

A NEW COCCIDIAN FROM THE
INTESTINE OF THE FISH *NOTOPTERUS NOTOPTERUS* (PALLAS)

ON August 5, 1943, Mr. S. P. Basu, Research Assistant of I.C.A.R. Fishery Scheme, Calcutta University, placed at the disposal of the authors some coccidian oöcysts obtained from the intestine of the fish *Notopterus notopterus* (Pallas), purchased from one of the local markets. The collection of oöcysts included few immature and a large number of mature forms which were identified as belonging to the genus *Eimeria*. The few species of this genus that have so far been recorded from Indian fishes are *E. southwelli* Halawani¹ (1930), *E. harpodoni* Setna and Bana² (1935) and several unidentified ones by the last named authors. The parasite found by us appears to be new to science and is herein described under the proposed name of *Eimeria notopteri* sp. n.

Specific diagnosis: Both the mature and the immature oöcysts are irregular in shape and measure $24.2\mu \times 22\mu$. The unsegmented zygote within an immature oöcyst (Fig. 1) is

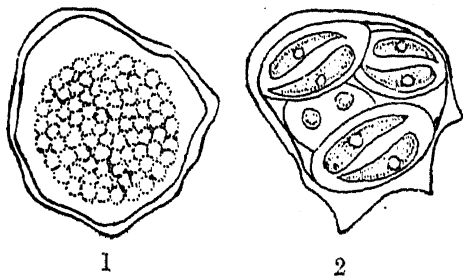


FIG. 1. An immature oöcyst $\times 1660$

FIG. 2. A fresh mature oöcyst $\times 1660$

spherical in shape with highly granular cytoplasm and contains several refringent globules. The oöcysts possess a double-layered envelop and are without any micropyle or oöcystic residuum.

The sporocysts (Fig. 2) are oval in shape with both the ends pointed and measure $11\mu \times 6.6\mu$. They are without any refractile knob or residual mass. The sporozoites are elongated bodies with the anterior end pointed and the posterior rounded. The nucleus is situated at the centre of the sporozoites.

Affinities: Of the known species of *Eimeria* from the cold-blooded vertebrates [vide Levine and Becker³ (1933)], *E. notopteri* sp. n. shows close affinity to *E. ranæ* Dobell⁴ (1908) in shape and size but differs from the latter in the absence of oöcystic and sporocystic residuum as well as in the shape of the sporocysts.

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¹ Halawani, A. *Ann. Trop. Med. Parasit.*, 1930a, 24, 1-3. ² Setna, S. B., and Bana, R. H., *J. Roy. Mier. Soc.*, 1935, 55, 165-69. ³ Levine, N. D., and Becker, E. R., *Iowa. State Coll. J. Sci.*, 1933, 8, 83-106. ⁴ Dobell, C., *Proc. Camb. Phil. Soc.*, 1908, 14, 428.

THE OCCURRENCE OF THE CRYSTALLINE
STYLE IN *LAMELLIDENS MARGINALIS* (LAMARCK)

THE common fresh-water mussel *Lamellidens marginalis* is dissected as a type of the Mollusca in most of the zoological laboratories of India, and it is, therefore, necessary to know all the facts about its anatomy. Although the anatomy of this form has been studied by Ghosh,¹ Prashad,² and Bloomer,³ none of these authors seems to have noticed the *crystalline*

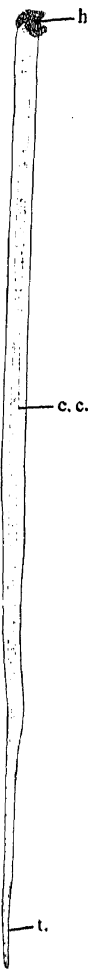


FIG. 1

FIG. 1. Crystalline Style of *L. marginalis*
h.—head end; c.c.—central core; t.—tail end
(x.cir. $2\frac{1}{2}$)

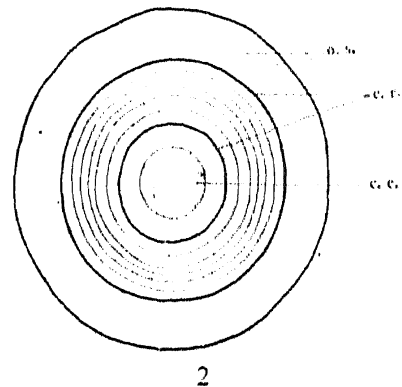


FIG. 2

A transverse section of a crystalline style.
o. s., outer sheath; c. c., concentric rings
formed from the outer part of the central
core; c. c., unstratified part of the central
core. (x.cir. 112).

style within the alimentary canal of this mussel. While working on this type, I found a well-formed *crystalline style*—a structure not commonly demonstrated to students in our laboratories.

The crystalline style of *L. marginalis* is a transparent, more or less elongated, rod-like structure, about 3 to 4.4 cms. in length, and about .4 to .75 mm. in diameter in an animal measuring 8 to 9.5 cms. in length. According to Biedermann⁴ the crystalline style of *Anodonta* is 7 to 8 cms. long, while Gützell⁵ gives the length as 6 to 7 cms. in an animal 13 to 14 cms. long. Mitra,⁶ while describing the crystalline style of *Anodon*, states that it is three-fourths as long as the animal itself.

The style of *L. marginalis* (Fig. 1) is thicker at its anterior than at its posterior end. The anterior end (about 2 mm. in length) lies within the stomach and is bent on itself, while the remainder of the style is contained within

a groove of the first part of the intestine. The bent condition of the anterior end is not shown in the diagrams of the style of *Anodonta grandis* and *Anodon* made by Nelson⁷ and Mitra. Since the groove of the intestine in which the style is lodged is an open groove and not a closed "sac", I consider that it is proper to call it "style groove" rather than "style sac".

A freshly formed crystalline style consists of a central core surrounded by a homogeneous sheath, the core being about three-fourths the diameter of the style. But as the style grows, the outer part of the core develops several ring-like concentric layers, leaving only a small, soft, unstratified part in the centre (Fig. 2).

In mussels which have been out of the river for several hours the crystalline style disappears, but when these very specimens are again kept in an aquarium in the laboratory, it is found that a very long and stout style generally reappears.

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December 3, 1943.

PREM VATI GUPTA.

1. Ghosh, E. N., *Rec. Ind. Mus.*, 1918. 2. Prashad, B., *Ibid.*, 1918. 3. Bloomer, H. H., *Proc. Malacol. Soc., Lond.*, 1931. 4. Biedermann, W., *Handbuch d. vergl. Physiol.*, Band II., Jena, 1910. 5. Gutheil, Fritz., *Zeit. f. wiss. Zool.*, 1912, Bd. 99. 6. Mitra, S. B., *Q.J.M.S.*, 1901, 44. 7. Nelson, T. C., *Jour. Morph.*, 1918, 31.

AN IMPROVED TYPE OF BOTTLE SILT SAMPLER

A BOTTLE SILT SAMPLER was designed in 1934 for collecting suspended silt in channels to study the chief quality characteristics of the transported material, particularly the silt charge and the silt grade, in connection with the Lacey Formulæ for Regime Flow of Channels. But the Bottle silt sampler, being an ordinary container type, has to be opened at the requisite depth of sampling for the minimum time to fill; otherwise the silt concentration increases with the length of time for which it remains open under submergence after it is full.

To overcome this difficulty, the Binkley and Uppal silt samplers were subsequently designed, which consist of hollow metallic cylinders with axis parallel to the flow of stream at the time of sampling. In the case of these samplers, the need of measuring filling time does not arise as the silt-laden water is in continuous flow through them and as soon as the requisite depth of sampling is attained, silt sample is trapped by closing both the ends simultaneously.

But comparatively, the Bottle silt sampler has proved to be superior on account of its handy size, simple construction and ease of working in actual practice. It was, however, necessary to provide it with an infallible device to know when it gets filled so that it may be closed instantaneously after it is full.

With this object in view, the Bottle sampler has been fitted in its neck with a make-and-break circuit device (vide Fig. 1). As soon as it gets filled, a cork float, carrying a copper plate on its top, rises and completes circuit by touching two copper screw poles, which are connected to an electric bell and dry cells in the observer's boat. Consequently the bell rings and mouth of the Bottle sampler is closed by the observer instantaneously by releasing a spring stopper, which also depresses

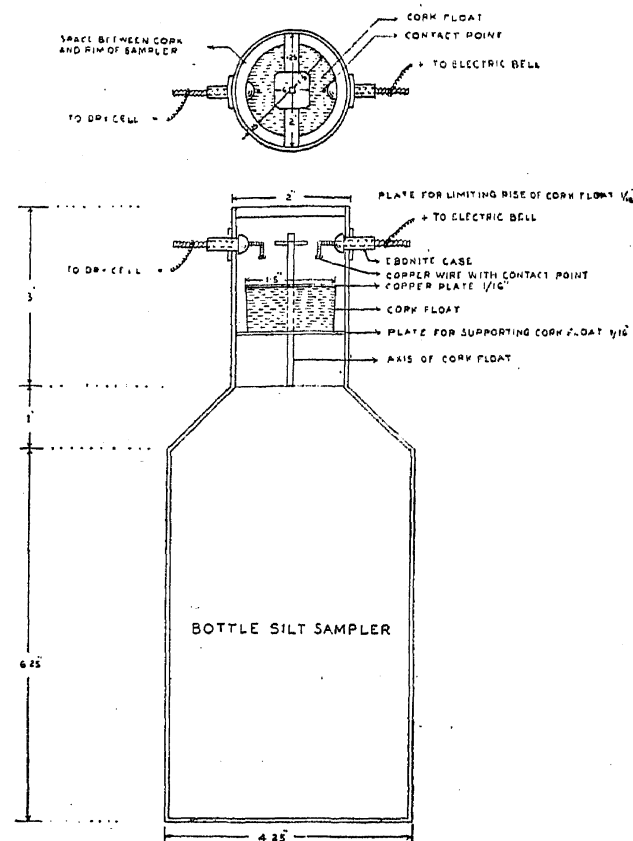


FIG. 1

the float slightly to break the circuit. The sampler is then withdrawn for emptying its contents.

The device has been tried and found to be efficient and useful in the work of silt sampling.

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December 23, 1943.

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