

Short note on three species of Ordovician Orchocladina (Demospongea, Porifera)

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The type and only specimen of *Fibrocoelia tubantiensis* Van Kempen, that was housed in the palaeontological collection of the Geological Institute of the University of Amsterdam, has been repositied in the Netherlands Centre for Biodiversity – Naturalis, Leiden, the Netherlands. *Syltrochos pyramidoideal* Von Hacht, placed in an uncertain order and family by Finks & Rigby, is revised on the basis of new material. This has revealed that the skeleton is composed of spheroclones, so that the species has to be assigned to the Astylospongiidae von Zittel. The species name *Carpospongia langei* Von Hacht is invalid, being a junior synonym of *Carpospongia pogrebowi* Asatkin.

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Introduction

The extended and varied assemblage of erratic Ordovician sponges in Germany and the Netherlands has been subject of numerous studies, from the first decades in the 19th Century, such as by Goldfuss (1826), Klöden (1834), Roemer (1861), Quenstedt (1878) and Rauff (1893-1894, 1895), to recent studies, such as those by Van Kempen (1978), Von Hacht (1990), Von Hacht & Rhebergen (1997), Rhebergen *et al.* (2001) and Rhebergen (2009). The provenance of the sponge assemblages has been discussed in many papers, but has not been achieved exactly. There is more and more evidence that they originate from the eastern Baltic, considering similarities with sponges from bed-rock in Estonia and the St. Petersburg region.

The notes in the present short paper refer to three sponge species, all of them included in this assemblage. Better preservation of skeletal elements in new material and renewed examination of sponge collections, which have as yet remained unnoticed in the European and American literature, lead to corrections of the systematic position of two sponge species. In addition, a new repository of the holotype of a third species is reported herein.

Material and geological setting

A complex assemblage of erratic Ordovician sponges occurs in fluvial deposits of the Eridanos River system in Germany and the Netherlands, and possibly on the island

of Gotland, Sweden. Von Hacht & Rhebergen (1997) and Rhebergen & Von Hacht (2000) recognised three different associations.

1. The Lausitz-Sylt association, that was deposited in Miocene and Pliocene times.
2. The Gotland association, that was deposited in the Late Pleistocene.
3. The Dutch-German association, that was deposited in Early Pleistocene times. The latter forms a mixture of the other ones, of which the Lausitz-Sylt component forms a minority, consisting of reworked material.

All three sponge species discussed herein are part of the Lausitz-Sylt association, characterized by its colouring from grey to dark-blue to black, or, surprisingly, white when intensively weathered. Generally, small cavities and hollows are filled with banded chalcedony and/or agate. In the European sponge literature, the three species were until recently exclusively known as erratics. Age, occurrences and related fossils are discussed below.

Systematic palaeontology

Order Orchocladina Rauff, 1894

Family Anthaspidellidae Miller, 1889

Genus *Fibrocoelia* Van Kempen, 1978

***Fibrocoelia tubantiensis* Van Kempen, 1978**

Discussion — Van Kempen (1978) established *Fibrocoelia tubantiensis* based on a single specimen from Early Pleistocene fluvial deposits in a sand- and gravel-pit near Kloosterhaar, the Netherlands. This type specimen was housed in the palaeontological collections of the Geological Institute of the Amsterdam University (registration number PA 8690). After the closing of the Institute, the specimen was temporarily in Van Kempen's private collection. After his death in 2002, his collection moved to the (then) Nationaal Natuurhistorisch Museum, Leiden. However, the present author, acting as solicitor, noticed that a small number of registered sponges were missing. Some time ago, Mrs. Van Kempen re-discovered a box, containing among others the actual holotype. The specimen is now repositied in the collections of the Netherlands Centre for Biodiversity – Naturalis, Leiden, registered as RGM 550 579.

An unnumbered specimen of *Fibrocoelia tubantiensis* from Pliocene fluvial deposits on the Island of Sylt, northwestern Germany, appeared to be in the same box. It had been donated by the late Ulrich von Hacht of Hamburg, apparently after the publication of *Fibrocoelia* in 1978, because the latter specimen was not described by Van Kempen. The scarcity of material warrants a repository in the same collections as where the holotype is housed, registered as RGM 550 580.

Family Astylospongiidae von Zittel, 1877

Genus *Syltrochos* Von Hacht, 1981

***Syltrochos pyramidoidalis* Von Hacht, 1981**

Discussion — Specimens of *Syltrochos pyramidoidalis* Von Hacht, 1981, were, until recently, known exclusively as erratics (Rhebergen, 2009). Their age was established based upon co-occurring guide fossils, such as trilobites and brachiopods (Krueger,

1990), which indicate the Baltic regional Jöhvi Substage (D₁) to Keila Stage (D₂). As a result of intensive silicification, spicules were dissolved by chalcedony, skeletal structures devastated and only the canal system was recognisable. As a result, Finks & Rigby (2004) assigned *Syltrochos* as an endemic genus in open nomenclature to uncertain order and family. However, new material from the Dutch-German border region revealed the skeleton to be composed of spheroclones. On account of this characteristic, *Syltrochos pyramidoidalis* Von Hacht, 1981, has to be assigned to the family Astylospongiidae von Zittel, 1877.

Genus *Carpospongia* Rauff, 1893
***Carpospongia langei* Von Hacht, 1994**

Discussion - Von Hacht (1994) established the astylospongiid species *Carpospongia langei*, in order to distinguish globular sponges with extremely long tubercles from *Carpospongia castanea* (Roemer, 1861). Recently, the present author studied a sponge assemblage in the collections of the VSEGEI in St. Petersburg (Russia). The material had been collected from the Shundorovo Formation, which is exposed in a quarry southwest of St. Petersburg (Iskyul & Fedkovets, 2008). It is coeval with the upper part of the Estonian Idavere Substage (C₃), and possibly with a part of the lavender-blue silicifications in Germany and the Netherlands, which is associated with the Lausitz-Sylt sponge assemblage.

A number of specimens appeared to be identical to *C. langei*, but were labelled *Carpospongia pogrebowi* Asatkin, 1949. The assemblage was very similar to the astylospongiid part of the erratic Lausitz-Sylt sponge assemblage mentioned above. Asatkin had collected sponges from about the same outcrop during the 1920s. In his first paper on this subject, Asatkin (1931) described the sponge as *Carpospongia* sp. In his posthumously published chapter in the Russian Atlas (Asatkin, 1949), he described it as the new species *C. pogrebowi*.

Unfortunately, his publications remained unnoticed in the European and American literature (Rhebergen, 2009). They are of such importance that they will be subject of a future paper, because they deal with the first sponge association from bedrock from Baltica to be recorded, including the oldest astylospongiids worldwide (Mehl-Janussen, 1999). Then, the coeval Russian, Estonian and erratic sponge associations will be compared extensively. At present, I confine myself to the conclusion that, on account of priority, the name *Carpospongia langei* Von Hacht, 1994, is invalid, being a junior synonym of *Carpospongia pogrebowi* Asatkin, 1949.

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