NATURAL HISTORY.

Notes on the Rattlesnake. By JOHN JAMES AUDUBON, F.R.S.E., M.W.S., &c.*

THE power of fascination gratuitously ascribed to most snakes by theoretical naturalists, has so long riveted the attention of all persons inclined to think on the subject, but without the means of judging for themselves, that the following fruits of many years' observation, in countries where snakes abound, will not, I hope, though adverse to the supposed power of fascinating, be looked upon as destitute of interest.

Rattlesnakes in particular appear to have acquired their chief fame from this supposed charm. I shall, therefore, draw your attention more directly to the habits of that species, and begin by enumerating the many real and extraordinary faculties bestowed upon it. These consist in swiftness; in powers of extension and diminution of almost all their parts; in quickness of sight; in being amphibious; in possessing that wonderful and extraordinary benefit of torpidity during winter, and long-continued abstinence at other periods, without, however, in the mean time losing the venomous faculty, the principal means of their defence. I shall proceed to elucidate, by well-authenticated examples, all those different faculties.

Rattlesnakes hunt and secure for their prey, with ease, gray squirrels that abound in our woods; therefore they must be possessed of swiftness to obtain them. Having enjoyed the pleasure of beholding such a chase in full view in the year 1821, I shall detail its circumstances. Whilst lying on the ground to watch the habits of a bird which was new to me, previous to shooting it, I heard a smart rustling not far from me, and turning my head that way, saw, at the same moment, a gray squirrel full grown, issuing from the thicket, and bouncing off in a straight direction, in leaps of several feet at a time; and not more than twenty feet behind, a rattlesnake of ordinary size pursuing, drawn apparently out to its full length, and sliding over the ground so rapidly, that, as they both moved away from me, I was at no loss to observe the snake gain upon the squirrel. The squirrel made for a tree, and ascended to its topmost branches as nimbly as squirrels are known to do. The snake performed the same task considerably more slowly, yet so fast, that the squirrel never raised its tail, nor barked, but eyed the enemy attentively as he mounted and approached. When within a few yards, the squirrel leaped to another branch, and the snake followed by stretching out full two-thirds of its body, whilst the remainder held it securely from falling. Passing thus from branch to branch with a rapidity that astonished me, the squirrel went in and out of several holes, but remained in none, knowing well that, wherever its head could enter, the body of his antagonist would follow; and, at last, much exhausted and terrified, took a desperate leap, and came to the earth with legs and tail

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spread to their utmost to ease the fall. That instant the snake dropped also, and was within a few yards of the squirrel before it had begun making off. The chase on land again took place, and ere the squirrel could reach another tree, the snake had seized it by the back, near the occiput, and soon rolled itself about it in such a way that, although I heard the cries of the victim, I scarcely saw any portion of its body. So full of its ultimate object was the snake, that it paid no attention to me, and I approached it to see in what manner it would dispose of its prey. A few minutes elapsed, when I saw the reptile loosening gradually and opening its folded coils, until the squirrel was left entirely disengaged, having been killed by suffocation. The snake then raised a few inches of its body from the ground, and passed its head over the dead animal in various ways to assure itself that life had departed; it then took the end of the squirrel's tail, swallowed it gradually, bringing first one, and then the other of the hind legs parallel with it, and sucked with difficulty, and for some time, at them and the rump of the animal, until its jaws became so expanded, that after this, it swallowed the whole remaining parts with apparent ease.

This mass of food was removed several inches from the head in the stomach of the snake, and gave it the appearance of a rouleau of money brought from both ends of a purse towards its centre; for, immediately after the operation of swallowing was completed, the jaws and neck resumed their former appearance. The snake then attempted to move off, but this was next to impossible; when having cut a twig, I went up to it, and tapped it on the head, which it raised, as well as its tail, and began for the first time to rattle. I was satisfied that for some lapse of time it could not remove far, and that the woods being here rather thin, it would soon become the victim of a vulture. I then killed it, and cut it open to see how the squirrel lay within. I had remarked, that after the process of swallowing was completed, singular movements of the whole body had taken place,—a kind of going to and fro for a while, not unlike the convulsive motion of a sick animal, as a dog, for instance, about to vomit. I concluded that some internal and necessary operation was going on. This was proved when I found the squirrel lying perfectly smooth, even as to its hair, from its nose to the tip of its tail. I noted all this on the spot. This over, I sought my game again, and felt a great satisfaction; but having met my friend, Mr. James Perry, on whose lands in the State of Louisiana I was then hunting, and having related what had just happened, he laughingly said, "Why, my dear sir, I could have told you this long ago, it being nothing new to me." These facts, I trust, are quite sufficient to exemplify the faculties of swiftness, and the powers of extension and diminution in the rattlesnake. In regard to quickness of sight,—I have several times discovered a snake to be near me from a sudden and brisk rustling amongst the dead leaves or grass, as a vulture or forked-tail falcon was passing over the place in search of food, and by close investigation discovered that some snake had made away to hide under a log, root, or stone, from its winged enemy; for, after being satisfied that

the noise thus heard was produced by snakes labouring to escape through fear, I have remained snug and silent, and have seen them issue from their covert when the vulture had gone by. But, further, I have frequently seen them move their heads sideways, looking up to the trees, and discovered that they were then in search of birds' nests; and so watchful of the parent's motions, that, as if afraid to suffer by the encounter with a bird of size and power, they made choice of the time when both parents were absent, to ascend and rob them either of the young or the eggs, if not fully laid and ready for incubation. Should the snake, in such attempts, be perceived by the owners of the nest, their cries of alarm and attack are heard through the woods, and so many other birds assemble and pour in from all sides, that it becomes nearly impossible for the snakes to make good their retreat. I shall merely add, that those battles and defeats are corroborated by one of our most eminent naturalists in America.

That almost all snakes can swim, and do swim well, too, and can remain under water a considerable time, is a fact sufficiently ascertained; but that, in this element, they have the power of pursuing fish, and of catching either them or frogs, is a fact which, though equally true, is not so well known. I shall, therefore, present to you some proofs of this from my own observation. Whilst fishing on the banks of the Schuylkill river, not very far from Philadelphia, about twenty years ago, I saw a snake issue out of the water close to me, and slide up a large stone to receive the benefit of the sun. I perceived it to be swelled about its middle, and shot it to ascertain its contents, when I discovered in the stomach a cat-fish scarcely dead; so fresh, indeed, that I made it my prize, and felt no ways alarmed at eating it when dressed. Since that time I have had opportunities to see snakes chasing bull-frogs, follow them after they had leaped into the water, and return with them in their mouths. Several other species, indeed, make the water their almost constant place of abode, one of which the Congo (*C. nigra*), an extremely venomous snake, is found in great numbers in all the lakes and watery swamps of the Southern states.

Periodical torpidity in snakes, as in almost all animals subject to it, has been wisely ordered, on account of the very slow growth granted to most of them. Snakes, as well as alligators, increase in size very slowly, and are, consequently, long-lived; but how transient, if needed, this most wonderful power granted them to live, to die (as it were,) and to live again, is, I shall try to describe by the following curious fact:—M. Augustine Bourgeat, whose name will be ever dear to me, my younger son, and myself, where hunting one winter-day for ducks, and having halted awhile near a lake, we struck up a fire. Being desirous to eat what we were pleased to call our dinner, we began picking and cleaning some of our game. The youngest of our party ran about for wood, and, anxious that a good supply should be at hand, attempted to roll a log, at a short distance, towards the spot pitched on. In doing this, my son discovered so large a rattlesnake closely coiled up, in a torpid state, that he called us to come and look at it. It was stiff as a stone, and, at my request, my son

put it into my game-bag, then upon my back, for further observation. Shortly afterwards, whilst our game was roasting upon the wooden-forks, stuck in front of our cheerful fire, I felt something moving behind me, which I thought for a moment was occasioned by the struggles of a dying duck; but presently recollecting the dangerous animal, I begged my friends to see if it was not the snake; and being assured that it was, the time employed in unstrapping and throwing off the bag with the reptile, was, I assure you, of very short duration. The snake was then quite alive, issued from the bag, and began rattling, with its head elevated, and thus ready, while the body was closely coiled, to defend itself from all attacks. The distance at which it then was from our fire, and the consequent cold, would, I thought, soon conquer it: and in this I was not mistaken; for, before our ducks were roasted, the snake had stopped its alarm, and was bent on finding a place of refuge, again to become torpid. Having finished our meal, my son, who had watched all its movements with the eagerness of youth, brought it again, with a smile, saying, "Papa, look at Hercules and the serpent!" We took it home, and it became torpid, or revived, at our pleasure, as often as we removed or brought it near the fire; until having put it in a jar of spirits, it travelled to the Lyceum of New York.—That all their faculties become dormant, and remain virtually dead during torpidity, I have ascertained, by finding snakes with great quantities of food in the stomach, frozen and undigested, although it had been there for several weeks; when, if the snake was removed to a warm situation, the operation of digestion was daily perceptible, and the whole food in a short time consumed.

Rattlesnakes have the power of laying down their fangs along their jaw-bones when at rest, and of raising them again at will; as sharks also do, and some other fishes. It is only when inflicting a *defensive* wound that their fangs are used. At this time, the snake, either coiled, or in any other position, has the power of darting about two-thirds of its body towards its object, and, with its mouth open to its utmost stretch, all its fangs being erect, it strikes so violent a blow whilst it bites, that I have been assured, by some Osage chiefs, that on such occasions, they felt, when struck, as if about being thrown off their centre of gravity. The fangs make their way into flesh, or indeed, tough leather, with perfect ease, and instantaneously. The wound is generally mortal, if proper remedies be not at once resorted to. Among the *native Americans*, cutting out the wounded part, and searing, or, as it is termed in the country, *scaring* it with fire, is considered the most effectual,—but even this requires great promptitude to afford a chance of safety. The quantity of venom infused is more or less, as the animal may have been more or less irritated. If made to bite themselves, their own flesh affords no antidote, for they die in excruciating torments. The venom of a rattlesnake, while the animal is striking against any object, will be sometimes ejected to a considerable distance. I have seen one confined in a wire-cage, when much enraged, strike against the bars so furiously, that the poison was sent several feet towards me.

I have been told by native Americans, that arrows dipt in rattlesnake venom, would carry death for ages after.

Some European writers of great eminence have asserted, that rattlesnakes are destroyed by hogs in such quantities that the introduction of the latter into any country would soon clear it of the former. In the United States, where hogs are very numerous, I never witnessed any one attempt to kill a rattlesnake, and have, on the contrary, remarked that hogs were shy of these reptiles; but if this were not the case, the ease with which rattlesnakes can either make their escape, or defend themselves, is such, that the hog would, in preference, I think, avoid the danger, and without risk, feed on congenial food, which is ever under his nose, and in great abundance throughout all our woods, unless, indeed, the hog were endowed with the power of fascination, a thing not yet communicated by those writers. But why, I would ask those closet naturalists, do not the rattlesnakes fascinate their opponents the hogs as well as birds?

The flesh of rattlesnakes was considered a dainty by the Spaniards, whilst in possession of Louisiana. Mr. James Perry, a principal alcaide in the parish of St. Francis at that period, has assured me, that the officers garrisoned on the heights of Fort Adam, were in the habit of giving premiums to the soldiers and Indians who brought them the largest and fattest. The head being cut off, the snake was suspended, so as to become entirely drained of its blood, and the flesh cooked as that of chickens, which it much resembles. Their skins were tanned, and beautiful shoes are still made with them, which retain all the variegated marks exhibited on the scales of the animal when alive.

Perhaps one of the most wonderful faculties possessed by this and many other species of snakes, is that of being able to live for years without any food whatever; and quite as remarkable, that, during the lapse of this astonishing fast, their appearance and condition scarcely exhibit their being in any want. Their movements, the power of rattling, and that of inflicting mortal wounds, are perfectly kept up. One which I confined in a cage for three years had frequently rats, young rabbits, and birds of various kinds put in, sometimes alive, and at other times dead, without their ever being touched; not even a movement would be made by the snake to approach them; while, on the contrary, the live quadrupeds and birds showed great symptoms of fear, and threw themselves violently in all directions about the cage, to effect their escape from an enemy well known to them. The operation of throwing off its skin annually was, however, abandoned, after the first spring of confinement; and, as the individual was small, and I did not consider it as arrived at its middle age, I measured its length with accuracy, and discovered, that, during the whole time of its imprisonment, it did not grow in the least. To what extent this power of abstinence is ever used, when the animal is at liberty, I am unable to tell, but I have thought, that the animal possessing it so eminently, went a great way towards proving that it had not that of fascination; as it would be very unnatural for an animal so gifted to lie and suffer, while the single glance of a magnetic

eye could bring down a bird at once from the top of any tree into its mouth.

I now and then turned the snake out of its cage, when, with great quickness, it would go about the room, looking in all directions, with a view to effect its escape. As I was armed with a long stick, it never made towards me, but if I put myself in its way, it would stop, prepare for action, and rattle until I removed, and afforded it a free passage.

Rattlesnakes are easily disabled, and afterwards killed. A single smart blow, even of a slender twig, will disjoint any part of the vertebrae, after which they lie at your mercy.

The mode of copulation used by these reptiles is so extraordinary, that I must not omit a description of it, as it is my chief purpose to record any facts regarding them that may be novel, or but little known. Early in spring, as soon as the snakes have changed the skin that contained their last year's growth, they issue brightly coloured, glistening with cleanliness, and with eyes full of life and fire. The males and females range about, in open portions of the forest, to enjoy the heat of the sun, and, as they meet, they roll and entwine their bodies together, until twenty, thirty, or more, may be seen twisted into one mass, their heads being all turned out, and in every direction, with their mouths open, hissing and rattling furiously, while, in the mean time, the secret function is performed. In this situation they remain for several days on the same spot, and the danger of approaching such a group would be very great; for, at sight of any enemy to disturb them, they all suddenly disengage, and give chase. The fact of their rattling, which tends to alarm intruders, and to warn them of their danger, is too well known to call for any observations regarding it.

To conclude: suffer me to call to your recollection a well known fact, that birds of all kinds are full of courage; that even the smaller tribes will attack, and chase before them, the larger kinds, and that those again will even defend themselves from man, and often with success. Have we not all seen the little robin chase a cat? An eagle will keep off a man from her nest, and a cock will attack even a lion. This being the case, why should they suffer their senses to sink in sleep before a reptile, when, with a few mere flaps of their wings, they can so easily escape? After this reflection, can we for a moment imagine, that the Creator has exposed the feathered race to such dangers as the power of fascination would imply? We may rest assured, that, when snakes destroy birds, or any other animals, it is by the quickness of their motion, and the acuteness of their sight, seconded by cunning and strength, but never by fascination.