

Although the spicules observed on the graphitized layers often cross each other at acute angles, I have not observed such

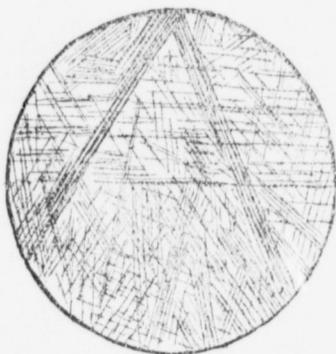


Fig. 2. *Halichondrites graphitiferus*.  
Mag. 12 diam.

a constant relation of this kind as to lead to the supposition that any of these sponges belong to *Rhombodictya*; nor is there such a frequent flabellate arrangement of spicules as to suggest *Cyathospongia*. The arrangement of acerate spicules, as seen in *Askonema*, is somewhat akin to that of the species described above, but the Laurentian species shows much wider bands of spicules than *Askonema*.

Besides the bands of parallel acerate spicules, groups of closely crowded spicules occur, that may have been the anchoring bands of some pedicellate sponge.

On the smooth surfaces of other graphitic rocks the same forms of acerate sponge spicules were observed as are seen on those of the St. John mineral. Similar spicules occur also on the surfaces of black shales of Div. 1d of the St. John group at Musquash, N. B.

It may seem a remarkable thing that sponge spicules should be so plentiful in graphite. If unchanged they would certainly be an injurious constituent of a substance applied as a lubricant in the arts. I can only conjecture that the form is there, but not the substance. It is well known that the silica of sponge spicules is in a very unstable condition, and, therefore, very liable to chemical change. The silica of these spicules may have been replaced by some other mineral less harmful to a lubricant than that substance. Veins of quartz traverse the graphitic beds at St. John, in all directions.

#### SYSTEMATIC POSITION OF THE SPONGES, ETC.

In the northern part of the city of St. John, below the Palæozoic rocks, there is an area occupied by gneisses, mica-

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