

circumstances is a mystery. The wounds had healed perfectly and the reptile was in good condition.

NILAMBAG PALACE,
BHAVNAGAR,

R. K. DHARMAKUMARSINHJI.

September 27, 1940.

XVIII.—FOOD OF LIZARDS.

I was very interested to see the record (*Journ. Bomb. Nat. Hist. Soc.*, vol. xlii, p. 49) of three larvae of *Parasa lepida* Cr. (not 'Gam.') being taken from a *Calotes*. I recorded the eating of this larva by *Hemidactylus* sp. in 1936 (*Proc. R. Ent. Soc. Lond.* (A) 11: 91-2). Lizards seem to pay little attention to the colouring of the larvae they eat and I have fed *Hemidactylus* sp. on the larvae of *Polytela gloriosae* F. and *Chilasa clytia* L., both typically aposematic in appearance, the one being purple-black in colour blotched and spotted with orange and white, the other black and cream with large rose pink spots. Hairiness seems to afford protection as neither the larva of *Pericalli ricini* F. nor of *Trabala vishnu* Lef. were eaten. (1939, mihi, *Proc. R. Ent. Soc. Lond.* (A) 14: 33-4).

CALCUTTA,

D. G. SEVASTOPULO.

December 30, 1940.

XIX.—A NEW FAMILY OF FISHES.¹

The discovery of a new vertebrate, so distinct from all previously known species as to warrant the erection of a new family for its reception, remains a zoological event of outstanding importance. Double significance is attached to the find, when, as in the discovery under review, the new species may rightly be claimed to be one of the most highly specialized and bizarrely modified members of its class.

Early in 1937, while studying fish life in brackish waters of the Bombay Province, C. V. Kulkarni encountered small, surface-swimming specimens which he first took to be the young of some goby or cyprinid fish, but which later turned out to be mature adults of an unknown species. When submitted to ichthyologists in India and America, the novelty was pronounced a new type, referable to the Order of small fishes known as Cyprinodontes. It was interpreted as a distant relative of the common Indian species, *Oryzias melastigma*, and was presumed to have been evolved from some such fish. It has gone so far on its own special line of evolution, however, that it seemed unwise to classify the new type in the same family (*Cyprinodontidae*).

Dr. George S. Myers and the reviewer were both struck by the extreme likeness of the Indian novelty to the tropical American genus *Tomeurus*. Even in the features of extreme specialization, the resemblance appeared so close that at first examination the two fish seemed to be close relatives. It seemed impossible that Nature

¹ On the Systematic Position, Structural Modifications, Bionomics and Development of a Remarkable New Family of Cyprinodont Fishes from the Bombay Province, India. By C. V. Kulkarni. *Rec. Ind. Mus.*, vol. xlii, pp. 379-423, figs. 1-20, 1940.

could have twice molded a fish into such an extreme form. On more penetrating scrutiny, however, some fundamental, hidden differences came to view, so that both of us concluded that *Tomeurus* and the then-unnamed Indian genus arose independently from the cyprinodont groups that are respectively characteristic of the two regions.

In designating the new fish *Horaichthys setnai*, Mr. Kulkarni has jointly commemorated the names of Dr. Sunder Lal Hora, India's distinguished ichthyologist, and Dr. S. B. Setna, Fisheries Officer of Bombay. Though not unduly long as scientific cognomens go, this name is slightly longer than the fish. One wonders how this thin, translucent wisp-like inch of fish can be so packed with specializations.

Horaichthys is peculiar in many ways. The small dorsal fin is set far back, almost against the caudal fin. The anal fin is much elongated. The anterior anal rays make a lobe on the females, and in the male are set apart to fabricate a marvellously complex structure, with special hooks and appendages and skeletal supports,—all of which are described in admirable detail. This structure is termed a gonopodium, from its resemblance to the similar though less extreme structure which serves as an intromittent organ in the *Poeciliidae*, a family of viviparous American cyprinodonts. The organs in the two groups are said to be homologous, as they are comprised essentially of rays 3, 4 and 5 of the anal fin, but this view can hardly be accepted by those who interpret unity of descent as a criterion of homology. In *Horaichthys* the gonopodium is utilized to transfer spermatophores (sperm-filled bundles) from male to female. These, the first true spermatophores to be recorded in fishes, are provided with a complex head of spines by which the sperm bundle is attached to the skin of the female, in the region of the genital opening. After attachment the wall of the bundle swells at a point near the spines and discharges its contents of male germ cells. The spermatozoa swim into the oviduct and there fertilize the eggs for some days. Dermal folds and ridges on the female ('genital pads') seem to aid in the attachment of the spermatophores. The usual lack of a right pelvic fin (a wholly unique feature) might be thought to serve the same function, though the author, in a Lamarckian view that seems rather strange today, states that 'it may be presumed that by such constant striking [of the gonopodium], the right fin has in the course of time been reduced and ultimately lost.'

Following wise suggestions from Dr. Hora, the author withheld the description of this marvellous little fish until it was possible to study its structural modifications, habitat, feeding and mating habits, deposition of eggs, and the structure and development of the egg and 'larva' (postlarva). All these observations were made in detail, with an eye that sees below the surface. For the completion of this outstanding contribution to their science, the ichthyologists of the world owe thanks to Mr. Kulkarni and his Indian associates.

ANN ARBOR, MICHIGAN, U.S.A.,
October 4, 1940.

CARL L. HUBBS,
University of Michigan.



Hubbs, Carl L. 1941. "A new Family of Fishes." *The journal of the Bombay Natural History Society* 42, 446–447.

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