

THE SYSTEMATIC POSITION OF THE POISONOUS SNAKE Ancistrodon
rhodostoma (BOIE) (SERPENTES, CROTALIDAE) BASED ON ITS
CRANIAL OSTEOLOGY

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Following the world famous "Catalogue of Snakes of the British Museum of Natural History," by Boulenger (1896), all modern herpetologists regard the species of poisonous snakes described from Southeast Asia by Boie (1827) under the name Trigonocephalus rhodostoma [as belonging] to the genus Ancistrodon Beauv. Actually, according to its external characteristics, this species in general answers the diagnosis (strictly speaking, based only on external morphology) of the genus Ancistrodon. However, in contrast to the latter, the scales of this species are absolutely smooth, without keels. In 1853 Duméril gave attention to this detail, which warranted placing this species in the monotypic genus Leiolepis (from the Greek words meaning "smooth" and "scales"). Earlier, however, Cuvier (1829) had described a genus of lizards of the family Agamidae under the very same generic name, which is still used today. No other external morphological differences from Ancistrodon are found in this snake. As a consequence, Boulenger placed the generic name of this species of pit viper in synonymy with the genus Ancistrodon. On the other hand, one must note its significant biological peculiarities, which, so far as I know, do not occur in all the other species of this genus. Thus, A. rhodostoma exhibits oviparity, not viviparity, depositing 13-30 eggs, which the female protects during the entire period of incubation, lasting 42-47 days.

In connection with the treatment for "The Fauna of the U.S.S.R." of the genus Ancistrodon, specimens of which occur in the Soviet Union, I prepared and made a careful study of the skulls of a number of species of this genus, including A. rhodostoma. As the comparison of skulls of Nearctic species [A. piscivorus (Lacép.) and A. mocasin (Beauv.)] with skulls of three Palearctic species [A. halys (Pall.), A. blomhoffi (Boie) and A. strauchi Bedr.] showed, there are few significant differences among them. [p. 791] The skulls are very similar to each other and differ mainly in some details of structure of the palatine bone, in particular its shape, the number of fixed teeth, and by the insertion of the caudal end of the transverse [ectopterygoid] bone into the pterygoid. In other words, the Palearctic and Nearctic species undoubtedly exhibit close relationships to one another within the genus Ancistrodon.

A completely different situation exists in the skull of A. rhodostoma -- the species which is rather common in the southeastern part of outer Palearctic Asia, is widespread on the peninsulas of Indo-China and Malacca and is also on the Greater Sunda Islands. Even with a superficial glance at the skull of this species, it is easy to observe the very broad intra-orbital space, formed by the frontal bones; also, there is a significantly greater breadth of skull in the parietal region, that makes the general appearance of the skull from above similar to that of some other genera of rattlesnakes, for example Crotalus and Sistrurus.

One of the peculiarities of the skull of this species, sharply differentiating it from other skulls at my disposal, is the presence of a high nail-like crest, passing along the suture between the para- and basisphenoids. The greatest height of this crest is equal to the width of the parasphenoid. The strong development of such a bony crest on the lower surface of the para- and basisphenoids indicates significant development of muscle, passing along both its sides.

Even the palatine bone, which by its form has little in common with the same bone of other species of Ancistrodon, deserves to be noted. It has not yet been mentioned that it carries no more than one tooth (the skulls of other species examined by me have no less than three -- figure a). The bone has a very distinctive form owing to the presence on it of a long, gradually tapering bony appendage, directed upward and forward (figure b). This structure on the palatine bone of this species was first noted by Peters (1862), who put rhodostoma into the genus Tisiphone, which had been established by Fitzinger (1826) for a single species of American snake. Peters included a number of other generic synonyms. Among other craniological characters, which prevent placing this species in the genus Ancistrodon, there should be pointed out the structure of the transverse bone, the expanding caudal end of which is almost perpendicular to its anterior, elongated lever-like end, resting against the upper maxillary bone. Furthermore, it is necessary to note the absence on the lower surface of the prefrontal bone of any noticeable opening, through which might pass blood vessels and nerves, and larger or smaller slit-like openings for the passage of an optic nerve. I might cite here other characteristics, less important, which I consider testify to the fact [p. 792] that this species is included in the genus Ancistrodon completely artificially; according to the structure of its skull, it is very remote from the genus Ancistrodon, and so it must be put into another genus. According to the rules of international zoological nomenclature, it must be called Calloselasma, since in the year 1860 Cope proposed this name in place of the name Leirolepis, already used for the genus of lizards. I will mention that Cope considered Calloselasma as a subgenus of the genus Trigonocephalus, since it was based only on the absence of keels on the scales in this species.

The possibility is not excluded that other southern Asian species, now in the genus Ancistrodon, will also be excluded from it after examination of their cranial osteology, and will prove to be related to Calloselasma.