Some Fresh Water Sponges of Oklahoma

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This article is concerned with the description of some fresh water sponges which have been found in Oklahoma. No attempt has been made to survey the entire State.

Most of the specimens described have been collected by Dr. W. H. Irwin, Department of Zoology, Oklahoma A and M College, who referred them to the author for description and identification. These are *Spongilla lacustris* L. *Spongilla fragilis* Leidy, *Ephydatia subdivisa* Potts, *Ephydatia crateriformis* Potts, *Trochospongilla leidyi* Bowerbank, and *Asteromyenia plumosa* Weltner. The author collected *Spongilla aspinosa* Potts, and additional specimens of *Spongilla fragilis.*

The following four genera and seven species were collected in Oklahoma.

Spongilla aspinosa was found October, 1947, near Stillwater below the dam of Boomer Lake (T. 19N., R. 2E., S 13), Payne County. This speciman was small, approximately one inch in diameter and one-fourth inch thick. The skeletal spicules are long, smooth, acerate, abruptly pointed at both ends. Malformation of the skeletal spicules are frequent. Dermal spicules are small, slender, smooth acerates. (Plate I. figure upper left).

Spongilla fragilis was taken June 28, 1941, encrusted on rocks in a pool of a small creek during low water, south and west of Clayton (T. IN., R. 19E.), Pushmataha County. Colonies were also found at the Culture Ponds below the dam at Lake Carl Blackwell (T. 19N., R. 2E.), Payne County. These covered several sticks and branches ranging from four to thirty-four inches with average diameter of an inch. The gemmules are abundant and bound together in varying numbers into clusters in pavement layers on the support. The foraminal tubules are short, slightly curved and protrude toward the outside of the cluster. The cellular parenchyma is filled with subcylindrical, spined, acerates. The skeletal spicules are acerate, smooth slightly curved and rather abruptly pointed. Occasional globular swellings occur at the middle of the spicules, and axial canals are frequent. There are no dermal spicules. Gemmule spicules are short, abruptly pointed, and densely spined acerates. Masses resembling spined acerates are present throughout the body of the sponge. (Plate 1, figure upper right.)

Spongilla lacustris was collected October 15, 1942, encrusted on sticks in shallow water at the north end of Yost Lake (T. 20N., R. 3E., s. 17). Payne County. The encrustations were three to four inches in length and surrounding a stick one inch in diameter. Specimens were also taken October, 1947, from Boomer Creek (T.19N., R. 2E., S.24) in sluggish water, encrusted on an old board. Gemmules are abundant and cling in packets of six or eight or more. The skeletal spicules are acerate, finely spined, slender, straight, or slightly curved. The gemmule spicules are also acerate, subcylindrical, rather short with various degrees of spination. The most common type is curved and abundantly microspined. (Plate I, figure lower left.)

Samples of *Trochospongilla leidyi* were collected at McAlester City Lake, August, 1947 (T. 17N., R. 14E.), Pittsburg County. When this impoundment was drained, the submerged wood from what had been a 200-acre forest was exposed. A large portion of this wood was covered with an encrustment of sponges. All samples taken from several parts of the lake proved to be *Trochospongilla leidyi.* The gemmules are numerous, each surrounded by a capsule of skeletal spicules. The birotulates form an armored surface within the gemmule membrane. The skeletal spicules are short, smooth, robust with abruptly pointed or rounded ends. Spined acerate spicules are present. The gemmule spicules are short birotulates, margins are entire and exflected. resembling round bobins. (Plate I, figure lower right).

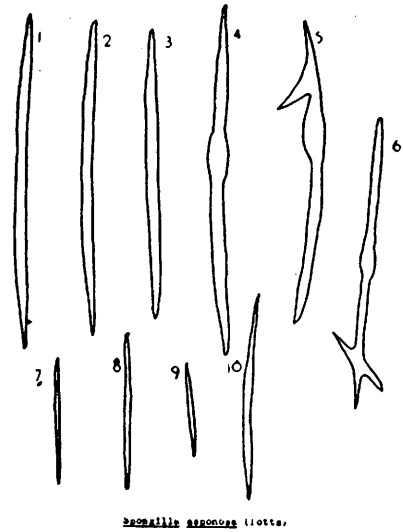
Specimens of *Ephydatia subdivisa* were taken from the same site as *Ephydatia crateriformis*. Gemmules are few. The skeletal spicules are long, microspined or smooth and abruptly pointed. The gemmule spicules are birotulates having heavily spined shafts. The rays are short and subdivided. (Plate II, figure upper left.)

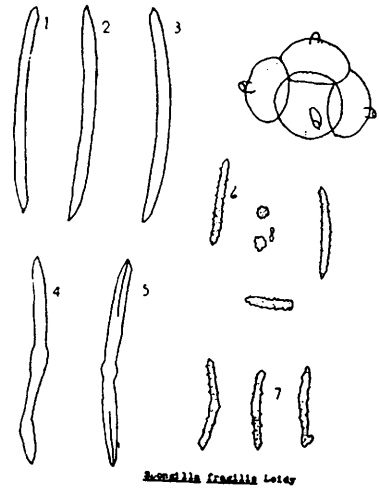
A specimen of *Ephydatia crateriformis* was collected October 23, 1944, encrusted on rocks in a pool of a small creek during low water, south and west of Clayton (T. 1N., R. 18E.), Pushmataha County. The gemmules are small, white and very numerous. The formaninal tubules form a crater-like depression. The skeletal spicules are long, slender acerates, abundantly microspined, mostly toward the ends. The gemmule spicules are birotulates with microspined shafts. The rotules have very short curved rays. No dermal spicules are present. (Plate II, figure upper right.)

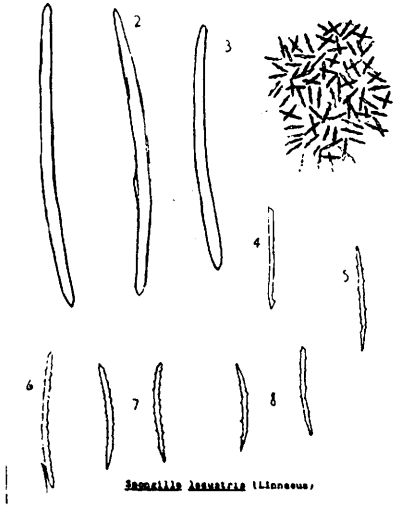
Massive colonies of *Asteromeyenia plumosa* were collected October, 1945, at the Culture ponds below the dam at Lake Carl Blackwell (T. 19N., R. 2E), Payne County. The colonies ranged from three and one-half to four inches in length and from two and one-half to three and one-fourth inches in diameter at the center. Gemmules are large, spherical with a straight foraminal tubule. Skeletal spicules are acerate, microspined, a few being smooth. Three types of birotulates are present. The long birotulates are heavily microspined, the rotules have six or eight rays joined at the base. Some of the rays are recurved, although most are simply curved. Long birotulates with very heavy thorn-like spines are numerous. These vary in development of the rotules from six or eight rays to none at all. The shafts of the short birotulates and the intermediate birotulates are microspined; these rotules are dentate and subdivided with curved rays. Modification of the short birotulates are frequent; most are spined and often subspined. Stellate dermal spicules are very abundant. (Plate II, lower figure.)

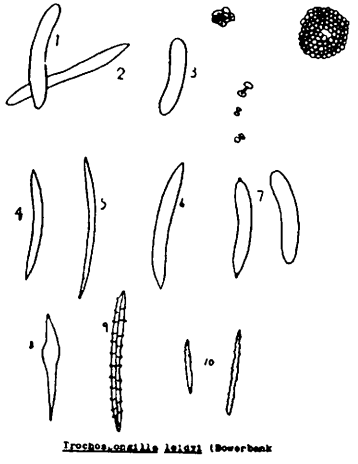
Of the sponges described, three genera and six species, *Spongilla aspinosa* Potts; *Spongilla lacustris* Linnaeus; *Ephydatia subdivisa* Potts; *Ephydatia crateriformis* Potts; *Trochospongilla leidyi* Bowerbank; and *Asteromeyenia plumosa* Weltner, are new records for Oklahoma.

Grateful appreciation is expressed to Dr. W. H. Irwin, for aid in collection and identification of specimens.









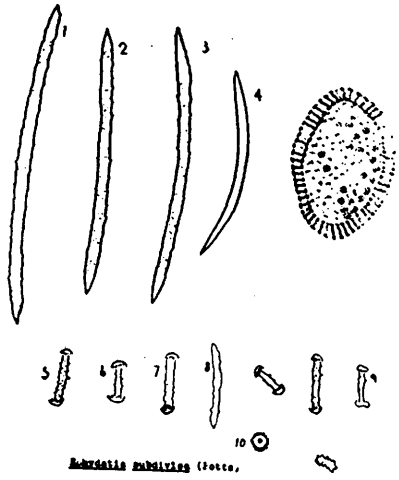
—PLATE 1

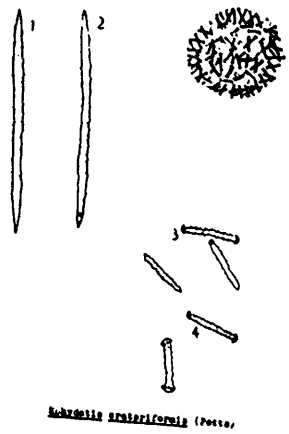
Figure, upper left. *Spongilla aspinosa.* 1-3, skeletal spicules; 4-6 malformed skeletal spicules; 7-10, dermal spicules.

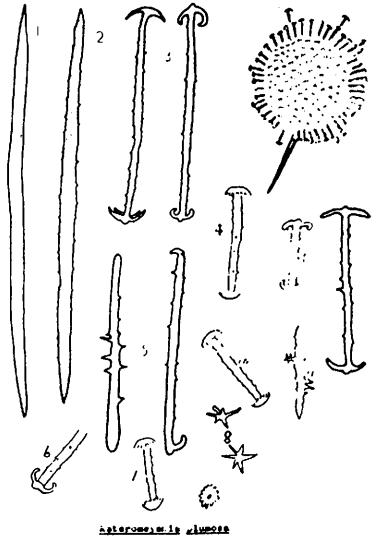
Figure upper right. *Spongilla fragilis.* 1-3, skeletal spicules; 4-5, globulare swellings and axial canals; 6-7, gemmule spicules; 8, masses resembling spined acerates.

Figure, lower left. *Spongilla lacustris.* 1-3 acerate skeletal spicules; 4-8, gemmule spicules.

Figure, lower right. *Trochospongilla leidyi.* 1-7, skeletal spicules; 9-10, spined acerate spicules; 11, short birotulate gemmule spicules.







—PLATE II

Figure, upper left. *Ephydatia subdivisa.* 1-4, skeletal spicules; 5-10, birotulate gemmule spicules.

Figure, upper right. *Ephydatia crateriformis.* 1-2, skeletal spicules; 3-4, gemmule spicules.

Figure lower. *Asteromeyenia plumosa.* 1-2 skeletal spicules; 3, long birotulate spicules; 4-7, 9-11, variations in the birotulate spicules; 8, stellate dermal spicules.