

# Snakebit!



**Paul McHugh**

# **Snakebit!**

**Paul McHugh**

**Copyright © 2009**

**Paul McHugh**

All rights reserved. No part of the book may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photographing, recording, or to any information storage and retrieval system, without the written permission of the Publisher, except where permitted by law.

[Buzz@PaulMcHugh.net](mailto:Buzz@PaulMcHugh.net)

## **Snakebit!**

### **Paul McHugh**

Shrieking, a mob of young girls exploded from a tipi they used as their tent. A big rattlesnake had been sighted minutes earlier. We all thought it had writhed away into a nearby pile of rocks. Instead, it snuck into their lodge, and next, showed its blunt, wedge-shaped head and flickering tongue right beside one of the girls as she drowsed atop her sleeping bag.

A ruckus erupted. Everyone at this trailside work-camp - located amid rough hills on the North Fork of the Eel River, high above the California hamlet of Covelo – ran over to the site to participate.

Cisco, a young, enthusiastic – yet rather inexperienced – woodsman, had been assigned by camp leaders to deal with wildlife matters. He went into the young female tipi to search for the snake. The snake promptly exited. Cisco came out after it.

That rattler took one glance at the huge crowd of humans forming up, hung a U-turn and fled back under the tipi's rim. Cisco went

---

---

back inside, too. Then the snake re-emerged, to wriggle enthusiastically for a nearby belt of trees. Onlookers parted for it like the Red Sea dividing for Moses.

One camp leader grabbed a catch-pole rigged with a rope noose, which Cisco had created as a possible snake-snaring tool days earlier. This counselor slapped it down across the crawling snake's back. Then he rolled it up toward its head, pinning the wriggling reptile against the earth. It now was one extremely upset snake. Whirr and hiss of its rattle filled the hot summer evening like a half-muffled alarm bell.

Cisco, seemingly fearless, strolled over, bent, gripped the rattler just behind its head. He picked it up. Some 40 inches of *Crotalus viridis oregonus* in its prime dangled from his fist. Its thick body made sinuous arabesques in the dusk. Suddenly, Cisco flung the snake back down to the ground. Startled, I looked for an explanation. He held up his hand. A crimson thread of blood wound slowly down his thumb.

His voice was calm. "I've been bit," he said.

Somehow, the snake had loosened itself in his grasp, twisted its head, and with a strike so fast that it had been utterly invisible to me, buried fangs in his flesh.

---

---

The only wolves in California are in cages. Cougars have been driven back into the hills. You won't find a grizzly, except in symbolic silhouettes sewn onto state flags. But rattlesnakes – tough, nasty, persistent survivors from the Age of Reptiles – remain widespread, in numbers sufficient to present even a casual visitor to the countryside a chance to meet one.

Dealing with a wild, dangerous animal demands an etiquette which we rarely get a chance to deploy. Display correct respect upon meeting a rattlesnake, and there's no need for panic. A rattler recognized and avoided is no more dangerous than a similar length of wet noodle. Even when reared off the ground in a classic, spiral strike coil (the flat, resting coil is much less efficient for launching a strike), a rattler can only lunge about two-thirds of its body length. A downhill slope grants it slightly more advantage.

You may provide a snake with other advantages. If aggression, curiosity, or surprise makes your contact more intimate, the protocol gets more complex. In event of a bite, there's even more reason to shun panic. It aggravates effects of the bite, and does nothing to help you take remedial measures. Even should you happen to know them. Plenty of misinformation about toxic snakebites floats about. A sudden encounter with a powerful, wild

---

---

critter can help us discover that we may not know nearly as much as we imagined we did.

For humans and rattlesnakes, it's been that way for quite a long while.

A basic text on rattlers is, "Rattlesnakes: Their Habits, Life Histories, and Influence on Mankind," a two-volume study by Laurence M. Klauber (condensed by the UC Berkeley Press). Logically enough, the author dedicated his books to his wife, who had to endure three decades of a basement full of these vipers.

Klauber believes rattlesnakes began their career in America as an offshoot of Old World vipers who slithered over the Bering Strait at a time when that land bridge was exposed and hospitable. Those ancestors diversified into species and sub-species as they fanned out across the terrain now known as the United States, before ultimately writhing to Mexico.

Some 30 types of rattler are now recognized. California hosts ten, though only three are widespread: *Crotalus cerastes*, the desert sidewinder; *Crotalus viridis helleri*, the southern Pacific rattler; and *Crotalus viridis oreganus*, the northern Pacific rattler.

*Oreganus* ranges from just past the Oregon border south to Kern County; *helleri* from Mexico as far north as San Luis Obispo;

---

---

*cerastes* shares turf with other subspecies in the southern deserts. Depending on habitat, prey availability, and concentration of predators (particularly, man), they can sometimes achieve a population concentration as high as a snake per acre. Or even more.

A rattlesnake fossil reckoned at 12 million years in age was once found. Sheer fragility of snake skeletons makes such finds rare. However, rattlers have been around long enough to develop big differences from Old World vipers. One famed new feature is the rattle, an interlocking series of horny rings that emits a buzz when the snake vibrates its tail – a handy tag for identification. All rattlesnakes carry rattles, or at least the buttons that begin them; no other sort of snake has a feature like that.

Rattles become longer and heavier with age, but it's not true that an individual snake's chronological age can be reckoned by simply counting segments. One ring in fact is added each time a skin is shed. But more than one skin can be shed per year. Besides, rattles are fragile, and easily break off.

Though any rattler can play its instrument with the fervor of a mariachi musician, it has never heard another snake's rattle or even its own. It possesses no external ears. However, rattler's are sensitive to vibrations conducted through the ground, and

---

---

footsteps of any animal too large to be consumed – upon whom the snake would prefer not to expend venom – cause the rattler to rap out a signal that any nearer approach will not lack for hazard.

That scenario may vary. Sometimes, rattlers strike with no warning. Sometimes they simply rattle, then flee. Sometimes they remain quiet and unseen. But when snakes are prompted to bite, they have an excellent way to estimate their targets' direction, speed and distance. The “pit” of pit vipers (the family to which rattlers belong, as well as copperheads and water moccasins) is a heat-sensing organ behind the nostril and beneath the eye that helps the snake locate warmbloods. Prey need not be very large to be detected. Small mammals form about 85 percent of a rattler's diet.

The situation in camp on the North Fork Eel didn't seem to call for anyone else to apply for a slot on the rattler's bite program. So I grabbed the abandoned noose pole. I focused on using it to trap the snake, then I found a burlap sack to stuff it into. Once I had the snake in the bag, I used the loose end of the noose line to lash it to the pole. Now, I was in possession of a big, fabric-coated, rattlesnake-flavored lollipop – which I thrust over one shoulder so I could tote it like a hobo's bundle.

---

---

“Where’s Cisco?” I asked, after I was finished with that project. I figured he was now receiving expert first aid from someone.

“He ran up the hill, toward the road,” I was told.

“Oh, great,” I said. My rattlesnake lore consisted of hazy memories from the Boy Scout handbook, but I remembered that making any string of rapid movements after receiving a bite was *verboten*. By the time I reached the top of the hill, there Cisco lay, flat on the ground, in the middle of a knot of worried-looking people. One of them went into hysterics after she found out that the sack slung over my shoulder contained the live snake. Besides that, not much was happening.

No one knew what to do. The camp lacked even an elementary snakebite kit, with its printed set of instructions. Then I found out that a carload of adults, including camp counselors, had just zoomed off for Covelo without putting Cisco aboard their vehicle – a very poorly thought-out maneuver that could easily triple the wait before Cisco could receive competent medical care. The whole place seemed addled by shock and confusion.

Later, Cisco told me that he hadn’t run, but deliberately walked up the hill, because he didn’t think anyone could carry him up that

---

---

steep trail. But before he even reached the camp's dirt parking lot, the snake's dose of venom began to take systemic effect.

"It felt like I was coming on to a mainlined drug," said Cisco. "My head began to fill up, my mouth began to tingle and stiffen. My knees just buckled. I felt like I was falling to the ground in slow motion. I had the hallucination of millions of wings flapping like a cloud of pigeons lifting off from some Italian plaza as I fell down into them.

"I felt my throat swell and my breathing become more strained," Cisco said. "I knew I was not supposed to panic. But I thought, how can I not panic, if my breathing gets cut off?"

Cisco was lucky he wasn't a small mammal. After a squirrel gets a strong bite, his agenda is to totter a few yards, topple over, and die within minutes. But in the case of a human being, 199 times out of 200, a rattler is biting at more than he can kill. Of course, many variables influence the outcome, among them, the health, size and age of the human. Another big factor is the amount of venom the snake decides to inject.

In a lyrical moment, Klauber describes a rattlesnake's hollow, needle-sharp fangs as possessing, "the mechanical perfection of dual hypodermic syringes." Thanks to such refined equipment, a

---

---

snake can decide to inject from one fang, both, or neither. During a bite, it may inject up to 75 percent of the poison borne in its venom glands. Usually, it elects to use much less. In about a quarter of all rattlesnake bites, the serpent injects none whatsoever. Unfortunately for Cisco, a snake feeling threatened and angry tends to push for the maximum.

Fangs normally lie flat against the roof of a rattlesnake's mouth, enveloped in fleshy sheaths. When the snake lunges for a strike, maxillary bones rotate until the fangs are perpendicular to the upper jaw, whereupon the sheaths partially retract. But strength of a strike, like the ability of those fangs to penetrate, is limited. Even a potent strike from a large snake can rarely go through boot leather or even dense trouser fabric, like Carhartt jeans. But if the snake can get its mouth *around* something, like a bare finger or toe, it not only can sink those sharp fangs deeper, but also inject more venom.

This provides a strong argument against reaching into rocky niches barehanded, or stepping over logs when you can't see where your foot will land, especially in places and at times when rattlesnakes are active.

The bright yellow venom that squirts through those translucent fangs during a bite varies widely in potency, depending on the

---

---

species, age, sex and health of the snake, as well as other variables such as the season, the weather, and the amount of time since the snake's last hunt. Klauber says that, drop for drop, some *Crotalus* venoms can be 60 times more toxic than others.

Rattlesnake venoms in general are elaborate cocktails of the most complex poisons known, mixtures of enzymes and other proteins that can produce effects ranging from capillary destruction (attended by internal bleeding and loss of blood pressure) to nervous-system paralysis. *Oreganus* and *belleri* venoms tend toward the hemotoxic, or former, type – although Cisco's respiratory difficulties suggested that he was dealing with a sizeable dose of neurotoxins as well.

Some of the enzymes (which are biologically-active protein catalysts) found in snake venom can also be found in the digestive juices of other animals. This reinforces a theory that the venom glands actually evolved from salivary glands. Even the salivas of harmless snakes become toxic when injected into a mammalian bloodstream – as, indeed, would be most foreign proteins, such as the matter in egg whites.

Rattlesnakes have just refined the toxicity and perfected the injection mechanism. Their venom sets about digesting the prey, exploding cells and destroying tissue, before the snake has even

---

---

begun to swallow it. This is convenient for the snake, but very inconvenient for human bite victims. The venom is absorbed so rapidly and readily, and so closely resembles bodily fluids, that it's very hard to isolate venom, destroy it, extract it, or keep it from spreading.

Less than 30 minutes after being bitten, Cisco seemed barely conscious. His breathing was shallow and irregular, his speech thick and incoherent, his complexion the color of dough. I felt desperate to find something, anything, I could do. I only vaguely remembered the old Boy Scout protocol for "cut-and-suck" first aid, but I did recall quite clearly that done badly it caused many more problems than it solved. There was no antiseptic blade around and no speedy way of acquiring one, and I hadn't the faintest idea of how to go about cutting on a thumb.

I knew that tourniquets had fallen into deep disfavor because of the amateur's tendency to make them too tight and leave them on too long. I did recall something about a "constriction bandage" that could be used to dampen down the flow of lymph fluid and surface blood from a bite. That didn't seem too risky. Hoping to Christ we were doing something right, I asked Cisco's girlfriend to tie a sock tightly around his arm, above the elbow. Then I left my

---

---

gift-wrapped snake in the hands of an extremely apprehensive camp counselor, spun, and ran like hell for my pickup truck.

In minutes, Cisco was on a makeshift stretcher in the bed of my truck, held down his girlfriend and three others as I drove them on a frantic, moonlit Grand Prix out of the mountains. The only thing that slowed me down in the slightest was the thought that six bodies wrapped around a tree was worse than one with snakebite.

As he later related, during that truck ride Cisco first started to feel the pain, “like five thousand bee stings in arm and side and chest. My face felt hot and tight, my hand and arm felt like they were going to burst. I just wanted to go to sleep at that point, to drift off from the pain.”

“His breathing went really shallow,” his girlfriend said. “I felt afraid he was going to stop. So I kept talking to him and shaking him. “

We made the 18 miles into Covelo in record time, and slid to a halt in the parking lot of a California Division of Forestry station. They must have felt us coming, because immediately lights flicked on in a bunkhouse and men came spilling out the doors.

---

---

They checked out Cisco. Their comments and my later research revealed that my impromptu constriction bandage had not been such a bad idea. A wide band tied a few inches above the bite wound will localize the venom and slow its dissipation. But leaving it on without checking it for tightness and gradually moving it up the limb ahead of swelling was unwise. Rapid swelling can turn any encompassing band into a tourniquet (a finger ring, a tight cuff, etc.), and anything that cuts off the deep blood flow to a bitten limb can aggravate the dangers.

The forestry guys cut the sock off Cisco's arm and scolded us for leaving it on so long without checking it for tightness. Then they shoved his bitten limb into a pan full of ice – which I later found was also an erroneous treatment. Meanwhile, the nausea customary with severe bites came upon Cisco. He began to puke his guts out, retching violently long after his stomach was empty. The Covelo ambulance and its driver (there were only one of each) were located, and Cisco was loaded aboard for the long drive to the nearest regional hospital, in Willits.

In the medical lore surrounding rattlesnakes and their venom, fantasy has long dominated. Rattlesnake heart and liver eaten raw has been recommended as a cure for palsy, a backbone necklace for chills and fever, a rattlesnake drowned in wine for leprosy,

---

---

rattler gall mixed with clay for fevers and smallpox, dried rattlesnake mixed with corn whiskey for rheumatism, and a necklace of bones to treat epilepsy.

Mythology becomes less amusing when it is used as a basis for treating venomous bites. Guzzling whiskey, cauterizing the wound, and applying a freshly split-open chicken to the bite site have been accepted as gospel remedies. Their effects run the gamut from useless to dangerous. Whiskey speeds circulation of the venom, cauterization just adds to the tissue damage, and effects of that latter treatment are noticed primarily by the chicken.

Sadly, we've not taken that many strides from the wacky measures of our forebears. One of the worst treatments ever still held sway in the mid 20<sup>th</sup> Century. Ligature-cryotherapy, or L/C treatment, joined tourniquets and ice in unholy union. It was based on the twin misassumptions that cutting off all circulation and risking a limb for the life of the body was a good idea, and – with nary a shred of evidence – that ice and cold deactivated the venom. While a lower temperature could slow some enzyme activity, Dr. David Campbell told me, it will do little or nothing to halt other enzymes.

---

---

Campbell, who teaches emergency medicine at Stanford University Hospital, studied at the USC-LAC Medical Center, when reigning authority Dr. Findlay Russell established it as an international center for studying the treatment of venomous bites.

“As of 1974,” Campbell told me, “There were 36 amputations resulting from cryotherapy treatment of venomous bites. And a few people still recommend it (in 1982 – *author’s note*).” Campbell shook his head wryly. “What happens is that the limb becomes necrotic. Tissue is already injured, and circulation impaired, from the venom. With cold, you make it worse, causing frostbite and additional injury.”

Other once-fashionable procedures now plunging toward disfavor are fasciotomy, and rapid treatment with steroids and antihistamines. Fasciotomy means opening up the swollen limb with long cuts in order to relieve the internal pressure. But has been discovered that the swelling from snakebite is soft and external, and does not significantly press on essential nerve and artery compartments – except perhaps in those extremely rare cases when venom is deposited deep into a muscle.

Most often, the envenomation is shallow and occurs in the fatty layer just beneath the skin. That is why “cutting and sucking” survives as a first-aid procedure (in 1982), although it is

---

---

surrounded by qualification and debate. Dr. Russell himself says that “cut-and-suck” first aid may be helpful under certain circumstances. Dr. Willis Wingert, his successor at the USC-LAC venom lab, doesn’t recommend it all, and deplores the many messy hack-and-slash jobs that come his way for repair.

The professional consensus seems to be that if the qualifications around “cut-and-suck” can be remembered clearly and implemented carefully, the process may sometimes be useful. If not, it’s best to forget it. The procedure is not for the fainthearted, nervous or inept, or for anyone within a 20-minute drive to a hospital.

But if one is a half-hour or more from expert medical care, and if rapid swelling occurs around the wound within five minutes (indicating envenomation has actually taken place), then one can make shallow cuts about a half-inch long and not much deeper than one-eighth of an inch – just through the surface of the skin. Special care should be taken if the bite is on the delicate area of the inner wrist where it joins the hand. The cuts should run in the lengthwise direction of the finger or limb, and run through the fang mark to the point of venom deposit. Since a snake strikes downward, the venom is usually deposited at a point a little lower than the puncture.

---

---

Then one can suck and spit out the accumulating fluid. Studies on animals indicate that up to half the venom can be removed in this manner, if one gets to work in the first few minutes after a bite. Dr. Russell says that if the procedure is delayed by more than 15 minutes, it is of no value.

To illustrate the importance of qualifications on cut-and-suck: If the cuts go deeper than a quarter-inch, especially on a child, you could sever a nerve or an artery, while anti-coagulants in the venom aggravate bleeding and worsen the blood pressure drop, raising the prospects of shock. After 30 minutes, the amount of venom that can be sucked out is negligible. Besides, if the victim can be transported to a hospital quickly, a physician can not only make any needed incisions more confidently, her or she can also administer a treatment that has made most other procedures obsolete.

Antivenin (Crotalidae) Polyvalent, made by Wyeth Laboratories, is produced by injecting horses with a mixture of rattlesnake and viper venoms until the animals develop antibodies that largely immunize them against snakebite. Their blood is then extracted and refined, the desired serum freeze-dried, and the resultant crystals sealed in vials. Most major medical facilities keep a supply on tap. The practice is to inject some antivenin into patients for all

---

---

but the mildest cases of snakebite. Antibodies in this serum attach themselves to the venom molecules like keys fitting into locks, immobilizing these intruders until the whole mess can be cleaned out of the bloodstream by the victim's liver or kidneys.

The only problem with antivenin is that it involves fighting fire with fire. Foreign reptile proteins are being neutralized by foreign equine proteins, and the human body is not pleased to play host to either. Antivenin does buy time, replacing a severe, immediate shock to the body's systems with a delayed – and, it is hoped, milder – one. But serum sickness (an allergic reaction to the horse antivenin) occurs in 75 percent of all cases treated this way, and in some cases, that reaction proves worse than the original bite.

Cisco arrived at the hospital in Willits about three hours after being bitten. The doctor and nurses on emergency duty that day had never treated snakebite before. Unsurprising, since only one prior case entered the hospital in 40 years. That dearth of cases is laid to the smarts of Mendocino County old-timers. They did not experiment with trying to live-trap and re-locate snakes. They either killed them promptly, or left them entirely alone.

In a medical establishment replay of our own agitation and uncertainty while applying first aid in the field, Cisco's swollen bite was incised and drained – even though the venom had long since

---

---

dissipated through his tissue. A surgical hose tourniquet was applied and removed. Ice packs were laid on, then yanked off. Throughout, consequences of the bite continued to accelerate. Cisco's red blood cells declined precipitously; his platelet count descended to seven percent of normal. (Platelets are the floating, tire-patch kits of the circulatory system; when they plunge to such dangerously low levels, the specter of fatal internal bleeding draws nearer.)

Cisco was given nine vials of antivenin, all that could be scared up in the town. His platelet count rose slightly. Next morning, he was given six more vials that had been driven over from Ukiah. His arm continued to swell, despite the massive doses of steroids that were given to him after the antivenin. Dr. Mills Matheson, a doctor with previous snakebite experience who had been called in, had never seen such swelling before.

"It looked like a watermelon," he said.

Cisco began to lose all sensation in his wounded hand. The skin on his arm had begun to split open from all the swelling. Fearing that he would become permanently crippled by high pressure on the nerves, the doctors decided to perform a fasciotomy – to lay open the forearm with deep incisions down through the plane of muscle.

---

---

“In retrospect, I keep wondering about that decision,” Matheson said. “We called a lot of people at the time, including the leading hand specialist in San Francisco. The consensus was that we had to do something to relieve the pressure. Since that time, there’s been a movement away from that. People feel that the pressure isn’t really that great. It made amazing sense to me when I found out later about putting in pressure probes and actually measuring it.”

Six units of red blood platelets had to be driven up from Santa Rosa to stem further blood loss from the surgery. I visited Cisco at the hospital on the third day after the bite. He was passed out on painkillers in Intensive Care. His gray, swollen arm was unrecognizable as a human limb. It looked as if the Graf Zeppelin had been moored to his shoulder.

On the fifth day, just as his condition stabilized and his blood count improved, Cisco was hit with serum sickness – an allergic reaction to the horse antivenin. His temperature spiked again, and he broke out in hives and rashes, and experienced more aches, nausea and swelling. To cope with these symptoms, he was given 12 grams of steroids over the next four days.

Finally, 11 days after the bite, he was released from the hospital. His hand looked like a withered claw from all the tissue damage.

---

---

Three months would pass before he could again tie his own shoes. Physical therapy and acupuncture helped restore movement and tissue bulk to his hand, but the strength of his grip remains diminished. He still has trouble opening jars.

Barely a year later, Cisco was bitten by a rattlesnake again – this time, on the left foot – while harvesting wild roots in a marsh just 15 miles from Willits. Even though he made it to the hospital swiftly, Dr. Matheson regarded this bite as more life-threatening than the first, because he felt he had to avoid giving antivenin. A preliminary skin test revealed that Cisco remained severely allergic to horse serum following his first exposure. Any dose given to him now would promptly pile that reaction right on top of effects of the venom. So, instead, Cisco was given painkillers, massive doses of platelets, surgical cleaning of envenomated tissue, and held under close observation while he just sweated it out.

Since it appeared on the market, antivenin has come to be regarded as one of the neatest things since sliced bread. But as Cisco's experience illustrates, problems can still occur, especially if it must be given on more than one occasion. Cisco will stay allergic to horse serum for the rest of his life. But research goes on. Some doctors experiment with suppressing allergic serum reactions with an epinephrine drip. Even better, they are working

---

---

on developing new antivenins using serums from goats, sheep, and even from the snakes themselves – since they are largely immune to their own bites.

Spring is the time of greatest snake activity, when snakes emerge from caves and crevices and their long winter fasts to hunt, bask in the sun, and mate. Two males may rise up off the ground to entwine gracefully and grapple in a “combat dance” that ends bloodlessly after one snake is thrown back to the ground several times.

After that, mating occurs with the female. The pair lies prone for hours while the male inserts one of his hemipenes. He has two of these bizarre, forked, thorny-looking organs, one on each side of his lower underbelly. They are responsible, no doubt, for the legend that some rattlesnakes have legs. In summer, these snakes fan out into their individual territories.

Rattlesnakes are the most widespread of the remaining major predators. They can be found in forest and marsh, they can range from lowland desert up to altitudes of 10,000 feet in mountain habitats. In the fall, particularly in northern and mountain regions, 450 rattlers or more may gather and twine into tangled balls and hibernate together in ancestral dens at the bottom of remote crevices. In the past, these concentrations proved quite dangerous

---

---

– for the snakes. Dynamiting such dens was once a popular winter sport for California’s pioneers. Although their method was crude, they were working on the principle that a stick of prevention was worth a dozen pints of cure.

In modern times, simple understanding and respect are the best ways to prevent bites. Snakes in the wild do not appear to be much of a problem, despite occasional episodes like Cisco’s. Dr. Russell reported that, to his knowledge, over one stretch of 20 years, there was only a single, unprovoked rattlesnake bite of a Sierra backpacker – and that occurred while the man was changing a tire at the end of his hike.

Dr. Campbell told me that a study of 200 cases revealed that 90 percent of California’s rattler bites actually occurred in urban areas or within two miles of city limits. Dr. Anthony Manoquerra of the San Diego Regional Poison Center has written that, “because the snake usually provides adequate warning before striking, very few bites occur among people who are not handling the snake.” He adds that many adults prove to have been intoxicated with alcohol prior to being bitten.

It’s no surprise that a person in such a condition, setting out to prove his manhood, should end up demonstrating mortality instead. Drunken handling of rattlesnakes, whether wild serpents

---

---

or “pets,” is an affront to the snake’s power as a predator. Unlike many other creatures that man has caged for his amusement, a rattler can remind us that our world is actually a global meat market, with fresh organic molecules in high demand – and the law of fang and claw prevails in most exchanges. Though the temporary ascendancy of humanity has laid a veneer of anthropomorphism over the nature of things, an encounter with a rattlesnake provides a chance to refresh our memory.

Most experts I spoke with said the best way to deal with rattlers in your neighborhood is to either kill them cleanly or leave them alone. Unless surprised or mistreated, snakes rarely attack humans. That would be a waste of perfectly good venom that could otherwise be used to bag lunch. So, leaving a snake alone is an excellent choice for both of you.

After all, they do have their niche in the grand scheme. Rattlers help balance the books on mouse, rat, squirrel, rabbit, frog, lizard and bird populations. They themselves are prey for badgers, road runners, king snakes, eagles and hawks – who like to fly a snake repeatedly aloft, dropping it onto rocks in order to kill it. (The great seal of Mexico is no fantasy; it’s grounded in biological reality.)

---

---

In short, rattlesnakes are not the slavering, slithering, incarnations of evil that men sometimes imagine them to be. They're nowhere near omnipotent, either. Deer occasionally take a moment to stomp hoof patterns into rattlers they come across, and domestic animals like dogs and house cats can become quite proficient at killing them. Even temperature can take a toll, since snakes are poikilothermal (coldblooded). Rattlers can endure hours of freezing and be thawed back to life, but even a dozen minutes of exposure to direct sunlight on a hot day (around 100F.) may prove fatal.

Man, of course, is the ultimate predator – at present. Should you find yourself needing to perform that function on a rattlesnake, you can use something long and sharp like a shovel or a hoe to terminate the snake without much risk of a reversal of your roles. But, one cautionary note: a myth that is entirely true is that a severed head can still deliver a venomous bite for up to an hour after it has been chopped off. Its head should be buried, swiftly and carefully.

To complete your act of predation in an exemplary manner, you should then skin the snake and eat it. Rattlesnake meat breaded and fried actually does taste a like a cross between chicken and clams; with a slice of lemon and a little tartar sauce, it's a veritable

---

---

delicacy. The hide can be tanned, backed with leather, and (rattle still attached, of course) turned into a hatband that will make sophisticated urbanites turn green – in some cases, with envy.

I've highlighted Cisco's story here because, although it raises a host of cautions, some aspects are downright reassuring. Despite all his mistakes and bad breaks, Cisco survived, is doing well, still hangs out in the woods, and bears no particularly hard feelings toward rattlesnakes.

Overwhelmingly, the odds are that won't even see the rattlesnakes you pass, that if you do you won't get bitten, and if you do get bitten that you won't receive enough venom to cause more than temporary, if severe, discomfort.

Anyway, rattlers perform an important function for us simply by existing. They force us to approach the woods with a bit more care and awareness – and less preoccupation – than we might otherwise. Edward Abbey said that wilderness should be defined as a place – and only a place – where we enjoy the opportunity of being attacked by a wild animal. It keeps us on our toes, gives us a refreshing alertness mingled with a certain humility, and in that way improves the quality of our experience.

---

---

When I told Cisco that this would be one of my conclusions, he agreed. “I guess I have to say, I don’t feel quite so cocky about rattlesnakes anymore,” he said. “Basically, I think they’re really sensitive creatures that don’t care very much about what I think. I’m still interested in being close to wilderness. But I have much more respect for the power of it.”

---

---

## Further Notes and Updates

This 1982-dated story captures a slice of time when overall snakebite treatment was in a state of fast evolution. Lots has changed since then (see below). Only the behavior of rattlers and people has stayed pretty much the same.

As an example of the sort of alcohol-fueled wackiness deplored in the story above, I heard the tale of two marines out on a sodden wing-ding in the California desert. They got drunk, captured a sidewinder, and decided to take joke photos of each other kissing it. Pretty funny, eh? And, yes, one promptly got bitten right on the lower lip. The men panicked, and decided to try a rather unorthodox first aid treatment.

They hooked up jumper cables to their truck's battery, and – under the impression that a potent shock could de-activate venom – pressed the other end of the cables into the victim's mouth. Whereupon, he became much more victimized. I hear that his burned, bleeding, twitching and swollen face was rather an impressive mess by the time he was taken to an E.R.

Wonder who's kissing him now. Or, if he's got anything left to kiss *with*.

---

---

From the other end of the political spectrum, I recently read a magazine account of a pair of latter-day hip folk hiking in the Grand Canyon of the Tuolumne, near Yosemite. One got bit. Their entire first aid treatment consisted of shaking a home-made Indian rattle over the wound. We'll let that astonishing attempt at a cure stand without additional comment.

The main reason why I wrote this rattler piece in the first place is the same reason I am posting it now: medical lore in the early 1980s presented the acme of understanding of the best way to go about "cut-and-suck" first aid. Thereafter, this procedure fell into deep and lasting disfavor across the entire medical community. It's quite hard to find anybody who recommends it today. For myself, I can still imagine circumstances in which I might wish to employ it. But each and every outdoors person must take personal responsibility for his or her decision in the matter. Let's say, I am providing this information for historical purposes only.

All treatments evolve. For example, Wyeth stopped making its horse serum, Antivenin (Crotalidae) Polyvalent. Our leading antivenin now is CroFab, or Crotalidae Polyvalent Immune Fragment Antigen Binding (Fab) (Ovine), one of those sheep-based serums that was being explored around the time I wrote my

---

---

original piece. It is made by Protherics, which has just been bought (October, 2008) by BTG plc.

And the field procedure for addressing snake bite was helped by the introduction of the Sawyer Extractor, a small plastic kit containing a “reverse syringe” (instead of creating pressure to inject a substance, it produces a gently sucking vacuum, to withdraw one). The Extractor is said to work by slurping venom back out through the fang holes – within that same, 15-minutes-after-the-bite time frame formerly recommended for cut-and-suck.

Among advantages of this plastic Extractor: eliminating worries about venom entering the mouth of the sucker; and eliminating worries about bacteria from the mouth of the sucker entering the wound of the suckee. Unless you’ve got a cut, sore or rotten tooth in your mouth, sucking in and spitting out venom probably won’t hurt you all that much. However, human mouth bacteria entering an open wound on the arm of another person is a strong and genuine concern. Since these bacteria are adapted to a human environment, they can easily multiply and do real damage – especially in an area where the circulation and immune response are already compromised.

The Extractor can also be used to withdraw bee-stings, wasp and spider venom, and the like. That’s why I always stick a Sawyer

---

---

Extractor kit in my daypack whenever I'm hiking in a place and at a time when snakes might be active. But unlike most other outdoorsmen I know, I also tote along a good old-fashioned Cutter snakebite kit, with its ligature, antiseptic and Exacto-like blade for cutting through fang holes. Why?

Because, number one, I am less afraid of doing cut-and-suck on myself (assuming I can reach the afflicted part with my mouth) than I am of letting the venom from a severe bite rampage through my system. I know I can remain calm, and do the procedure properly. I know that cut-and-suck went obsolete for good reasons, and I know what those reasons are. I know that all the oldest patterns for cutting were wrong (an "H" shape through both fang holes, or an "X" shape through each of them). A simple slit to the point-of-deposit is best.

I know I can generate better suction with my mouth than with the reverse syringe, and that I can fit my lips around a finger or thumb way-better than I can fit the adapter cups that come with the syringe. I know that I can minimize the fluid from my mouth contacting the wound. I know how to wash and disinfect the site afterward.

I also know that if I happened to be in a remote wilderness, and I saw a small child sustain a severe bite, that I could have a very few

---

---

minutes to attempt to save his life – and an extremely important choice to make about how I tried to do that.

So. Again, for historical purposes only, and not as a recommendation of any sort, I will now include the sidebars that accompanied my story in 1982.

### **Case I**

If you are within 30 minutes of medical care, and/or uncertain of the need for first aid or your ability to perform it:

- 1) Reassure the bite victim. Have him move slowly, and as little as possible
- 2) Remove rings, wristwatch or shoe from the bitten extremity
- 3) Immobilize the limb; it should rest slightly below heart level
- 4) Do not give the victim alcohol, aspirin or any other medication
- 5) Transport the victim to a medical facility at a swift yet careful pace

## Case II

If medical care is more than 30 minutes away, and you feel able to carefully implement additional procedures:

- 1) Proceed as in Case I, then
- 2) After immobilizing the limb, tie a strip of cloth at least  $\frac{3}{4}$ -inch wide around the limb about 2 inches above the swelling, and between the bite and the victim's heart.
- 3) Check often to make sure this constriction band does not get too tight. You should always be able to push a finger underneath it. Move the band up the limb ahead of the swelling.
- 4) If there's a choice between medical facilities, take a moment to call ahead. Your best bet is a facility that has antivenin on hand and a doctor who has treated snakebite before.

---

---

### **Case III**

If medical care is more than 30 minutes away, and you are sure a bite has taken place, and you have positively identified the snake as poisonous, and rapid swelling indicates envenomation has occurred; and if you feel capable of performing cut-and-suck first aid calmly and competently, and if you are able to begin this procedure within five minutes of the bite:

- 1) Proceed as in cases I and II.
- 2) Sterilize a sharp blade with match or alcohol.
- 3) Make incisions through the fang marks. These cuts should be no more than 1/8-inch deep (just through the skin), and no more than 1/2-inch long. Cuts should run in the “long” direction of limb of finger or toe. Cut toward the venom deposit area, generally a little below the puncture (snakes strike downward).
- 4) Apply suction, spitting out the fluid as it accumulates. Do so no longer than 30 minutes.
- 5) After suction is complete, disinfect the wound with soap and water and/or antibacterial ointment.

- 6) Cut-and-suck first aid is not a substitute for professional medical care. Transport the victim to a medical facility as soon as feasible. (After the cut, but while applying suction.)
- 7) If a cut should go deeper than intended, especially if blood begins to spurt rhythmically from the wound, stop trying to remove venom. Apply direct pressure to the cut. Transport the victim to a medical facility.

### **Remember!**

You do not have to do anything beyond the simple procedures described in Case I. If you simply carry those out, you've done nothing that is wrong, and a great deal that is helpful. In any case, the victim will likely survive. The odds are with him.

