EDITORS' NOTE

Bites, Bugs, and Blood

History tells us that Albert Calmette happened upon snake antivenom by necessity rather than academic curiosity. A protégée of Louis Pasteur, Dr Calmette was stationed in French Indochina (now Vietnam) in the late 1800s where he had just founded the Pasteur Institute at Saigon in 1891. During his stay in Asia, he studied snake and bee venom, plant poisons, and curare. He documented a harrowing situation:

“A village in the environs of Bac-Lieu (Cochin-China) was invaded, in October 1891, at the time of the great rains, by a swarm of venomous snakes belonging to the species *Naja tripudians* or *Cobra capel*. These animals, driven into the native huts by the flood, bit 40 individuals of whom four, as reported to us, died almost immediately. An Annamite [a native of the Annamite mountain range] was able to capture and enclose in a barrel, 19 of these cobras and the administrator of the region, M. Séville kindly sent them to the laboratory. 14 arrived alive. We killed 11 of them immediately to remove their venom glands.¹ (See [Figure](#).)

Calmette injected the venom into horses and collected the Immunoglobulin G antibodies to produce the first antivenom (known as Calmette's serum). Since then, the process of developing snake antivenom has been refined. In modern formulas, usually just the Fab fragments are used. That retains the efficacy of binding to the venom but reduces hypersensitivity reactions.

This issue of *Wilderness & Environmental Medicine* highlights how we continue to learn about snake envenomation and treatment. In the article by Monzavi et al, we see that protocols for administering snake antivenom continue to develop and be refined. The article by Witham et al describes a novel phenomenon of rebound coagulopathy many days after snake bite envenomation. Although less critical than systemic reactions, Koh et al describe the skin manifestations of a man who was sprayed with cobra venom. Such cutaneous reactions do not require antivenom, but instead, careful and watchful waiting.

In the wilderness, snakes are not the only critters whose bite requires attention. In this issue, we cover several other animals that turn their “fangs” against humans. Borek et al describe the risks of reptile

Figure. Dr Albert Calmette is depicted in this caricature surrounded by snakes as a consequence of severe flooding, spurring the development of antivenom. (Reproduced with permission of the Wellcome Institute Library, London.)

zookeeping in “How not to train your dragon: a case of a Komodo dragon bite.” Our Letters to the Editor discuss whether shark bites and attacks on humans are provoked or not provoked. In the article by Bosmia et al, the authors describe how the Sateré-Mawé Indians in the Brazilian Amazon use the bites of bullet ants as part of initiation into adulthood. We are thankful that this

practice is not widespread. Finally, if you encounter serious bleeding from a bite or other trauma, the reviews by Drew and Littlejohn et al will help you manage it in the field.

Be careful out there!

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Reference

1. Calmette A. Etude expérimentale du venin de *Naja tripudians* ou *Cobra capel*. *Annales de l'Institut Pasteur*. 1892;6:160–183.