

ON SOME FRESHWATER SPONGES FROM THE UNNAMED  
COLLECTION OF THE ZOOLOGICAL SURVEY OF INDIA

*By*

T. D. SOOTA AND J. G. PATTANAYAK

*Zoological Survey of India, Calcutta*

(With 3 Text-figures)

The study of freshwater sponges in India has made practically no headway since the pioneering works of Annandale (1906-1919). Recently, Penney and Racek (1968) in their outstanding work covering the then known species of the world, also included a praiseworthy survey of Indian forms. In fact it forms the main basis of a checklist of Indian fresh-water species attempted by Khera and Chaturvedi (1976).

The present paper deals with freshwater sponges from the unnamed collection of the Zoological Survey of India and these comprise nine species belonging to six genera, most of which species forming new locality records. Synonymies have been deliberately omitted, not only to avoid redundancy but especially as they have been very elaborately and exhaustively dealt with by Penney and Racek (*op. cit.*).

A key to the Indian genera of Spongillidae, as well as keys of species of three genera not represented in the unnamed collection of the Survey, have also been appended.

SYSTEMATIC ACCOUNT

Phylum PORIFERA

Class DEMOSPONGIAE

Order HAPLOSCLERINA

Family SPONGILLIDAE

Genus *Corvospongilla* Annandale, 1911

*Generic characters :*

Megascleres—amphistrongyles, robust, inflated at their extremities, smooth to granulated, slightly curved ; occasionally amphioxea.

Microscleres—microbirotulates, almost straight to slightly curved with smooth or spined shaft having a small number of terminally recurved spines of varying length ; also, though only exceptionally spined amphioxea, which are possibly adventitious.

Gemmoscleres—amphistrongyla, invariably spined and distinctly curved.

Gemmules—spherical, large, oval in outline with flattened base found in groups at base of sponge; pneumatic coat ill-defined or absent; gemmoscleres embedded in inner gemmular membrane, lying close together to form a mosaic cover; foramen tubular and lateral; occasionally free gemmules also present, usually different in form and structure of pneumatic coat.

## KEY TO INDIAN SPECIES

1. Megascleres amphioxea.	...	...	2
Megascleres amphistrongyla.	...	...	3
2. Gemmules adhering to substratum.	...		<i>C. ultima</i>
Gemmules not so.	...		<i>C. caunteri</i>
3. Gemmoscleres in concentric layer or layers on inner gemmular membrane.	...		<i>C. burmanica</i>
Gemmoscleres in one or two layers, arranged in mosaic-like covering on inner gemmular membrane.	...		<i>C. lapidosa</i>

***Corvospongilla caunteri* Annandale, 1911**

(Text-fig. 1, A—D)

*Material*: One lot; Z. S. I. Reg. No. P. 3092/1; locality—Santhal Parganas; coll. *H. A. Hafiz*; 2. xii. 1938. One lot; Z. S. I. Reg. No. P. 3032/1; locality—Medha (Maharashtra); coll. *S. P. Aghaskar*; 23. vi. 1913.

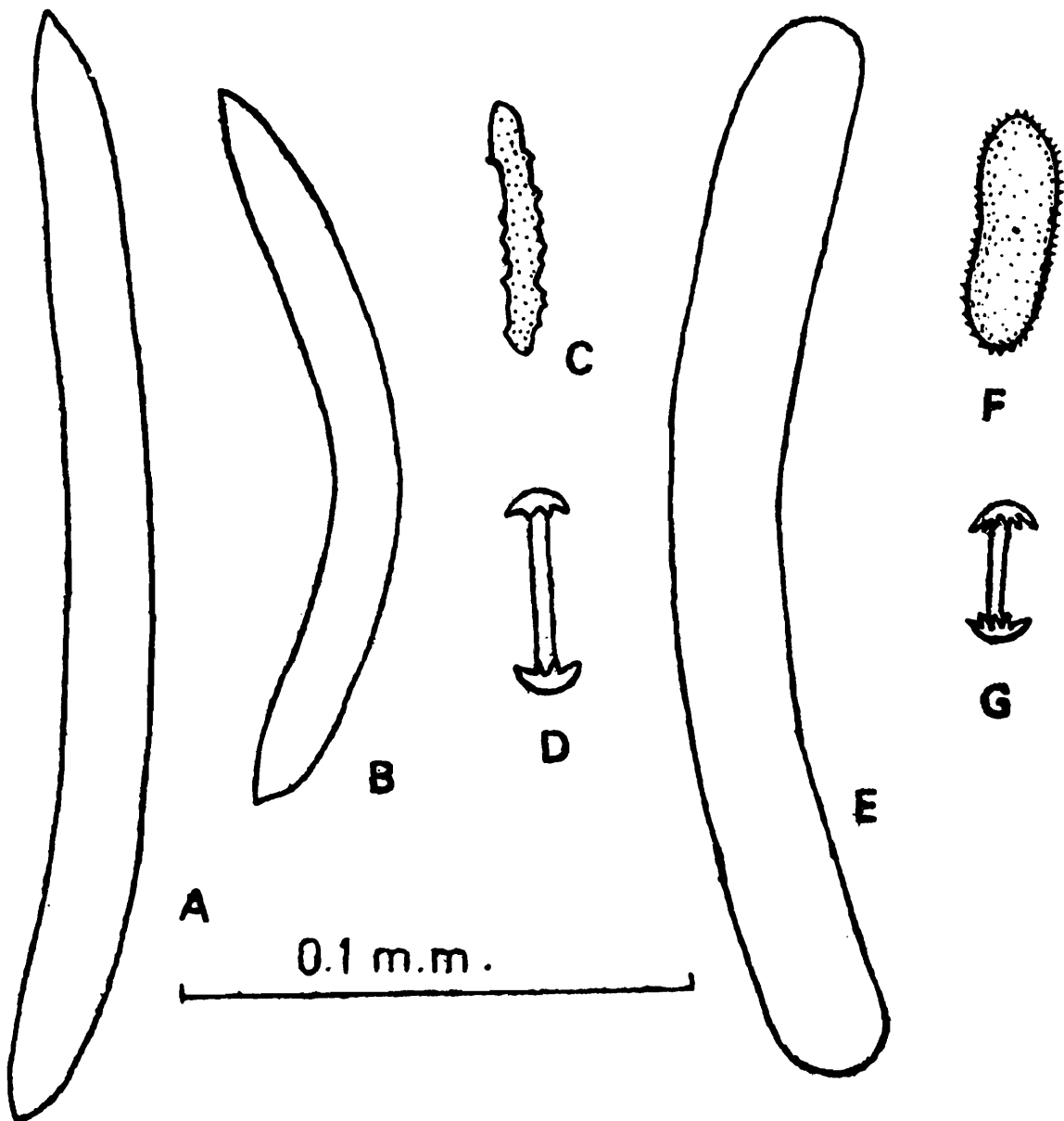
*Description*: Form moderately delicate with smooth surface. Megascleres—amphioxea, smooth, generally straight, bluntly or abruptly pointed; occasionally granulated or spiny at their extremities, often sharply pointed; length range 172-270  $\mu$ , width range 15-25  $\mu$ .

Microscleres—microbirotulæ, with smooth shaft, never strongly curved, terminal spines relatively short, not strongly incurved; length range 25-35  $\mu$ , diameter of rotules 8-10  $\mu$ .

Gemmoscleres—amphistrongyla, slightly curved, rarely blunt, irregularly spiny, length range 43-51  $\mu$ , width range 10-12  $\mu$ .

Gemmules—present freely in lower parts of inner symplasm, spherical to somewhat depressed, pneumatic coat rather thick, apparently consisting of very minute air spaces, under which gemmoscleres arranged in tangential mosaic-like covering on inner gemmular membrane; diameter 550-600  $\mu$ .

*Remarks* : This species is recorded for the first time from the above localities.



Text-fig. 1. A—D. *Corvospongilla caunteri* Annandale, 1911,

E—G. *C. lapidosa* (Annandale, 1908).

A, B—Megascleres ; C—gemmosclere ; D—microsclere ; E—Megasclere ; F—gemmosclere ; G—microsclere.

### *Corvospongilla lapidosa* (Annandale, 1908)

(Text-fig. 1, E—G)

*Material* : One lot ; Z. S. I. Reg. No. P. 1471/1 ; locality—Pulta water tank, 24-Parganas (West Bengal) ; coll. *Pulta survey party* ; 14. v. 1937. One lot ; Z. S. I. Reg. No. P. 3036/1 ; locality—Igatpuri (Maharashtra) ; collector & date of collection— ?.

*Description.*—Form irregular, hard and brittle, with rough surface.

Megascleres—amphistrongyla, feebly curved, smooth, length range 220-230  $\mu$ , width range 17-21  $\mu$ .

Microscleres—microbirotulates, shaft smooth and terminally with smaller number of recurved hooks, length range 30-34  $\mu$ , diameter of rotules 8-11  $\mu$ .

Gemmoscleres—amphistrongyla, slightly curved with blunt spines except at their extremities ; length range 50-60  $\mu$ , width range 12-15  $\mu$ .

Gemmules—subspherical, not very abundant, firmly adhering to substratum ; pneumatic coat feebly developed, without discernible air spaces ; gemmoscleres in one or two layers arranged in mosaic-like covering on inner gemmular membrane ; foramen produced into small and straight tubule, usually situated laterally ; average diameter 650  $\mu$ .

#### Genus **Dosilia** Gray, 1867

##### *Generic characters* ;

Megascleres—amphioxea, slender, fusiform, either smooth or covered with minute spines, excepting at their tips.

Microscleres—asters usually with rays arising from a central spherical nodule, or rough amphioxea bearing centrally several long perpendicular radiating rays, or a combination of both of these types ; abundant.

Gemmoscleres—birotulates with strongly spined shafts, terminally with distinctly umbonate rotules of equal diameter.

Gemmules—subspherical, abundant, large ; pneumatic layer consisting of minute spherical air spaces ; foramen produced into short, straight tubule.

#### **Dosilia plumosa** (Carter, 1849)

(Text-fig. 2, A—D)

*Material* : One lot ; Z. S. I. Reg. No. P. 1793/1 ; locality—Sarupurai village, Sardar Samand, dist. Pali (Rajasthan) ; coll. *K. K. Mahajan* ; 20. xi. 1963. One lot ; Z. S. I. Reg. No. P. 3100/1 ; locality—Pulta water tank, 24-Parganas, (West Bengal) ; coll. *Pulta survey party* ; 22. ix. 1936. One lot ; Z. S. I. Reg. No. P. 3040/1 ; locality—Ramgarh, dist. Jaipur (Rajasthan). One lot ; Z. S. I. Reg. No. P. 3035/1 ; locality—Lily pond, half a mile north of Silwary Hill on Hazaribagh-Bogodar Rd. ; 30. xi. 1938. One lot ; Z. S. I. Reg. No. P. 3094/1 ; locality—Hazaribagh, 9. x. 1938 ; collector—?.

*Description* : Form bulbous, compact and flattened with rough surface.

Megascleres—amphioxea, slightly curved, fusiform, smooth, length range 490-540  $\mu$ , width range 17-20  $\mu$ .

Microscleres—stellate spicules consisting of 8-12 smooth rays projecting from a central globular nodule, radius of rays 15-18  $\mu$ , abundant.

Gemmoscleres—birotulates, shaft strongly spined, cylindrical, rotules distinctly umbonate, equal, similar, their margins incised into numerous blunt recurved teeth, length range 80-85  $\mu$ , thickness of shaft 4  $\mu$ , diameter of rotules 21-25  $\mu$ .

Gemmules—subspherical, scattered throughout skeletal meshwork ; foramen a short and straight tubule, pneumatic layer well developed and granular, consisting of minute spherical air spaces ; gemmoscleres regularly embedded in this coat, their rotules rarely protruding through its outer surface ; average diameter 600  $\mu$ .

*Remarks* : This species is recorded for the first time from the above localities.

### Genus *Eunapius* Gray, 1867

#### *Generic characters* :

Megascleres—amphioxea or amphistrongyla, stout, smooth, rarely spined.

Microscleres—absent.

Gemmoscleres—amphioxea or amphistrongyla, slender to robust, usually strongly spined and only slightly curved.

Gemmules—moderately abundant, comparatively small, often somewhat flattened, and having well-developed pneumatic layer with conspicuously polygonal air-spaces ; foramen tube straight or strongly curved.

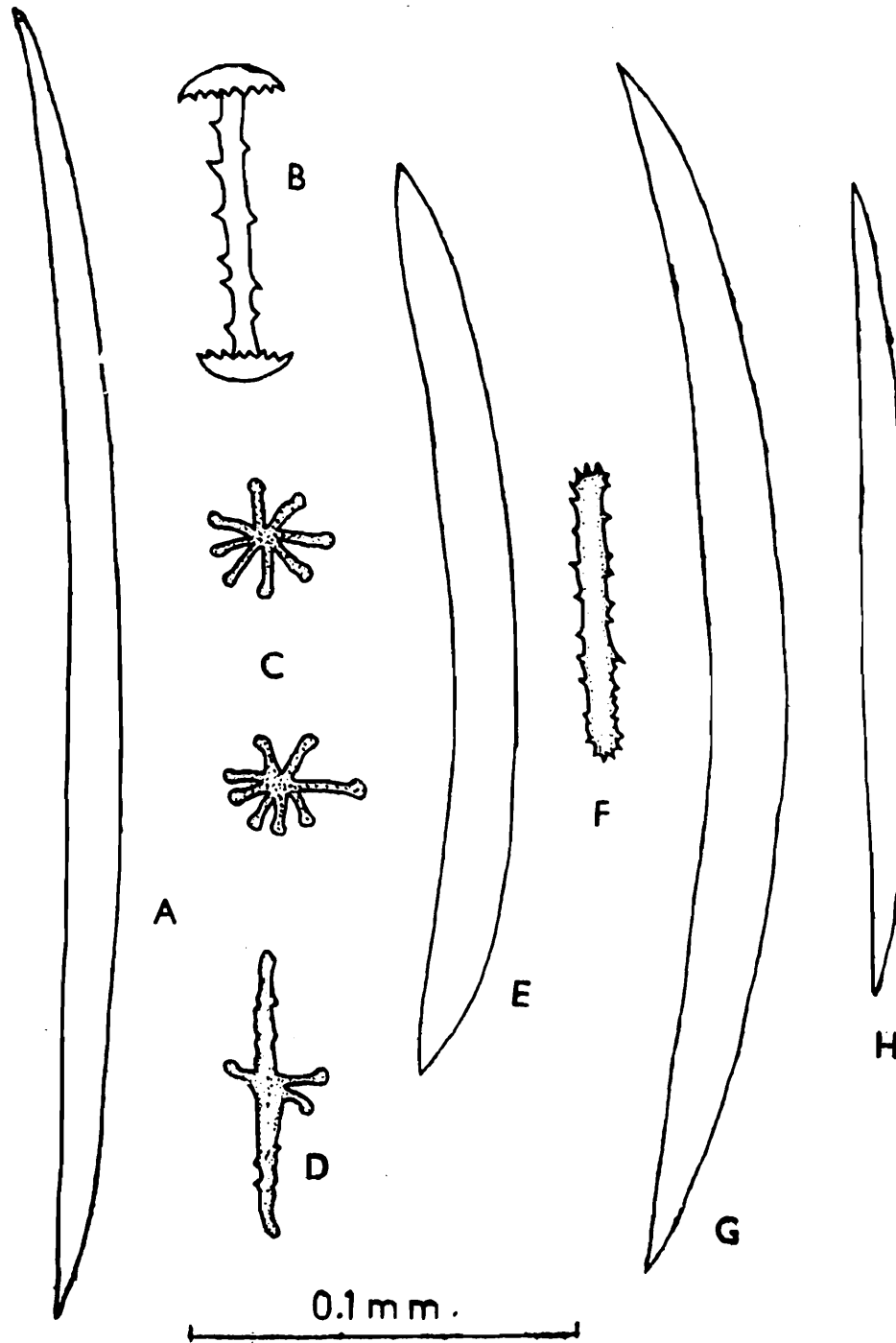
#### KEY TO INDIAN SPECIES

- |  |     |                        |
|--|-----|------------------------|
| 1. Megascleres amphistrongyla.   | ... | <i>E. crassissimus</i> |
| Megascleres amphioxea.   | ... | ... 2                  |
| 2. Gemmoscleres similar in shape and structure to megascleres but smaller in size. | ... | <i>E. carteri</i>      |
| Gemmoscleres not so.   | ... | ... 3                  |
| 3. Gemmules bound together in pairs, irrespective of their location.               | ... | <i>E. geminus</i>      |
| Gemmules bound together in free groups of more than two.                           | ... | <i>E. calcuttanus</i>  |

**Eunapius calcuttanus** (Annandale, 1911)

(Text-fig. 2, E, F)

*Material* : One lot ; Z. S. I. Reg. No. P. 3033/1 ; locality—Ray Dighi, 24-Parganas (West Bengal) ; coll. *K. R. Haldar* ; 3. i. 1965.



Text-fig. 2. A—D. *Dosilia plumosa* (Carter, 1849) ; E & F. *Eunapius calcuttanus* (Annandale, 1911) ; G & H. *E. carteri* (Bowerbank, 1863).

A—Megasclere ; B—gemmosclere ; C—stellate microscleres ; D—acerate microscleres ; E—Megasclere ; F—gemmosclere ; G—Megasclere ; H—gemmosclere.

*Description* : Form elongated, finger-like, and with smooth surface.

**Megascleres**—amphioxea, slender, fusiform, smooth, with abruptly pointed and peculiar tips invariably forming lanceolate apical projections ; length range 200-225  $\mu$ , width range 9-10  $\mu$ .

**Microscleres**—absent.

**Gemmoscleres**—amphistrongyla, very slender, cylindrical, curved, and with spines, length range 80-100  $\mu$ , width range 2-4  $\mu$ .

**Gemmules**—abundant, present in inner symplasm, spherical, with smooth outer covering ; pneumatic layer well developed and thick, consisting of large polygonal air spaces ; foramen invariably tubular, porus tube conspicuously bent and long, well projecting beyond surface of pneumatic layer ; diameter of inner gemmular membrane 200-225  $\mu$ .

*Remarks* : This species is recorded for the first time from the above locality.

### ***Eunapius carteri* (Bowerbank, 1863)**

(Text-fig. 2, G, H)

*Material* : One lot ; Z. S. I. Reg. No. P. 3039/1 ; locality—Hazari-bagh lake, Hazaribagh ; coll. *Raj Tilak and party* ; 26. xi. 1969. One lot ; Z. S. I. Reg. No. P. 3101/1 ; locality—Gotuma village, 3 Km. S of Kharial Road, Orissa ; coll.—*K. V. S. Rao and party* ; 8. ii. 1972. One lot ; Z. S. I. Reg. No. P. 3096/1 ; locality—Indian Museum tank, Calcutta ; coll. *M. N. Datta* ; Nov., 1930. One lot ; Z. S. I. Reg. No. P. 3103/1 ; locality—Pulta water tank, 24-Parganas (West Bengal) ; coll. *Pulta Survey party* ; 11. v. 1937.

*Description* : Form irregular with varying dimensions and greatly roughened surface.

**Megascleres**—amphioxea, stout, fusiform, slightly curved, smooth, length range 300-350  $\mu$ , width range 15-25  $\mu$ .

**Microscleres**—absent.

**Gemmoscleres**—in shape and structure very similar to megascleres but considerably smaller, length range 150-200  $\mu$ , width range 5-8  $\mu$ .

**Gemmules**—spherical, comparatively large, abundant, scattered throughout the body ; pneumatic layer well developed and thick, consisting of several layers of regularly arranged polygonal air spaces ; gemmoscleres embedded in this layer tangentially or in an irregular manner ; foramen tubular ; diameter 500-600  $\mu$ .

*Remarks* : This species is recorded for the first time from Hazari-bagh and Gotuma.

Genus **Radiospongilla** Penney and Racek, 1968*Generic characters :*

Megascleres—amphioxea, moderately stout to slender, smooth or covered with spines.

Microscleres—true microscleres absent, in the growing phases of some species immature gemmoscleres abundantly present in dermal membrane and inner symplasm, previously recorded as microscleres.

Gemmoscleres—amphioxea or amphistrongyla, slender, spined, spines often conspicuously aggregated and larger in the vicinity of the tips of the scleres forming club- or scepter-like terminal structure.

Gemmules—spherical, scattered throughout the sponge, abundant, with a large, strong and thick pneumatic layer consisting of air spaces of small size and gemmoscleres embedded in this layer more or less radially; foramen tubule delicate, straight or slightly curved, rarely projecting beyond outer gemmular membrane.

## KEY TO INDIAN SPECIES

1. Megascleres smooth. ...	<i>R. cerebellata</i>
Megascleres incipiently to strongly spined. ...	... 2
2. Immature gemmoscleres abundant in symplasm and dermal membrane. ...	<i>R. hemephydatia</i>
Immature gemmoscleres not abundant. ...	... 3
3. Gemmoscleres embedded radially in pneumatic coat rarely crossing each other. ...	<i>R. indica</i>
Gemmoscleres embedded irregularly, often crossing each other. ...	... 4
4. Gemmoscleres extremities not penetrating outer gemmular membrane. ...	<i>R. crateriformis</i>
Gemmoscleres extremities penetrating outer gemmular membrane apparently making gemmular surface distinctly hispid. ...	<i>R. cinerea</i>

**Radiospongilla cerebellata** (Bowerbank, 1863)

(Text-fig. 3, A—C)

*Material* : One lot ; Z. S. I. Reg. No. P. 1554/1 ; locality—Paikpara tank, Calcutta ; coll. *N. S. Kumar* ; date of collection—?. One lot ; Z. S. I. Reg. No. P. 3098/1 ; locality—bank of Piali river, Uttarbhag ; 8. ii. 1938 ; collector—?.

*Description* : Form like shallow cushions, and with surface prominently irregular.



Megascleres—amphioxea, feebly curved to almost straight, fusiform, sharply pointed at their tips and entirely smooth, length range 250-300  $\mu$ , width range 10-12  $\mu$ .

Microscleres—absent.

Gemmoscleres—amphistrongyla, curved, cylindrical, shaft abundantly spined, length range 65-85  $\mu$ , width range 2-3  $\mu$ .

Gemmules—spherical, numerous ; pneumatic coat well developed and usually thick, consisting of minute spherical air spaces ; gemmoscleres embedded in this coat in two distinct layers i. e. (1) more or less radially arranged, arising from inner gemmular membrane, often crossing each other at various angles, and not reaching outer gemmular membrane, and (2) lying on top of the first, more or less tangentially arranged, embedded with their proximal portions in the pneumatic coat, their distal ends protruding through outer gemmular membrane ; foramen distinctly tubular, tube slender and straight, always at least reaching level of pneumatic coat ; diameter 450-500  $\mu$ .

*Remarks* : This species is recorded for the first time from the above localities.

### Genus *Spongilla* Lamarck, 1816

*Generic characters* :

Megascleres—amphioxea, slender to stout, smooth.

Microscleres—amphioxea, slender, spined and different from gemmoscleres.

Gemmoscleres—amphioxea, stout, strongly spined, with varying curvature.

Gemmules—spherical, abundant, large, scattered throughout body, usually with a moderately strong granular pneumatic layer with very small nonpolygnal air spaces and having gemmoscleres embedded in it tangentially ; foramen simple to slightly cup-shaped, not tubular.

#### KEY TO INDIAN SPECIES

- |  |                     |
|--|---------------------|
| 1. Microscleres with small spines or granules of almost equal size and distribution. ... | <i>S. lacustris</i> |
| Microscleres with spines of unequal size and distribution. ...                           | ... 2               |
| 2. Spines invariably much longer and more prominent in central part of microscleres. ... | <i>S. alba</i>      |

**Spongilla alba** Carter, 1849

(Text-fig. 3, D—F)

*Material* : One lot ; Z. S. I. Reg. No. P. 3034/1 ; locality—Minto Square, Calcutta ; coll. *N. Santhakumar* ; 17. vii. 1962. One lot ; Z. S. I. Reg. No. P. 3097/1 ; locality—Nalbari, North Salt Lake, 24-Parganas (West Bengal) ; coll. *B. Biswas* ; 14. vi. 1967.

*Description* : Form with irregular projections and rough surface.

Megascleres—amphioxea, fusiform, smooth, length range 270-330  $\mu$ , width range 12-14  $\mu$ .

Microscleres—amphioxea, numerous, slender, slightly curved, covered with erect spines, which being more prominent and longer in central region, often with knoblike inflation at their tips, length range 95-125  $\mu$ , width range 2-3  $\mu$ .

Gemmoscleres—amphistrongyla, slender, cylindrical, feebly curved and covered with large and recurved spines, length range 86-100  $\mu$ , width range 5-7  $\mu$ .

Gemmules—spherical, large, abundant, and scattered throughout the body, pneumatic layer only moderately thick, distinctly granular ; gemmoscleres embedded in this layer rather sparsely at irregular angles with their tips usually projecting beyond outer surface of layer ; diameter range 500-600  $\mu$ .

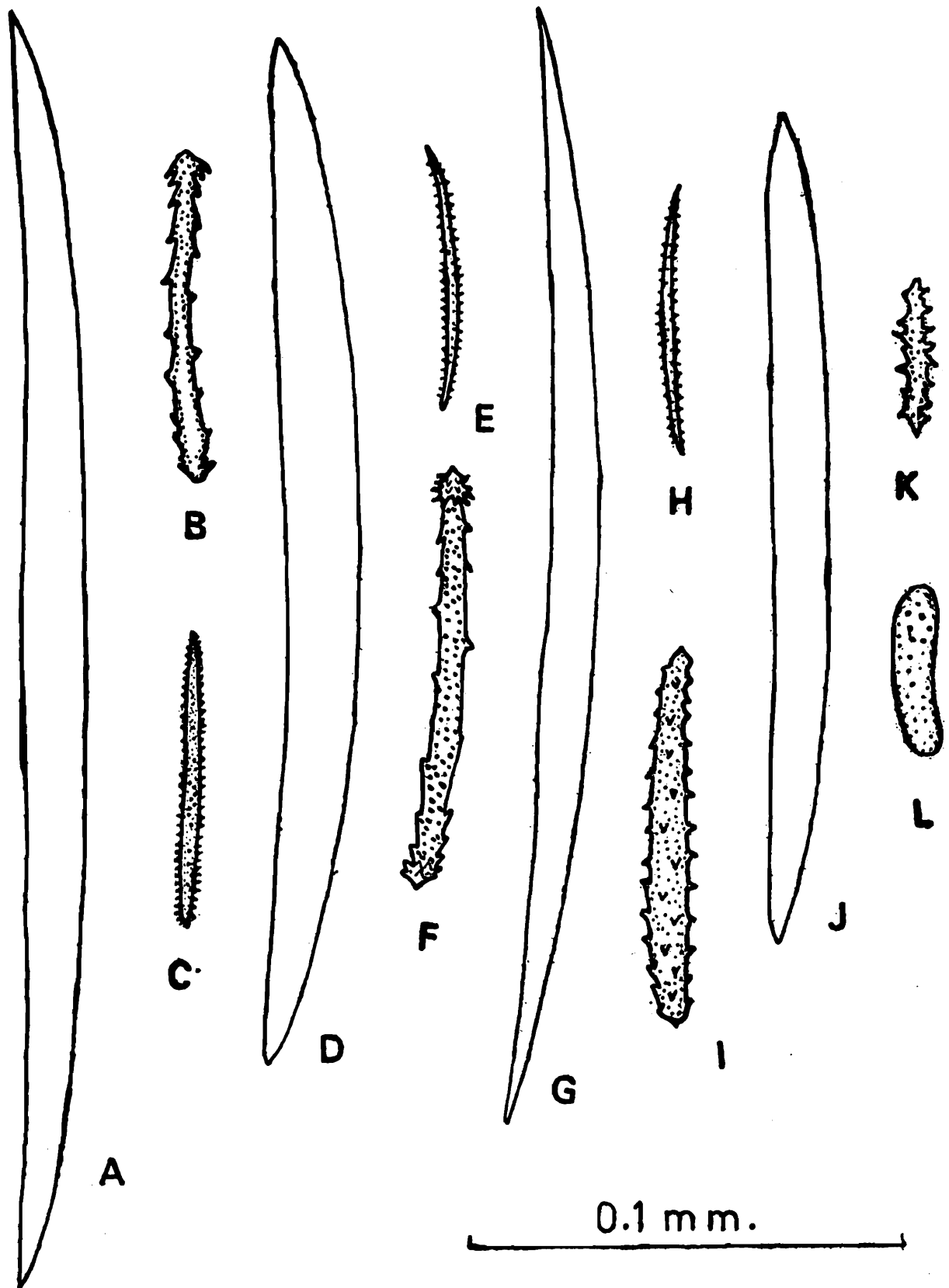
**Spongilla lacustris** (Linnaeus, 1758)

(Text-fig. 3, G—I)

*Material* : One lot ; Z. S. I. Reg. No. P. 3099/1 ; locality—near Race course, Mysore (Karnataka) ; coll. *B. L. Chaudhuri* ; 15. i. 1917. One lot ; Z. S. I. Reg. No. P. 3093/1 ; locality—Dhyrampur Kooa, Patiala Estate, base of Simla Hills (Himachal Pradesh) ; coll.—? ; 21. vii. 1911. Two lots ; Z. S. I. Reg. No. P. 3037/1 & P. 3041/1 ; locality—Ranchi (Bihar) ; collector & date of collection—?. One lot ; Z. S. I. Reg. No. P. 3104/1 ; locality—Kacha pond, opp. Kotli P. O., Jhajjar, dist. Udhampur, Jammu ; 7. x. 1964. One lot ; Z. S. I. Reg. No. P. 3105/1 ; locality—Puthi Khad Nala, about 12 kms. NE of Jhajjar, dist. Udhampur ; coll. *Raj Tilak* ; 12. x. 1964.

*Description* : Form soft, firm, and with cylindrical branches arising from irregular base.

Megascleres—amphioxea, straight, fusiform, and smooth, length range 225-300  $\mu$ , width range 6-8  $\mu$ ,



Text-fig. 3. A—C. *Radiospongilla cerebellata* (Bowerbank, 1863) ; D—F. *Spongilla alba* Carter, 1849 ; G—I. *Spongilla lacustris* (Linnaeus, 1758) ; J—L. *Stratospongilla indica* (Annandale, 1908).

A—Megasclere ; B—gemmosclere ; C—immature gemmosclere. D—Megasclere ; E—microsclere ; F—gemmosclere. G—Megasclere ; H—microsclere ; I—gemmosclere ; J—Megasclere ; K—microsclere ; L—gemmosclere.

Microscleres—amphioxea, abundant, and covered with small spines, length range 80-90  $\mu$ , width range 4-5  $\mu$ .

Gemmoscleres—amphioxea, covered with strong and curved spines, length range 85-95  $\mu$ , width range 4-5  $\mu$ .

Gemmules—spherical, abundant, and present throughout body, pneumatic layer either well developed, ill-defined, or altogether absent generally when gemmoscleres lacking : these latter irregularly embedded where layer present, diameter average 600  $\mu$ .

*Remarks* : This species is recorded for the first time from the above localities.

### Genus *Stratospongilla* Annandale, 1909

#### *Generic characters* :

Megascleres—amphioxea or amphistrongyla, stout, smooth or roughened.

Microscleres—amphioxea, short and slender, almost straight, covered with relatively long and irregular spines.

Gemmoscleres—amphistrongyla, strongly bent, covered with minute spines of unequal size, or amphioxea, slightly curved, spined, or combination of both.

Gemmules—spherical, large, firmly adherent to substratum : pneumatic layer without noticeable air spaces, often poorly developed or absent ; foraminal tubule either short and straight, or long and recurved.

#### KEY TO INDIAN SPECIES

1. Megascleres amphistrongyla.	...	<i>S. indica</i>
Megascleres amphioxea.	...	... 2
2. Gemmoscleres strongly curved often forming wide arc.	...	<i>S. gravelyi</i>
Gemmoscleres straight to feebly curved.	...	... 3
3. Gemmoscleres embedded in pneumatic coat in two layers, separated by empty space.	...	<i>S. bombayensis</i>
Gemmoscleres closely crowded in pneumatic coat, embedded strictly tangentially and forming mosaic layer.	...	<i>S. sumatrana</i>

### *Stratospongilla indica* (Annandale, 1908)

(Text-fig. 3, J—L)

*Material* : One lot ; Z. S. I. Reg. No. P. 3042/1 ; locality—Pulta water tank, 24-Parganas (West Bengal) ; coll. *Pulta survey party* ;

21. xi. 1937. One lot ; Z. S. I. Reg. No. P. 3091/1 ; locality—Gonewara tank, Nagpur ; coll. *F. H. Gravely* ; 1. iii. 1919. One lot ; Z. S. I. Reg. No. P. 3095/1 ; locality—Igatpuri ; collector & date of collection—?. One lot ; Z. S. I. Reg. No. P. 3102/1 ; locality—Pulta water tank, 24-Parganas (West Bengal) ; coll. *Pulta survey party* ; 26. vi. 1937.

*Description* : Form shallow, cushion-like, hard and brittle.

Megascleres—amphistrongyla, straight, cylindrical, covered with short and minute spines, arising from a rather broad base ; tips of scleres often surrounded by “rings” of smaller spines ; length range 200-215  $\mu$ , width range 12-14  $\mu$ .

Microscleres—amphioxea, straight, covered with irregular spines, length range 40-47  $\mu$ , width range 3-4  $\mu$ .

Gemmoscleres—amphistrongyla, slightly curved to straight, stout, covered with minute granules, length range 35-43  $\mu$ , width range 7-8  $\mu$ .

Gemmules—less numerous, subspherical, with flattened base ; pneumatic coat feebly and irregularly developed, without discernible air spaces, usually forming a basal membrane by which the gemmule is fastened ; gemmoscleres forming a dense, tangentially arranged mosaic layer over inner gemmular membrane ; foramen with a short and straight porus tube ; diameter ranging from 470-500  $\mu$ .

*Remarks* : This species is recorded for the first time from the above localities.

#### KEY TO THE INDIAN GENERA OF SPONGILLIDAE

- |  |     |  |   |
|--|-----|--|---|
| 1. Microscleres absent.  | ... | ...  | 2 |
| — Microscleres present.  | ... | ...  | 5 |
| 2. Gemmoscleres birotulates.   | ... | ...  | 3 |
| — Gemmoscleres amphioxea or amphistrongyla....   | ... | ...  | 4 |
| 3. Rotules flat in lateral view.   | ... | <b>Ephydatia</b> Lamouroux, 1816             |   |
| — Rotules circular, with entire margins.   | ... | <b>Trochospongilla</b> Vejdovsky, 1883       |   |
| 4. Gemmoscleres with characteristic arrangement of terminal spines.  | ... | <b>Radiospongilla</b> Penney and Racek, 1968 |   |
| — Gemmoscleres with spines more or less uniformly distributed.   | ... | <b>Eunapius</b> Gray, 1867                   |   |
| 5. Microscleres microbirotulates.  | ... | <b>Corvospongilla</b> Annandale, 1911        |   |
| — Microscleres either distinct aster or rough amphioxea which in their central portion with long perpendicular radiating rays, or combination of both. | ... | <b>Dosilia</b> Gray, 1867                    |   |
| — Microscleres amphioxea or amphistrongyla.  | ... | ...  | 6 |

- |    |  |     |  |
|----|--|-----|--|
| 6. | Foramen simple to slightly cup-shaped, never distinctly tubular.                   | ... | <b>Spongilla Lamarck, 1816</b>         |
| —  | Foramen tubular.   | ... | ... 7                                  |
| 7. | Gemmoscleres terminally a unilateral arrangement of spines in shape of hair brush. | ... | <b>Pectispongilla Annandale, 1909</b>  |
| —  | Gemmoscleres spiny amphistrongyles or amphioxea.                                   | ..  | <b>Stratospongilla Annandale, 1909</b> |

#### KEY TO INDIAN SPECIES OF THE GENUS *Trochospongilla*

- |    |  |     |                         |
|----|--|-----|-------------------------|
| 1. | Megascleres entirely smooth.                   | ... | <i>T. latouchiana</i>   |
| —  | Megascleres covered with small conical spines. | ... | ... 2                   |
| 2. | Megascleres amphioxea.                         | ... | <i>T. pennsylvanica</i> |
| —  | Megascleres amphistrongyla.                    | ... | <i>T. philottiana</i>   |

#### KEY TO INDIAN SPECIES OF THE GENUS *Ephydatia*

- |    |  |     |                       |
|----|--|-----|-----------------------|
| 1. | Gemmoscleres embedded in pneumatic coat in one layer ; distal rotules of gemmoscleres just reaching outer gemmular membrane.                                 | ... | <i>E. fluviatilis</i> |
| —  | Gemmoscleres embedded in pneumatic coat in one or two layers ; distal rotules of gemmoscleres of outer layer invariably penetrating outer gemmular membrane. | ... | <i>E. meyeri</i>      |

#### KEY TO INDIAN SPECIES OF THE GENUS *Pectispongilla*

- |    |  |     |                      |
|----|--|-----|----------------------|
| 1. | Megascleres entirely smooth.   | ... | <i>P. aurea</i>      |
| —  | Megascleres covered with minute rounded spines or tubercles excepting at tips. | ... | ... 2                |
| 2. | Spherasters present.   | ... | <i>P. stellifera</i> |
|    | Spherasters absent.  | ... | <i>P. subspinosa</i> |

#### SUMMARY

The paper deals with nine species of freshwater sponges, most of which from new locality records. Diagnostic keys for all the Indian genera of Spongillidae and keys to their species have also been furnished.

#### ACKNOWLEDGEMENTS

We are thankful to Dr. K. K. Tiwari, former Director, Zoological Survey of India, for his very kind encouragement and help. Grateful thanks are also being given to Dr. A. A. Racek, for his very keen interest and valuable, unflagging and experienced personal help in the completion of this paper.

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