Tortitaenia brookii sp. nov. (*Conjugatophyceae, Mesotaeniaceae*)

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In describing a new species of *Spirotaenia* Brébisson, Brook (1994) failed to designate a holotype as required by ICN Art. 9.1 (McNeil *et al.* 2012) to validate *Spirotaenia cambrica* Brook. This latter binary designation[1] was subsequently referred by Brook (1997) to his new genus *Polytaenia* Brook, but this name was a later homonym of *Polytaenia* A.P. de Candolle, 1829 (*Apiaceae*). Brook (1998) introduced a substitute genus name, *Tortitaenia* Brook for *Polytaenia* Brook, to which *Spirotaenia cambrica* Brook was transferred, unfortunately still lacking a type and thus also invalid.

Accordingly, under the strictures of ICN Art. 40.1 and 40.6, *Tortitaenia cambrica* and its supposed basionym *Spirotaenia cambrica* are both invalid. Given the confused nomenclatural history of the binary designations for this species it seems best to us to propose a new species name for this little desmid.

Tortitaenia brookii Kenins & Guiry, *sp. nov.*

Description (from Brook 1994: 223): "Cells short, cylindrical, tapering a short distance from their ends to relatively broad, truncate apices. One or two axile chloroplasts, with three or four ridges which spiral no more than, but of ten less than, one turn of the cell. Each chloroplast with one, though most commonly two, pyrenoids in their axis. Terminal vacuoles, minute, crescent-shaped, with one or more very small moving crystals, commonly in bead-like chains. Zygospore unknown."

Holotype: fig. 1 b in Brook (1994). A figure is chosen in accordance with Art. 40.5, as desmids are particularly difficult to preserve, and no material used by Brook can be traced. Of the several illustrations in Brook (1994, fig. 1), fig. 1b is chosen as it shows morphological aspects that separate this entity from other *Tortitaenia* entities and were most commonly observed in the studied population, *i.e*., two pyrenoids per chloroplast with a series of moving crystals forming chains, diminutive in size from one another, within the terminal vacuoles

Type locality: Small, shallow, acidic bog pools at Cors-y-Llyn [now a National Nature Reserve] near Newbridge-on-Wye, Wales, United Kingdom.

Eponymy: Named for Alan John Brook (1923-2013), British desmidologist.

Brook, A.J. (1994). A new species of *Spirotaenia, S. cambrica* (family Mesotaeniaceae) of the subgenus *Polytaeniae*, from mid-Wales. *Quekett Journal of Microscopy* 37: 191-194.

Brook, A.J. (1997). The proposed establishment of a new desmid genus *Polytaenia*, previously the sub-genus *Polytaenia* of the genus *Spirotaenia* and the description of a new species *P. luetkemuelleri*. *Quekett Journal of Microscopy* 38: 7-14.

Brook, A.J. (1998). *Tortitaenia* nom. nov. pro *Polytaenia* Brook, a name of a genus of saccoderm desmids. *The Quekett Journal of Microscopy* 38: 146.

Brook, A.J. & Williamson, D.B. (2010). *A monograph on some British desmids*. Order Zygnematales Suborder Zygonemoidiineae Family Zygnemataceae Subfamily

[1] ICN Art. 6.3 specifies that "…the word "name" means a name that has been validly published, whether it is legitimate or illegitimate…", and the term "binary designation" is used in the ICN. It is included (but not defined) in the ICN Glossary as "an apparent binary combination that has not been validly published."

Mesotaenioideae (Saccoderm desmids) and Suborder Closteriineae Family Peniaceae and Family Closteriaceae. Edited by J.H. Price & N.J. Evans. pp. [i-ii], iii-v [1-5], 6-364, 157 pls. London: The Ray Society.

McNeill, J., Barrie, F.R., Buck, W.R., Demoulin, V., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Marhold, K., Prado, J., Prud'homme van Reine, W.F., Smith, G.G., Wiersma, J.H. & Turland, N.J. (eds.). (2012). *International code of nomenclature for algae, fungi, and plants (Melbourne Code)*. *Regnum Vegetabile* vol. 154. Koeltz Scientific Books.