(*Rev. Zool. Bot. Afr.*, XXX, 4.) (*A paru le 25 juin 1938.*)

Some Freshwater Sponges from the Belgian Congo, including descriptions of two new species from Northern Rhodesia

BY

MAURICE BURTON, D. Sc.

Department of Zoology, British Museum (Natural History), London,

(With Plates I-II)

This report records the finding of freshwater sponges belonging to 13 species, of which 7 are species hitherto unknown. That such a large proportion of the total should be new is evidence of a rich sponge fauna of Africa yet to be explored, and the author wishes to record his thanks to Dr. SCHOUTEDEN, Director of the Congo-Museum, Tervueren, for his ceaseless efforts to amass material from this area, and to Dr. DARTEVELLE, Dr. PAUL BRIEN and Miss K. RICARDO for the collections they have made.

DESCRIPTIONS OF SPECIES

Genus **SPONGILLA** LAMARCK

Spongilla nitens CARTER. (Pl. I, fig. 1-3.)

Spongilla nitens CARTER 1881, p. 89, pl. v, fig. 3, pl. vi, fig. 18; HILGENDORF 1883, p. 87; POTTS 1887, p. 195; WELTNER 1897, p. 3, figs.; PETR 1899, p. 29, pl. ii, fig. 31; ANNANDALE 1914, p. 238; TOPSENT 1932, p. 570, fig. 1; 1932, p. 1001; ARNDT 1933, p. 302, fig. 1.

Occurrence. — Barrage de Mateba, near Boma; Luom buva, near Kakyelo; Luapula, near Kabunda; Lukula, between Selsinf Zohe and Kaikupodi.

Remarks. — Several massive specimens growing on the roots of trees, the largest measuring 18 mm. by 11 mm. by 5 mm. high.

Distribution. — River Nile; White Nile; Lake Tanganyika; River Niger; River Zambesi; Belgian Congo.

Spongilla moorei EVANS.

Spongilla moorei EVANS 1899, p. 472, pl. xxxvii, figs. 1-5, pl. xxxviii, figs. 6-8; MOORE 1902, p. 310, figs. 1-2; KIRKPATRICK 1906, p. 219, pl. xv, figs. 5-9; JAFFÉ 1916, p. 5; SCHOUTEDEN 1917, p. 167.

Occurrence. — River Kasai (coll.).

Remarks. — The single specimen is encrusting and in a poor state of preservation.

Distribution. — Lake Tanganyika; Belgian Congo.

Spongilla sansibarica WELTNER.

Spongilla sansibarica WELTNER 1895, p. 140; 1898, p. 127, figs. 13-17; ANNANDALE 1915, p. 173, fig. 2.

Occurrence. — Lake Upemba (August 1937).

Remarks. — The variety differs from the typical form in having megascleres (acanthoxea) .32 to .35 by .011 mm., and microscleres (acanthostrongyla), .11 by .005 mm., with spines sparingly present along the central portion of the spicule as well as being massed at each end.

Abundant gemmules are present.

Distribution. — Zanzibar; Belgian Congo.

Spongilla brieni sp. n.

Holotype. — In Musée du Congo Belge, Tervueren.

Occurrence. — Lake Upemba, August 1937 (coll. BRIEN).

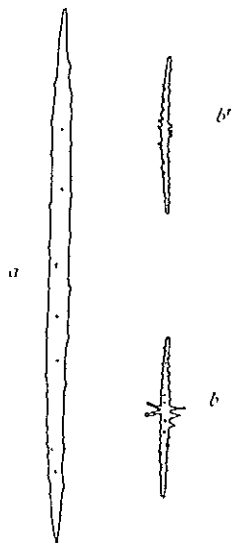

Fig. 1. — *Spongilla brieni* sp. n.
a. Acanthoxeote, × 100; *b*. interstitial acanthoxea, × 200.

Diagnosis. — Sponge encrusting (on weeds); surface even, non-hispid or minutely hispid; oscules small, few, inconspicuous; texture soft, fragile; colour, in spirit, greenish-yellow; skeleton a loose system of ascending fibres (2 to 4 spicules thick), with irregular connectives, uni- or bispicular, of oxea to acanthoxea (sparingly and faintly spined), .35 by .012 mm., with acanthoxea, occasionally pseudastrose by branching, .07 by .004 mm., scattered interstitially.

Immature gemmules only present.

Remarks. — The species has some resemblance to *Spongilla lacustris* AUCTT.

Distribution. — Belgian Congo.

Genus **TROCHOSPONGILLA** VEJDOVSKY.

Trochospongilla tanganyikae (EVANS).

Spongilla tanganyikae EVANS 1899, p. 481, pl. xxxviii, figs. 9-11; MOORE 1902, p. 318, fig. 3; KIRKPATRICK 1906, p. 221, pl. xv, fig. 10.

Occurrence. — Lac Tumba; Eala.

Remarks. — There are numerous gemmules of this species attached in

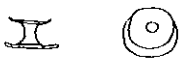

Fig. 2. — *Trochospongilla tanganyikae* (EVANS). Gemmule spicule, × 500.

groups on the surfaces of two specimens of *Tubella lissostrongyla* sp. n. They are each enclosed in a capsule, .35 mm. diameter, strengthened by tangentially-arranged megascleres. The gemmules are .25 mm. diameter, spherical, with thin microcell layer and short foraminiferal tube. The gemmules spicules are birotulae, .007 mm. long, with rotulae, slightly unequal in size, .014 mm. diameter.

Distribution. — Lake Tanganyika; Belgian Congo.

Genus **POTAMOLEPIS** MARSHALL.

Potamolepis leubnitziae MARSHALL. (Pl. I, figs. 5-6.)

Potamolepis leubnitziae MARSHALL 1883, p. 568, pl. xxiv, figs. 1-6; POTTS 1887, p. 269; BURTON 1929, p. 157.

Occurrence. — Barrage de Mateba, near Boma.

Remarks. — There are numerous encrustations, none exceeding a millimeter in thickness, and the largest (incomplete) measures 13 cm. by

10 cm. across. The spiculation in this species appears to be identical in all respects with that of *P. pechuelis* MARSHALL, the differences between the two species being entirely in external appearance.

No gemmules were found.

Distribution. — Belgian Congo.

Potamolepis pechuelis MARSHALL. (Pl. I, fig. 4.)

Potamolepis pechuelis MARSHALL 1883, p. 570, pl. XXIV, figs. 10-11; POTTS 1887, p. 270.

Occurrence. — Barrage de Mateba, near Boma.

Remarks. — Of the several encrustations present in this collection, none exceeds a millimeter in thickness and the largest (incomplete) measures 15 cm. by 10 cm. across.

No gemmules were found.

Distribution. — Belgian Congo.

Potamolepis schoutedeni sp. n. (Pl. I, fig. 7.)

Holotype. — In Musée du Congo Belge, Tervueren.

Occurrence. — Léopoldville, River Congo (Coll. A. TINANT).

Diagnosis. — Sponge encrusting to massive and depressed; surface undulating or thrown into rounded conules, non-hispid; oscules apical on

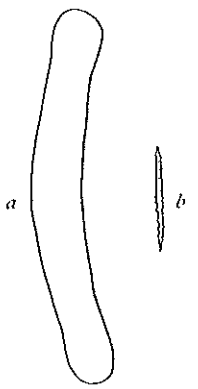

Fig. 3. — *Potamolepis schoutedeni* sp. n.
a, Strongyle, × 200; *b*, Interstitial oxeote, × 200.

conules, numerous, 1 to 2 mm. diameter; texture firm, friable; colour, dried, grey to brown; skeleton an irregular reticulation of multispicular fibres (6 to 20 spicules) of strongyla, .24 by .035 mm., with acanthoxea, .07 by 003 mm., scattered interstitially.

Gemmules not observed.

Distribution. — Belgian Congo.

Potamolepis marshalli sp. n. (Pl. I, fig. 8.)

Holotype. — In Musée du Congo Belge, Tervueren.

Occurrence. — Matadi, River Congo (coll. P. BRIEN).

Diagnosis. — Sponge encrusting (on stones), 1 to 3 mm. thick; surface even, non-hispid; oscules small, numerous, crateriform (1 to 2 mm. high and up to 1 mm. diameter), evenly distributed over surface; texture firm,

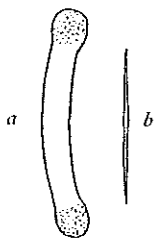

Fig. 4. — *Potamolepis marshalli* sp. n.
a. Amphitylote, × 200; *b*. Interstitial oxeote, × 200.

friable; colour, dried, light brown; skeleton a dense, close-meshed reticulation of amphitylota, with faintly microtuberculate ends, .14 by .017 mm., with microxea, faintly microspined, .1 by .003 mm., scattered interstitially.

Gemmules not observed.

Remarks. — The species appears to have a similar external form to *P. chartaria* MARSHALL, but differs in the shape and dimensions of its megascleres. In both species, interstitial microxea are present.

Distribution. — Belgian Congo.

Potamolepis micropora sp. n. (Pl. I, fig. 8*a*.)

Holotype. — In Musée du Congo Belge, Tervueren.

Occurrence. — Matadi, River Congo (coll. P. BRIEN).

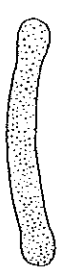

Fig. 5. — *Potamolepis micropora* sp. n. Amphitylote, × 200.

Diagnosis. — Sponge encrusting (on stones), 1 mm. thick; surface even, non-hispid; oscules minute, up to .5 mm. diameter, numerous, level

with surface, evenly spaced (at distances of 2 mm. from each other); texture firm, friable; colour, dried, greenish-grey; skeleton a dense, close-meshed reticulation of amphitylota, faintly microtuberculate throughout, .15 by .02 mm.

Gemmules not observed.

Remarks. — The species is growing on he same stone as *P. marshalli* sp. n., from which it is readily distinguished by its external form.

Distribution. — Belgian Congo.

Genus **METANIA** GRAY.

Metania GRAY 1867, p. 551; *Acalle* GRAY 1867, p. 551; *Tubella* CARTER 1881, p. 96.

Genotype. — *Spongilla reticulata* BOWERBANK 1863, p. 455, pl. XXXVIII, fig. 8.

Diagnosis. — Spongillidae with reticulate skeleton of oxea or strongyla, smooth or spined; with acanthoxea or acanthostrongyla scattered interstitially; gemmule spicules unequally-ended amphidiscs.

Metania lissostrongyla sp. n. (Pl. II, fig. 1-4.)

Holotype. — In Musée du Congo Belge, Tervueren.

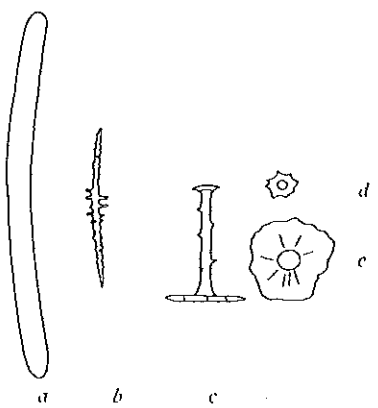

Fig. 6. — *Metania lissostrongyla* sp. n.

a. Strongyle, × 200; *b*. Interstitial acanthoxeote, × 200; *c*. Gemmule spicule, × 500; *d*. Upper rotule, from above, × 500; *e*. Lower rotule, from below, × 500.

Occurrence. — Lac Tumba (holotype); Léopoldville; Luali; Eala; Barrage de Mateba.

Diagnosis. — Sponge encrusting to massive; surface coarsely reticulate

occasionally spinose; oscules not apparent; texture firm, friable; colour, in spirit and dried, dark brown; skeleton a coarse, fairly regular reticulation of multispicular (6 to 20 spicules) fibres of smooth strongyla, .13 to .24 by .011 to .031 mm., with acanthoxea, .1 to .14 by .003 by .004 mm. scattered interstitially.

Gemmule: scattered singly, spherical, .5 mm. diameter, contained in capsules, strengthened with tangentially-arranged strongyla, .64 mm. diameter; microcell layer thin (?); foraminiferal tube short; spicules birotulae, .031 mm. long, lower rotule .021 mm. diameter, upper rotule, with 4 recurved teeth, .007 mm. diameter.

Remarks. — This species has the typical external form of the genus and is characterised mainly by its megascleres, smooth strongyla. Its nearest relative appears to be *T. pottsi* WELTNER, also from the Congo, which has spined instead of smooth strongyla.

Distribution. — Belgian Congo.

Metania rhodesiana sp. n.

Holotype. — B. M. 1938. 2. 25. 1.

Occurrence. — Lake Young, Northern Rhodesia, 0-9 m. depth. (Coll. Miss K. RICARDO).

Diagnosis. — Sponge encrusting or ramose, with subcylindrical, anastomosing branches; surface irregular, spinose; oscules small, scattered; Texture firm, brittle; colour, in spirit, white, yellow or brown; skeleton an irregular reticulation of multispicular fibres of oxea, .38 by .021 mm., with acanthoxea, .1 by .003 mm., scattered interstitially.

Gemmule: unknown.

Distribution. — Northern Rhodesia.

Metania innominata sp. n.

Holotype. — B. M. 1938. 2. 25. 8.

Occurrence. — Lake Young, Northern Rhodesia. (Coll. Miss K. RICARDO).

Diagnosis. — Sponge encrusting (1-2 mm. thick); surface even; minutely hispid; oscules not apparent; texture firm, brittle; colour, in spirit, pale yellowish-brown; skeleton a confused reticulation, sparingly reticulate in places, of oxea, .4 by .026 mm., with acanthoxea, .09 by .004 mm., scattered interstitially.

Gemmule: scattered singly in a basal layer, spherical, .4 mm. diameter, without enclosing capsule; microcell layer thin; foraminiferal tube

short (?); spicules unequally-ended birotulae, .035 mm. long, lower rotule .021 mm. diameter, upper rotule, with crown of 6 to 7 recurved teeth, .008 mm. diameter.

Distribution. — Northern Rhodesia.

(*Note*: The interstitial acanthoxea of both *M. rhodesiana* sp. n. and *M. innominata* sp. n. are almost identical with those figured for *Spongilla brieni* sp. n. The oxea in both are simple and ordinary, and the gemmule spicules of *M. innominata* are practically identical with those of *M. lissostrongyla* sp. n. It does not appear necessary, therefore, to figure any of these).

APPENDIX

MARINE SPONGES FROM THE CONGO COAST

Spongia officinalis LINNAEUS, var. *irregularis* (SCHULTZE).

Occurrence. — The coast of the Lower Congo (collected on the beach).

Remarks. — It is difficult to attach a name to any but the well-marked and familiar varietes and species of *Spongia officinalis*, but the present specimens appear to have much in common with SCHULZE's var. *irregularis*, from the Mediterranean. They are also, in all probability, closely-related to the form described by LENDENFELD (1889, p. 252) as *Euspongia irregularis* var. *villosa*, from Madeira, and my *Spongia officinalis* (See BURTON 1932, p. 340), from Ascension Island.

Distribution of variety. — Mediterranean; (?) Madeira; (?) Ascension Island; (?) South Africa; (?) Australia.

LIST OF WORKS REFERRED TO.

ANNANDALE, 1915. — Notes on freshwater sponges, N° XVI. The genus *Pectispongilla* and its allies. — *Rec. Ind. Mus. Calcutta*, XV, pp. 171-178.

ANNANDALE, 1914. — Spongillidae- (in) *Beitr. Kenntnis Land- u. Süsswasserfauna Deutsch-Südwestafrikas*, herausgeg. von MICHAELSEN. Hamburg, II, 1914, pp. 235-249, pl. vi.

ARNDT, W., 1933. — Die von Dr. Fritz Haas auf der Schomburgk-Afrika-Expedition 1931-32 gesammelten Süsswasserschwämme. — *Senckenbergiana*, Frankfurt, XV, pp. 302-309, 4 figs.

BURTON, M., 1929. — Porifera (in) Mission Saharienne Augiéras-Draper, 1927-1928. — *Bull. Mus. Hist. nat. Paris*, I, pp. 157-158, 1 fig.

BURTON, M., 1932. — Sponges- (in) *Discovery Reports Cambridge*, VI, pp. 327-392, 20 pls., 56 figs.

CARTER, H. J., 1881. — History and classification of the known species of Spongilla. — *Ann. Mag. nat. Hist.*, VII, pp. 77-107, pls. v-vi.

EVANS, R., 1899. — Description of two new species of Spongilla from Lake Tanganyika. — *Quart. J. micr. Sci.*, London, XLI, pp. 471-488, pls. xxxvii-xxxviii.

GRAY, J. E., 1867. — Notes on the arrangement of sponges, with the description of some new genera. — *Proc. Zool. Soc. London*, pp. 492-558, pls. xxvii-xxviii.

HILGENDORF, F., 1883. — Süsswasserschwämme aus Central-Africa. — *Sitz. Ber. Ges. naturf. Fr. Berl.*, pp. 87-90.

JAFFE, G., 1916. — Zwei Schwämme aus dem Tanganjikasee (*Spongilla moorei* EVANS und *Potamolepis stendelli* n. sp.). — *Zool. Anz.*, Leipzig, XLVIII, pp. 5-14.

KIRKPATRICK, R., 1906. — Zoological results of the Third Tanganyika Expedition. — *Proc. Zool. Soc. London*, pp. 218-227, pls. xv-xvii.

LENDENFELD, R. von., 1889. — A Monograph of the Horny Sponges. — London, 936 pp., 50 pls.

MARSHALL, W. — Ueber einige neue, von Hrn. Pechüel-Lösche aus dem Congo gesammelte Kieselschwämme. — *Jena. Z. Naturw.*, XVI, pp. 553-577, pl. xxiv.

MOORE, J. E. S., 1902. — The Tanganyika Problem. — London, xxiii and 371 pp.

PETR, F., 1899. — Studies on the freshwater Sponges. — *Trans. Bohemian Acad. Franz-Joseph,* Prag, VIII, pp. 1-35, pl. i-ii.

POTTS, E., 1887. — Contributions towards a synopsis of the American forms of Freshwater Sponges. — *Proc. Acad. Sci. Philad.*, pp. 157-279, pls. v-xii.

SCHOUTEDEN, H., 1917. — Mission Stappers au Tanganyika-Moero, Note sur les Spongilles. — *Rev. Zool. Bot. Afr.,* Bruxelles, V, pp. 166-167.

TOPSENT, E., 1932. — Spongillides du Niger. — *Bull. Mus. Hist. nat. Paris,* IV, pp. 568-582, 6 figs.

TOPSENT, E., 1932. — Documents sur des Spongillides d'Afrique. — *Bull. Mus. Hist. nat. Paris,* IV, pp. 1001-1007.

WELTNER, W., 1895. — Spongillidenstudien. iii. — *Arch. Naturgesch.,* Berlin, LXVI, pp. 114-144.

WELTNER, W., 1897. — Die Coelenteraten und Schwämme des süssen Wassers Ost-Afrika. — *Deutsch-Ost-Afrika,* IV, 2-3, 6 pp. 4 figs.

WELTNER, W., 1898. — Ostafrikanische Süsswasserschämme, gesammelt von Dr. F. STUHLMANN 1888 und 1889. — *Mitt. Naturhist. Mus. Hamburg,* XV, pp. 119-131, 1 pl.