

## IV STUDIES ON INFUSORIA.—II

### ON TWO NEW SPECIES OF *HOLOPHRYA*, EHRBG.

By EKENDRANATH GHOSH, *M.Sc.*, *M.D.*

The genus *Holophrya*, Ehrbg. may be briefly diagnosed as follows:—Infusoria with cylindrical to spherical body entirely and uniformly covered with cilia arranged in close meridional rows. Cytostome antero-terminal or rarely slightly lateral, rounded or rarely slit-like. Cytopharynx generally present and without rod-apparatus, absent in a few species. Macronucleus one, sometimes two or numerous macronuclei. C.V. one or more, then either scattered or arranged in longitudinal rows. Division by transverse fission. Free-swimming, freshwater and marine.

The above diagnosis does not include the species *H. multifiliis* considered by Schewiakoff (5) to belong to this genus. Being parasitic and having a complicated life-history, it is left in a genus of its own under the name *Ichthyophthirius multifiliis*, Fouquet.

#### ***Holophrya bengalensis*, sp. nov.**

The species may be diagnosed thus:—Cylindrical with rounded ends, slightly stouter posteriorly; the cilia are long. Cytostome small and circular, at anterior end; cytopharynx absent; macronucleus broadly fusiform and placed in the middle of the body near one side; C.V. single, subterminal, placed close to one side. Length 0·075 mm.; breadth 0·037 mm.

A single specimen was found in vegetable infusion.

#### ***Holophrya annandalei*, sp. nov.**

The species may be diagnosed as follows:—Cylindrical, rounded at both ends, three times longer than broad; cytostome antero-terminal and circular in outline; cytopharynx a slight depression; ciliary striae faint; macronuclei two in number and spherical in shape, one placed in the middle on one side and the other towards the anterior end. C.V. single, placed at the junction of the anterior and middle third of the body on one side. Length 0·15 to 0·22 mm.

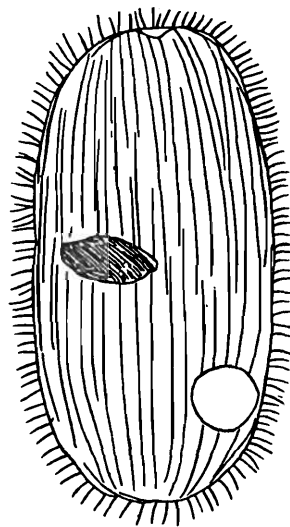


FIG. 1.—*Holophrya bengalensis*, sp. nov.

Several specimens were found in a vegetable infusion. Unfortunately the drawing of the animal is lost.

The species of *Holophrya* may be tabulated in the following synopsis:—

- a. Numerous C.V., one postero-terminal and others in 1-2 longitudinal rows.
- a<sup>1</sup>. 2 longitudinal rows of C.V.; macronucleus oval. *H. lieberkuhnii*, Schout.
- b<sup>1</sup>. One longitudinal row of C.V.; macronucleus ribbon-shaped; body oval ... .. *H. coleps*, Schout. (6)
- b. C.V. one or 2, postero-terminal or not.
- a<sup>1</sup>. C.V. one.
- a<sup>2</sup>. C.V. central; a tuft of long cilia round the mouth; macronucleus elongated and curved ... .. ? *H. pogonias*, Smith.
- b<sup>2</sup>. C.V. placed at the junction of the anterior and middle thirds of the body on one side; macronuclei two, spherical; body cylindrical; cytopharynx a slight depression ... .. *H. annandalei*, n. sp.
- c<sup>2</sup>. C.V. posterior.
- a<sup>3</sup>. Ciliary striae oblique; body ovate; macronucleus ovate and subcentral. *H. ovum*, Ehrbg.
- b<sup>3</sup>. Ciliary striae parallel to the long axis of the body.
- a<sup>4</sup>. Cytostome slit-like and lateral near the anterior pole; body rounded in front and pointed behind ... .. *H. heterostoma*, Beardsley.
- b<sup>4</sup>. Cytostome circular in outline and terminal or subterminal.
- a<sup>5</sup>. Cytostome wide and occupying the entire truncate anterior end of the body.
- a<sup>6</sup>. Body elongately oval; anterior end obliquely truncate; cytopharynx indistinct, with a few rods; macronucleus elongated and curved ... .. *H. tarda*, Quenn.
- b<sup>6</sup>. Body oval; macronucleus long, cylindrical and twisted ... .. *H. curvilata*, Smith.
- b<sup>5</sup>. Cytostome not so.
- a<sup>6</sup>. No cytopharynx.
- a<sup>7</sup>. Body elliptical.
- a<sup>8</sup>. Macronucleus elliptical or spherical; body length 0.035 mm.; C.V. posterior and terminal ... .. *H. simplex*, Schew.
- b<sup>8</sup>. Macronucleus horseshoe-shaped; body length 0.105 mm. ... .. *H. indica*, Bhatia (2)
- b<sup>7</sup>. Body cylindrical; macronucleus fusiform in the middle of the body and lateral; C.V. near the posterior end and lateral ... .. *H. bengalensis*, n. sp.
- b<sup>6</sup>. With cytopharynx.
- a<sup>7</sup>. Circumoral cilia always directed forwards; macronucleus with a "binnenkorper" ... .. *H. atra*, Svec.
- b<sup>7</sup>. Circumoral cilia not so.
- a<sup>9</sup>. Body elliptical or spherical; longitudinal striae connected by transverse lines; macronucleus elliptical, with trichocysts ... .. *H. nigricans*, Lauterb.

- b*<sup>8</sup>. Body cylindrical; no trichocysts; no transverse lines.  
*a*<sup>9</sup>. Cytostome terminal; cytopharynx short and funnel-shaped.  
*a*<sup>10</sup>. Numerous macronuclei; length = 5 times the breadth ... *H. oblonga*, Maupas.  
*b*<sup>10</sup>. Single oval macronucleus; length > breadth. *H. marina*, Quenn.  
*b*<sup>9</sup>. Cytostome lateral, near anterior pole; cytopharynx extending to middle of the body; a single elliptical macronucleus ... *H. edentata*, Schout.  
*b*<sup>1</sup>. C.V. 2, postero-lateral; macronucleus big and oval; cytopharynx absent; body spherical to elliptical ... .. *H. haplostoma*, Andre.

## LITERATURE.

1. Andre.—*Rev. Swiss. Zool.* Vol. XXIV (1916).
2. Bhatia.—*Rec. Ind. Mus.* Vol. XII, p. 177 (1916).
3. Hamburger and Buddenbrock.—*Nordisches Plankton*, 1911.
4. Kent.—*A Manual of Infusoria*, 1880-1882.
5. Schewiakoff.—*Mem. Ac. St. Petersbg.* Vol. VII (i), p. 115.
6. Schouteden.—*Ann. Biol. Lacustr.* Vol. I, p. 389 (1906).