of the fish subject to the association did not reveal any indication of Zoothamnia having been swallowed. Specimens of *A. neilli* with Zoothamnia in their mouths lived in the Laboratory for a number of days without devouring them. This is remarkable since tufts of *Zoothamnium* sp. have been obtained from the stomach-contents of fishes such as *Therapon jarbua* (Job, 1938).

It is obvious that the fish can have no material benefit from this partnership as the *Zoothamnium* should prove more of an encumbrance than an advantage to the fish. On the other hand, one can understand some sort of advantage to the colonies in virtue of the position they occupy, as they can get a constant current of water with micro-organisms serving them as food. This sort of association with a definite advantage to one of the parties concerned without disadvantage to the other is known as *Synœcy* (Borradaile, 1923), and a number of such associations are known.

Vorticellids, both simple and colonial, are commonly found attached to many kinds of objects. At Adyar they have been observed on Crustaceans, larval insects and Algæ. We are not aware of any previous record of these forms occurring on fish. Further, it may be noted that Bhatia (1936) does not record *Zoothamnium* from Indian waters.

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T. J. Job.

Zoological Research Laboratory,
University of Madras,
Madras,
April 30, 1938.

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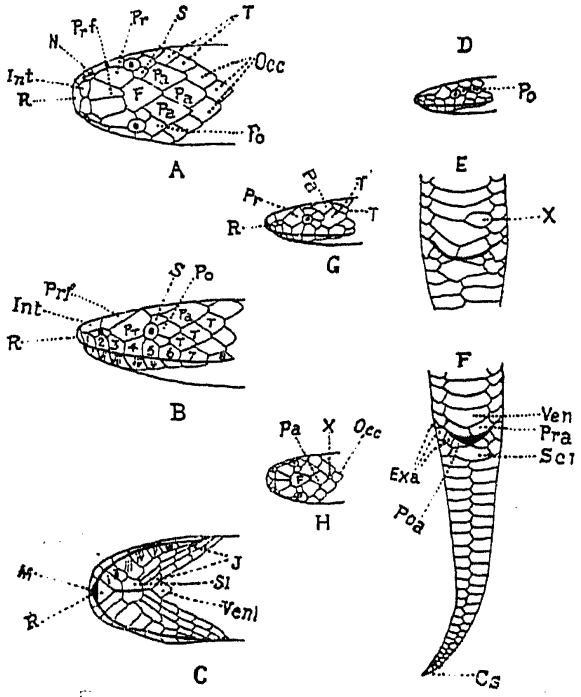
The Lepidosis of *Xenopeltis unicolor* Reinw.

Some time back, through the kindness of the Director, Zoological Survey of India, and the Curator, Bombay Natural History Society, I had the opportunity of examining 24 specimens of *Xenopeltis unicolor* Reinw., many of which showed important variations in lepidosis from the published accounts of this species. These variations are recorded in the present note in the hope that they will serve to extend or modify the taxonomic description of this snake.

(*a*) *Lepidosis of the Head.*—Boulenger (1890) mentions two post-oculars in his description of this species; but one specimen that I observed (1967 B.N.H.S.)* has only one post-ocular (Fig. D).



Lepidosis of *Xenopeltis unicolor*.

In specimen 63·1 (B.N.H.S.), there is an extremely minute extra scale between the occipital and the parietal (Fig. H). This is obviously an abnormality. I have observed the occurrence of similar supernumerary scales on the head of many other species of snakes.

Specimen 14954 (I.M.)‡ has only one temporal on the left side (Fig. G), and two on the right. Wall (1909) gives two temporals in his description of the lepidosis of this snake.

Although the head shields of snakes are generally not regarded as imbricate, I find that the edges of the anterior shields do overlap those of the succeeding posterior ones. This fact can be readily demonstrated by passing the point of a needle along the lines of separation in the head shields of *Xenopeltis*, as well as in other snakes.

* B.N.H.S.=Specimen belonging to the Bombay Natural History Society.

‡ I.M.=Specimen belonging to the Indian Museum.

Perhaps this is an indication that the head shields of snakes, which appear superficially to lie side by side (juxtaposed), evolved from essentially imbricate type of scales. In some snakes, *e.g.*, in *Typhlopidæ*, *Leptotyphlopidæ*, boids like *Eryx jaculus*, etc., the scales on the head also are imbricate like the body scales.

(*b*) *Lepidosis of the Trunk.*—Boulenger (1890) gives the number of ventrals in this species as being 166 to 193. Wall (1909) mentions 175 to 190 ventrals for his Burmese specimens, and 180 to 196 (as given by Flower) for specimens from Siam. Later (1923), he gives 164 to 193 as the number. Specimen 12834 (I.M.), however, has 194 ventrals. The last ventral in several specimens is a little bigger than the rest. In three specimens, *viz.*, 15273 (I.M.), 12964 (I.M.) and 467 (B.N.H.S.), there is an extra scale after the penultimate ventral (Fig. E). This is also an abnormality.

To get the number of ventrals in a specimen, Boulenger counts them in the mid-body, and that is the usual custom the world over. Wall, however, prefers to give three countings: first, two headlengths behind the head; second, in the mid-body; and third, two headlengths before the vent.

To me, however, this triple counting of Wall appears to be too arbitrary. The number of ventrals varies within wide limits in snakes, and therefore when we count the costal rows either two headlengths behind head or two headlengths before vent, we are not counting at the level of corresponding ventrals in different individuals. Besides, we cannot get comparable figures in this way for different genera or species. Nature has not differentiated the two head-lengths distance in any way, and it appears to be merely a sort of personal preference to count at these levels.

In order to find out the best places in the body of a snake for counting the costal rows, I made countings in several specimens of *Xenopeltis unicolor* at the level of different ventrals; *e.g.*, at the level of the first ventral, the second, the fifth, and so on. I find that the most constant figures are obtained by counting at the level of the first ventral, in the mid-body and at the level of the pre-anal, this last row in *Xenopeltis* ending at the second or third divided sub-caudal. The following figures are for this species:

At the level of the 1st ventral ..	18 or 19
At mid-body	15
At the level of the pre-anal ..	9 or 10

(*c*) *Scales of the Anal Region.*—The disposition of the various scales bounding the vent appears to be an important characteristic in snakes and deserves inclusion in taxonomic descriptions. In *Xenopeltis unicolor* Reinw., there are two scales anterior to the anus, properly called *pre-anals*, though often mis-named 'anals'; two scales posterior to the anus (the *post-anals*); and three scales bounding the anal groove on each side (*exanals*). The anteriormost of the exanals just enters the anal groove, but not the anus, and it is slightly overhung by a costal.

(*d*) *Scales of the Tail.*—The first, and sometimes also the second, subcaudal is single, while the remaining subcaudals are paired.

As for the number of subcaudals, Boulenger (1890) mentions 26 to 31. Wall (1909) says: "The 1st and the 2nd entire, followed by from 24 to 31 paired shields." Later (1923), Wall gives the number 25 to 31 for this species.

Three of the specimens examined by me (*viz.*, 12963 I.M., 14956 I.M., and 12964 I.M.) had 32 subcaudals, three again (8035 I.M., 3956 I.M., and 63–1 B.N.H.S.) had 24; while one (15275 B.N.H.S.) had 15 and a stump. Thus, the species should be described as having 24 to 32 subcaudals. None of the countings, of course, include the conical terminal scute.

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May 2, 1938.

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[1] Boulenger, G. L., *Raptilia and Batrachia* (*Fauna of British India*), 1890, p. 276.

[2] Wall, F., *How to Identify the Snakes of India*, 1923.

[3] — and Evans, *Jour. Bomb. Nat. Hist. Soc.*, 1900-01, **13**, 352 and 620.

[4] —, *ibid.*, 1903–4, **15**, 525.

[5] —, *ibid.*, 1909–10, **19**, 292–98.

[6] —, *ibid.*, 1923–24, **29**, 361.

[7] —, *ibid.*, 1924–25, **30**, 806.