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der
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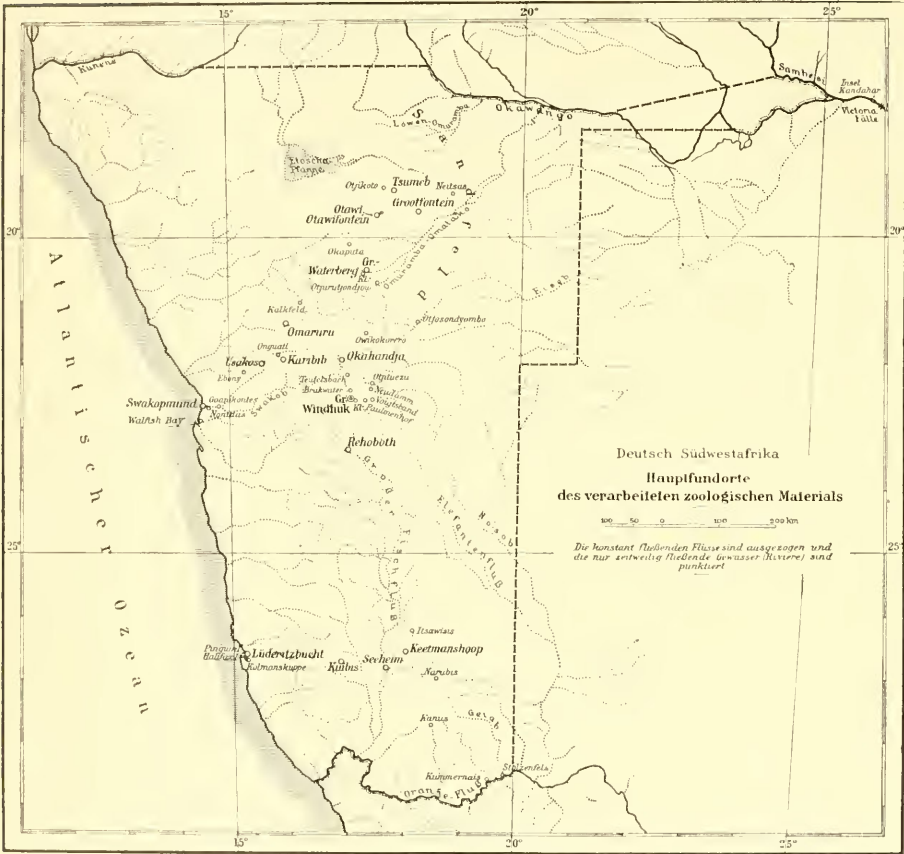
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MICHAELSEN: Land- und Süßwasserfauna Deutsch-Südwestafrikas.



Spongillidae

by

N. Annandale

(Calcutta).

With 1 plate.



We do not know of any freshwater sponges from German South-West-Africa. The collection described in this paper was made in August, 1911, in the Zambesi, at a point near the Victoria Falls and actually in Rhodesian territory though only a few miles from the frontier. It is at any rate most probable that the species also occur some miles further up in the Zambesi in the German Zambesi territory. Although small, the collection is of considerable systematic and geographical interest. Four species are represented, of which three are new to science, while the fourth, although known to be widely distributed in Tropical Africa, has not been found previously in the Zambesi system. All this is noteworthy in view of the fact that sponges have been collected at the same place on two former occasions¹⁾, and that no single species is represented in any two collections — an excellent illustration of the wealth of the inland sponge-fauna of Tropical Africa.

I have to thank Dr. W. MICHAELSEN for sending his collection to Calcutta for me to examine. The identification of the species has been greatly facilitated by the presence in the Indian Museum of schizotypes of most of the African *Spongillidae* preserved in the collections of the British Museum and the Natural History Museums of Berlin, Hamburg and Amsterdam. These we owe to the kind offices of Mr. KIRKPATRICK, Dr. WELTNER, Dr. KRAEPELIN, Dr. MAX WEBER and Dr. MICHAELSEN himself.

The exact locality of the 4 species of the collection is: Rhodesia River Zambesi near the Victoria Falls, on the under-side of stones in shallow water off the right shore some 150 m above the brim of „Cataract Fall“²⁾; W. MICHAELSEN, 18th August, 1911.

¹⁾ See KIRKPATRICK, Proc. Zool. Soc. London, 1906 (i), p. 218.

²⁾ See the landscape of Fig. 14 in the „Reisebericht“ of this volume, p. 50.

Part 1. A Systematic Account of the Collection.

Gen. *Spongilla*, Lamark.

Subgen. *Eunapius*, Gray.

The subgenus *Eunapius*, which is separated from *Euspongilla* by the well-defined polygonal air-spaces in the investment of its gemmules, is represented in Tropical Africa by several species. Dr. MICHAELSEN'S collection includes specimens of yet another new one.

The following key to the African species may be useful:

Key to the African species of *Eunapius*:

I. Gemmule-spicules smooth.

A. Gemmules single and free in substance of sponge *S. carteri*.¹⁾

B. Gemmules forming a pavement-layer at base of
sponge *S. aetheriae*.

II. Gemmule-spicules spiny.

A. Gemmules single and free in substance of sponge.

1. Skeleton-spicules stout, amphistrongylous *S. nitens*.

2. Skeleton-spicules slender, sharply pointed *S. michaelsoni*.

B. Gemmules forming a pavement-layer at base of
sponge.

1. Gemmule-spicules amphioxous *S. ambigua*.

2. Gemmule-spicules amphistrongylous *S. permixta*.

Spongilla nitens, Carter, var.

CARTER, Ann. Mag. Nat. Hist. (5) VII, p. 89, pl. V, fig. 3, a—k, & pl. VI, fig. 18 (1881);
WELTNER, „Die Coelenteraten und Schwämme des Süßen Wassers Ost-Afrikas“ in MÖBIUS,
Ost-Afrika IV, p. 3, figs. (1898), and „Süßwasserschwämme (*Spongillidae*) der Deutschen
Zentralafrika-Expedition 1907—1908 in Wiss. Ergeb. d. Deutsch. Zentral-Afrika-Exp. IV
(Zool. ii), Lief. 12, p. 475.

This sponge is represented in Dr. MICHAELSEN'S collection by four cushion-shaped masses detached from stones; the largest of the four is about 35×28 mm in diameter. The external surface of both is ornamented with numerous sharp slender projections of irregular outline, as appears to be usual in the species. Although hard, the sponge is very brittle. The skeleton-spicules measure on an average 0,363 mm by 0,026 mm, being thus considerably more slender than in the type. The gemmules are abundant and fully developed.

¹⁾ Doubtfully African, see p. 245.

Spongilla nitens has hitherto been found in the White Nile and in the neighbourhood of Lake Tanganyika.

***Spongilla michaelsoni*, sp. nov.**

Pl. VI, fig. 3 A—C.

Sponge encrusting, forming thin flat films of limited area and of a greyish colour: moderately hard, friable, brittle. Oscula and pores minute, inconspicuous. Subdermal space relatively small.

Skeleton formed of slender, well-defined but not very coherent radial spicule-fibres joined together by an irregular network of spicules that exhibit little evidence of fasciculation: little spongin present.

Spicules (Pl. VI, Fig. 3): Skeleton-spicules perfectly smooth, sharply and gradually pointed at both ends, feebly curved, on an average about 23 times as long as thick. Free microscleres slender, straight or nearly so, sharply and gradually pointed at both ends, bearing numerous sharp spines that stand out straight at right angles to the surface and are much larger in the middle of the spicule (while they are often as long as the shaft is wide) than at the ends. Gemmule-spicules very variable in size, spiny, amphistrongylous, moderately stout: their spines as a rule longer and more numerous at the ends of the spicule than in the middle (where they are sometimes almost absent), often distinctly recurved at and near the former, very variable in length: a single terminal spine often present at one or both extremities.

Gemmules somewhat depressed, small, provided with a thick coat of well-developed polygonal air-spaces and with a straight and rather stout foraminal tubule, which stands upright in a crater-like depression of the pneumatic coat: spicules arranged both tangentially and horizontally in this coat, forming a somewhat ill-defined horizontal layer on its external surface.

Diameter of gemmule	ca. 0.42×0.36 mm
Length of skeleton-spicule	0.308—0.356 ..
Thickness of skeleton-spicule	0.012—0.017 ..
Length of free microsclere	0.068 ..
Thickness of free microsclere (shaft) . .	0.004 ..
Length of gemmule-spicule	0.076—0.156 ..
Thickness of gemmule-spicule (shaft) . .	0.005—0.016 ..

This species is related to *Spongilla carteri*, the commonest of the Indian *Spongillidae*, but distinguished by possessing free microscleres and

spined gemmule-spicules: from *S. nitens*, another allied form, it is distinguished by its very much sharper and more slender skeleton-spicules.

Locality: R. Zambesi near the Victoria Falls; W. MICHAELSEN, 18. August 1911.

Type in the Hamburg Natural History Museum. A co-type in the Indian Museum.

Subgen. *Stratospongilla*, Annandale.

This subgenus is also well represented in the African fauna, to which four species were hitherto known to belong. I have here to add a fifth from Dr. MICHAELSEN'S collection. The five species may be distinguished one from another by the following key, which may be used in connection with those of the Indian species given on p. 385 of Vol. VII of the Records of the Indian Museum (1912) and on p. 68 of my volume in the „Fauna of British India“.

Key to the African species of *Stratospongilla*.

- I. Skeleton-spicules amphioxious.
 - A. Skeleton-spicules rough or irregular in outline
 - 1. Gemmule-spicules sausage-shaped *S. sumatrana*.
 - 2. Gemmule-spicules slender, amphioxious or nearly so *S. bombayensis*.
 - B. Skeleton-spicules quite smooth.
 - 1. Gemmule-spicules smooth *S. schubotzii*.
 - 2. Gemmule-spicules bearing blunt spines *S. rousseletii*.
- II. Skeleton-spicules amphistrongylous (spiny).
 - Gemmule-spicules spiny, sausage-shaped, cylindrical; gemmules enclosed in a dense cage of spicules *S. africana*.

Spongilla africana, sp. nov.

Pl. VI figs. 1 A—C, and 2.

Sponge. This sponge is represented by two circular films about 10 mm in diameter and not as much as 2 mm thick. They are attached to a piece of stone in a dry condition. The colour is nearly white. The sponge is hard but friable. Its external structure can not be clearly seen, but the pores and oscula were evidently minute and the subdermal cavity seems to have been comparatively small.

Skeleton: The skeleton consists of a close reticulation of single spicules with very little trace of fasciculation; they are fastened together by delicate veils of spongin where they meet.

Spicules (Pl. VI fig. 1): The skeleton-spicules are slender, blunt, nearly straight, covered somewhat sparsely and almost uniformly with sharp spines much less than half as long as the diameter of the shaft, to which they stand out at right angles. Free microscleres exist in the form of slender, nearly straight amphioxi bearing sharp or blunt spines that stand out straight at right angles: they are much longer in the middle region of the spicule than elsewhere but are never quite as long as its transverse diameter. The gemmule-spicules as a rule resemble the macroscleres in general form, but are rather more densely spined; they are extremely variable in size and proportions and occasionally a little inflated at the extremities.

Gemmules (Pl. VI, Fig. 2): The gemmules adhere at the base of the sponge in groups. Each is enclosed in a dense cage about 0.04 mm thick and composed of microscleres lying horizontally several spicules abreast in a chitinous membrane: between this cage and the real gemmule (inner capsule) there is a considerable gap; in the specimens examined the roof of the cage is deficient. The actual capsule has a relatively thick chitinous coat (0.01 mm thick) of a bright yellow colour and is of a somewhat irregular shape; there is possibly a single very minute foramen at one side in a very short foraminal tubule, but the appearance may be deceptive and I have not cut sections. On the surface of the capsule lie a few microscleres as a rule of somewhat distorted form and smaller than those that compose the outer cage.

Diameter of outer cage of gemmule	0.67	mm
Diameter of inner capsule of gemmule	0.27	..
Length of skeleton-spicule	0.16	..
Thickness of skeleton-spicule	0.014	..
Length of free microsclere	0.064—0.08	..
Thickness of free microsclere (shaft)	0.004	..
Length of gemmule-spicule	0.104 (or less)	..
Thickness of gemmule-spicule	0.012	..

Locality: R. Zambesi near the Victoria Falls; W. MICHAELSEN, 18. August 1911.

Type in the Hamburg Natural History Museum.

Spongilla africana resembles *S. indica* ANNANDALE in the structure of its skeleton-spicules and its skeleton, but differs considerably therefrom in

that of its gemmule, if I am right in believing that the gemmules here assigned to the species actually belong to it. They were not found inside the sponge, which was evidently young and immature, but closely adjacent to it on the same stone, together with gemmules of *Corvospongilla victoriae*. Some of their spicules, however, approach those of the skeleton of *S. africana* very closely.

Gen. *Corvospongilla*, Annandale.

Including the new sponge described below, six species of this genus are now known from Tropical Africa, of the fauna of which, as also of that of Peninsular India, it is particularly characteristic. The species fall naturally into two groups — those with smooth and those with spiny skeleton-spicules. The latter group, to which the new species belongs, is only known from Tropical Africa.

Key to the African Species of *Corvospongilla*.

I. Skeleton-spicules smooth.

- A. Skeleton-spicules on an average $7\frac{1}{2}$ times
as long as thick *C. zambesiana*.
- B. Skeleton-spicules 11 to 13 times as long
as thick *C. loricata*.

II. Skeleton-spicules spiny or granular.

- A. Gemmule-spicules sparsely spined (about
50 spines to a spicule) *C. böhmii*.
- B. Gemmule-spicules much more densely
spined.
 - 1. Inner capsule of gemmule flask-
shaped *C. victoriae*.
 - 2. Inner capsule of gemmule spheri-
cal or subspherical
 - a. Gemmule-spicules (amphistrongyli) 2 to 5 times as long as
thick *C. micramphidiscoides*.
 - b. Gemmule-spicules (amphistrongyli) 3 to 12 times as long as
thick *C. scabrispiculis*.

Corvospongilla victoriae, sp. nov.

Pl. VI., figs. 4 and 5 A—C.

Sponge: The sponge forms small lichenoid patches, often somewhat densely congregated, on stones. Their outlines are irregular, their diameter not more than about 25 mm in the specimens examined, and their thickness inconsiderable. It is possible that at a later stage the different patches may grow together to form a uniform layer. The texture of the sponge is hard but moderately friable; its colour in dry specimens yellowish, but darker and browner in spirit. The pores and oscula are small and inconspicuous.

Skeleton: The skeleton forms a dense reticulation composed mainly of single spicules, the spicule-fibres are not well differentiated (although the vertical fibres can be detected as somewhat irregular fascicles) and the greatly thickened pillars of spicules characteristic of some species of the genus are absent.

Spicules (Pl. VI, Fig. 5): The skeleton-spicules are relatively slender amphistrongyli as a rule almost uniformly but by no means densely covered with minute spines; occasionally these spines are almost absent. Not infrequently the extremities of the spicule are somewhat inflated. Rather shorter and distinctly more slender amphioxous macroscleres also occur, but sparingly and not incorporated in the skeleton. The free microscleres are of two types, micramphidises and amphioxi. The former are of the usual form and are not, in the specimens examined, abundant. As a rule their discs are formed of six long spines, which project outwards further than in some species and are not recurved at the tips; the shaft is never strongly curved. The amphioxi, which are scarcer than the micramphidises, are slender and nearly straight; they bear stout spines, which stand out straight at right angles and are short at and near the extremities but often of considerable length near the middle of the spicule. The gemmule-spicules are stout and relatively short amphioxi, but exhibit great variation in length and outline, which is sometimes distorted and irregular; they are uniformly and fairly densely spined.

Gemmule (Pl. VI, Fig. 4): The gemmules are circular in outline and dome-shaped externally, without an aperture of any kind. They adhere firmly at the base of the sponge. The outer coat consists of a single layer of gemmule-spicules arranged horizontally and mosaic-wise in a stout chitinous membrane more or less continuous with the basal membrane of the sponge. Within this coat the inner capsule lies free. It has the form of a narrow flask with a well-defined neck (the foraminal tubule) and lies on

one side horizontally. Its walls are comparatively thin and have only a few microsceleres adhering to them. These spicules are parallel to the external surface of the capsule.

Length of skeleton-spicule (amphistrongyli) . . .	0.152—0.172 mm	
Thickness of skeleton-spicule (amphistrongyli) . .	0.012	„
Length of free microscelere (amphioxi)	0.036—0.06	„
Thickness of free microscelere (amphioxi). . . .	ea. 0.004	„
Length of micramphidise	ca. 0.024	„
Length of gemmule-spicule	0.024—0.04	„
Thickness of gemmule-spicule	0.008—0.012	„
Diameter of complete gemmule	0.425—0.52	„
Length of inner capsule of gemmule (including tubule)	ca. 0.323	„
Lesser diameter of inner capsule of gemmule . .	ca. 0.255	„

Locality: R. Zambesi, near the Victoria Falls; W. MICHAELSEN, 18. August 1911.

Type in the Hamburg Natural History Museum; co-type in the Indian Museum, Calcutta.

This species differs from the others in the *C. böhmii* group in the structure of the gemmule and in particular in the peculiar form of its inner capsule.

The other members of the group (namely, *C. böhmii*, *C. micramphidiscoides*, and *C. scabriscpiculis*) have always been found associated with other animals; — *C. micramphidiscoides* and *C. scabriscpiculis* (as also *C. loricata* in the group with smooth skeleton-spicules) on shells of the molluse *Aetheria*, and *C. böhmii* on the external surface of *Spongilla nitens*. It is therefore, interesting to note that the types of *C. victorise* were found on stones. As a rule they were not associated in any way with other organisms, but in one instance gemmules of the *Corcospongilla* lay side by side with those of the type specimen of *Spongilla africana*.

Part II. The Distribution of the African Spongillidae.

In a recent paper WELTNER¹⁾ has given a list of the African *Spongillidae*, with precise details of the locality or localities from which each species has been recorded. His list includes the names of 23 species; in the same paper two new *Spongillidae* are described by him, and, including the

¹⁾ Wiss. Ergebn. d. Deutschen Zentral-Afrika-Expedition, 1907—1908, Band IV, Zoologie ii. Lief. 12 (Süßwasserschwämme), pp. 475, 476.

three described above, I have myself lately added five additional representatives of the family to the African fauna. The precise provenance of one of the sponges on WELTNER's list (*Corvospongilla loricata*, WELTNER) is doubtful: it probably came from the Nile; while one other (*Spongilla carteri*, CARTER) has been recorded from Africa (Victoria Nyanza) on evidence that does not seem to me by any means conclusive.¹⁾ Omitting these two doubtful species, we have thus 28 known to occur on the Continent of Africa.

Their distribution on that Continent may be stated concisely as follows: —

Sponges of the Nile System.

Spongilla (*Euspongilla*) *alba* var. *cerebellata*, BOWERBANK.

Spongilla (*Euspongilla*) *biseriata*, WELTNER.

Spongilla (*Eunapius*) *aetheriae*, ANNANDALE.

Spongilla (*Eunapius*) *nitens*, CARTER.

Spongilla (*Stratospongilla*) *sumatrana*, WEBER, var. *A*, WELTNER.

Dosilia brounii (KIRKPATRICK).

Corvospongilla scabrispiculis, ANNANDALE.

Sponges of Tropical East Africa (coastal region).

Spongilla (*Stratospongilla*) *sumatrana*, WEBER, var. *B*, WELTNER.

Pectispongilla sansibarica (WELTNER).

Corvospongilla böhmii (HILGENDORF).

Sponges of the Zambesi System.

Spongilla (*Euspongilla*) *biseriata*, WELTNER.

Spongilla (*Eunapius*) *nitens*, CARTER.

Spongilla (*Eunapius*) *michaelseni*, sp. nov.

Spongilla (*Stratospongilla*) *rousseletii*, KIRKPATRICK.

Spongilla (*Stratospongilla*) *africana*, sp. nov.

Corvospongilla victoriae, sp. nov.

Corvospongilla zambesiana (KIRKPATRICK).

Sponges of the Congo System.

Spongilla (*Stratospongilla*) *schubotzii*, WELTNER.

Tubella pottsii, WELTNER.

¹⁾ See KIRKPATRICK, Proc. Zool. Soc. London, 1906 (ii), p. 219 and ANNANDALE, Faun. Brit. Ind., Freshw. Sponges, p. 87 (1911).

Corvospongilla micramphidiscoides, WELTNER.

Potamolepis chartaria, MARSHALL.

Potamolepis lebnitziae, MARSHALL.

Potamolepis pechuëlii, MARSHALL.

Sponges of the Tanganyika System.

Spongilla (Eunapius) nitens, CARTER.

Spongilla (Eunapius) permixta, WELTNER.

Corvospongilla böhmii (HILGENDORF),

Nudospongilla cunningtoni (KIRKPATRICK).

Nudospongilla moorei (EVANS).

Nudospongilla tanganyikae (EVANS).

Potamolepis weltneri, MOORE.

Sponges of Africa South of the Limpopo River.

Spongilla (Eunapius) ambigua, ANNANDALE.

Spongilla (Stratospongilla) bombayensis, CARTER.

Ephydatia fluviatilis subsp. *capensis*, KIRKPATRICK.

Our knowledge of the African *Spongillidae* is still deficient, and there are several important river-systems from which no sponges have as yet been reported. It is, therefore, impossible to divide the Ethiopian Region with any pretence to finality into definite subregions or districts in which different sponge-faunas actually have been discovered or might be expected to exist. The foregoing attempt to deal with the known forms geographically is therefore no more than an attempt; but it may have some interest if we pay attention to genera and subgenera rather than species.

At present representatives of six well-established genera of *Spongillidae* have been found in Africa, including the Palaearctic and southern districts of the Continent. They are:

Spongilla,

Pectispongilla,

Ephydatia,

Dosilia,

Tubella,

Corvospongilla.

To these must be added two provisional genera of somewhat doubtful status, viz. *Nudospongilla* and *Potamolepis*.

Spongilla, moreover, is divided into three subgenera, all of which have been recorded from Africa — *Euspongilla*, *Eunapius* and *Stratospongilla*.

We have, therefore, to deal with 10 genera and subgenera in considering the Spongillid fauna of the Continent.

Of these, two subgenera (*Euspongilla* and *Eunapius*) may be regarded as cosmopolitan.

Euspongilla is at once the most primitive in the family and perhaps the most generally distributed. In Africa it is represented by only two species, so far as we know at present, and both of these occur in Lower Egypt. One (*Spongilla alba*) is a widely distributed and abundant Indian form, doubtfully distinct as a species from the cosmopolitan *S. lacustris*; while the other (*S. biseriata*), which is closely related to the N. American and Indian species *S. crateriformis* (POTTS), has been found both in the delta of the Nile and in the Zambesi river-system. It would thus seem that the subgenus is very poorly represented in Africa; but it must be noted that many of the species are usually found in ponds and other small masses of water and that such situations have been very little examined in Africa so far as sponges are concerned, and, indeed, are scarce in most parts of the Continent.

Eunapius is represented in many countries only by what are practically races and varieties of a single cosmopolitan species, *Spongilla fragilis*, LEIDY. In Africa, however no less than four distinct species have already been found, one of which (*S. nitens*) is evidently of wide distribution in the eastern tropical part of the Continent, the remainder being only known for the most part from single records. In India also four species are known.

The genus *Ephylatia* is very widely distributed, but chiefly in temperate climates, reaching its acme in Japan. In Africa the only form as yet discovered is a local race of the cosmopolitan *E. fluvialtilis* and has only been found south of the Limpopo.

Dosilia, on the other hand, is essentially tropical and subtropical in its range, consisting of three closely allied species which are regarded by some authors as varieties. One (*D. plumosa*) is found in the Indian Peninsular Area, one (*D. palmeri*) in Mexico and the neighbouring states, and one (*D. brownii*) in the White Nile.

Tubella appears to have its headquarters in North and South America, but is represented by scattered species in Europe, tropical Asia and Australia, as well as by one (*T. pottsii*) in the Congo system.

None of the foregoing genera and subgenera can be said, in the present state of our knowledge, to cast much light either on the distribution of the African fauna within the Continent or on its relations to the

fauna of other regions. The remaining four African genera and the third subgenus of *Spongilla* (that is to say, *Stratospongilla*) are more interesting from both points of view.

Although both *Nudospongilla* and *Potamolepis* are possibly mere assemblies of convergent species, it is at least noteworthy that the latter seems to have its headquarters in the Congo, while the former is particularly well represented in Lake Tanganyika. *Potamolepis* is not known outside Africa, whereas *Nudospongilla* is found in Palestine, China and possibly Celebes. The former genus seems to have been modified in accordance with a life in rapid-running water, the latter with one in the still waters of large lakes.¹⁾ Strictly speaking, the Tanganyika system is of course part of the Congo system.

Corcospongilla in several important characters resembles *Potamolepis*, which may have been derived from it, at least in part, by the loss of free microscleres of the type called micramphidises by WELTNER. The genus is only known from Tropical Africa, Peninsular India and Burma;²⁾ it has been found in all the river-systems of Tropical Africa as yet investigated, but not in either the northern or the southern districts of the Continent. It is well represented in Peninsular India, more particularly in the Malabar Zone.

*Stratospongilla*²⁾ has a distribution resembling that of *Corcospongilla* but more extensive. Single species occur on the one hand in South Africa and on the other in the Malay Archipelago. In both cases these species have a very wide range; one (*S. bombayensis*) is found both in Peninsular India and the Himalayas and in Natal, while the other (*S. sumatrensis*) occurs both in Sumatra and in the Nile system and the coastal districts of Tropical East Africa. Single species are also known from Fiji (*S. gilsoni*, TOPSENT) and S. America (*S. navicella*, CARTER).

*Pectispongilla*³⁾ has hitherto been thought to be confined to the Malabar Zone of the Indian Peninsular Area, but an examination of a cotype of *Spongilla sansibarica*, WELTNER, from the Island of Zanzibar convinces me that it must be assigned to the same genus as *Pectispongilla aurea* from Travancore and Cochin, the type species of its genus.

Considering these facts, we may say that, although there is not sufficient evidence as yet before us to parcel out the inland sponge-fauna of Africa into definite faunistic areas, the *Spongillidae* of the Continent as a

¹⁾ ANNANDALE, Journ. As. Soc. Bengal, 1913, pp. 82, 83.

²⁾ Id., Rec. Ind. Mus. VII, pp. 392, 393 (1912); also IX^e Congr. internat. Zool., p. 579 etc. (Monaco: 1914).

³⁾ ANNANDALE, Fauna of British India, Freshwater Sponges, etc., p. 106 (1911).

whole exhibit close affinity with those of the Indian Peninsula — and possibly with those of Tropical Asia generally, for outside the Indian Empire the *Spongillidae* of Tropical Asia have been even less studied than those of Africa. Those collected by Professor MAX WEBER in the Malay Archipelago, and a few from Western China, Borneo and the Malay Peninsula are all that are known, and most of these have cosmopolitan affinities.

EXPLANATION OF FIGURES.

Plate VI.

Fig. 1. Spicules of *Spongilla africana*, sp., nov., $\times 255$.

- A. Skeleton-spicules.
- B. Gemmule-spicules.
- C. Free microscleres.

Fig. 2. Gemmule of *Spongilla africana*, sp. nov., as seen from above $\times 75$.

Fig. 3. Spicules of *Spongilla michaelsoni*, sp. nov., $\times 255$.

- A. Skeleton-spicules.
- B. Gemmule-spicules.
- C. Free microscleres.

Fig. 4. Gemmule of *Corrospongilla victoriae*, sp. nov., $\times 75$. The outer cage has been laid open to show the inner capsule.

Fig. 5. Spicules of *Corrospongilla victoriae*, sp. nov.

- A. Skeleton-spicules, $\times 255$.
 - B. Gemmule-spicules, $\times 255$.
 - C. Free microscleres, $\times 255$ (except the figure marked with a \times , which is multiplied by 500).
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