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**On a new Coccidium *Eimeria stolatae* n. sp.,
from the intestine of common Indian Grass snake,
Natrix stolata (LINN.).**

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With Plate 19.

Introduction.

During the period from October, 1933 to August, 1936, we examined the gut contents of thirty common Indian grass snake, *Natrix stolata*. Out of this number only four were found to harbour a coccidium belonging to the genus *Eimeria*.

The literature extant on the subject records the following species of Coccidia from different grass snakes:

E. cystisfelleae DEBAISIEUX (1914);

E. tropidonoti GUYENOT, NAVILLE and PONSE (1922);

Cyclospora tropidonoti PHISALIX (1924);

Coccidium persicum PHISALIX (1925) and *Isospora natricis* YAKIMOFF and GOUSSEFF (1935). The coccidium described here differs from the above mentioned species of *Eimeria* in the shape and size of its oocyst and sporoblast.

We propose to call this parasite *Eimeria stolatae* n. sp., the specific name being given after the specific name of the host.

¹⁾ A species of *Eimeria* from the gall bladder and bile duct.

Material and Methods.

Systematic examination of rectal contents diluted with saline was done in preparations sealed with vaseline. The oocysts were transferred to 1% chromic acid solution where they completed their development in three days. For studying endogenous stages, portions of the infected intestine were fixed in Bouin-Duboscq-Brasil's fluid and later on, cut 6 μ thick and stained in HEIDENHAIN'S iron haematoxylin. Oocysts in 1% chromic acid were examined daily and camera lucida drawings were made of their various stages of development. Measurements of the oocysts were taken from specimens both in fresh state and in chromic acid solution.

Observations on *Eimeria stolutae* n. sp.

a) Schizogony.

The smallest schizont (Pl. 19 Fig. 1) that we have observed in our preparations, shows a two nucleated condition. It is fully spherical and measures 2.06 μ in diameter and is clearly seen lying in a vacuole in the epithelial cell. As it grows in size (Pl. 19 Fig. 2) the individual measuring 4.12 μ in diameter is found with four smaller nuclei. In a later stage (Pl. 19 Fig. 3) it becomes much bigger and irregular in shape and measures 8.24 μ in length and 4.12 μ in breadth. With the advancement of age the schizont (Pl. 19 Fig. 4) becomes spherical again and contains eight irregularly arranged nuclei. In the fully formed schizont (Pl. 19 Fig. 5) we find eight merozoites each measuring 6.18 \times 2.06 μ in dimension. The nucleus of the merozoite is situated not in the middle but more towards the broad anterior end. Fig. 6 represents a transverse section of a group of merozoites passing through the nuclear region. No sexual dimorphism was however, noticed amongst the groups of merozoite seen by us.

b) Sporogony.

A fully formed macrogametocyte (Pl. 19 Fig. 7) measures 18—20 μ in diameter. It is spherical in shape with a big karyosome in its nucleus and contains darkly staining granules in its cytoplasm. On a single instance we saw a macrogametocyte with a fertilisation tube and a male gamete just entering it (Pl. 19 Fig. 8).

The smallest microgametocyte (Pl. 19 Fig. 9) measures 4.12 μ in diameter and is spherical in shape. It is distinguished from the macrogametocyte by its smaller karyosome, clear cytoplasm and a very small darkly stained dot near the karyosome. This dark dot

persists throughout in all the later stages (Pl. 19 Fig. 10) of its growth until the nucleus breaks up into numerous nuclei to form male gametes (Pl. 19 Figs. 11, 12).

The microgametocyte changes its shape, as it grows in size, from spherical to oval and again spherical and last of all, it becomes irregular. When fully formed the biflagellated microgamete (Pl. 19 Fig. 13) measuring 6.18μ in length are found to lie round a central mass of cytoplasm.

The completely spherical unsegmented oocysts (Pl. 19 Fig 14) measuring 20.5μ in diameter, are found in the rectal contents. When kept in 1 % chromic acid solution they complete their development in three days (Pl. 19 Figs. 15, 16, 17). There is no oocystic residue. Oocystic membrane has a double contour, the inner one being more prominent than the outer. Sporocysts are spindle shaped and each measures 12.3μ in length and 6.15μ in breadth.

The two sporozoites each measuring $8.3 \times 2 \mu$ lie side by side with their broad nuclear ends facing each other while in between them lies the sporocystic residue (Pl. 19 Fig. 17).

Diagnosis: — Systematic position — *Eimeria stolatae* n. sp. (Cocci- diida, Eimeriidae).

Oocysts thick walled, completely spherical, 20.5μ in diameter; no visible micropyle or operculum; oocystic residue absent; sporocysts spindle shaped, sporocystic residue present; unsegmented oocysts discharged from host; sporulation time three days.

Habitat. — Small Intestine (intracellular) of *Natrix stolata*.

Locality. — Calcutta, Bengal, India.

The table below compares, in respect of oocyst and sporocyst, the species of *Eimeria* hitherto recorded from grass snakes.

Name	Oocyst.			Spore.		Host.
	Form	Size in microns.	Resi- due	Form	Size in microns.	
<i>E. cystisfelleae</i> DEBAIS, 1914	Oval	30—35 \times 18—23	0	Oval	9—11 \times 7—8	<i>Natrix (Tropi- donotus) natrix</i>
<i>E. tropidonoti</i> GUYENOT, NA- VILLE and PONSE, 1922	Oval	22—24 \times 12—14	0	Pyra- midal.	16—18 \times 7—8	<i>Natrix natrix</i>
<i>Coccidium persi- cum</i> PHISALIX, 1925	Oval	31.33 \times 18.9	0	Ovoid.	10.5 \times 8.4	<i>Natrix natrix</i> var. <i>persa</i> , PALLAS
<i>E. stolatae</i> n. sp.	Spherical	20.5	0	Spindle- shaped.	12.3 \times 6.15	<i>Natrix stolata</i>

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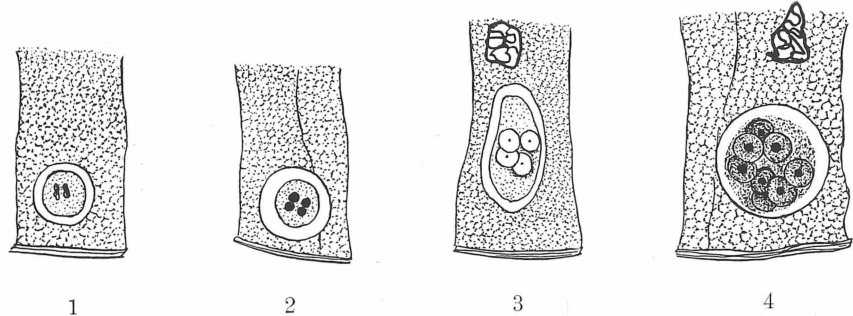
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Explanation of plate.

Plate 19.

Eimeria stolatae n. sp.

- Fig. 1. A small schizont with two nuclei.
- Fig. 2. A bigger schizont with four nuclei.
- Fig. 3. A schizont much bigger in size and irregular in shape.
- Fig. 4. A bigger schizont, spherical in shape, with eight nuclei irregularly arranged.
- Fig. 5. A fully mature schizont with eight merozoites. $\times 3500$.
- Fig. 6. A transverse section through a group of merozoites.
- Fig. 7. A mature macrogametocyte.
- Fig. 8. A macrogametocyte with a fertilisation tube and male gamete just entering it.
- Fig. 9. A smallest microgametocyte.
- Fig. 10. A bigger microgametocyte with a darkly stained dot near the karyosome.
- Figs. 11 and 12. Microgametocytes — early and late stages of male gamete formation.
- Fig. 13. A biflagellated male gamete.
- Fig. 14. An unsegmented oocyst.
- Fig. 15. An oocyst with four spindle-shaped sporoblasts.
- Figs. 16 and 17. Mature oocysts.
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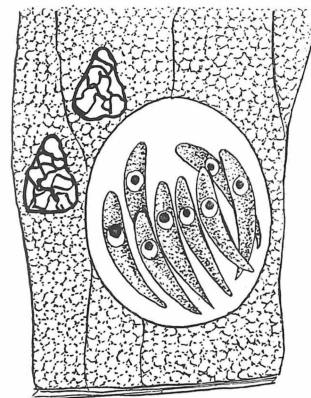


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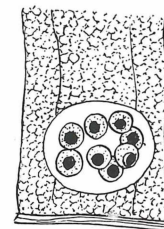
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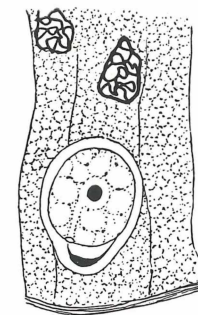
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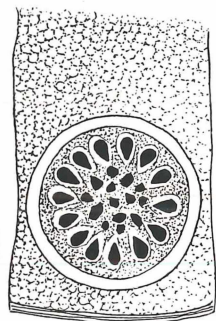
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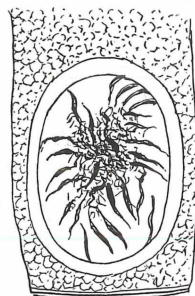
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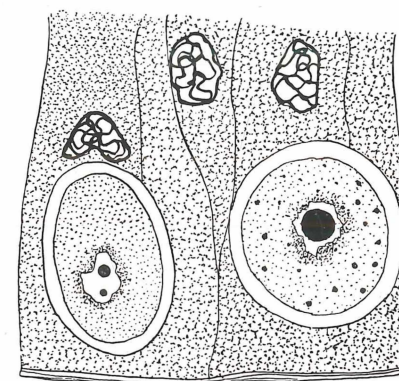
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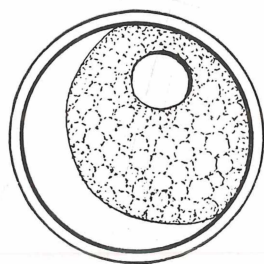


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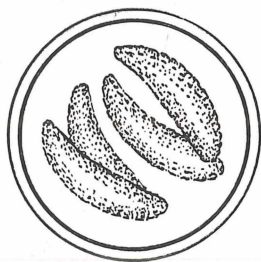


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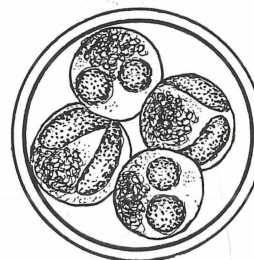
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Zeitschrift/Journal: [Archiv für Protistenkunde](#)

Jahr/Year: 1938

Band/Volume: [90_1938](#)

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