

CONCURRENT INFECTION OF *POSTHARMOSTOMUM GALLINUM*
(DIGENEA, BRACHYLAIMIDAE) AND *EURYTREMA COELOMATICUM*
(DIGENEA, DICROCOELIIDAE) IN *BRADYBAENA SIMILARIS*
(STYLOMMATOPHORA, XANTHONICHIDAE)

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Bradybaena similaris (Férussac, 1821) acts as the first and the second intermediate host for *Postharmostomum gallinum* Witenberg, 1923, the cecal fluke of poultry (M. J. Duarte, 1980, *Rev. Bras. Biol.*, 40: 739-809) and as the first intermediate host for *Eurytrema coelomaticum* (Giard et Billet, 1892) the pancreatic fluke of ruminants (Z. Tang & C. Tang, 1977, *Acta Zool. Sinica*, 23: 267-282).

In a sample of 300 snails *B. similaris* collected from vegetable and flower gardens from the suburb of Campo Grande, west side of Rio de Janeiro, RJ and from vegetable gardens close to the Campus of the Universidade Federal Rural do Rio de Janeiro, Seropédica, RJ, examined through dissection, 13 snails were found with concurrent infections. The snails had metacercariae of *P. gallinum* free in the pericardial cavity and second generation sporocysts of *E. coelomaticum* in the connective tissue surrounding the digestive gland.

A. R. Ragusa & M. S. Campos (1976, *Rev. Fac. Med. Vet. Zootec. Univ. S. Paulo*, 13: 269-287) misidentified the metacercarial stage of *P. gallinum* (Fig. 1) as "larval stage" of *E. coelomaticum* and published an account indicating *B. similaris* as the first intermediate host of *E. coelomaticum* in Brazil.

The mature sporocysts of *P. gallinum* (Figs 2 and 3) are similar in shape to the second

generation sporocysts of *E. coelomaticum* (Fig. 4) and can be misidentified when examined without proper attention. Both sporocysts have the same site of infection in the snail host. They can be distinguished by the following features: mature sporocysts of *P. gallinum* (Fig. 3) have a central body from which grow branches that give rise to cercarial embryos, and their tegument is thin and transparent. The second generation sporocysts of *E. coelomaticum* are sausage shaped, stay close together forming a whitish mass, without a central body, and have a thick and opaque tegument. Staining the sporocysts with hematoxylin (J. F. R. Amato, 1985, *Manual de Técnicas para Preparação de Coleções Zoológicas*, Sociedade Brasileira de Zoologia, São Paulo, 11 p.) the difference in the tegument becomes evident. The second generation sporocysts of *E. coelomaticum* not only have a much thicker tegument (Fig. 4) as they also have an endocyst, a thin membrane which surrounds the cercarial mass inside the sporocyst (Fig. 5). The sporocysts of *P. gallinum* lack an endocyst. The presence of an endocyst and the thickness of the tegument of the second generation sporocysts of *E. coelomaticum* are related to the biology of this digenetic trematode, since these sporocysts are expelled from the first intermediate host carrying the cercaria which will infect the second intermediate host. The expelled sporocysts will remain on the vegetation waiting to be ingested by a tettigoniid orthopteran of the genus *Conocephalus* (D. G. Mattos Jr. et al., 1987, *Arq. Univ. Fed. Rural Rio de J.*, 10: 69-81). The sporocysts of *P. gallinum* never leave the snail host, in this species fully developed cercaria actively leave the sporocyst and emerge from the snail host moving along the slime secreted by the snail. According to M. J. Ulmer (1951, *Trans. Am. Microsc. Soc.*, 70:

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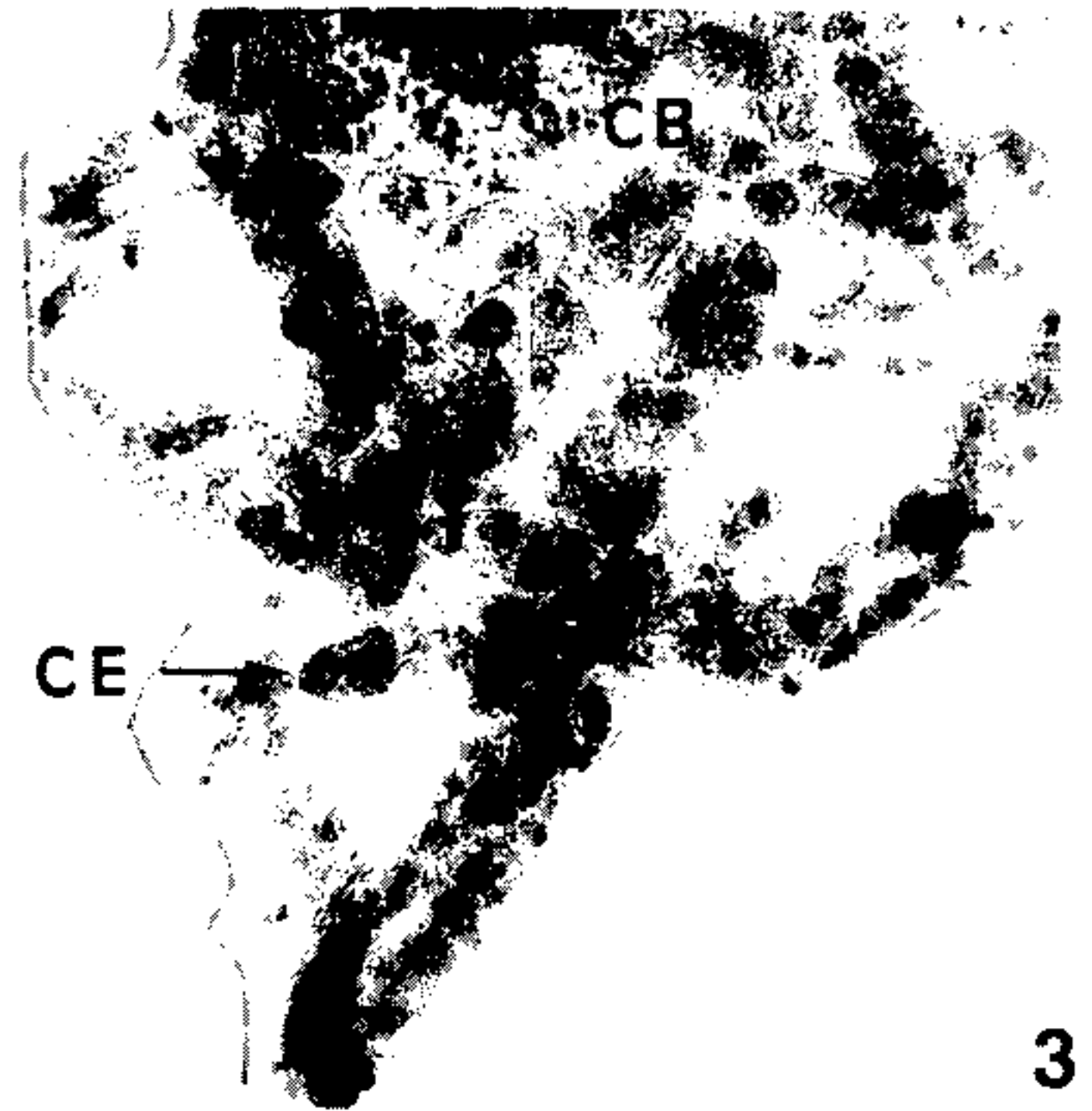
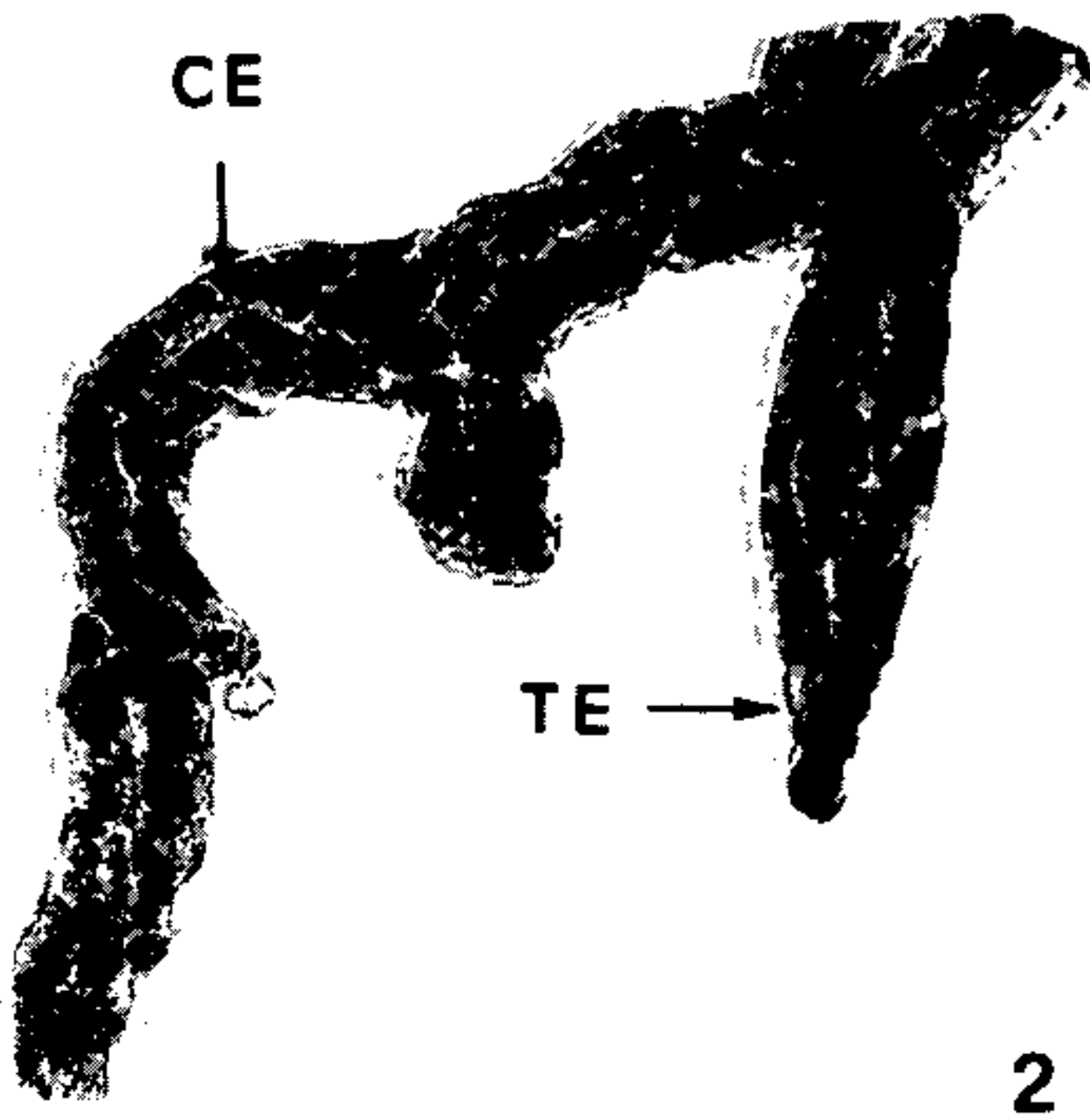
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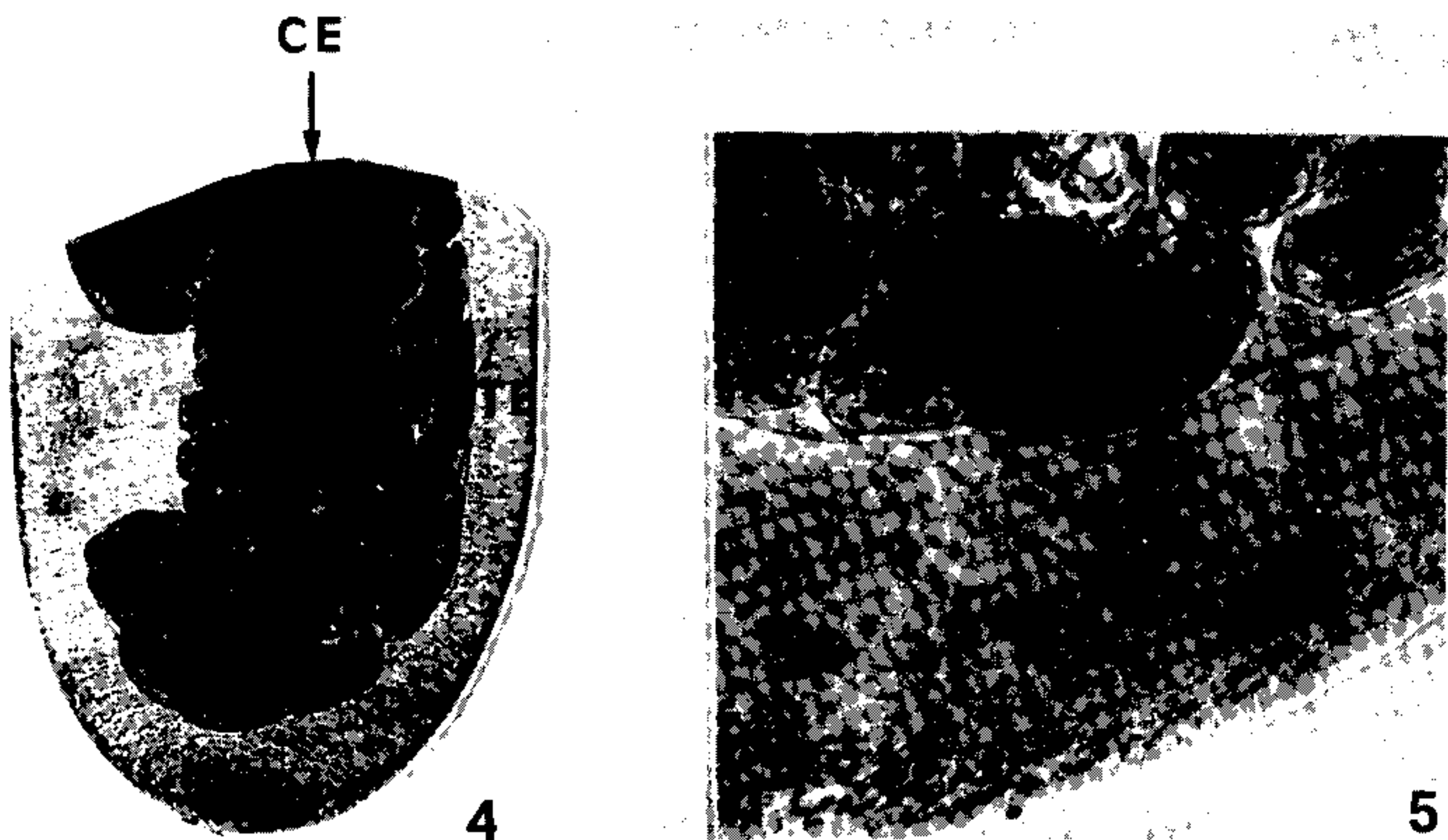
189-238) cercariae of *P. helicis* enter through the pneumostome of the snail second intermediate host, migrate through the renal aperture up to the ureters going to the kidney and then to the pericardial cavity through the reno-pericardial canal. Although the migratory route has not been followed for *P. gallinum*, it is possible that it follows the same pattern of *P. helicis*.



Fig. 1: metacercaria of *Postharmostomum gallinum*. x128.



Mature sporocyst of *Postharmostomum gallinum*. fig. 2: branch of the sporocyst with cercariae (CE) inside, involved by thin tegument (TE). x80. Fig. 3: part of the sporocyst showing the central body (CB) and some branches with cercariae (CE). x80.



Second generation sporocyst of *Eurytrema coelomaticum*. Fig. 4: part of an expelled sporocyst showing the thickness of the tegument (TE) and the cercarial mass (CE) surrounded by the endocyst. x80. Fig. 5: detail of the wall of the sporocyst showing the endocyst (E) below the thick tegument. x320.