

No. III.—On the Breeding of the toad *Bufo macrotis*.

In northern Siam the breeding season of this toad occurs in late July and early August, when the skin of the male becomes smooth, and changes from dark brown to quite a bright yellow colour, the female retaining her normal characteristics. They are to be found in large numbers in pools in or near small forest streams, the males invariably preponderating. Three or four males may be seen paying very forcible attention to one female. This year when with Mr. R. J. Chaldecott, we found a dead female with both forearms torn off and a large open wound on the belly, and yet there were still three males attached to her. In the same pond there were numerous other groups, consisting of several males with but one female, and the noise they made could be heard a long way off. I at first thought that the bright colouring must assuredly attract the attention of their natural enemies, but when approached they all become silent and looked extraordinarily like dead leaves floating on the water. If the males are separated from the females they very soon resume their normal colouring, but although I kept them for several days, their skin did not become warty, as it is out of the breeding season.

From the above facts I came to the following conclusions:— Firstly, that the colouring of the males is assumed originally as a sexual attraction, and secondly, as the males, when disturbed, make no attempt to escape, they use this colouring as a form of defensive mimicry.

The only other case that I have come across of a batrachian changing colour is that of *Microhyla berdmorei*, in which the red tinge of the male becomes rather more intense during the breeding season. As to the passionate wooing of the males of *B. macrotis*, Darwin, in his "Descent of Man," states that Dr. Günther had "several times" found an unfortunate female toad dead and smothered from "having been so closely embraced by three or four males."

It would be interesting to know if similar instances have been observed in other species during their breeding season.

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November 1918.