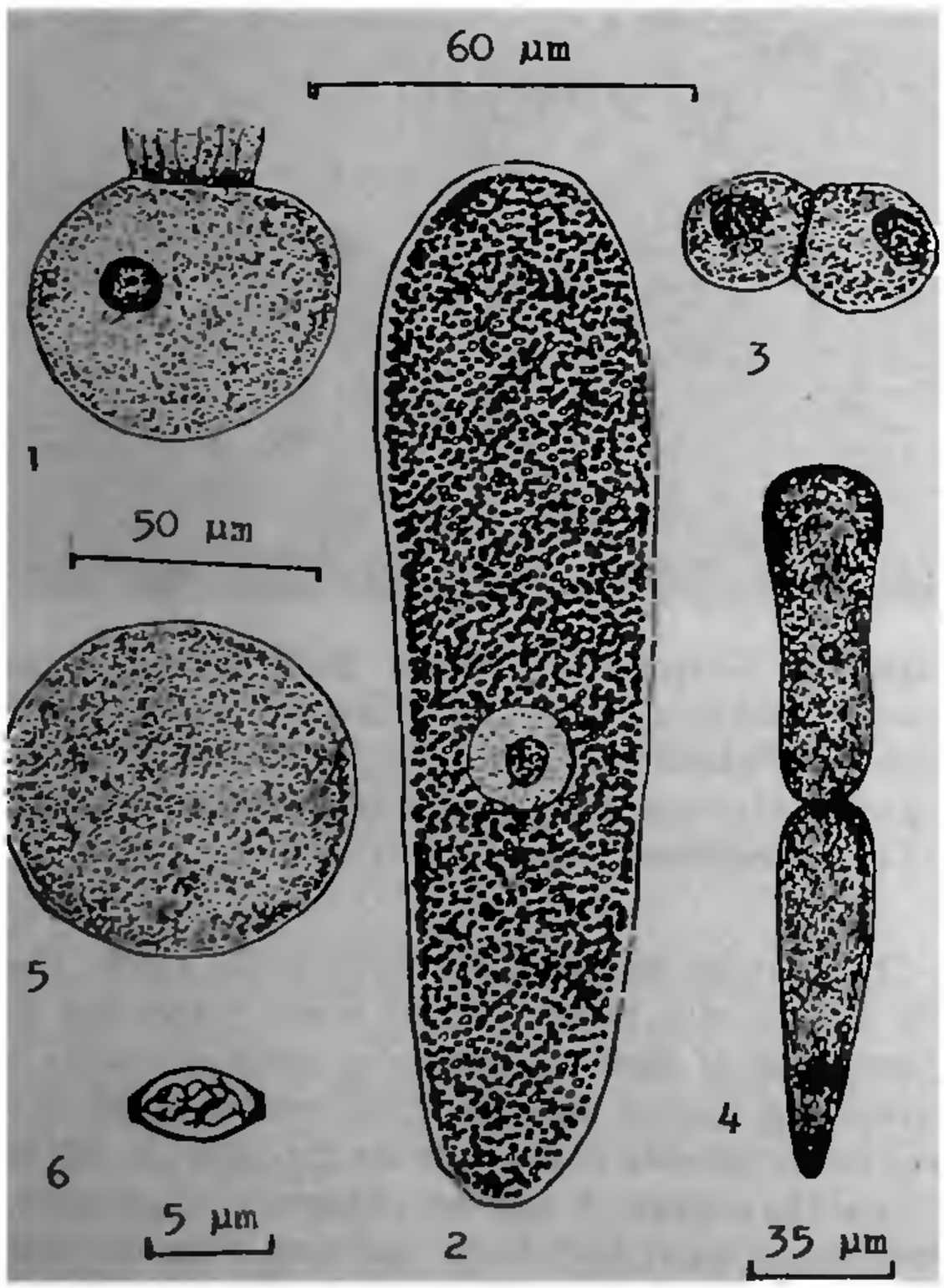
gliding. Early associations were very rare (figure 3). Ocassionally, caudo-frontal syzygy of two fully grown gamonts was found in the midgut (figure 4); the two individuals together measured 149 (103–211) ($n=3$) in length. The primite was cylindrical with a bulb-head anterior end and a round or truncated posterior end with slightly concave sides. The satellite was cylindro-conical or lanceolate and slightly longer than the primite. Spherical, thin-walled gametocysts, 63.5 (58–74) ($n=6$) in diameter, were encountered in the hindgut (figure 5). Only one of those that were placed in the moist chamber developed successfully. Oocysts and some residual cytoplasm were liberated by simple rupture of the gametocyst wall at about 100 h. The oocysts were ellipsoidal with truncated and thickened ends; they measured 6 × 4 and contained filiform sporozoites (figure 6).



Figures 1–6 Camera lucida drawing of the various stages in the life history of *Enterocystis bengalensis* n. sp. **1.** Fully grown gamont attached to midgut epithelium. **2.** Fully grown gamont from the midgut lumen. **3.** Very early association from the midgut lumen. **4.** Syzygy of two fully grown gamonts from the midgut lumen. **5.** Gametocyst from the hindgut lumen. **6.** Oocyst with truncated ends.

Host: *Psocatropos* sp.; Location in Host: Midgut and Hindgut; Locality: Naihati, West Bengal, India.

The salient features (*e.g.*, the shape and nature of the syzygy stage and of the oocysts) of the present gregarine were those of the genus *Enterocystis* Tsvetkov[5]. Levine[4] recently recognised 8 valid species of *Enterocystis* of which *E. ensis* Tsvetkov, 1926; *E. ephemerae* (Frantzius) Desportes[3], 1963; *E. palmata* Codreanu[2], 1940; *E. racovitza* Codreanu, 1940; *E. rhithrogenae* Codreanu, 1940; *E. fungoides* Codreanu, 1940 and *E. grassei* Desportes, 1963 were in Ephemeroptera and *E. hydrophili* (Foerster) Baudoin and Maillard[1], 1972 in Coleoptera. The shape of the primite of the present species, however, is far from close to that of the previously described species. Moreover, its host *Psocatropos* sp. (Psocoptera) also belongs to a different insect order than the ephemeropteran and coleopteran hosts of the other already described species. The gregarine is, therefore, considered to be a new species for which the name *Enterocystis bengalensis* n. sp. is proposed. The specific name *bengalensis* is given after the locality of the host.

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18 October 1982

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HISTOPATHOLOGY OF LIVER OF *BUFO MELANOSTICTUS* INFECTED BY *ANISAKIS* SP. LARVAE (NEMATODA)

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Effects of *Anisakis* sp. larvae (nematoda) on the liver of common toad *Bufo melanostictus* have been

studied. The infected liver is atrophied and it looks pale or deep black in colour. The nematode has been walled off in a connective tissue capsule inside the liver. Some of the capsules are seen on the surface whereas others are deep inside the liver (figure 1). The capsule wall around the nematode is made up of three layers (figure 2). The innermost layer is thin and is formed of damaged cellular elements. The middle layer is made up of fibroblastic elements. The outer layer contains various cellular elements including histiocytes, fibroblasts and leucocytes. Some of the capsules are smaller in size and their connective tissue layers are compact; they are possibly the old capsules.

Extensive destructions are seen in the liver of toad around the capsule containing the nematode and therefore destruction scattered parenchymatous cells are seen in the vicinity of the capsule. Some of these cells are broken whereas others are deformed. A number of empty spaces, perhaps those vacated by nematode, are seen in the infected liver (figure 3). These spaces undergo repair as evidenced by high multiplication rate in adjacent tissues (figure 3).

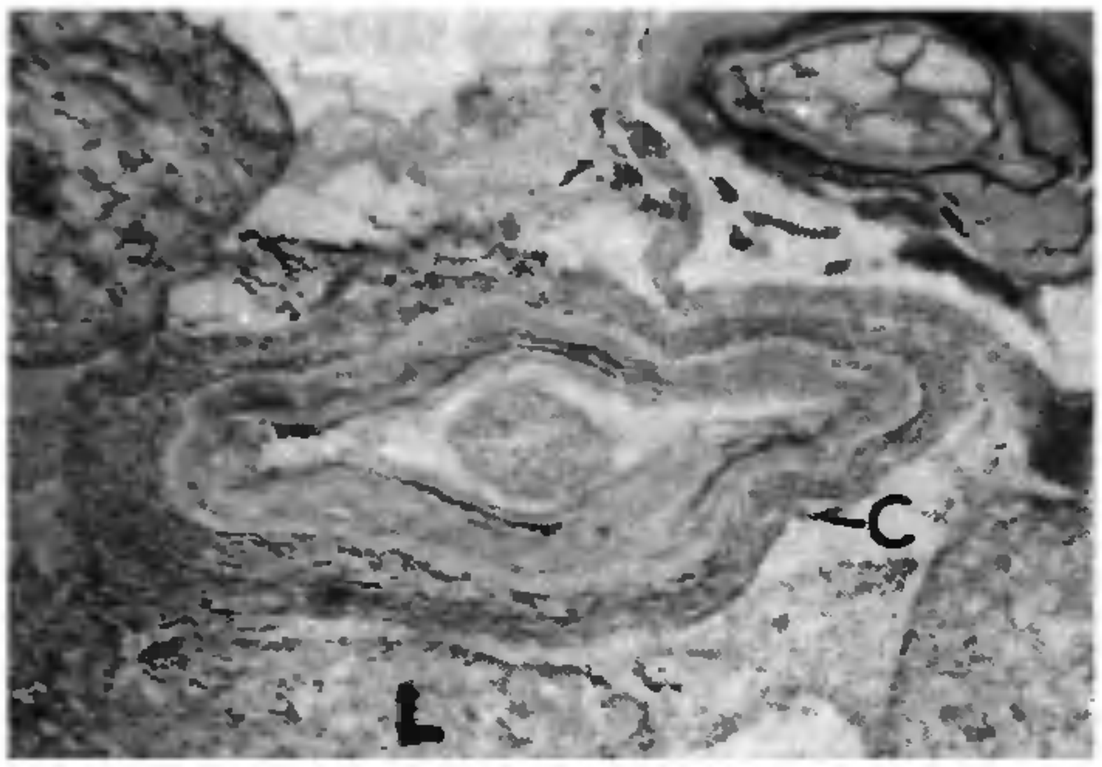

Figure 1. Section of liver (L.) of *Bufo melanostictus* showing the capsules containing *Anisakis* sp. larvae.(C). × 100 H & E.

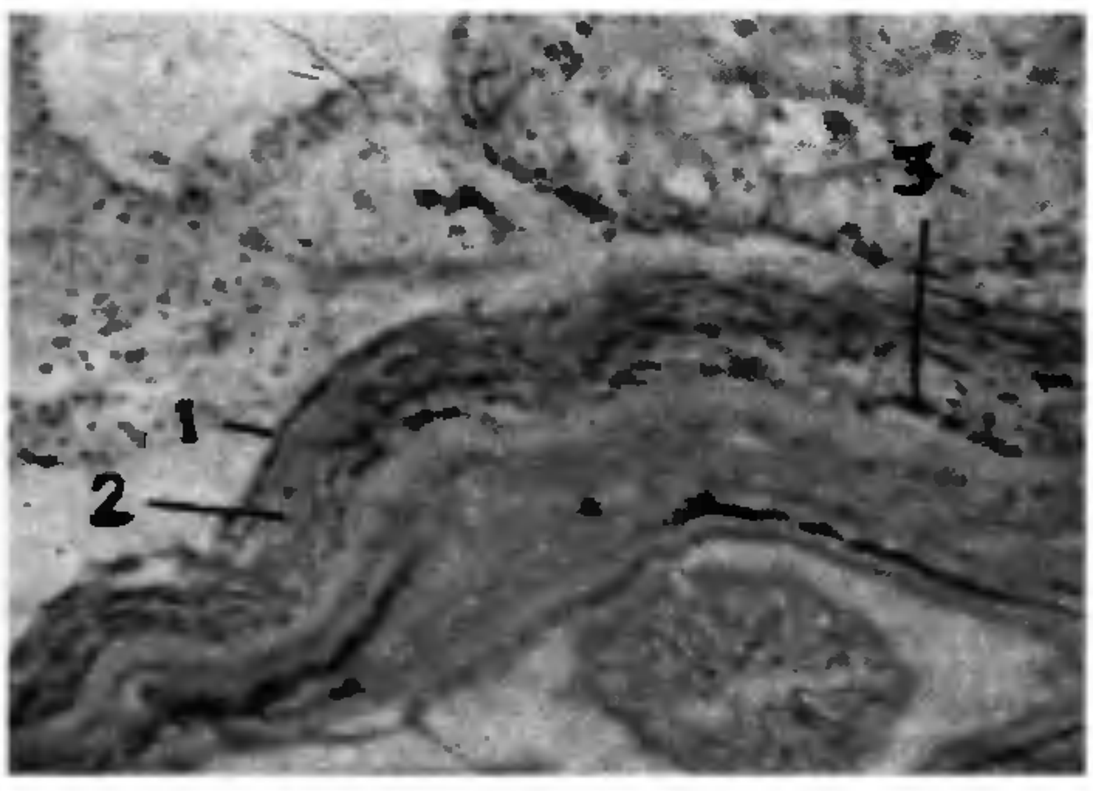

Figure 2. A part of capsule wall around *Anisakis* sp. larvae showing the three layers. 1. Outer layer, 2. Middle layer, 3. Inner layer.

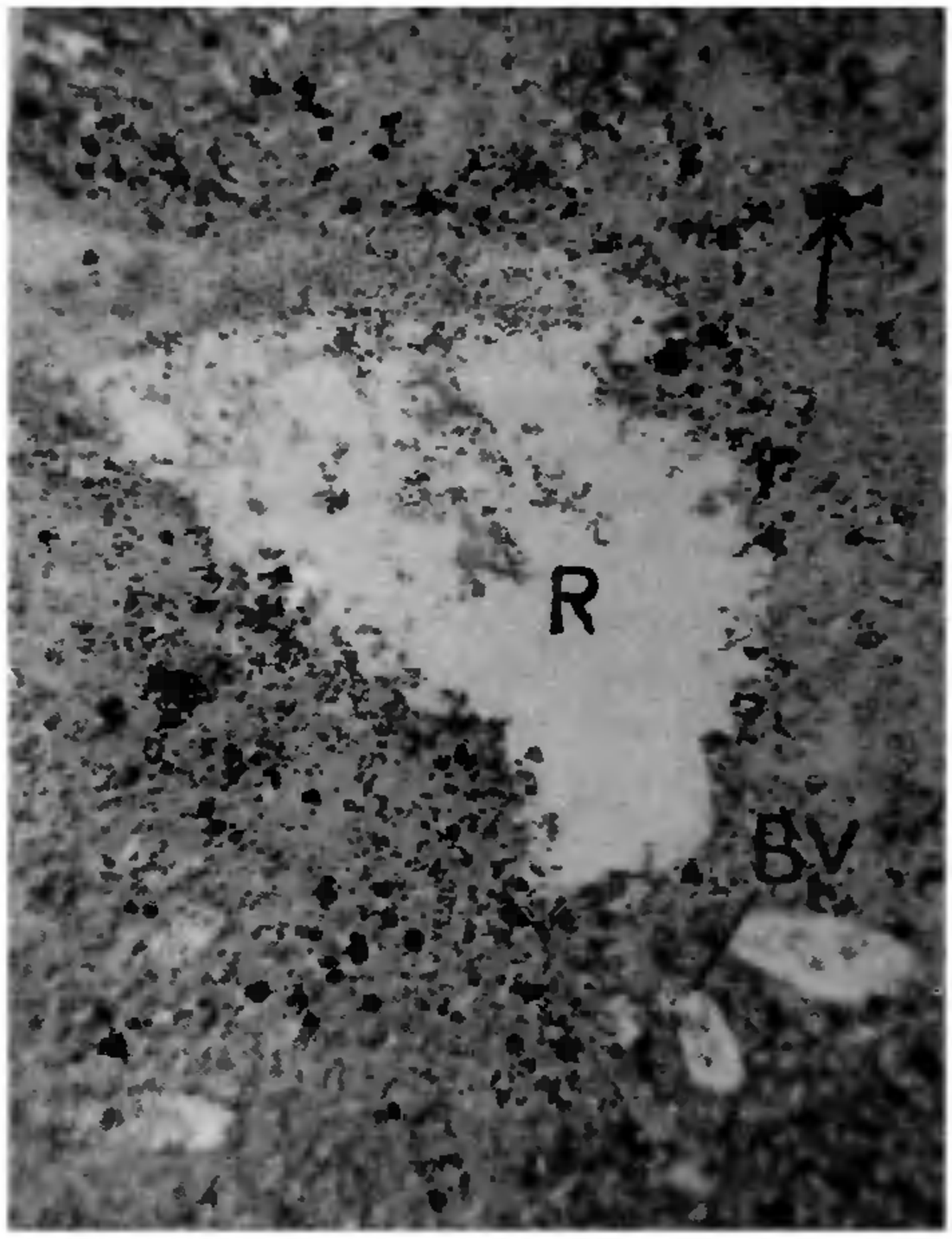

Figure 3. Section of liver of *Bufo melanostictus* showing repairing area (R). Note the presence of a number of blood vessels (BV) in the vicinity of repairing area. Also note the presence of pigmented granules (↑) in the infected liver × 100 H & E.

The bile duct has been destroyed by the worm. The bile duct is also constricted at many places due to hyperplasia of their epithelium in infected toads. A number of dilated and congested blood vessels are seen in the infected liver. They are specially abundant around the capsule. A number of pigmented granules, insoluble in water and alcohol are seen in the infected liver. It is believed that they are excretory substances produced by the nematode. This is the first report of its kind in *Bufo melanostictus*.

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