species of *Culicoides*,[1] *viz.* that of sucking the abdomen of mosquitoes of the genus *Anopheles* (*s.l.*), probably in order to obtain mammalian blood ingested by the larger fly. The actual species attacked was *A. rossii* and the observation was made at Port Canning in the Ganges delta.

The same habit has been attributed to a Burmese species of "*Ceratopogon*" by Major N. P. O'G. Lalor,[2] I.M.S., who found it sucking blood from *Anopheles fuliginosus*, *A. karwari* and *A. ludlowi*. He reports that species of this genus are abundant at Kyaukpyu on the coast of Burma in August and bite human beings.

N. ANNANDALE.

COELENTERATA.

FURTHER NOTES ON THE HABITS AND DISTRIBUTION OF *Limnocnida indica*.—In the *Records of the Indian Museum*, vol. vii, pp. 399–403, Mr. Gravely and I published some notes on the habits and distribution of *Limnocnida indica*, Annandale, based on our observations last year. I wish to include in this note further observations on the same subject which I made this year. We then expressed the conclusion "that in the life cycle of *Limnocnida indica* there is probably an asexual hydroid stage which lives attached to rocks at the bottom of deep pools, and that this hydroid produces Medusae by budding from February till April or May, when it ceases to do so whether the pool in which it lives is flooded or not, and very possibly dies." It has been my effort during the current year to find out this supposed hydroid stage.

I began my work in October, 1912, when the rains had nearly ceased. I selected Medha as the place of observation owing to its being easily accessible from Bombay. It was thought that it would be possible to induce the hydroid to grow on stones placed at different depths below the surface of the water in the pool and left undisturbed for a sufficiently long time. I, therefore, visited Medha towards the end of October, 1912, and arranged to have four slabs of the same kind of trap as that which forms the bottom and sides of the pool immersed 5, 10, 15 and 21 feet below the surface of the water. The last was resting on the bottom of the pool. The stones were secured by means of strong coir ropes to other bigger stones which were placed on a not easily accessible part of the rock in the middle of the pool. This precaution was necessary to prevent meddlesome persons from taking out the stones and preventing the growth of the hydroid. The place was also watched continually by a peon, whom I engaged for the purpose. I visited the locality again towards the middle of January, February and April, 1913, *i.e.* after 3, 4 and 6 months respectively. During none of these visits was I able to see on the stones any organism which could be the hydroid stage of *Limnocnida indica*. On one occasion I found a few Rotifers

[1] Gravely, *Rec. Ind. Mus.* vi, p. 45. [2] *Paludism*, Sept., 1912, p. 42.

attached to one of the stones and at all times a few water beetles and some Neuropterous larvae were to be seen crawling on them or lurking in the meshes of the coir rope.

At the time of my visit in April I found Medusae in fair numbers in the pool, though nothing was found on the stones. It was clear that the effort to induce the hydroid to grow on the stones had failed, and some other means must be employed to get at the missing stage. I, therefore, tried in April, 1913, another plan suggested to me by Dr. Annandale. It was to put a number of Medusae in a wide-mouthed jar and to immerse it at the bottom of the pool after closing its mouth by means of a piece of muslin. The immersion was necessary to keep the temperature conditions as nearly natural as possible. Another reason was to make as little difference in the character of the food of the animal as possible. I used to take out the jar twice a day and observe the condition of the Medusae. The first experiment was tried on the 23rd of April, 1913, and the Medusae appeared to be perfectly healthy for two days after that. On the 26th, however, I found that some of them had died and others were not as active as they had been. An examination of the contents of the jar under a microscope failed to reveal any eggs. That the death was not natural but due to pathological changes set up by the peculiar environment, which prevented their coming to the surface of the water periodically and also circumscribed their movements to a small area, appears to be clear from the fact that the Medusae in the jar were of all sizes and ages. I tried the experiment again on the 26th, but found that the Medusae died even earlier *i.e* on the 27th evening. There was a heavy shower of rain on that day and I thought I would do better to move to some other locality and try the experiment.

I left Medha on the 28th and reached Dhôm on the Krishna on the 29th. We had heard of the occurrence of the Medusae in this place last year but were not able to visit it. I found the Medusae here in very great abundance. The pool in which they occur is of the type found at Tambi on the Koyna. It is wide and long, about 15 ft. deep, and has a muddy and gravelly bottom. The pool is held sacred and fishing is not allowed. I was, however, permitted to catch the "flowers"—as the Medusae are called—and collected a large number. Among these are some very small specimens almost equal in size to a large pin's head. The experiment tried at Medha was also tried here but was unsuccessful. I, however, suspect that the number of Medusae put in the jar may have something to do with the success of the experiment and if it were tried with only one or two Medusae in each jar we may yet succeed. This, however, was not possible this year and I left Dhôm for Karâd at the junction of the Krishna and Koyna on the 1st of May.

At Karâd I found that I was a little too late, the Medusae having all been washed away by the rain of the 28th April. I searched the river in a boat which was available, but could not see

any Medusae. From Karâd I explored the lower Koyna but was not able to get *Limnocnida* at any place, though I was told that they occur in a number of pools in the river which I was not able to visit. The best time for observations on *Limnocnida* appears to be the beginning of April. Later in the month, the numerous storms which occur and the rain which they bring frequently interrupt the work.

Our knowledge of the distribution of *Limnocnida* has been increased as the result of this year's work. I have been able to confirm its occurrence in the Krishna at Dhôm. While at Karâd, I obtained information about the occurrence of Medusae in the Vârnâ and Panchgangâ, both tributaries of the Krishna which have their sources in the Western Ghats. Want of time prevented my visiting these localities, but should an opportunity present itself I will do so next year.

Before concluding I have to express my best thanks to Dr. Annandale who has taken very great interest in this work. His suggestions have been very valuable and but for his generous help the work would not perhaps have been done at all.

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