

MORPHOLOGY OF THE EGG OF *SARCODEXIA LAMBENS* (DIPTERA: SARCOPHAGIDAE)

HUGO DE SOUZA LOPES & ANTÔNIO CESAR RIOS LEITE*

Instituto Oswaldo Cruz, Departamento de Biologia, Caixa Postal 926, 20001 Rio de Janeiro, RJ, Brasil

* Departamento de Parasitologia ICB-UFMG, Caixa Postal 2486, 31270 Belo Horizonte, MG, Brasil

The egg of Sarcodexia lambens (Diptera: Sarcophagidae) is described on the basis of scanning electron microscopy.

Key words: Diptera – Sarcophagidae – *Sarcodexia lambens* – morphology – egg – scanning electron microscopy

Sarcophagids are viviparous insects or, rarely, ovoviviparous. Eggs seemingly hatch in the uterus just before or during larviposition. Shewell (1987) recognized 600 species of Sarcophagidae from the Neotropical Region but the personal (unpublished) catalogue of one us (H. S. L.) lists more than 800 species. Of these, only the egg of *Neobellieria bullata* (Parker) has been studied under the scanning electron microscope (SEM) (Hinton, 1981).

Sarcodexia lambens (Wiedemann) is widely distributed in the Americas, ranging from southern USA to Paraguay and Argentina. It was introduced into the Cook and Samoa Islands. The male genitalia of *S. lambens*, when studied by SEM, has already been described (Leite & Lopes, 1989). Herein, we describe the egg.

MATERIALS AND METHODS

Laboratory-reared females *S. lambens* were dissected to obtain eggs, which were processed for SEM studies by the methods described by Leite & Lopes (1987).

RESULTS

The egg of *S. lambens* is long, cylindrical in

shape, tapering at the anterior and posterior ends, and with the dorsal, lateral and ventral surfaces curved (Fig. 1). The micropylar plate (Figs 2-4) is almost circular. The micropyle is centrally placed and is surrounded by a ring of small apertures. The exochorion (Fig. 5) has ridges that form a network of irregular polygons, and is pitted in the posterior third (Figs 6 and 7). At the beginning of hatching, the egg capsule splits (Fig. 8). Afterwards, the intrachoronal meshwork is revealed and the vitelline membrane breaks (Figs 9-12). The intrachoronal meshwork is composed of inner and outer layers connected by vertical columns which form air spaces (Fig. 12).

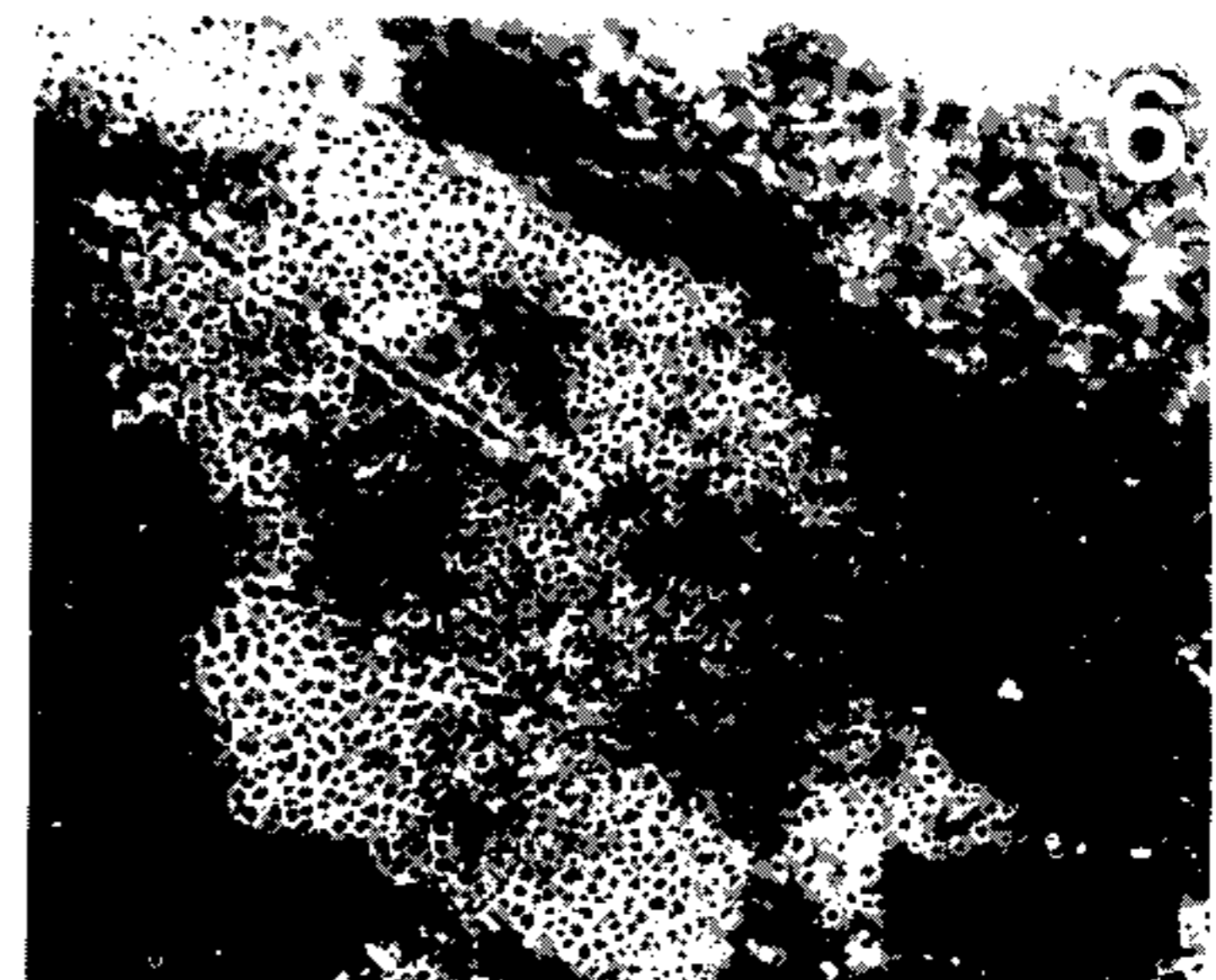
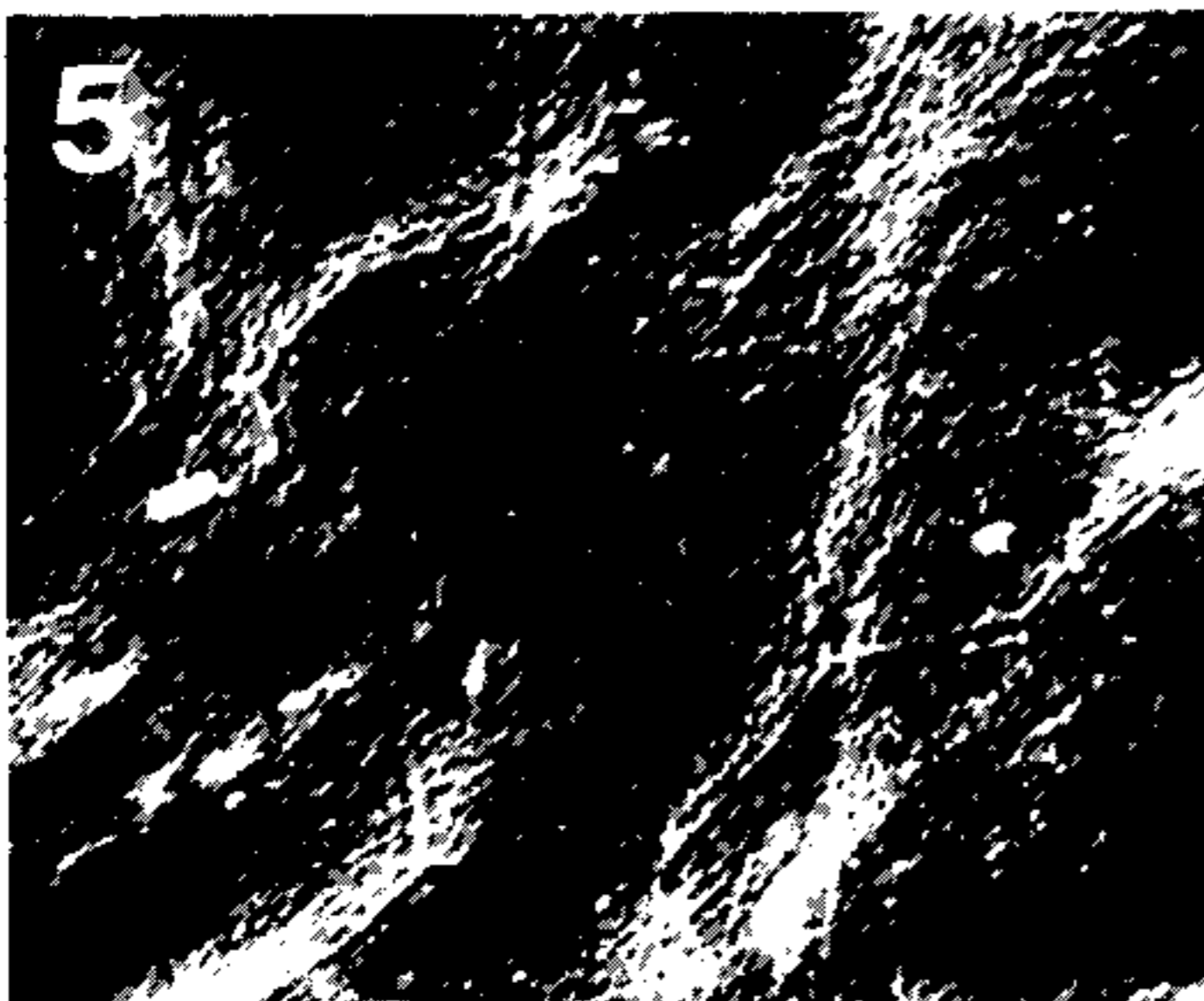
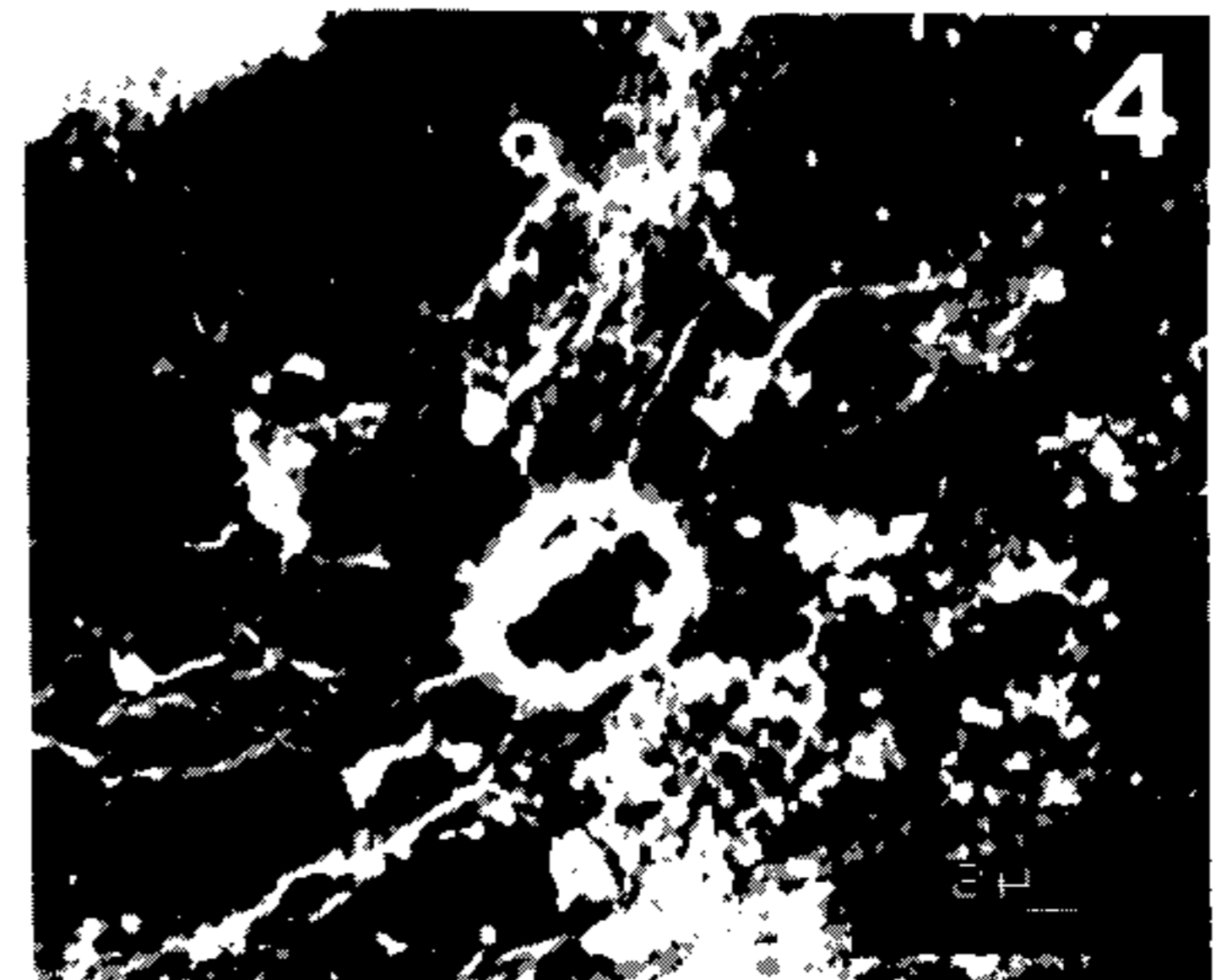
DISCUSSION

The egg of many Muscinae and Calliphoridae (Hinton, 1960a, 1963) have hatching lines and a median network area between the lines. Hinton (1981) found that the egg of Sarcophagid *N. bullata* is similar to that of Calliphorids, with a median network between the hatching lines. Such structures were not seen on the egg of *S. lambens*. The egg of *S. lambens* also differs from *N. bullata* in the appearance of the micropylar plate. The pitted posterior third of the egg of *S. lambens* is similar to the surface of the respiratory horn of *Limnophora riparia* – Muscidae (Hinton, 1969). The intrachorionic meshwork of the egg of *S. lambens* differs from that of *N. bullata* and, although *S. lambens* is viviparous, the intrachorionic plastron is similar to that of ovoviviparous species of Calliphoridae (Hinton, 1960b).

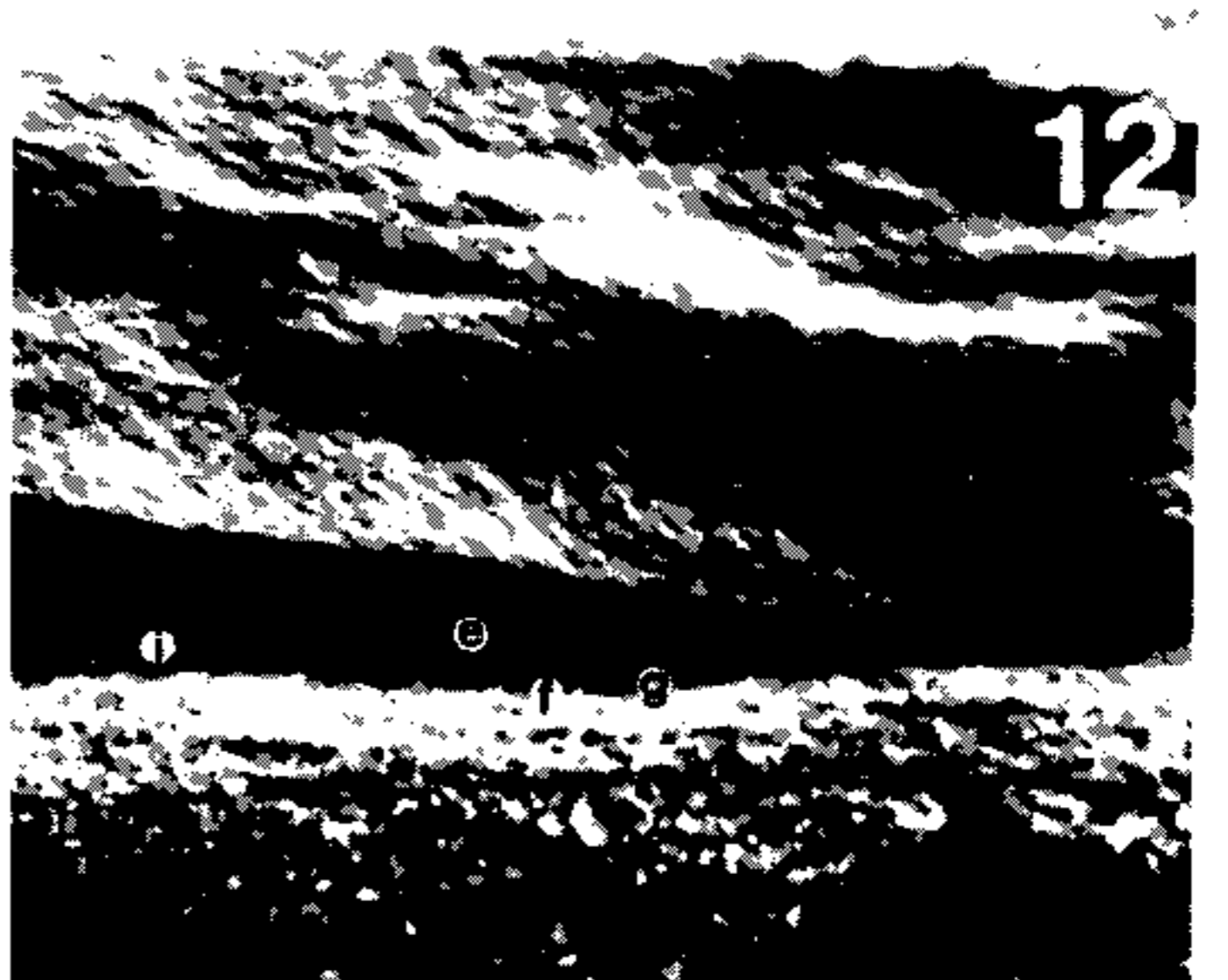
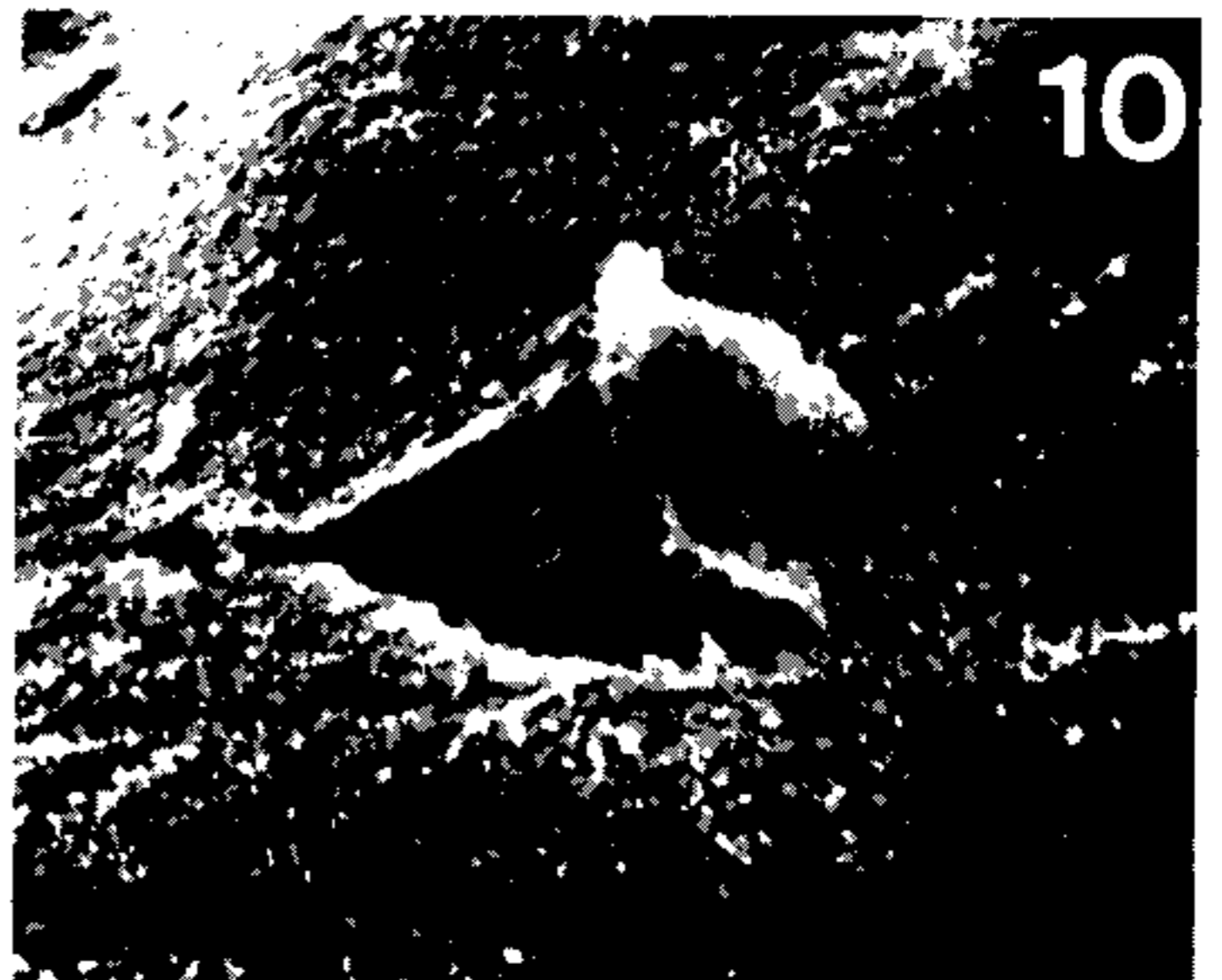
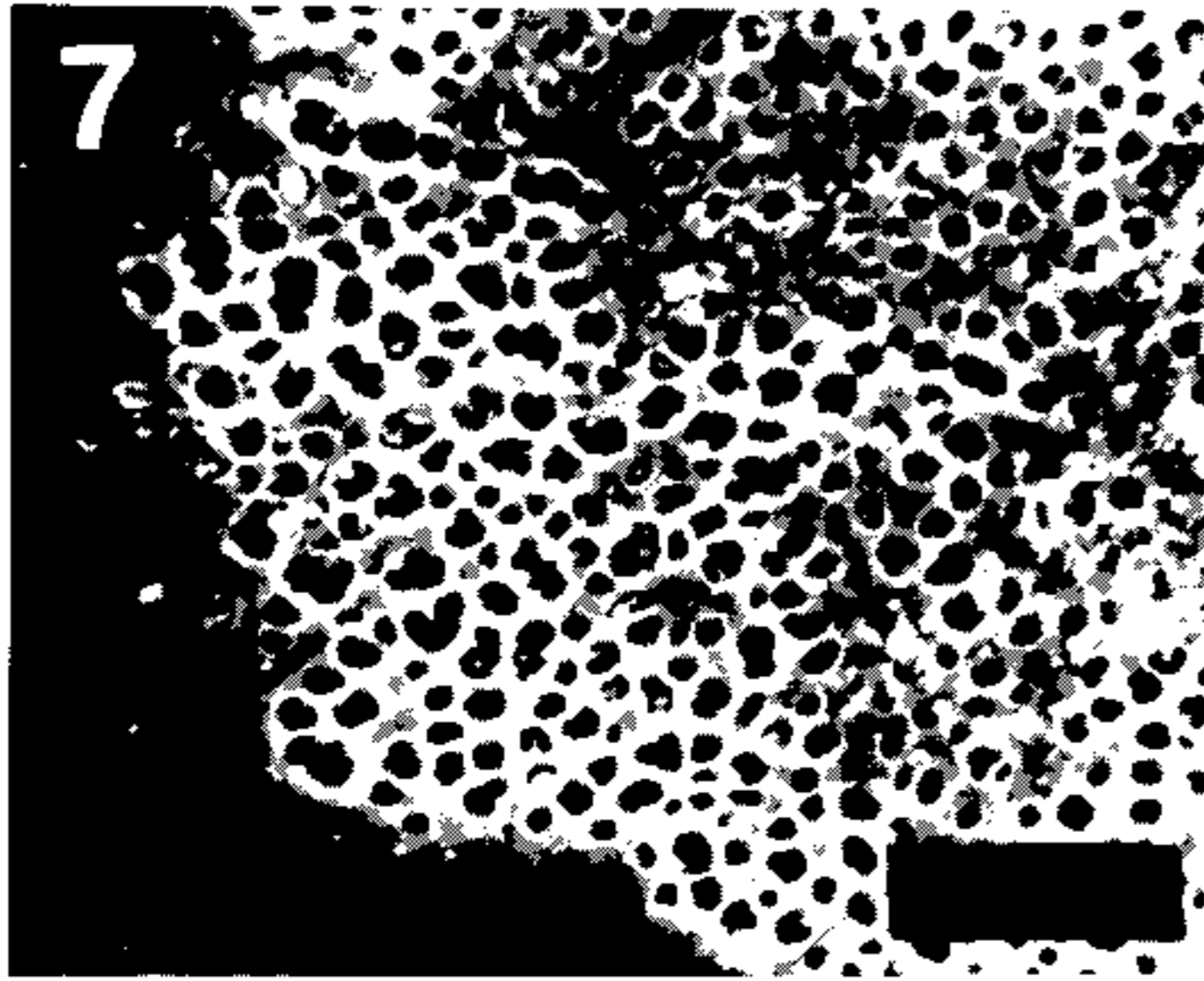
* Fellowship researcher of the "Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq".

Received May 5, 1989.

Accepted June 16, 1989.



Scanning electron micrographs of the egg of *Sarcodexia lambens*. Fig. 1: whole egg. Fig. 2: anterior end. Fig. 3: micropylar plate. Fig. 4: central opening of the micropyle. Fig. 5: network polygons of the exochorion. Fig. 6: some pits of the exochorion in the posterior third.



Scanning electron micrographs of the egg of *Sarcodexia lambens*. Fig. 7: some pits of the exochorion in the posterior third. Figs 8-10: fracture caused by emerging larva. Fig. 11: after fracture, showing the larval spine (a), vitteline membrane (b), exochorion (c) and intrachorionic meshwork (d). Fig. 12: intrachorionic meshwork showing the inner (e) and outer (f) layers, vertical columns (g) and air space (i).

RESUMO

Morfologia do ovo de *Sarcodexia lambens* (Diptera: Sarcophagidae) – O ovo de *Sarcodexia lambens* (Diptera: Sarcophagidae) é descrito a nível de microscopia eletrônica de varredura.

Palavras chave: Diptera – Sarcophagidae – *Sarcodexia lambens* – morfologia – ovo – microscopia eletrônica de varredura

ACKNOWLEDGEMENT

To the "Centro de Microscopia Eletrônica do ICB-UFMG" for the use of the SEM.

REFERENCES

- HINTON, H. E., 1960a. The chorionic plastron and its role in the eggs of the Muscinae (Diptera). *Quart. J. Mic. Sci.*, 10: 313-332.
- HINTON, H. E., 1960b. Plastron respiration in the egg of blowflies. *J. Insect Physiol.*, 4: 176-183.
- HINTON, H. E., 1963. The respiratory system of egg-shell of the botfly, *Calliphora erythrocephala* Meig., as seen with the electron microscope. *J. Insect Physiol.*, 9: 121-129.
- HINTON, H. E., 1969. Respiratory systems of insect egg shells. *Ann. Rev. Entomol.*, 14: 343-368.
- HINTON, H. E., 1981. *Biology of insect egg*. Pergamon Press, Oxford, 3 v.
- LEITE, A. C. R. & LOPES, H. S., 1987. Second contribution to the knowledge of the larvae of the Raviniini (Diptera, Sarcophagidae) based on observation using scanning electron microscope. *Mem. Inst. Oswaldo Cruz*, 82: 219-226.
- LEITE, A. C. R. ? LOPES, H. S., 1989. Studies on male genitalia of Sarcophagidae (Diptera) based on scanning electron microscope observations. *Mem. Inst. Oswaldo Cruz*, 84: 189-199.
- SHEWELL, G. E., 1987. Sarcophagidae. p. 1159-1186. In J. F. McAlpine; B. V. Peterson; G. E. Shewell; H. J. Teskey; J. R. Vockeroth & D. M. Wood, *Manual of Nearctic Diptera*. Research Branch Agriculture Canada, Canada, v. 2.