Systema Porifera: A Guide to the Classification of Sponges, Edited by John N.A. Hooper and Rob W.M. Van Soest

Order Lychniscosida Schrammen, 1903

Henry M. Reiswig

Natural History Section, Royal British Columbia Museum, 675 Belleville Street, Victoria, British Columbia, Canada V8W 9W2 and Biology Department, University of Victoria, P.O. Box 3020 STN CSC, Victoria, British Columbia, Canada V8W 3N5. (hmreiswig@shaw.ca)

Recent Lychniscosida Schrammen (Hexactinellida, Hexasterophora), which includes a once diverse and dominant group of fossils from Cretaceous benthic communities, now contains only two families and three genera as Recent members. The group is characterized by formation of a rigid dictyonal framework by fusion of lychniscid hexactins mainly by fusion of rays of adjacent dictyonalia arranged side-by-side – a euretoid pattern of junction. The length of rays which form the sides of dictyonal meshes is strictly limited to one mesh width, usually 150–400 μm. The constituent families are differentiated by thickness of structural units (walls, pillars, plates) and organization of dictyonalia – either in ranks or without detectable alignments. Structural units (tubule walls, pillars) are unchannelized, but it is possible to interpret the fine wall tubules of Diapleuridae as schizorhyses.
Keywords: Porifera; Hexactinellida; Lychniscosida; Aulocystidae; Diapleuridae.

DEFINITION, DIAGNOSIS & SCOPE

Synonymy

Lychniscosa Schrammen, 1903.

Definition

Hexasterophora in which a rigid dictyonal framework is formed by fusion of lychniscid dictyonal hexactins.

Diagnosis

Recent forms all basiphytous; body form calyciform, cylindrical to globular, with tubular axial atrial cavity and radial branching and anastomosing tubules or labyrinthic spaces subdivided and supported by pillars and plates; walls are unchannelized but fine tubules of one group may be interpreted as schizorhyses; dictyonalia are arranged in ranks parallel with growth margin or are unorganized; outer surfaces of mature specimens may be enveloped by a dense mat of loose spicules which may be hypersilicified and fused to form a dense outer siliceous crust; dermalia and atrialia are rough pentactins, but hexactin atrialia may line axial cavity (atrium); accessory hexactins occur as parenchymalia; microscleres always include regular spherical discohexasters, graphiocomes or onychexasters may also be present but never together; uncinates and sceptrules are absent.

Scope

Two Recent families: Aulocystidae Sollas, 1887 and Diapleuridae Ijima, 1927.

Remarks

The family Dactylocalycidae, assigned to Lychniscosida by Reid (1957b), is here moved back to Euretidae – see arguments under Dactylocalycidae.

KEY TO FAMILIES

(1) With walls/pillars several dictyonalia in thickness; lychniscs in ranks ..... **Aulocystidae**
With tubule walls 1–3 dictyonalia in thickness; lychniscs not in ranks ..... **Diapleuridae**