

## SPECIAL ARTICLES

NOTES ON A LITTLE-KNOWN SPECIES OF SNAKE,  
*CHIONACTIS OCCIPITALIS*

Two specimens of a very rare and peculiar little snake, *Chionactis occipitalis* (Hallowell) were recently presented to the zoological department of Stanford University. The species is restricted in its distribution to parts of the Mojave and Colorado deserts. Only a few specimens have fallen into the hands of herpetologists and they appear to have been imperfectly preserved and hence not very well described.

One of the specimens was secured by Mr. F. L. Weed at Calexico, California, February 20, from about a foot beneath the surface in a sand dune. Mr. Weed states that the species occurs in the Imperial Valley wherever there are dunes not far from water, but that specimens are only occasionally seen. The other example was received January 21 from an unknown source. The Calexico specimen was in a solution of formalin and somewhat faded. The other had been dead but a short time, the brilliant and striking life colors being perfectly preserved. The scales of the body were smooth and glistened with a soft polish like fine lacquer. The body was rich creamy white in color, the dorsal surface being slightly tinged with olive, and crossed by numerous bands of an intense brownish black, each space between the bands having a large, oval, transverse spot of bright reddish orange. The head was greenish blue above with a median reddish orange stripe on the edges of the internasals and prefrontals. When placed in spirits the bright colors rapidly disappeared, the yellow tint faded from the light areas and the dark bands lost much of their intensity.

The preserved specimen has a crescentric, black spot on the parietal region of the head, the horns extending forward to the eyes. The spot encroaches on the posterior part of the frontal and occupies a corner of each supracocular and the greater part of the parietal plates. There are thirty-one transverse

blackish bands on the dorsal surface of the body and a terminal spot on the tail. On the ventral surface beneath the tenth band from the head is a black spot, following which in regular succession are similar ones which gradually grow broader until they connect with the dorsal bands forming complete annuli. Posteriorly, fourteen bands completely encircle the body, all being more or less constricted laterally. On the dorsal surface the bands average somewhat broader than the space occupied by two scales; ventrally they cover from two to three and one-half gastrosteges, often being very irregular in outline or somewhat broken up into separate blotches. The oval, reddish orange spots, so characteristic of the living example, fade in the preservative to deep rose, then pale pink, and at last completely disappear. They are separated on both sides from the black bands by a space equal to the width of one scale, and they extend ventrally to within two scales of the gastrosteges. The Calexico specimen was apparently of the same general color in life. The black areas are less restricted on the body, the fifth band from the head forming a complete annulus. There are but twenty-nine spots and bands on the body, the tip of the tail being white. The color notes published by different authors<sup>1</sup> were evidently based on the evanescent hues of preserved material.

In superficial anatomical characters the two specimens agree very closely. They measure 372 mm. in length, including the tail, which is 59 mm. They are rather stocky, cylindrical in shape and very muscular. The head is about as large around as the anterior part of the body, the neck not being perceptibly constricted. The snout is somewhat spatulate, broad when viewed from above, pointed when seen from the side. The rostral plate is very large, twice as wide as high, projecting 1.5 mm. beyond the anterior part of the symphyseal.

<sup>1</sup>Cope, *Proceedings U. S. National Museum*, 1891, p. 605; Boulenger, "Catalogue Snakes British Museum," II., 1894, p. 266; Brown, *Proceedings Academy Sciences Philadelphia*, 1901, p. 68.

It is narrowly concave beneath and broadly convex above. The upper, posterior edge recurves between the internasals, imparting to the latter well-rounded anterior median borders. The internasals are bounded laterally by the nasals and posteriorly by the prefrontals. The frontal is hexagonal, somewhat longer than wide; the anterior angle obtuse, the posterior acute. It lies directly between the orbits, is bounded anteriorly by the prefrontals, laterally by the supraocular and posteriorly by the parietals. Each prefrontal touches the preocular, loreal and nasal ventrally. The supraocular is about twice as long as wide and makes a broad contact with the preocular and postocular. The parietal plates are longer than wide, the length being considerably more than that of the frontal. The nasal is single, pierced a little above the center. It is in contact with the rostral and loreal. The loreal is elongate, wedge-shaped, and in contact with the first and second supralabials. There are two postoculars, the upper twice as large as the lower. Temporals, one to two. Supralabials, seven on either side, the third and fourth of which are beneath the eye; fourth longest, the last which closely resembles the scales behind it, smallest. Of the seven infralabials the fourth is the largest. The first meets the corresponding one of the opposite side behind the symphyseal. The symphyseal is acutely pointed anteriorly, the tip fitting a corresponding concavity in the rostral. The anterior genials are broad and somewhat more than twice as long as the posterior ones. The gular scales are well developed, the dorsal scales smooth, in fifteen rows, smallest near the middle of the back. The gastrosteges number 174, the urosteges 44. The anal plate is divided. The pupil is large and round. The tongue is black, tipped with white.

The rarity of specimens of this snake in collections is apparently due both to its restricted distribution and to its habit of burrowing in the desert sands. Little is known of its food or its general habits. Although probably not nocturnal, it may spend most of its time hidden from sight, much as do the

similar little snakes *Contia mitis* and *Diadophis amabilis*.

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#### A NEW VARIETY OF THE SUNFLOWER

THE northern sunflower (*Helianthus annuus lenticularis* or *H. lenticularis* Dougl.) is exceedingly abundant in Colorado and New Mexico, where I have seen many thousands, possibly millions. In all these, I have never seen a noteworthy variation in the color of the rays, until a few days ago my wife discovered a single plant of a most remarkable variety, growing along with the common form, within sight of our house in Boulder. This variety, for which I propose the name *coronatus*, may be described as follows: Leaves much darker green; petioles strongly purplish; heads in bud dark, the ends of the bracts dark purplish; disc dark, normal; rays a full orange (darker than the type), strongly suffused, especially about the middle, with bright chestnut red, the color more or less streaky, the basal 3 or 4 mm. yellow; beneath, the rays have the middle third or more of about the apical two-thirds red.

We have moved the plant to our garden, and hope to increase it by seed. It will make a fine addition to the series of horticultural sunflower varieties, and it is hoped an interesting subject for experiments in crossing. According to Shull<sup>1</sup> the sunflowers are self-sterile, so it will be necessary to cross the new variety with the normal one and afterwards extract the pure strain of the variety.

In the manner of discovery, this case recalls that of the Shirley poppy, but the poppy had lost a character, while the sunflower has gained one, or more precisely, appears to have a double dose of the anthocyan pigment which is present in normal plants. It will be interesting to enquire whether there is any doubling of the chromosomes, after the manner of *Oenothera gigas*, but it hardly seems likely that any cytological character will be visible, accompanying the increase of pigment.

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<sup>1</sup> *Botanical Gazette*, February, 1908, p. 104.