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III.—NOTES ON FRESHWATER SPONGES.

By N. ANNANDALE, D.Sc., Superintendent, Indian Museum.

VIII.—PRELIMINARY NOTICE OF A COLLECTION FROM WESTERN INDIA, WITH DESCRIPTIONS OF TWO NEW SPECIES.

The following sponges were collected in November last in the Gwalior Tank, Bombay, in the lake and in a small pond at Igatpuri in the Western Ghats, and in the Godaveri River at Nasik on the eastern side of the same range of hills.—

- Spongilla lacustris*, auctorum, in a pond at Igatpuri.
- „ *cinerea*, Carter, on stones in the Godaveri at Nasik.
- „ *carteri*, Bowerbank, in different situations at Bombay and Igatpuri.
- „ *bombayensis*, Carter, on stones in the lake at Igatpuri.
- „ *indica*, sp. nov., on stones in the Godaveri at Nasik.
- „ *lapidosa*, sp. nov., together with the last and on stones at Igatpuri.

Ephydatia indica, Annandale, on stones in a pond at Igatpuri.

The specimens of *Spongilla lacustris* are small, but typical; those of *S. cinerea*, *S. carteri*, *S. bombayensis* and *Ephydatia indica* I have compared with types or co-types. A full account of the collection will be published later, but the following preliminary descriptions will serve as diagnoses of the two new *Spongillæ* represented. The types are in the collection of the Indian Museum, but co-types will be sent to the British Museum.

Spongilla indica, sp. nov.

Closely allied to *S. sumatrana*, Weber.

Sponge forming a very thin layer, of a bright green or pale grey colour; surface smooth, minutely hispid; pores and oscula inconspicuous, the latter approached in some instances by radiating furrows; subdermal space small; texture compact, rather hard. Skeleton incoherent, somewhat massive owing to the large number of spicules present; spicules forming triangular meshes and occasionally arranged in vertical lines several spicules broad but without spongin. Skeleton spicules straight or nearly straight, slender, cylindrical, amphistrongyloous, uniformly covered with minute, sharp spines; flesh spicules slender, sharply pointed, straight or curved, irregularly covered with relatively long, straight, sharp spines,

abundant in the dermal membrane, scarce in the substance of the sponge. Gemmules spherical, somewhat variable in size, with a single aperture, which is provided with a trumpet-shaped foraminal tubule and is situated at one side of the gemmule in its natural position; the inner chitinous coat devoid of spicules, closely covered by an outer coat composed of a darkly coloured chitinous substance, in which the gemmule spicules are embedded, lying parallel or almost parallel to the inner coat. The outer coat forms a kind of mantle by means of the skirts of which the gemmule is fastened to the support of the sponge and which is pierced by the foraminal tubule;

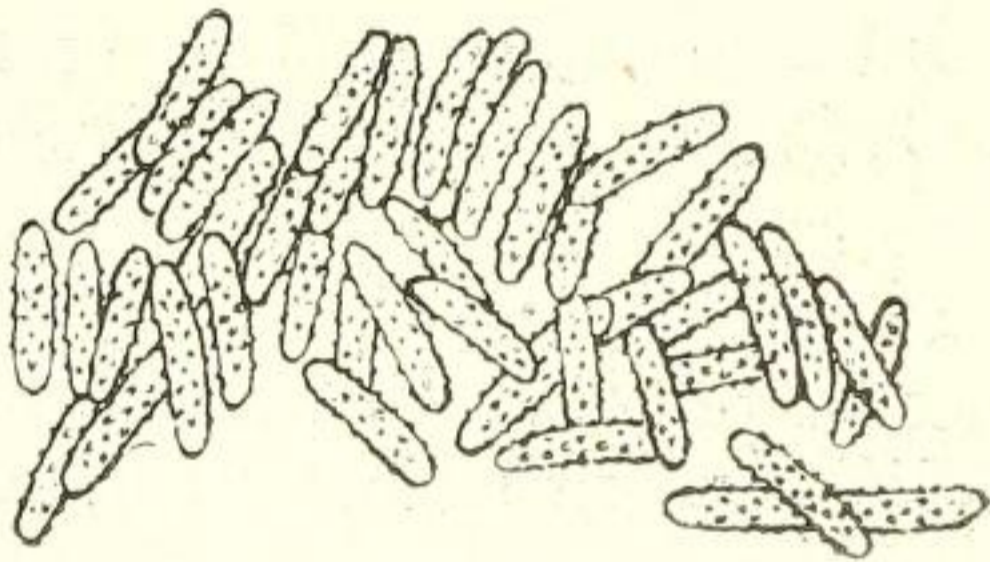


FIG. 1.

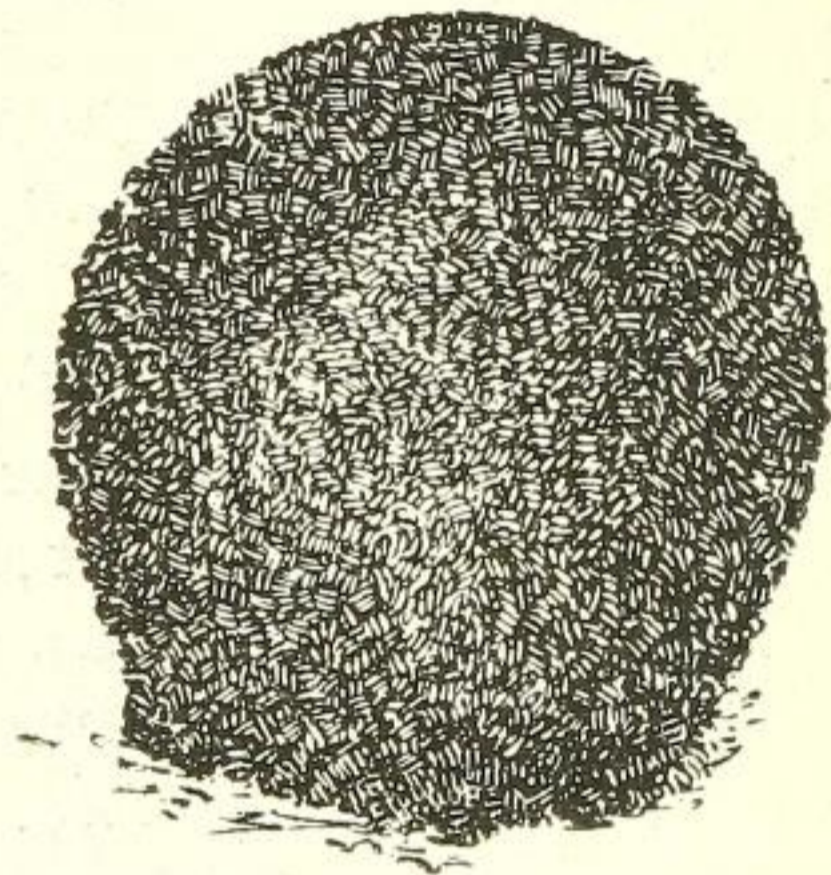


FIG. 2.

FIGS. 1 AND 2.—*Spongilla indica*: fig. 1 = group of gemmule spicules, $\times 240$; fig. 2 = a gemmule, $\times 70$.

gemmules distinct from one another; gemmule spicules short, stout, sausage-shaped, covered with minute, straight spines, which are sometimes absent from the extremities.

Average length of skeleton spicules	..	0.2046 mm.
„ breadth of skeleton spicules	..	0.0172 „
„ length of flesh spicules	..	0.053 „
„ breadth of flesh spicules	..	0.0053 „
„ length of gemmule spicules	..	0.044 „
„ breadth of gemmule spicules	..	0.0079 „

Spongilla lapidosa, sp. nov.

Allied to *S. loricata*, Weltner.

Sponge encrusting, black or grey, extremely hard, its surface with occasional groups of spicules projecting; dermal membrane adhering closely to the surface; oscula very small, sometimes conspicuously elevated. Skeleton incoherent, broad groups of spicules arranged vertically occurring irregularly but being devoid of any binding substance and only traversing a small part of the thickness of the sponge; transverse fibres absent; in the inferior part of the sponge the direction of a large proportion of the spicules is horizontal, the number arranged vertically being greater in the upper part. Skeleton spicules sausage-shaped, sometimes slightly swollen at the ends, as a

rule smooth but occasionally a little rough, variable in proportions, probably slender and pointed when young. Gemmule spicules sausage-shaped, covered with short, straight spines, which are sometimes absent from the extremities, variable in length. Flesh spicules birotulate, usually occurring in groups; their shafts smooth, slender, straight or curved, variable in length; their rotulæ consisting of six or seven backwardly curved spines. Gemmules congregated in groups at the base of the sponge, oval or sausage-shaped, with a single depressed aperture situated on one of the longer sides; each gemmule contained in an oval case of spicules and a dense chitinoid

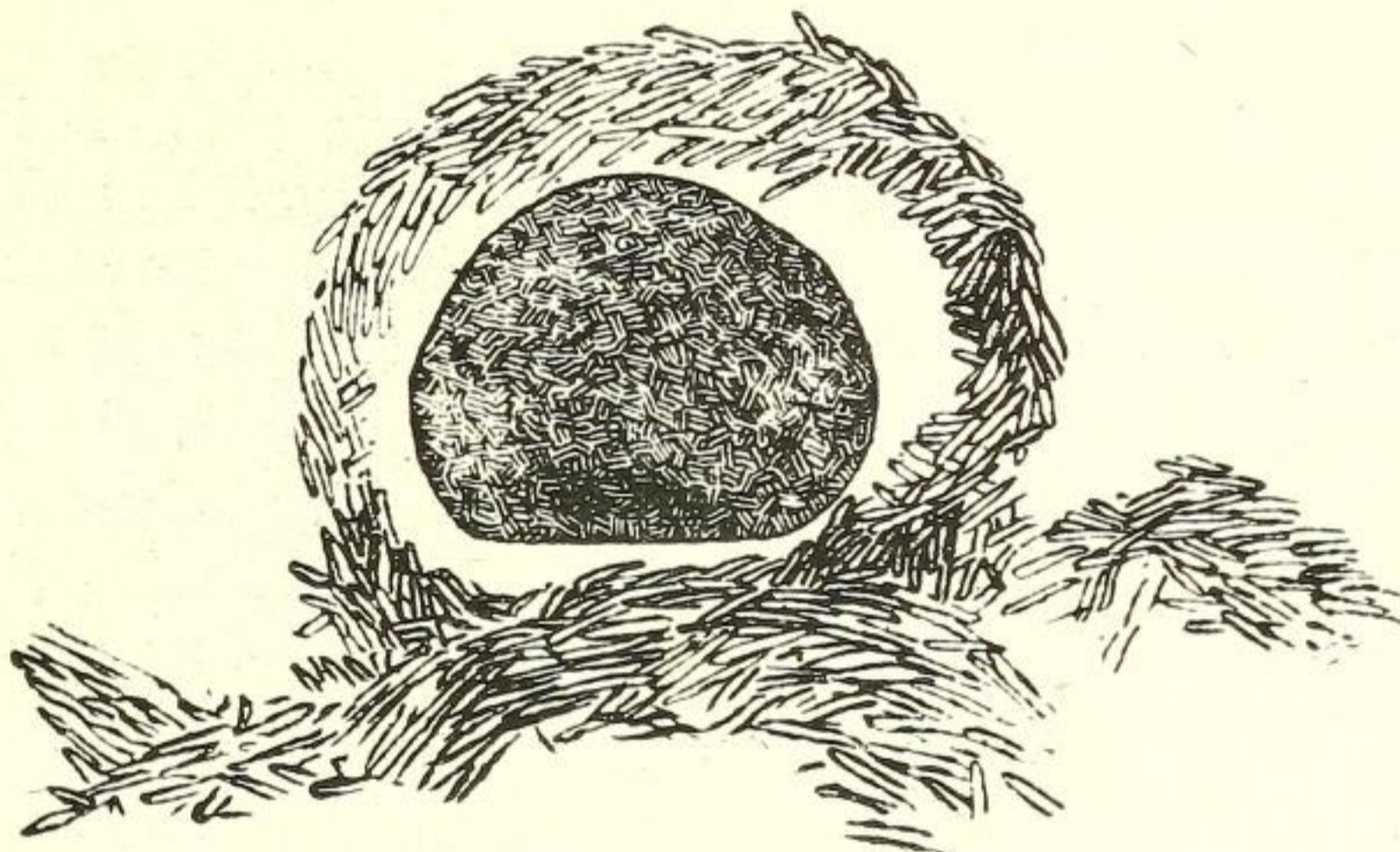


FIG. 3.—Gemmule of *Spongilla lapidosa* in its case, the roof of which is omitted, from below, $\times 30$.

substance, and having, apart from this, only an inner coat, in which the spicules are embedded horizontally like a mosaic; the case consisting of an inner layer of skeleton spicules, occasionally mixed with birotulate flesh spicules, and an outer one formed of gemmule spicules massed together irregularly and held in position by the chitinoid substance, the side walls of each case being partly coincident with those of others. There is a dense membrane at the base of the sponge with which the outer layer of the gemmule cases is in continuity.

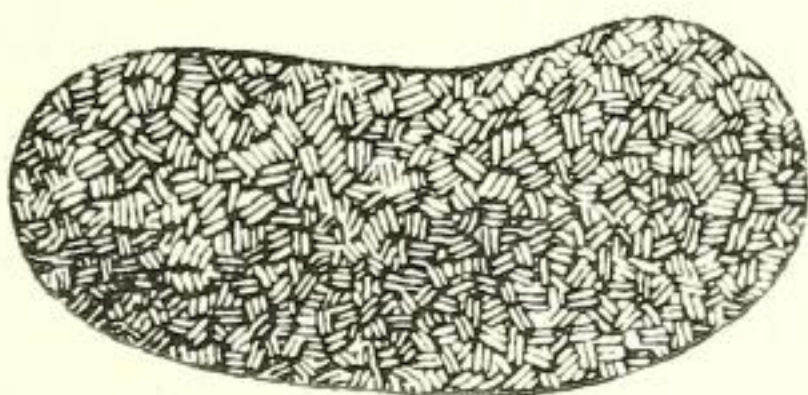


FIG. 4.

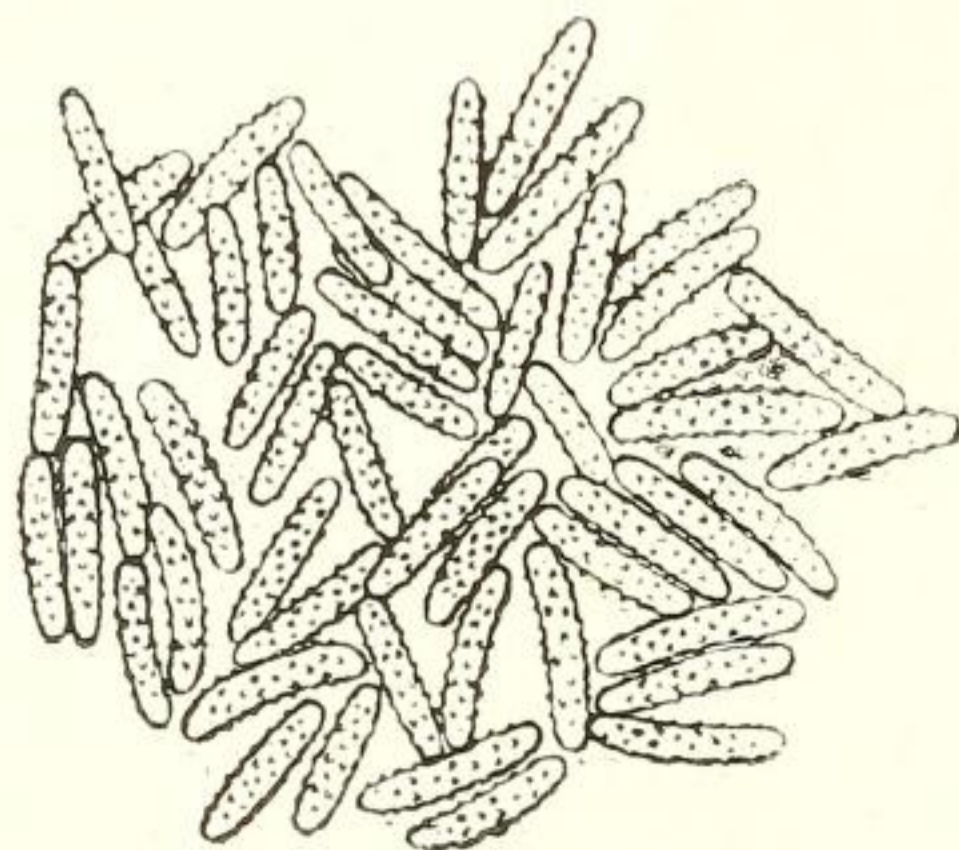


FIG. 5.

FIGS. 4 AND 5.—*Spongilla lapidosa*: fig. 4 = sausage-shaped gemmule, $\times 30$; fig. 5 = a group of spicules from the same, $\times 240$.

Measurements of skeleton spicules	..	From 0.279×0.079 to 0.231×0.0186 mm.
„ flesh spicules	..	Length of shaft from 0.159 to 0.046 mm. Breadth of shaft = 0.0026 mm. Diameter of rotule = 0.0106 mm.
„ gemmule spicules	..	0.026 to 0.039×0.0106 mm.
„ gemmules	..	0.38×0.29 to 0.55×0.25 mm.