

*Bascanion ornatum* occupies a peculiar place in the genus because it combines the characters of the two series above described. All of the specimens of *B. ornatum* show both cross-bands and longitudinal stripes. However, here both the stripes and the bands persist in the adult. Of the two Smithsonian specimens, which are both a little more than five feet long, the cross-bands are more distinct in one specimen than in the other. In the new specimen, which is a young animal, only thirty-eight inches long, the cross-bands are also not strongly marked. It is clear then that in *B. ornatum* immaturity of the specimen is not associated with greater distinctness of cross-bands, as is the case in the *B. constrictor* and *B. flagelliforme*. In other words, the cross-bands are a fixed character of both adult and young of the species *ornatum*. These facts indicate that this species represents, with respect to coloration, the most generalized type in the genus; it is, therefore, the most primitive species, from which, on the one hand, the purely cross-banded series has descended on account of the obliteration of longitudinal stripes. The longitudinally striped series, on the other hand, has arisen because of the disappearance of the cross-bands.

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ON THE HEART OF LUNGLESS SALAMANDERS. BY HENRY L. BRUNER.

[Abstract.]

In the *American Naturalist* for 1896 Hopkins announced the discovery of a septum atriorum in the heart of certain lungless salamanders; he omitted, however, in his description, the valve which, both in lungless forms and in those with lungs, guards the sinus-atrium opening.

A study of the heart of lungless salamanders had already been made by the writer before the paper of Hopkins came into my hands. Investigation of the same species used by Hopkins shows that the latter has described the sinus-atrium valve as a septum atriorum. I conclude, further, that no trace of a septum atriorum exists in the adult lungless salamanders studied by me (*Plethodon cinereus*, *P. erythronotus*, *Desmognathus fusca*, *Salamandrina perspicillata*, *Spelerpes fuscus*).

The conus arteriosus of certain lungless salamanders shows a spiral fold (e. g., *Plethodon*), but it seems to be absent in *Desmognathus*.

## THE PULMONARY ARCH OF LUNGLESS SALAMANDERS. BY MISS MAE WOLDT.

[Abstract.]

Although salamanders have long been studied, it was only recently discovered that some forms are lungless. Investigations have been made upon the mode of respiration and upon the modifications in the structure of the heart. As far as known, however, nothing has been published concerning the pulmonary arch. It is reasonable to suppose that the arch which, in amphibians, carries blood to the lungs would undergo more or less degeneration in the lungless salamanders. In the forms with lungs this arch also sends branches to the œsophagus. An investigation of lungless salamanders (*Plethodon cinereus* and *P. erythronotus*) shows that the pulmonary arch persists between the truncus arteriosus and the point of origin of the œsophageal branches; beyond this point it has disappeared. The pulmonary arch also sends branches to the skin. The salamander has, however, another skin artery, and it is not impossible that the disappearance of the lungs in the lungless forms finds its explanation in this double supply of blood to the skin. The function of supplying other parts of the body was at least important enough to prevent the entire disappearance of the pulmonary arch in the lungless salamanders.

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AN INSTANCE OF BIRD FEROCITY. BY GLENN CULBERTSON.

During last May John Gabel, a student in ornithology, reported the following observation: While riding near Hanover Mr. Gabel's attention was attracted by the fluttering of wings in an osage hedge by the roadside and by cries as of a bird in distress. On dismounting and approaching to within ten or twelve feet of the place for a closer inspection he observed a Loggerhead Shrike (*Lanius ludovicianus*), impaling a Sparrow Hawk (*Falco sparverius*), upon the thorns of the osage tree. The Shrike was accomplishing this by beating the Hawk with its wings and by striking it with its beak.

On Mr. Gabel's nearer approach the Shrike became frightened and flew to a tree near by. The Sparrow Hawk remained impaled on the hedge thorns and continued to flutter frantically until it was on the point of being captured, when it was able to extricate itself and fly away.