

Case 2753***Cycloceras* M'Coy, 1844 (Mollusca, Nautiloidea): proposed designation of *C. laevigatum* M'Coy, 1844 as the type species, and proposed designation of a neotype for *C. laevigatum***

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Abstract. The purpose of this application is to stabilise the generic name *Cycloceras* M'Coy, 1844 for an important group of Carboniferous nautiloids by designating *C. laevigatum* M'Coy, 1844 as its type species and designating a neotype for that species.

1. M'Coy (1844, p. 6), in describing cephalopods from the Carboniferous Limestone of Ireland, established the generic name *Cycloceras* for 'those conical species marked with prominent concentric rings, and having the surface frequently sculptured with transverse scaly laminae, and often decussated; siphuncle dorsal'. A line drawing (fig. 6) accompanying this description showed an annulated conch with both longitudinal and transverse striations; this figure was not identified at specific level. M'Coy (p. 10) described three nominal species under the name *Cycloceras* — *Orthocera annularis* Fleming, 1815, *Cycloceras laevigatum* sp. nov. and *Orthoceras lineolatum* Phillips, 1841; none was designated as type species of *Cycloceras*. Only one of these species, *C. laevigatum*, was figured (pl. 1, fig. 3); this specimen is in the collections of the National Museum of Ireland. None of the three species included in *Cycloceras* shows the longitudinal striae which were a prominent feature of the line drawing illustrating the genus *Cycloceras* (fig. 6).

2. This contradiction between the line drawing of the genus *Cycloceras* and the features of the included species has been tackled in different ways by different workers.

3. Foord (1897, pp. 14–16, pl. 5, fig. 1a–e) described several specimens which he called *laevigatum* M'Coy. He assigned that nominal species to *Orthoceras* Bruguière, 1789 although he was well aware of the genus *Cycloceras*.

4. In 1884 Hyatt (p. 275) redefined the genus *Cycloceras*, using only the species described by M'Coy and not the generic diagnosis, as transversely striated Palaeozoic longicones which at some stage of their growth have annular costae. However, in the Zittel-Eastman *Text-book of Palaeontology* (1900, p. 518), Hyatt based his definition of *Cycloceras* on M'Coy's generic description, stating that it included annulated orthoceracones and cyrtoceracones with discontinuous longitudinal ridges.

5. In 1915 Bassler (p. 325) listed several species of *Cycloceras* and designated *Orthocera annularis* Fleming, 1815 as the type species, presumably because it was the first species included in *Cycloceras* by M'Coy (1844).

6. In 1924 Foerste (p. 222), believing that M'Coy had included two distinct types of structure in his generic description, proposed *Orthoceras rugosum* Fleming, 1815 as the type species of *Cycloceras* on the grounds that it was the only species known in M'Coy's

time that resembled his generic line drawing in possessing both longitudinal and transverse striations. However, this type species designation is not valid since *O. rugosum* was not one of M'Coy's originally included nominal species. In the same paper Foerste (p. 224) proposed the genus *Perigrammoceras* for those species with only transverse striations. He designated as type species *Orthoceras laevigatum* 'as figured by Foord, in Carb. Ceph. Ireland, 1897, figs. 1d, 1e'. This specimen, which is the type specimen of *Perigrammoceras laevigatum* (as understood by Foerste), is preserved in the collections of the Geological Survey of Ireland (registered GSI: F03402).

7. In 1926 Croneis (p. 188) proposed *Cycloceras laevigatum* M'Coy as the type species of *Cycloceras* for 'annulated orthoceracones and cyrtoceracones with or without transverse striae or ribs'. He wrote: '... the genotype [type species] of *Perigrammoceras* is a species which probably should be designated as the genotype of the original *Cycloceras* of M'Coy'. Croneis (p. 192, footnote) considered *Perigrammoceras laevigatum* (M'Coy), as based on the specimen figured by Foord (1897), to be synonymous with M'Coy's original species *laevigatum*, thereby treating *Perigrammoceras* as a junior objective synonym of *Cycloceras*. Miller, Dunbar & Condra (1933, p. 47) and subsequent workers supported Croneis in considering *Perigrammoceras* to be a synonym of *Cycloceras*.

8. In the *Treatise on Invertebrate Paleontology*, Sweet (1964, p. K259) referred to *Perigrammoceras* as a possible synonym of *Cycloceras*, writing: 'Validity or invalidity of the suggested synonymy will depend on establishment of identity or lack of identity of internal structures in type-species of the two genera'. However, the specimen figured by Sweet (fig. 186, 2), which was refigured from Foord (pl. 5, fig. 1a), was not the specimen used by Foerste as the 'type' when establishing *Perigrammoceras* (see para. 6 above), but another Foord specimen (GSI: F03400) from the same locality. Sweet did not accept Croneis's selection of *C. laevigatum* as the type species of *Cycloceras* since it was based on an internal mould of a body chamber of an indeterminate orthoceracone. Sweet retained Bassler's designation of the nominal species *Orthocera annularis* Fleming, 1815 as the type species of *Cycloceras*.

9. The type specimen of *Cycloceras laevigatum* M'Coy (1844, pl. 1, fig. 3) (NMING: F7212) is an internal mould without internal morphological features. The type specimen of *Perigrammoceras laevigatum* (M'Coy) sensu Foerste (GSI: F03402) has been sectioned and is totally recrystallised internally with no features preserved. The type specimen of *Orthocera annularis* Fleming (R.S.M.1870.14.396) is a badly preserved sandstone cast; its internal morphology will never be known. *Orthoceras annulatum* Phillips, 1836, which M'Coy thought to be synonymous with *O. lineolatum* Phillips, 1841, has been assigned 'possibly' to *Reticyclocheras* Gordon, 1960 by D. Phillips (1985, p. 238).

10. The specimen figured by Foord (1897, pl. 5, fig. 1a, b) and by Sweet (see para. 8) as *Orthoceras laevigatum* (GSI: F03400) has been sectioned and has some internal morphology preserved. This specimen, in the collections of the Geological Survey of Ireland, is being redescribed and figured by me (in preparation). This is the first cited specimen suitable in its preservation to be designated as the neotype of *Cycloceras laevigatum* M'Coy, and I hereby propose its designation as such. The nomenclature of *Cycloceras* would be stabilised by confirmation of Croneis's (1926) designation of *C. laevigatum* M'Coy as type species. *Perigrammoceras* Foerste, 1924 has not been used for many years and can remain as a junior synonym of *Cycloceras*.

11. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary powers:
 - (a) to set aside all type species fixations for the nominal genus *Cycloceras* M'Coy, 1844 prior to that by Croneis (1926) of *Cycloceras laevigatum* M'Coy, 1844;
 - (b) to set aside all previous fixations of type specimen for *Cycloceras laevigatum* M'Coy, 1844, and to designate as neotype the specimen GSI: F03400, figured by Foord (1897, pl. 5, fig. 1a);
- (2) to place on the Official List of Generic Names in Zoology the name *Cycloceras* M'Coy, 1844 (gender: neuter), type species by subsequent designation by Croneis (1926) *Cycloceras laevigatum* M'Coy, 1844, as ruled in (1)(a) above;
- (3) to place on the Official List of Specific Names in Zoology the name *laevigatum* M'Coy, 1844, as published in the binomen *Cycloceras laevigatum* and as defined by the neotype designated in (1)(b) above (specific name of the type species of *Cycloceras* M'Coy, 1844).

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References

- Bassler, R.S. 1915. Bibliographic index of American Ordovician and Silurian fossils. *United States National Museum, Bulletin*, **92**(1): 1–718.
- Croneis, C. 1926. Notes on *Cycloceras* and associated genera. *American Journal of Science*, (5)**12**: 185–192.
- Foerste, A.F. 1924. Notes on American Paleozoic cephalopods. *Journal of the Scientific Laboratories of Denison University*, **20**: 193–268.
- Foord, A.H. 1897. Monograph of the Carboniferous Cephalopoda of Ireland, part 1. *Palaeontographical Society (Monograph)*, 1–22.
- Hyatt, A. 1884. Genera of fossil cephalopods. *Proceedings of the Boston Society of Natural History*, **22**: 253–338.
- Hyatt, A. 1900. Cephalopoda-Nautiloidea. Pp. 513–535 in Zittel, K.A. & Eastman, C.R. (Eds.), *Text-book of Palaeontology*. Macmillan, London.
- M'Coy, F. 1844. *A synopsis of the characters of the Carboniferous Limestone fossils of Ireland*. 207 pp. University Press, Dublin.
- Miller, A.K., Dunbar, C.O. & Condra, G.E. 1933. The nautiloid cephalopods of the Pennsylvanian System in the Mid-continent region. *Bulletin of the Nebraska Geological Survey*, **2**(9): 1–240.
- Phillips, D. 1985. The nautiloid *Brachycycloceras* in the Upper Carboniferous of Britain. *Palaeontology*, **28**: 235–242.
- Sweet, W.C. 1964. Nautiloidea-Orthocerida. Pp. K216–261 in Moore, R.C. (Ed.), *Treatise on Invertebrate Paleontology*, part K (Mollusca, 3). Geological Society of America and University of Kansas Press, Lawrence, Kansas.



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