

Specificity of Parasitism by *Eublemma amabilis*.

MAHDIHASSAN¹ states that Imms and Chatterjee² suspected *E. tachardiae* to be a beneficial insect and that he himself definitely proved it to be a parasite of *Eublemma amabilis* caterpillars.

The Indian Lac Research Institute began its work on the lac insect and on its parasites and predators in 1926 and during the last eight years many miles of lac encrustation and many thousands of *E. amabilis* larvæ have been examined in the Entomological Department. Our investigations have proved *E. tachardiae* to be a parasite of the lac insect *L. lacca* and in no instance has this species been found to be parasitic on *E. amabilis*. This view was first put forward by Gupta, Negi and Misra³ in 1929 who also record *Machærota* sp. as an alternative host; in the *Institute Annual Report* for 1928-29 *E. tachardiae* is noted as a hyperparasite of *Bracon tachardiae* which is further confirmed by Glover^{4,5} who states that *E. tachardiae* is also parasitic on *Machærota planitiae* and hyperparasitic on *Apanteles tachardiae*. Gupta and Negi⁶ reconfirm these observations and add a further alternative host in *Holcocera pulverea*, a lac predator. (Misra and Gupta⁷ in their paper on this predator quote a single instance only of parasitism of *H. pulverea* by *E. tachardiae*) and record it also as a hyperparasite of the two lac parasites *Tachardiephagus tachardiae* and *Erencyrtus devitzi*.

In addition, Misra, Negi and Gupta⁸ in their paper on *E. amabilis* make no reference to *E. tachardiae* as a parasite of this predator.

E. tachardiae as previously stated is hyperparasitic on *Microbracon tachardiae*, a parasite of *Eublemma amabilis* and we have frequently bred *E. tachardiae* on *Microbracon tachardiae* in the laboratory. In this connection, Gupta

and Negi⁶ state "The Chalcid *B. annulicaudis* is primarily an endoparasite of the lac insect, and an ectoparasite of the full-fed larvæ, pre-pupæ and early pupæ of *B. tachardiae* a parasite (of) *E. amabilis* larva. The Chalcid oviposits on the stages of *B. tachardiae* only if covered with a cocoon."

Gernet's finding of *E. amabilis* and *E. tachardiae* closely associated in dried stick lac in 1863 in Russia, which Mahdihassan quotes in his letter as an indirect support for his theory that *E. tachardiae* is a parasite of *E. amabilis*, is of course equally in accordance with their true relationship, and one wonders whether Mahdihassan may not have been misled into mistaking a hyperparasite for a parasite.

The "glaring statement" made by Glover^{4,5} and repeated by Glover⁹ of "having found it (*E. tachardiae*) inimical to lac itself" is in fact no more than the truth.

Mahdihassan, to use his own words, after a thorough survey of the Coccid fauna of Bangalore, states: "There is no danger to the lac insect in its common enemies having alternative hosts... for such an enquiry... gave at every step a negative result... and (led) to specificity of parasitism" and he criticises Glover⁵ whom he quotes, "Several (lac parasites) are suspected of parasitising also insects other than lac... the alternative host forms a convenient breeding ground for the parasites." Further research has however fully justified Glover's statement, the following being concrete examples:—

Eupelmus tachardiae, parasitic on *Laccifer lacca*, alternative host *Machærota planitiae*—Gupta, Negi, Misra³ and Glover⁴.

Tetrastichus purpureus, parasitic on *Laccifer lacca*, alternative host *Aspidiotus orientalis*—Glover.¹⁰

Marietta javensis Parasitic on *Laccifer lacca*, alternative host (Syn. *Microterys hautfeulli* *Aspidiotus orientalis* Mahd?) —Glover.⁹

The generic name *Lakshadia* used by Mahdihassan is not recognised by Chamberlin¹¹ an authority on the *Lacciferidæ* or lac insects, and should be abandoned in keeping with the rules of zoological nomenclature;

¹ Mahdihassan, *Curr. Sci.*, 1934, 3, 260.

² Imms, A. D., Chatterjee, N. C., *Ind. For. Mem.*, 1915, 3, 1.

³ Gupta, S. N., Negi, P. S., and Misra, M. P., *Proc. Ind. Sci. Cong.*, 1929.

⁴ Glover, P. M., *Bull. Ent. Res.*, 1930, No. 21, 3.

⁵ Glover, P. M., *A Practical Manual of Lac, Cultivation*, Calcutta, 1931.

⁶ Gupta, S. N., and Negi, P. S., *Proc. Ind. Sci. Cong.*, 1933.

⁷ Misra, M. P., and Gupta, S. N., *Ind. J. Agric. Sci.*, 1934, 4.

⁸ Misra, M. P., Negi, P. S., and Gupta, S. N., *J. Bombay Nat. Hist. Soc.* 1930.

⁹ Glover, P. M., *Ind. Lac. Res. Inst. Bull.*, 1934, No. 21.

¹⁰ Glover, P. M., *Ind. Lac Res. Inst. Bull.*, 1933, No. 16.

¹¹ Chamberlin, J. C., *Bull. Ent. Res.*, 1925, No. 16.

of *Laccifer mysorensis* (Mahdihassan's *Lakshadia mysorensis*) he says, "It seems possible that this form is racially or sub-specifically distinct from *lacca*."

The latter part of Mahdihassan's letter indicates that *E. amabilis* is monophagous or at least confined to species of the Genus *Laccifer*. The behaviour of females of monophagous insects of ovipositing only on the host on which the progeny can feed is too well known to merit his further comment.

In examining lac samples at this Institute, not a single one has been found free from that attack of *E. amabilis*, the degree of infestation has of course varied considerably. The liability of lac to attack by this predator does not, according to our experience, depend exclusively on the host plant, being influenced by a considerable range of factors, and it is unlikely that use of a "catch" crop, as Mahdihassan suggests, would be of any great value as a control, at any rate in the important lac growing areas.

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January, 1935.

Enteropneusta from Krusadai Island.

IN his note on "Enteropneusta from Krusadai Island,"¹ Prof. C. R. Narayana Rao stated:—"S. G. M. Ramanujam has also taken specimens from the same area but it is rather surprising that our collections do not include any of the specimens represented in Dr. Ramanujam's, which does not possess a single form contained in our material. But still both parties were investigating the same area and this rather curious phenomenon of distribution is worth carefully looking into." Since this note was published, I have had an opportunity of visiting the area again and was able to obtain the forms contained in Prof. Narayana Rao's material. My first collection of Balanoglossids was made in September 1930 in the sandy areas of the Porites' and Watchman's Bay. We concentrated at that time on the Northern shores of the Island, facing Mandapam. It was then that the specimens were obtained which Prof. Narayana Rao has kindly identified as *Ptychodera minuta* and *Glandiceps hacksi* and which are not represented in his collections from the Krusadai Island.

¹ *Curr. Sci.*, August 1934, 3, 70.

These forms were by no means abundant and obtained while searching for polychaete worms.

In our visit last October-November, we worked on the Southern side of the Island between the Sandy and Bushy points and were agreeably surprised to find large forms of Balanoglossids which were species of *Chlamydothorax*. Presumably all of Prof. Narayana Rao's material came from this region. A whole bed of sand in this area consisted practically of Balanoglossids and, as it were, one could collect half a dozen specimens in a square foot of area, so that this area has been designated the Balanoglossus Area.

Last January, another party from the Department collected in the same area and the forms, though of the same species, were much bigger and better developed, indicating growth.

It is then evident that the forms on the two shores of the Island differ and, as Prof. Narayana Rao has remarked "this rather curious phenomenon of distribution is worth looking into". Much to our regret, it was not possible owing to high tides to collect on the northern shores during our recent visits to the Island.

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March, 1935.

Occurrence of the Pelagic Gastropod

Recluzia (Petit) in Madras.

OF the pelagic Gastropoda *Ianthinide* show that peculiar adaptation of secreting a float which keeps the animal to the surface. In *Ianthina*, the shell is violet-coloured and delicate, and the float is clean-looking.

In a recent trip to Pulicat about 30 miles from Madras, on the 18th and 19th January last, three specimens of a Gastropod were obtained which showed a float of the same nature as that of *Ianthina* and to which on the under side crowded rows of eggs were attached. The shell is rather brownish, dark and light shades alternating, comparatively thick and the spire rather high, as compared to that of *Ianthina*. The float is somewhat muddy-looking. This latter appearance may partly be due to the rows of brown eggs attached on the under surface. The specimens tally with the figure and general description of *Recluzia* given in