

AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Waite, Edgar R., 1904. The breeding habits of the Fighting Fish (*Betta pugnax*, Cantor). *Records of the Australian Museum* 5(5): 293–295, plate xxxviii. [22 December 1904].

doi:10.3853/j.0067-1975.5.1904.1068

ISSN 0067-1975

Published by the Australian Museum, Sydney

nature culture **discover**

Australian Museum science is freely accessible online at
<http://publications.australianmuseum.net.au>
6 College Street, Sydney NSW 2010, Australia



THE BREEDING HABITS OF THE FIGHTING FISH

(*Betta pugnax*, Cantor).

By EDGAR R. WAITE, F.L.S., Zoologist.

(Plate xxxviii.)

The life histories of several members of the Anabantidæ, have been investigated and the results of the observations made known. Special mention may be made of *Osphronemus*, *Polyacanthus* and *Trichogaster (Colisa)*. For our knowledge of the breeding habits of these interesting fishes we are mainly indebted to French naturalists, chief among whom stands M. Pierre Carbonnier.

Not having access to the whole of the literature of the subject I am unable to know if the life history of *Betta pugnax*, Cantor¹ has been described. A list of Carbonnier's papers will be found in the Royal Society's Catalogue of Scientific Papers.² Of these, one of the two following may contain some account of *Betta* :—

14. Importation de poissons exotiques, anabas, poissons combattants, gouramis. Soc. Acclim. Bull., i., 1874, pp. 526-529.

17. Reproductions de poissons exotiques. *Ibid*, viii., 1881, pp. 103-112.

The work cited does not appear to be in Australia, so that I may perhaps be excused if I publish matter already known. The term "poissons combattants" doubtless applies to *Betta*, but it may be noted that the name occurs under "Importation" and not under "Reproductions." The photograph of the nest of *Betta* here published will be of interest and is possibly unique.

The fishes, which I had under observation, were kindly obtained at my request by my friend Captain H. de C. Wetherall, who procured them from Pinang during a voyage to the Strait Settlements. They reached my hands on April 5th. last, and on the following day the male commenced to blow the bubbles characteristic of the family. Rising to the surface a mouthful of air was taken and retained for two or three seconds, during which time it received a coating of mucous.

¹ Cantor—Cat. Malay. Fishes, 1850, p. 84, pl. ii, figs. 1-3.

² Cat. Sci. Papers, xii., 1902, p. 142.

The bubble thus formed was blown at the surface and the operation repeated until a circular mass was produced 75 mm. (= 3 inches) in diameter. Another layer of bubbles was next blown which had the effect of raising the first out of the water. Seven or eight layers were formed in all, but as the later bubbles were blown only under the central portion, a dome-shaped structure resulted. Leaves of duckweed and other small objects which happened to float over the area selected, were raised on the dome, but were there as the result of accident and not of design; they will be seen in the plate. So viscid is the secretion enclosing the bubble, that though exposed to the air for ten or twelve days it still fulfilled its function.

On the third day the nest was completed and breeding commenced. The period is apparently determined by the female; when the ova are ripe and possibly occasioning some discomfort she ascends to beneath the nest. Then takes place that marvellous display comparable to the actions of gallinaceous birds. The fins of the male are extended to the utmost, the gill membranes protruded and the blood-red gills exhibited beneath. The body and fins become resplendent with iridescent colours and quiver with intense excitement. The female thereupon approaches her mate and is turned upon her side. As he tightens his body round her, she becomes upside down. In three or four seconds the pressure is relaxed and the male assumes a position below.

The eggs are then extruded and caught by the pectoral and ventral fins where they remain for a few seconds, to ensure fecundation. They are next allowed to fall, being slightly heavier than water, when they are collected by the male waiting below. If the time is prolonged he will suck them in from the fins possibly to prevent their being taken by the female who promptly devours them. The male having given the eggs a coating of mucous, places them beneath the bubbles to which they adhere. From three to seven eggs are extruded each time, and the operation is repeated until from one hundred and fifty to two hundred are produced. The female is not allowed in the vicinity of the nest when laying is completed, and the male is untiring in his care of the eggs, constantly moving their position and recoating them with mucous.

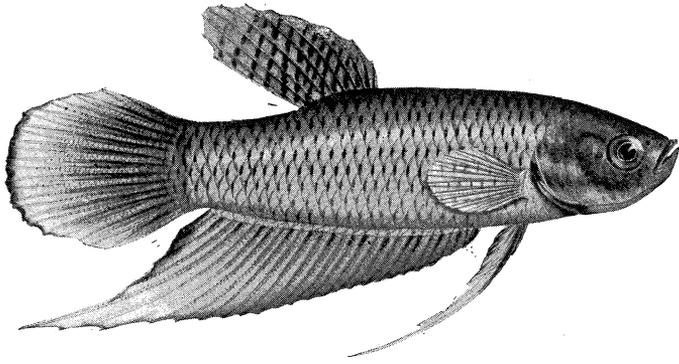
On the third day the eggs hatched; the larvæ remained beneath the bubbles for some time but occasionally showed a tendency to sink; they were immediately taken in charge by the watchful father and replaced. In a day or two the numbers disposed to leave the shelter of the nest increased to such an extent that the

male could not possibly secure them all, though he frequently had seven or eight in his mouth at once. He would search for them at the bottom of the vessel and securing some, carry them to the surface and blow out a little mud with the larvæ. Many, however, were eaten by the female, and though the fishes bred on three occasions, at the end of a fortnight following, all the fry had disappeared. Possibly the weather proved too cold for the young, as it subsequently became for the adults, for they died also during the winter.

EXPLANATION OF PLATE XXXVIII.

Fig. 1. *Betta pugnax*, Cantor, male,
(twice natural size).

Fig. 2. Nest of *Betta pugnax*, Cantor,
(natural size).



A. R. McCULLOCH, del. } Aust. Mus.
EDGAR R. WAITE, photo. }

Electric Photo-Engr. Co., Ltd.,
Sydney.