

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

Cheno's *Manual de Conchyliologie*, Tome I, p. 119, 1859.

The occurrence of *Recluzia*, so far as I am able to ascertain, has not been recorded hitherto on Indian shores.

A specimen was also obtained from the Madras shore, opposite the Fort, on 7th February by a post-graduate student of this Department.

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February 28, 1935.

The Age of the Deccan Traps.

I HAVE read with considerable interest the paper "The Deccan Traps: Are they Cretaceous or Tertiary", by Dr. B. Sahni in your journal.¹ I would have written before had I seen this valuable contribution earlier, but I have only recently returned from leave.

The occurrence of plant remains and a lacustrine fauna has long been known by the fossils found in the inter-trappean beds of the Deccan trap lavas of Nagpur and Chhindwara, which are considered as among the lowest flows of the volcanic series. There is thus no question that Dr. Sahni's remarks apply to the believed basal beds of the Deccan Traps.

The official opinion in regard to the Deccan Volcanic series is that three main sub-divisions have been recognised, which, arranged in order of their outpouring, may be placed in the stratigraphical succession as follows:

- III. Upper Traps of Bombay and Western India;
- II. Middle Traps of Malwa and Central India; and
- I. Lower Traps of Nagpur and Central Provinces.

This arrangement is based on general conclusions and not on continuous geological mapping from say Nagpur to Bombay, where the geologist could walk on these basaltic lavas all the way. Consequently, these problems of the age of an entire volcanic series cannot be settled by the evidence of the fossils of an assumed horizon.

The strata immediately below the Deccan traps in the Nerbada valley and Central India are the Bagh Beds, which are un-

questionably regarded as of middle to upper Cretaceous age. The Bagh Beds, a marine series, have been considered as the equivalent of the fresh-water infra-trappeans of the Central Provinces known as the Lametas. These rocks have not been clearly traced from one to the other by actual mapping.²

The age of the Lametas is thus in dispute,³ but in this connection the infra-trappean beds (Lametas) of the Rajahmundry area, about Dudkur and Pangadi, are of considerable interest.⁴ These beds are regarded as an estuarine deposit, the fauna of which is curiously Tertiary in assemblage, and considered somewhat younger (newer) than the Bagh Beds but still of Cretaceous age.

These infra-trappeans of the Godavari near Rajahmundry are of course related to the Deccan traps of that region. In these lavas, near Kateru, there are inter-trappean fossiliferous beds with a fresh- to brackish-water fauna, which appears to have no Tertiary affinities, and has relationships with the Upper Cretaceous rocks of South India. So far as I know this paradoxical evidence has not been re-examined by a competent palæontologist.

From the fact that palm fossil wood occurs in the inter-trappeans north of the Nerbada among the so-called Malwa Traps of Saugor⁵ it is evident that the broad subdivisions of the Deccan Trap series recognised above must be regarded as simply tentative. And I would say that the official opinion that the Deccan Trap series is entirely of Cretaceous age is largely out of date and not the view of those officers who are most familiar with these lavas, but a revised official opinion cannot be published without sufficient evidence.

It will be remembered that no less an authority than Dr. W. T. Blanford, after a personal investigation wrote⁶ as follows, *in italics* :—

"...that the lowest traps appear to differ less in age from the middle cretaceous beds of Bagh than the highest traps do from the lower eocene formations of Surat."

² *Mem. Geol. Surv. India*, 1860, 2, 196.

³ *Ibid.*, 1926, 51, 102-103.

⁴ *Man. Geology of India*, Part 1, 1879, 317.

⁵ H. H. Spry, *Journ. As. Soc. Bengal*, 1833, 2, 639; and W. T. Nicolls, *Journ. Bom. As. Soc.*, 1857, 5, 614.

⁶ *Mem. Geol. Surv. India*, 1867, 6, 159.

¹ *Curr. Sci.*, 1934, 3, 134-136.