

Snakes: Objects of Religion, Fear, and Myth

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Abstract

Snakes have the ability to both fascinate and frighten. Throughout history humans have had an uneasy relationship with serpents. Snakes are important in many religions including the Judeo-Christian tradition, Hinduism, Egyptian and Greek mythology, and Native American religions, among others. This prominence in so many religions may be the result of humans' fear of snakes. Snakes can easily divert attention and produce subconscious fear even in people who are not typically afraid of them. It has also been suggested that snakes helped shape the mammalian brain in regard to the amygdala and vision systems. This fear of snakes has caused many myths to be prominent even today. Snake myths in the United States include tales about hoop snakes, coachwhips, spreading adders, milk snakes, and others. These myths usually show snakes to be harmful creatures and are rarely based on their actual natural history. Human emotions and assumptions are likely the source of most myths. Although myths are perpetuated by ignorance, they can be dispelled through education. Further, fear of snakes is largely irrational and can be overcome.

Keywords: serpent worship, ophidiophobia, amygdala, hoop snake, coachwhip, spreading adder, milk snake

Snakes are animals that fascinate many people while frightening others. Good or bad, most people have strong feelings about snakes, but few people remain neutral (Gibbons and Dorcas, 2005). Snakes have been present in the religions of many cultures and today are still the cause of fear and myths. In this paper I will (1) summarize the relation between snakes and many world religions, (2) give an overview of several studies examining the fear of snakes, and (3) discuss some modern myths on snakes in the United States and discuss my thoughts about their origin.

Snakes as Objects of Religion

Snakes have played a prominent role in the religions of many cultures, both as good and evil. Some have only considered the snake as sacred while others have giving them a divine status worthy of worship. In the Judeo-Christian tradition, the most famous reference to the snake in religion is that of the serpent in the Garden of Eden. Here the snake is used as an instrument of Satan to tempt Eve to disobey God. Henry (1706) notes that the evil one is Satan who is using the snake. However, the snake has still been demonized in the minds of Jews and Christians for its part in the story (Murison, 1905).

Not every reference to the snake in the Bible sheds an evil light upon it. For instance, in the Book of Numbers, God instructed Moses to erect a statue of a snake and place it on a pole (Fig.1.). Anyone bitten by a venomous snake who comes to look upon the statue would be healed (Murison, 1905). The serpent on the pole saving people from death is seen as a

foreshadowing of the Christ who likewise died on a pole (i.e., cross) to save people from death. This comparison was made by Jesus himself according to the apostle John (Tenney, 1976). The statue itself was later destroyed by Hezekiah due to the Jews burning incense to it as recorded in 2 Kings 18 (Wake, 1873; Murison, 1905). It is interesting to note that the word ‘seraph’ is used to describe the serpents in Numbers 3 and this is the same name of the Heavenly beings of Isaiah 14 (Wake, 1873; Murison, 1905). Murison (1905) believes that ‘seraph’ probably refers to lightening, the “serpent of the sky”. Several other references to the snake can be found in the Bible with the snake representing wisdom, evil, and an agent of the vengeance for God (Murison, 1905; Jeffrey, 1955).



Fig. 1. Michelangelo's depiction of the brazen serpent on the ceiling of the Sistine Chapel.

Snakes are also mentioned into the Hindu religion. For example, it is commonly believed that the markings on the hood of cobras came from the god Vishnu stepping on the snake (Wake, 1873). This is obviously similar to the biblical curse handed down to the serpent in Genesis 3

(Henry, 1706). Snakes are also found in Hinduism in relation to Siva, who is sometimes called the 'King of Serpents'. Further, the legend of the Nagas, found in both Hinduism and Buddhism, refers to heavenly snakes, often with numerous heads (Wake, 1873).

The Native Americans are widely known for utilizing snakes in their religious expressions (Wake, 1873; Klauber, 1956). The most revered snake among all Native Americans was the rattlesnake. This snake was often considered a 'grandfather' and was rarely killed (Wake, 1873; Klauber, 1956) with the rare exception of ceremonial sacrifice or extreme necessity (Klauber, 1956). Large mounds were built in the shape of serpents and images of snakes were carved in wood (Wake, 1873). In extreme cases, such as the Pueblo, human sacrifices were made to the rattlesnakes (Klauber, 1956).

The ancient Egyptians and Greeks also had many representations of snakes in their religious manifestations, with some overlap between the two as well as with Hinduism (Wake, 1873). Several stories in Greek mythology contain snakes, including Perseus and Medusa (Fig. 2), Apollo and Python, and Hercules and Echidna producing a race of serpent-worshipping people through their intercourse (Wake, 1873; Jeffrey, 1955). Wake (1873) explained how these religions overlap. The Greek god Typhon was represented as a serpent and is believed to be analogous to the Egyptian god Set. The Egyptian god Aphophis and the goddess Hih were both represented with serpents. The Greek god Hermes had a staff with intertwined snakes, similar to the emblem of Siva in Hinduism, and he sometimes represented the wind and a thief. He is analogous to the Hindu gods Vritra, the cloud-thief who is also represented as a snake, and Rudra (i.e. Siva), the Father of Winds and the Master Thief.



Fig. 2. *Tête de Méduse*. Peter Paul Rubens' painting of Medusa.

Snakes are often viewed as reincarnated ancestors or the origin of humankind. This is particularly true among the people of Africa as well as in India where Hindus may refuse to kill snakes since they may be reincarnations (Wake, 1873). This also occurs among the Native Americans who refuse to kill rattlesnakes and may refer to them as 'grandfather' (Wake, 1873; Klauber, 1956). Wake (1873) describes the Aztecs and Mayans as having a serpent as their sun-god and originator of humankind (Fig. 3). Klauber (1956) disagrees, however, believing that their sun-gods are not serpents, but rather mixtures of several animals including rattlesnakes.

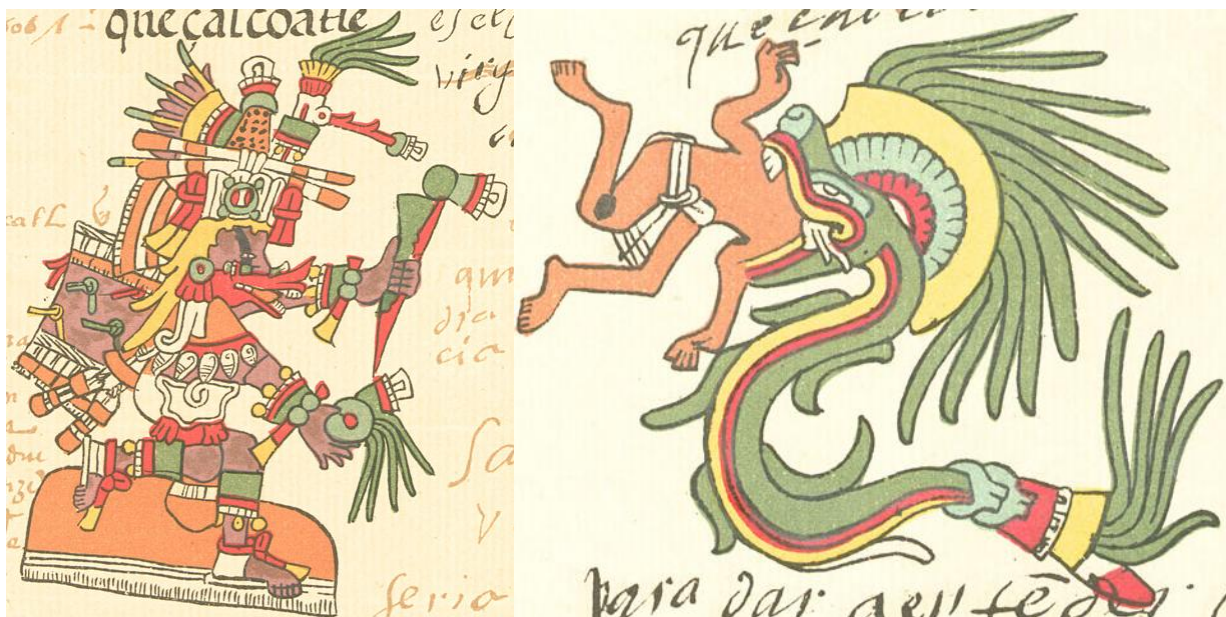


Fig. 3. Two depictions of the Aztec god, Quetzalcoatl, from the Codex Telleriano-Remensis. The right drawing shows Quetzalcoatl as a serpent eating a man.

Snakes are also associated with wind and rain in many religions. In Hinduism, Vritra, who is represented by a snake, hides away the clouds, but is killed by Indra, the giver of rain (Wake, 1873). Most Native Americans associate rattlesnakes with rain. The Cherokees believe that if a rattlesnake is killed the head must be cut off and buried immediately and the body hidden in a log, otherwise, heavy rains would come and flood the area (Klauber, 1956). The Chinese believed a serpent or dragon lived above the clouds and gave them rain (Wake, 1873).

Snakes also represent health and life. Snakes are the Agathodaemon, or the “bringer of health and good fortune”. The Agathodaemon in Egypt was represented by the Asp of Ranno and would nurse young princes (Wake, 1873). The brazen serpent of the Bible represented healing to those that looked upon it (Henry, 1706). Snakes are specifically worshipped in India on behalf of children as snakes are regarded as the guardians of life (Wake, 1873). Many Native Americans use snakes in their rituals to bring about healing (Speck, 1923). Further, the Arabic word ‘hiya’ means both serpent and life (Wake, 1873).

Wisdom is another attribute given to snakes. The Bible makes reference to snakes being wise (Jeffrey, 1955) as do other religions. In Hinduism, the god Siva represents wisdom and is associated with serpents. The Agathodaemon are also considered wise. The Greeks associated serpents with wisdom as evidenced by Apollo and Athena, both considered very wise, being associated with serpents (Wake, 1873).

Snakes as Objects of Fear

Many people are afraid of snakes. This seemingly irrational fear has prompted several studies examining the root of this fear as well as its pervasiveness. Some have suggested the fear is innate, but studies have shown that there is a learned component, though this may only be

vicariously learned (Zentall and Galef, 1988, Ohman and Mineka, 2003). Cook and Mineka (1990) found that laboratory raised rhesus monkeys learned from videos of wild rhesus monkeys to fear snakes but not flowers. This suggests that there is a component of acquired behavior, but that the behavior is not solely a learned behavior. These findings were strengthened by Ohman and Mineka (2001) who found that rhesus monkeys learned to fear potential predators, including toy predators. However, these primates did not learn to fear rabbits, which are not potential predators. These studies indicate that rhesus monkeys are predisposed to fear certain animals but not others.

Constantine et al. (2001) demonstrated that positive and negative pictorial cues affect human attention. Particularly, they observed that pictures of snakes provided the greatest amount of interference. Similarly, Ohman et al. (2001) and Blanchette (2006) found that humans could find fear-relevant objects, such as snakes, more quickly than fear-irrelevant objects, such as flowers. This indicates that threatening stimuli can more effectively capture our attention. This is consistent with the views of New et al. (2007) who suggest that in order to survive humans had to keep an eye out for other animals (i.e. predators, prey, or potential mates). LoBue and DeLoache (2008) expand upon this idea. Using a similar method as others (Ohman et al., 2001; Blanchette, 2006) the authors went further in testing for a difference between adults and children. Both groups could more readily find the fear-relevant objects (i.e. snakes) than fear-irrelevant ones. This demonstrates that the fear of snakes is at least partially innate since the children have not yet learned that fear. Further, snakes were not only compared against inanimate objects (i.e. flowers), but also against frogs and caterpillars as well. This would help determine whether skin texture or an elongated body would affect responses. In each experiment, participants were more adept at finding snakes than any of the fear-irrelevant

objects. Whereas New et al. (2007) suggested humans had to be able to find animals in general, whether predators, prey, or potential mates, LoBue and DeLoache (2008) suggest that snakes grab our attention more than other animals and it is not based on skin texture or body shape.

Some have suggested that the mammalian brain has been shaped in part by snake fear and humans therefore exhibit subconscious reactions of fear toward snakes (Ohman and Mineka, 2001; Ohman and Mineka, 2003; Ohman, 2005; Ohman, 2007; Isbell, 2006). Central to this hypothesis is the amygdala, which controls the fear response (Ohman and Mineka, 2001). Ohman (2005) explains how the amygdala generates a fear response, even subconsciously. For example, humans were exposed to pictures of snakes with and without backward masking. Those who were afraid of snakes showed a fear response in the amygdala regardless of which type of picture it was; however, those who were not afraid of snakes still showed a fear response to backward masked pictures. This strongly suggests that the fear response was subconscious since the cortex of the brain was not triggered during backward masked pictures.

Isbell (2006) proposed two evolutionary time periods when snake fear could have helped shape the mammalian brain. The first is approximately 100 million years ago, in the Middle Cretaceous. It is believed that the only predators faced by small mammals were constrictor snakes. In response to this pressure, the mammals would have evolved a specific neural circuitry to avoid being preyed upon. The second hypothesized event was approximately 60 million years ago in the early Tertiary with the rise of venomous snakes. This new pressure may have helped primates to evolve a better vision system to see the cryptic snakes. This hypothesis would account for the differences in the level of snake fear and visual systems of Old World and New World monkeys. Old World monkeys have the greatest fear of snakes and the best visual system to detect them. It is possible that this resulted from remaining in Africa with the venomous

snakes whereas New World monkeys were separated from venomous snakes for a considerable time (Ohman, 2007).

Snakes as Objects of Myth

It is quite likely that this fear of snakes has prompted many of the myths or tall-tales about snakes. Many of these myths are extremely far-fetched and are easily debunked. Given the grand scope of the topic, I will only address a few major snake myths common in the United States. All of the myths I will discuss have previously been discussed by Moore (1949) and Jeffrey (1955). However, I will offer my insights also as to how these myths may have originated.

The first common myth is the Hoop Snake myth. According to this myth the snake will roll into a hoop and roll toward a person to sting it with its tail. However, there is no snake that exhibits this behavior nor does any snake possess a stinger on its tail. It is generally believed that the hoop snake story refers to the mud snake (*Farancia abacura*). Mud snakes possess a sharp tail and may use the tail in self-defense. Further, mud snakes feed on long, eel-like salamanders. As they feed they may situate their bodies to resemble a hoop (Meade, 1946). Also, when threatened, mud snakes may curl into a spiral shape with the tail exposed, thereby protecting their head. This may give the illusion of a 'hoop' snake with a stinger on its tail. This myth may have originated by someone observing one or more of these behaviors and assuming that the snake rolls toward people to sting them with its tail. Another interesting aspect about the hoop snake story is that this myth exists even in areas where the mud snake does not occur. The mud snake may inhabit places as far west as east Texas, but no further (Conant and Collins,

1998). It is possible that the hoop snake story was carried west with settlers during the westward expansion of the United States.

The Coachwhip Snake myth is another common one. This myth claims that the coachwhip snake will chase you and whip you. Then it will slide its tail into your nose to see if you are still breathing. There is actually a snake called the coachwhip (*Masticophis flagellum*); however, it is so named because it looks like a long, braided whip (Fig. 4). It does not chase people and certainly does not whip them. This story could likely have originated due the appearance of the snake and exaggerated storytelling.



Fig. 4. A coachwhip, *Masticophis flagellum*. Photo by Kory Roberts.

Another common myth involves the Spreading Adder. According to this myth the snake mimics a cobra and blows venom. The spreading adder is more correctly called the hognose snake (*Heterodon* spp.) and it does flatten its neck when threatened (Fig. 5). This gives the

appearance of a cobra; however, it is not true mimicry since the model cobra does not even live on the same continent. Further, the hognose snake does not blow venom but rather takes in air and hisses as the air is expelled from its lungs. Coincidentally, the saliva is actually mildly venomous, though the snakes do not typically bite people (Gibbons and Dorcas, 2005). This myth probably began due to limited observations of the snake coupled with irrational assumptions.



Fig. 5. A hognose snake, *Heterodon platirhinos*. Photo by Robert Pulay.

The Milk Snake myth is quite interesting. It claims that milk snakes (*Lampropeltis triangulum*; Fig. 6.) will arrive at a barn by night to drink milk from the cows. This is certainly false and is easily explained. Barns often attract mice, which are a main food source of many snakes including milk snakes. Therefore, milk snakes may be attracted to barns because of the mice. However, if a farmer notices a milk snake around the barn on a day when milk production

is low, he may conclude that the snake drank the milk from the cow during the night. This myth seems particularly irrational and likely is the result of completely unfounded assumptions.



Fig. 6. A milk snake, *Lampropeltis triangulum*.

The final myth I will discuss does not involve a particular species but is a myth about snakes in general. It is often believed that snakes always travel in pairs. Further, if one snake is killed the other will seek out vengeance. This story is likely the result of more assumptions based on a few observations of more than one snake in a general area. However, snakes do not travel in pairs and certainly do not care about avenging the death of another snake. Snakes are

more likely to be found together due to mating during the breeding season or simply if the habitat is of high enough quality to support many snakes.

Conclusion

Snakes have figured prominently in the history of mankind and still are important at the present time. In addition to their role in various religions, snakes are able to divert humans' attention (Constantine et al., 2001; Ohman et al., 2001; Blanchette, 2007; LoBue and DeLoache, 2008) and have been implicated in the development of the mammalian brain (Ohman and Mineka, 2001; Ohman and Mineka, 2003; Ohman, 2005; Ohman, 2007; Isbell, 2006). Due to an irrational, albeit subconscious, fear of snakes many snakes are killed needlessly. This could be avoided with a little understanding and education. Fear of snakes can be overcome regardless of its innate origins (Gibbons and Dorcas, 2005). Ohman (2005) shows this with the study of backward masked pictures. Even though people who were not afraid of snakes showed a fear response in the amygdala to backward masked pictures, they did not show the fear response when the pictures were not backward masked. This illustrates that fear of snakes can be overcome. The prominence of unfounded myths in modern society illustrates how little progress has been made in this area. However, overcoming this fear will first require an attitude of caring about our environment and its inhabitants followed by education about the reality of these misunderstood reptiles.

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Literature Cited

- Blanchette, I. 2006. Snakes, spiders, guns, and syringes: how specific are evolutionary constraints on the detection of threatening stimuli? *The Quarterly Journal of Experimental Psychology* **59**:1484-1504.
- Conant, R. and J. T. Collins. 1998. *A field guide to the reptiles and amphibians of eastern and central North America*, 3rd ed., expanded. Boston, MA: Houghton Mifflin Co.
- Constantine, R., R. J. McNally, and C. D. Hornig. 2001. Snake fear and the pictorial emotional Stroop paradigm. *Cognitive Therapy and Research* **25**:757-764.
- Cook, M. and S. Mineka. 1990. Selective associations in the observational conditioning of fear in rhesus monkeys. *Journal of Experimental Psychology: Animal Behavior Processes* **16**:372-389.
- Gibbons, J. W. and M. E. Dorcas. 2005. *Snakes of the southeast*. Athens, GA: University of Georgia Press.
- Henry, M. 1706. Commentary on the whole Bible, volume I (Genesis to Deuteronomy). Christian Classics Ethereal Library. Available: www.ccel.org/ccel/henry/mhc1.html. (December 2007).
- Isbell, L. A. 2006. Snakes as agents of evolutionary change in primate brains. *Journal of Human Evolution* **51**:1-35.
- Jeffrey, L. N. 1955. Snake yarns of the west and southwest. *Western Folklore* **14**:246-258.
- Klauber, L. M. 1956. *Rattlesnakes: their habits, life histories, and influence on mankind*, volume II. Berkeley, CA: University of California Press.
- LoBue, V. and J. S. DeLoache. 2008. Detecting the snake in the grass: attention to fear-relevant stimuli by adults and young children. *Psychological Science* 19:in press.

- Meade, G. P. 1946. The natural history of the mud snake. *The Scientific Monthly* **63**:21-29.
- Moore, C. B. 1949. America's mythical snakes. *The Scientific Monthly* **68**:52-58.
- Murison, R. G. 1905. The serpent in the Old Testament. *The American Journal of Semitic Languages and Literatures* **21**:115-130.
- New, J., L. Cosmides, and J. Tooby. 2007. Category-specific attention for animals reflects ancestral priorities, not expertise. *Proceedings of the National Academy of Sciences* **104**:16598-16603.
- Ohman, A. 2005. The role of the amygdala in human fear: automatic detection of threat. *Psychoneuroendocrinology* **30**:953-958.
- Ohman, A. 2007. Has evolution primed humans to "beware the beast"? *Proceedings of the National Academy of Sciences* **104**:16396-16397.
- Ohman, A., A. Flykt, and F. Esteves. 2001. Emotion drives attention: detecting the snake in the grass. *Journal of Experimental Psychology: General* **130**:466-478.
- Ohman, A. and S. Mineka. 2001. Fears, phobias, and preparedness: toward an evolved module of fear and learning. *Psychological Review* **108**:483-522.
- Ohman, A. and S. Mineka. 2003. The malicious serpent: snakes as a prototypical stimulus for an evolved module of fear. *Current Directions in Psychological Science* **12**:5-9.
- Speck, F. G. 1923. Reptile lore of the northern Indians. *The Journal of American Folklore* **36**:273-280.
- Tenny, M. C. 1976. *John: the gospel of belief: an analytic study of the text*. Grand Rapids, MI: William B. Eerdmans Publishing Co.
- Wake, C. S. 1873. The origin of serpent-worship. *The Journal of the Anthropological Institute of Great Britain and Ireland* **2**:373-390.

Zentall, T. R. and B. G. Galef, Jr., editors. 1988. *Social learning: psychological and biological perspectives*. Hillsdale, NJ: Lawrence Erlbaum Associates.