

Correspondence

A Supposed Meteor.

To the Editor of the Scientific American:

On the evening of the 6th, while engaged in "sweeping" the vicinity of Ursa Minor for double stars, my attention was drawn to a bright object about the size of a star of the second magnitude moving slowly from west to east. It passed within a degree of Polaris and continued steadily in its course eastward, disappearing from view in the neighborhood of Capricornus. In color this object, a meteor doubtless, was deep red, without scintillations or train of any kind, and its slow movement was in marked contrast with the rapid flashing of the common "shooting star." It was visible to me fully three-fourths of a minute, varying but slightly in brightness during that time. In the closeness of my attention to its movement I neglected to note the time of its appearance, but judge it to have been near half past ten. Perhaps there were others of your readers who observed the phenomenon, and can add more specifically to my testimony.

N. S. DRAYTON.

Jersey City Heights, July 8, 1882.

Notes on the Habits of Some Western Snakes.

BY H. A. BRONS.

While connected with the Geological Survey of the Western States, I had the opportunity to note some peculiar, and as far as I am aware, unreported habits of some of the snakes.

Several of the summers I passed upon the plains were preceded by rainy springs, swelling to unusual height the small streams, which became inhabited by small fishes. During the drought of hot summers, the receding waters left the fishes in shallow pools within creek beds, an easy prey to their numerous enemies.

The mid-day heat caused numbers of snakes to seek shelter from the sun, and the garter snake (*Eutania radix*) in particular chose water at this time. Here the fishes, unable to escape or find deep cool water, were unwilling co-tenants with the snakes. The latter are fond of fish, and would devour great numbers of the smaller ones, chasing them from one part of the shallow pool to another. When the fishes were in water too shallow to swim in, or were struggling upon the sand, they would be seized by the snakes, who would feed upon them until unable to contain more. The snakes would follow the fish through the water, diving and remaining submerged some time. I did not observe them swallow air (see *Am. Nat.*, Jan., 1880). Snakes evince more than ordinary energy and sagacity in capturing fish; half a dozen will congregate within a small pool, all acting in concert.

Mr. J. L. Wortman, who had charge of a scientific party last year, informs me that while fishing one day he caught numbers of chub (*Cyprinidae*), and, throwing them on the sand, was surprised to see that but few remained. While quietly continuing to replace those so singularly missing, he observed a garter snake seize and swallow one of the fish six inches in length. There were two of these snakes reaping the reward of Mr. Wortman's skill. Upon opening the snakes one was found to contain six fishes. The headwaters of the Smoky Hill and Big Horn rivers abound in this aquatic *Eutania radix*.

In Texas, while fishing with a common hook and line, baited with a small scale fish, I had the rare fortune to hook what at first seemed to be an eel, but proved a "cotton mouth" snake (*Ancistrodon piscivorus*).

One morning, on examining a line set over night I found the pole as left the previous evening, but the line drawn to shore, and my curiosity was excited as to the catch. It proved to be one of these snakes, coiled upon the bank, the bait, a small scale fish, mashed within its mouth, and the hook well caught. Upon being disturbed it at first showed fight, but took quickly to water, and was landed with the same effort as a fish or eel of equal size, i. e., about twenty-six inches in length. That season I caught three of these venomous snakes in this way while fishing with a hook and line. By Mexicans living on the banks of the San Antonio and San Miguel rivers, I was informed that it is no unusual thing to catch cotton mouths while fishing.

Running short of bait one day, I caught several large toads and tied them together by their hind legs. On nearing the water a snake started to cross the stream; having nothing else to throw at it, I gave the toads a toss in front, hoping to change its course; the snake seized quickly on the struggling mass. Toads exhibit great fear of snakes; it will afford considerable amusement to take a toy or stuffed snake skin and trail it toward one; it will make a strange cry, at the same time making vigorous jumps to escape. Frogs act in the same way, though they are not so readily captured.

Nearly all animals show unmistakable signs of fear when confronted by a snake, though many that do not prey upon them take delight in destroying them, as do the deer family, etc.

Prairie dogs (*Cynomys ludovicianus*) seem to have a most intense dread of rattlesnakes (*Crotalus confluentus*). This little animal dreads not only its venomous bite, but more the loss of its young, which serve as food for these snakes, that enter their burrows, take possession, and drive them from their homes. Where does one find a prairie dog town but that it is teeming with snakes and the strange little owl

(*Speotyto cunicularia*), that "ducks" to passers in ludicrous solemnity? These, though billeted upon the dogs, do not constitute a "happy family." The owls, though they generally occupy an abandoned hole or burrow, destroy the young dogs. Nor do the eggs and nestlings of the owls fare with any better treatment from the snakes; between these exists much enmity. One afternoon, while passing through one of these dog towns, in Wallace County, Kansas, we heard a most unusual noise and stir (in the town), as though they were holding a bellicose council. They were collected around a hill,* into which they were scraping dirt vigorously. On examining the burrow, it was found to contain a large rattlesnake that the dogs were trying to entomb. I noticed this several times, as did other members of our party. To leave no doubt upon the subject we dug out the snakes after shooting them.

The habit of swallowing whole eggs is too well known to merit more than mention. But few persons realize the mischief snakes work in destroying the nests and young of our valuable birds. It is not an unusual occurrence to find whip (*Bascanium flagelliforme*), racer (*Bascanium constrictor*), and bull snakes (*Ptyophis sayi*), with the entire contents of quail, prairie hen, or domestic fowl's nests within their capacious stomachs. With a little care they may be compelled to disgorge the ingesta unbroken.

During the breeding season the odor of many snakes is quite distinct and perceptible at some distance. This is markedly so in the rattlesnake (*Crotalus confluentus*), its musky and foetid emanations are quickly recognized by frontiersmen.

The manner of union of the sexes at this season is rather instructive. The female among the racers (*Bascanium*) is larger and darker than the males, and not so graceful in form or movements, she, at times, seems to toy with the male, indisposed to yield to his importunities, though pressed with ardor. To avoid his suit, at times, she will dart through grass, among stones, or enter a crevice. Should he be able to reach his mate while within a hole, he is not slow in bringing her to the surface, again to be repulsed. Upon an unbroken ground the sexual communion is less prolonged. Here she is unable to free herself from his quick and effectively directed moves. In case she attempts to quit him, a coil is thrown about her body, and his head laid flat upon her neck, and replaced as promptly as dislodged, evidently in the endeavor to propitiate her.

Of all strange habits in snakes, none equals that observed in the blowing adder (*Heterodon simus*). One afternoon returning to camp, I came upon a box turtle (*Cistudo ornata*) trailing along one of these snakes, which had a firm hold upon the turtle's left hind foot. The turtle was unable to free itself of its tormentor, as its hold was quite secure; so persistently was it maintained that I lifted the turtle by grasping the body of the snake. Considerable force was required to separate them. The snake was about twenty inches long, the turtle eight inches. The foot was bleached, and blood was still flowing; none had apparently escaped from the mouth of the snake. Two toes were missing, having been digested from the foot. The entire foot appeared as though it had been subjected to a continued maceration within the mouth of the snake.

Twice afterward I noticed this strange habit of the puff adders. The late Professor Mudge mentioned to me that he had observed this habit in these snakes. I have not been able to find any signs indicating that the snake ever attaches itself to a fore foot. It seems as though they chose a foot that the turtle is unable to defend. The neck can not reach the hind foot as it can the front, and free it of any object that may attempt to lay hold upon it. The carapace may protect the tail.

I took pains to examine many box turtles (*Cistudo ornata*) that occur along the Smoky Hill rivers, and many, one can safely say one-half, are deformed in their hind feet. Very little deformity is found in the front feet. It must not be taken that all, or even a majority of these deformities, are caused by adders. It is not on account of want of food, for there is never a lack of the insects here upon which the snakes generally subsist. It is not thirst, as the habit is practiced where there is water. The appearance of the foot, and the inability of the snake to masticate, would preclude any solution other than the desire to obtain blood as it flows from the lacerated parts.—*Amer. Naturalist*.

NATURAL HISTORY NOTES.

Filaria of the Black Bass.—At a meeting of the Philadelphia Academy of Natural Sciences recently (Proceed., p. 69), Prof. Leidy stated that he had been told that the black bass, *Micropterus nigricans*, in some localities, is much infested with a red threadworm. One procured in market for his table was found to be greatly infected. The worms were coiled in oval masses from the size of a pea to that of a large bean, and were situated beneath the skin, in the muscles, and under the membrane lining the abdomen. The worm is cylindrical, slightly narrowed, and obtusely rounded at both ends, minutely annulate, and otherwise smooth, pale red, bright red or brownish red, translucent, with the darker red or brownish intestine, and the white œsophagus shining through; mouth a small pore, unarmed; œsophagus long, capacious, cylindrical, straight or somewhat tortuous. Length from three to six inches, by half a line in diameter. The worm appears to be a *filaria*, but the determination of the species was left for more extended observation.

* The prairie dogs throw up a bank levee about the mouth of their burrows.

An Ancient White Pine.—The *Gardener's Monthly* states that a tree of remarkable dimensions was recently felled at Crystal Spring, Yates County, N. Y. The tree was perfectly sound and vigorous, thirteen feet in circumference at the ground, and nearly two hundred feet in height. The rings or annual layers in its stump indicate an age of three hundred and fifteen years, and it is estimated that four thousand feet of lumber will be cut from its trunk.

The Apteryx.—That curious bird, the apteryx, is still to be found in New Zealand, but it is probable that before many years it will, like the gigantic diornis of the same country, have entirely disappeared. It is poorly armed for self-defense, and the only thing that prevents its entire extermination is its retired and nocturnal mode of life. The number of these birds has diminished very rapidly since the colonization of the island, and from year to year it becomes more and more difficult to secure a specimen. Dogs and cats are their worst enemies, for they can not only discover them by their odor, but pursue them into retreats inaccessible to man. If we add to this constant destruction the fact that they reproduce their species at long intervals, and lay but a single egg, it may be readily seen that the entire disappearance of the bird is a question of comparatively few years. The egg of the apteryx is a genuine curiosity; and, when its size is considered, there is no wonder that this bird does not lay more than one. The egg is deposited in a burrow so difficult to discover that, in a journey of a thousand miles across New Zealand, Prof. Ward, of Rochester, was able to procure but two specimens. The natives tell a host of stories about this egg. Thus, they assert, for example, that the bird buries its egg to a certain depth in the ground and then makes a burrow under it so that she can enter the latter and let the egg rest on her back. This is a fable, however, for Prof. Ward observed the birds sitting on their egg just as others of their race do. The place of the apteryx in a system of classification is far from being determined in a satisfactory manner. It is usual to place it alongside the ostrich and cassowary, in the order of *cursor*es or runners, because it is deprived of the faculty of flying. Prof. Ward seems to take this view of the case.

Chlorophyll-containing Animals.—As well known, there are certain animals, such as some infusoria, certain hydras, and a few worms of the group of Planarians, that contain chlorophyll in grains.

Mr. Brandt (*Botan. Zeitung*, 1882, No. 15) has just published some curious researches on this subject, which, if their results are verified, will prove of considerable importance. According to him, these so-called granules of chlorophyll are algae parasitic on the animals in question, and, in some cases, he states, he has been enabled to isolate and cultivate them. Generalizing the facts observed, he concludes that we have here a curious association of an animal with a plant. The green alga is a parasite of worm, hydra, or infusoria; but from another point of view, the converse is true, since, under the action of light, the chlorophyll organisms assimilate the carbon of the carbonic acid and furnish it to the animals in which they are established. Mr. Brandt compares the animal thus provided with these sorts of *gonidia* to a lichen in which the fungus has been replaced by an animal. Mr. Brandt's conclusion is very clear; from a morphological point of view, these so-called chlorophyll granules are algae; and from a physiological point of view, they are parasites of the animals.

Longevity of Ants.—Sir John Lubbock says, in the *Journal* of the Linnæan Society:

In my previous paper I have called attention to the considerable age attained by my ants; and I may perhaps be permitted to repeat here, *mutatis mutandis*, a paragraph from my last communication with reference to my most aged specimens, most of those mentioned last year being still alive. One of my nests of *Formica fusca* was brought from the woods in December, 1874. It then contained two queens, both of which are now still alive. I am disposed to think that some of the workers now in the nest were among those originally captured, the mortality after the first few weeks having been but small. This, of course, I cannot prove. The queens, however, are certainly more than seven, and probably more than eight years old. In the following nests, viz., another nest of *F. fusca*, which I brought in on the 6th June, 1875, and one of *Lasius niger*, on the 30th November, 1875, there were no queens; and, as already mentioned, no workers have been produced. Those now living are therefore the original ones, and they must be between six and seven years old.

I had also some workers of *Lasius niger*, which I began to observe on the 6th July, 1875; the last of these died on June 15, 1881; and some of *Formica cinerea* on the 29th November, 1875; the ants in this nest died off somewhat rapidly, the last on July 23, 1881. There were no queens in either of these nests.

Eight Preachers Once.

Eight clergymen preached simultaneously in the Eastern Penitentiary, Philadelphia, on a recent Sunday, to invisible audiences. This prison is conducted on the principle of solitary confinement. Each prisoner has his own lonely cell. These cells open on eight corridors, radiating from an octagonal center. The preachers stood at the outer ends of the corridors, and could be heard by the occupants of the cells in their several sections. A group of officials and reporters in the middle of the prison experienced the novel sensation of listening to eight sermons at once.