



HISTORICAL PERSPECTIVE

 Rattlesnake Bites¹

Randolph B. Marcy, Captain, U.S. Army

Upon the southern routes to California rattlesnakes are often met with, but it is seldom that any person is bitten by them; yet this is a possible contingency, and it can never be amiss to have an antidote at hand.

Hartshorn² applied externally to the wound, and drunk in small quantities diluted with water whenever the patient becomes faint or exhausted from the effects of the poison, is one of the most common remedies.

In the absence of all medicines, a string or ligature should at once be bound firmly above the puncture, then scarify deeply with a knife, suck out the poison, and spit out the saliva.

Andersson, in his book on Southwestern Africa³, says: “In the Cape Colony the Dutch farmers resort to a cruel but apparently effective plan to counteract the bad effects of a serpent’s bite. An incision having been made in the breast of a living fowl, the bitten part is applied to the wound. If the poison is very deadly, the bird soon evinces symptoms of distress, becomes drowsy, droops its head, and dies. It is replaced by a second, a third, and more if requisite. When, however, the bird no longer exhibits any of the signs just mentioned, the patient is considered out of danger. A frog similarly applied is supposed to be equally efficacious.”

Haunberg, in his Travels in South Africa⁴, mentions an antidote against the bite of serpents. He says: “The blood of a turtle was much cried up, which, on account of this extraor-

dinary virtue, the inhabitants dry in the form of small scales or membranes, and carry about them when they travel in this country, which swarms with this most noxious vermin. Whenever any one is wounded by a serpent, he takes a couple of pinches of the dried blood internally, and applies a little of it to the wound.”

I was present upon one occasion when an Indian child was struck in the fore finger by a large rattlesnake. His mother, who was near at the time, seized him in her arms, and, placing the wounded finger in her mouth, sucked the poison from the puncture for some minutes, repeatedly spitting out the saliva; after which she chewed and mashed some plantain leaves and applied to the wound. Over this she sprinkled some finely-powdered tobacco, and wrapped the finger up in a rag. I did not observe that the child suffered afterward the least pain or

¹ An excerpt (pp. 126–131) from Randolph B. Marcy’s 1859 guide: *The Prairie Traveler. A Hand-book for Overland Expeditions. with Maps, Illustrations, and Itineraries of the Principal Routes between the Mississippi and the Pacific*, published by authority of the War Department by Harper & Brothers, Publishers, New York. Reprinted by Applewood Books, Bedford, Massachusetts in 1993 and as *The Prairie Traveler: The 1859 Handbook for Westbound Pioneers* by Dover Publications, Mineola, New York in 2006. All original spelling is retained.

² An aqueous solution of ammonia at that time manufactured from the hooves and antlers of deer or hooves and horns of some other animals.

³ Andersson, Charles John. 1856. *Lake Ngami; or, Explorations and Discoveries, during Four Years’ Wanderings in the Wilds of South Western Africa*. 2nd ed. Hurst and Blacket, Publishers, London.

⁴ We were unable to find to find the source of this quote.

Anyone reading this article should be glad that they were not bitten by a venomous snake in the mid-19th Century. That anyone survived a bite, much less the recommended treatments, probably is attributable more to the frequency of “dry bites” (during which no venom is injected), the relatively low quantities of venom injected in many other instances, and the number of bites by misidentified non-venomous snakes. Under NO circumstances should any of the treatments cited by Marcy be implemented. Not only could they delay proper treatment, but many are also dangerous in and of themselves.

Although the best solution for snakebite is prevention (not handling dangerous species and remaining aware at all times when in areas where venomous snakes are known to occur), venomous snakebites can be deadly and should be treated as quickly as possible by qualified medical personnel. The best first aid remains a set of car keys and a prompt trip to the nearest hospital. In the age of cell-phones, access to medical aid can be more rapid than ever — even from relatively remote locations. Additional reliable information is available at: www.nlm.nih.gov/medlineplus/ency/article/000031.htm.



Western Diamondback Rattlesnakes (*Crotalus atrox*) are the most abundant venomous snakes in the American Southwest and undoubtedly were the most frequently encountered by early pioneers along the Santa Fe Trail. Photograph by Don S. Sias.



Prairie Rattlesnakes (*Crotalus viridis*) are locally common across the Great Plains. Along some routes, these snakes might have been encountered by travelers along the trails heading west. Photograph by Don S. Sias.

inconvenience. The immediate application of the remedies probably saved his life.

Irritation from the bite of gnats and mosquitoes, etc., may be relieved by chewing the plantain, and rubbing the spittle on the bite.

I knew of another instance near Fort Towson, in Northern Texas, where a small child was left upon the earthen floor of a cabin while its mother was washing at a spring near by. She heard a cry of distress, and, on going to the cabin, what was her horror on seeing a rattlesnake coiled around the child's arm, and striking it repeatedly with its fangs. After killing the snake, she hurried to her nearest neighbor, procured a bottle of brandy, and returned as soon as possible; but the poison had already so operated upon the arm that it was as black as a negro's. She poured down the child's throat a huge draught of the liquor, which soon took effect, making it very drunk, and stopped the action of the poison. Although the child was relieved, it remained sick for a long time, but ultimately recovered.

A man was struck in the leg by a very large rattlesnake near Fort Belknap, Texas, in 1853. No other remedy being at hand, a small piece of indigo was pulverized, made into a

poultice with water, and applied to the puncture. It seemed to draw out the poison, turning the indigo white, after which it was removed and another poultice applied. These applications were repeated until the indigo ceased to change its color. The man was then carried to the hospital at Fort Belknap, and soon recovered, and the surgeon of the post pronounced it a very satisfactory cure.

A Chickasaw woman, who was bitten upon the foot near Fort Washita by a ground rattlesnake (a very venomous species), drank a bottle of whiskey and applied the indigo poultice, and when I saw her, three days afterward, she was recovering, but the flesh around the wound sloughed away.

A Delaware remedy, which is said to be efficacious, is to burn powder upon the wound, but I have never known it to be tried excepting upon a horse. In this case it was successful, or, at all events, the animal recovered.

Of all the remedies known to me, I should decidedly prefer ardent spirits. It is considered a sovereign antidote among our Western frontier settlers, and I would make use of it with great confidence. It must be taken until the patient becomes very much intoxicated, and this requires a large quantity, as the action of the poison seems to counteract its effects.



The reference by Marcy to a "ground rattlesnake (a very venomous species)" is almost certainly to a Western Massasauga (*Sistrurus catenatus tergeminus*) or the Desert Massasauga (*S. c. edwardsii*, illustrated), snakes that might have been encountered while crossing the southern plains to Santa Fe or California. Today, "ground rattler" is a local name most frequently applied to Pigmy Rattlesnakes (*S. miliarius*), which occur primarily in the southeastern U.S. but range as far west as eastern Texas and Oklahoma. Photograph by Don S. Sias.



Mohave Rattlesnakes (*Crotalus scutulatus*) are less abundant than Western Diamondback or Prairie rattlesnakes, but are potentially more dangerous because their venom contains a large neurotoxic component that might initially lead to assumptions that a bite is dry when not immediately painful. Photograph by Don S. Sias.



Bullsnakes (*Pituophis catenifer sayi*) are inhabitants of the Great Plains, where their patterned bodies and aggressive defensive behavior (rearing, hissing loudly, and striking) cause them to be mistaken for rattlesnakes and killed. Even if recognized as a different type of snake, many travelers in the region might erroneously conclude from their behavior that they are dangerous, and kill them for that reason. Photograph by Don S. Sias.

Should the fangs of the snake penetrate deep enough to reach an artery, it is probable that the person would die in a short time. I imagine, however, that this does not often occur.

The following remedial measures for the treatment of the bites of poisonous reptiles are recommended by Dr. Philip Weston in the London Lancet for July, 1859⁵:

1. The application of a ligature round the limb close to the wound, between it and the heart, to arrest the return of venous blood.

2. Excision of the bitten parts, or free incision through the wounds made by the poison-teeth, subsequently encouraging the bleeding by warm solutions to favor the escape of the poison from the circulation.

3. Cauterization widely round the limb of the bite with a strong solution of nitrate of silver, one drachm to the ounce, to prevent the introduction of the poison into the system by the lymphatics.

4. As soon as indications of the absorption of the poison into the circulation begin to manifest themselves, the internal administration of ammonia in aerated or soda-water every

quarter of an hour, to support the nervous energy and allay the distressing thirst.

“But,” he continues, “there is yet wanting some remedy that shall rapidly counteract the poison introduced into the blood, and assist in expelling it from the system. The well-authenticated accounts of the success attending the internal use of arsenic in injuries arising from the bites of venomous reptiles in the East and West Indies, and also in Africa, and the well-known properties of this medicine as a powerful tonic and alterative in conditions of impaired vitality of the blood arising from the absorption of certain blood-poisons, would lead me to include this agent in the treatment already mentioned. It should be administered in combination with ammonia, in full doses, frequently repeated, so as to neutralize quickly the poison circulating in the blood before it can be eliminated from the system. This could readily be accom-

⁵ Weston, Philip, Esq. 1859. On the poison of the Common Adder. *The Lancet*, May 21, 1859, pp. 522–523. The attribution to the July issue by Marcy was apparently in error.



Coral Snakes in the genera *Micrurus* and *Micruroides*, such as this Western Coral Snake (*Micruroides euryxanthus*), generally are secretive and less likely to have been encountered while traveling the trails. More closely related to cobras than rattlesnakes, their venom is highly neurotoxic. Only the small fixed fangs and the small size of most species renders them less dangerous than the larger vipers that have hinged fangs that can reach a length of over 20 mm. Photograph by Don S. Sias.

plished by adding ten to fifteen minims⁶ of Fowler's solution⁷ to the compound spirit of ammonia, to be given every quarter of an hour in aerated or soda-water, until the vomiting and the more urgent symptoms of collapse have subsided, subsequently repeating the dose at longer intervals until reaction had become fully established, and the patient relieved by copious bilious dejections.”

*Cedron*⁸, which is a nut that grows on the Isthmus of Panama, and which is sold by the druggists in New York, is said to be an infallible antidote to serpent-bites. In the *Bullet. de l'Acad. de Méd.* for February, 1858⁹, it is stated that a man was bitten at Panama by a *coral snake*, the most poisonous species on the Isthmus. During the few seconds that it took him to take the cedron from his bag, he was seized with violent pains at the heart and throat; but he had scarcely chewed

and swallowed a piece of the nut about the size of a small bean, when the pains ceased as by magic. He chewed a little more, and applied it externally to the wound, when the pains disappeared, and were followed by a copious evacuation of a substance like curdled milk. Many other cases are mentioned where the cedron proved an antidote.

⁶ A minim is a unit of volume equal to 1/60 of a fluidram or 1/480 of a fluid ounce.

⁷ A 1% solution of potassium arsenite (KH₂AsO₃). Because of the poisonous and carcinogenic nature of arsenic compounds, Fowler's solution is now considered to be very dangerous.

⁸ *Simaba cedron*, a tree of Central and northern South America, the seeds of which have been used by native peoples for snakebite both internally (as a strong tea taken 4 times daily, 1 tbsp at a time) and externally with a cloth soaked in the tea placed over the bite and kept saturated with the tea.

⁹ We were unable to find the source of this quote.