die]Gatt. Glenodinium ist […] auf solche Peridiniden zu beschränken, welche einen ganz homogenen, nicht getüftelten Panzer besitzen” (the genus Glenodinium is to be restricted to such peridiniids with an entirely homogenous shell without pattern), whereas Heterocapsa has a shell (though incomplete); and against Peridinium having an alternative pattern than Heterocapsa: “Vorderleib[e] […] aus […] fast gleich grossen[Tafeln […]], die sich nicht auf die Zahlenverhältnisse und die Gliederungsweise der Peridinien zurückführen liessen” (prosoma consisting of plates almost equal in size, which do not correspond to the numbers and arrangements in Peridinia).

We conclude that the generic name satisfies the requirement of Art. 38.1(a) of the ICN, but, if it were thought not to do so, as, prior to 1931, a generic name was made available under the ICZN (Art. 12.2.5 and example; Ride & al., l.c.: 16) by “the use of one or more available specific names in combination with it”, Heterocapsa would in any case be validly published under the provisions of Art. 45.1 of the ICN.

(ii) Although the name Heterocapsa was clearly accepted by Stein (l.c.) in other parts of this original publication (for example the detailed legends to the figures) and was not “merely proposed in anticipation of the future acceptance of the taxon”, Stein also wrote “Deshalb habe ich aus dem Glenodinium triquetrum ohne eigene, jedoch nur provisorische Gattung Heterocapsa gebildet” (Therefore, I have formed from Glenodinium triquetrum a separate, but only provisional, genus Heterocapsa), and this could be considered contrary to Art. 36.1 of the ICN, even as this article was amended at the Shenzhen Congress (see Turland & Wiersema in Taxon 66: 246. 2017; Turland & al. in Taxon 66: 1240. 2017). However, as before 1961, Art. 11.5.1 of the ICZN (Ride & al., l.c.: 11) provided that a name was not made unavailable by being “proposed conditionally”; and Heterocapsa is again, in any case, validly published under Art. 45.1 of the ICN.

Because Stein (l.c.) misapplied Ehrenberg’s (l.c.) G. triquetrum to Heterocapsa, no validly published species name has existed for H. triqueta sensu Stein (l.c.) until, therefore, Tillmann & al. (l.c.: 1320) described a new species, namely Heterocapsa steinii Tillmann & al., typified with Stein’s (l.c.) illustration (and epitypified with newly collected material from the type locality). Following the guidelines specified by McNeill & al. (in Taxon 64: 163–166. 2015; cf. bullet point (2) under “Conservation and rejection procedures”) and applying ICN Art. 14.9, we here propose to conserve the name Heterocapsa with H. steinii as conserved type (procedure 2).
Acceptance of our proposal will permanently link the historical and current usage of *Heterocapsa* formally to this name, but remove a severe pitfall in dinoflagellate nomenclature and will assure the current usage of *Heterocapsa*, an important and frequently applied protist name (Tillmann & al., l.c.: 1305–1307). As a consequence, it is necessary to accept the name *H. steinii* for the species formerly known as *H. triquetra*, which was consistently misapplied for more than a century. We consider this name change an advantage rather than a disadvantage, as future students of the species using this correct name will demonstrate their awareness of the nomenclatural problem surveyed here and in Gottschling & al. (l.c.). If students use the name *H. triquetra* in future, then, until a decision is made on the present proposal, it remains unclear whether the historic usage (i.e., species of *Heterocapsa*) or the nomenclaturally correct determination (i.e., species of *Kryptoperidinium*) is being adopted.

Rejection of the present proposal (and if no further formal action is taken) will force two well-established generic names of dinoflagellates to change. Specifically, the taxonomic concept of *Heterocapsa* will shift from Stein’s (l.c.) work to the taxon that was originally described by Ehrenberg (l.c.) corresponding to the modern concept of *Kryptoperidinium*. Under such a scenario, all species currently assigned to *Heterocapsa* would have to be transferred to *Cachonina* A.R. Loebl. (in Proc. Biol. Soc. Wash. 81: 92. 1968; Morrill & Loebllich III. in J. Plankt. Res. 3: 53–66. 1981), and *Kryptoperidinium* would become a later synonym of *Heterocapsa* requiring transfers to the latter taxon. Two common, well-studied species currently referred to as *H. triquetra* and *Kryptoperidinium foliaceum* (F. Stein) Er. Lindem. would also be forced to change names and concepts. Particularly, the well-established name *H. triquetra* must be currently applied for a species with which nobody associates it. This radical change would most probably not be accepted by the scientific community and with the present proposal, we aim at cutting the Gordian knot described in Gottschling & al. (l.c.).