If one episode could encapsulate the rich science of snakebite in colonial Australia, it might be the events of 9 April 1869. Appearing together at Melbourne’s packed Polytechnic Hall were its proprietor, obstetrician Louis Smith, and roving snake-showman, Joseph Shires. Performing his typical ‘experiment’, Shires caused venomous snakes to bite two stray dogs, before applying his antidote to one. This animal seemingly recovered, whilst the untreated dog drooped and apparently died. When the surgeon commenced lecturing on the medical benefits of electricity, his companion urged a practical test:

> Mr. Smith, after some hesitation, consented: galvanism was applied, and, just as he was referring with unction to his successful application of galvanism to a Chinaman [sic] who was bitten by a snake and recovered by means of the treatment used, the dog came to life, and with a convulsive snap caught hold of the fleshy part of Mr. Smith’s hand and hung there for a few seconds. In an instant the room was in an uproar …

The show was far from over. Believing that snake venom had passed into the dog’s saliva, the doctor followed standard protocol: ligaturing his wrist, he sucked the wound then dabbed on Shires’ Antidote. Nevertheless experiencing ‘all the symptoms of snake-poisoning’, he ‘took stimulants in the shape of brandy and champagne plentifully at intervals, and for some time they were partially vomited as fast as they were swallowed’. If this spectacle were not edifying enough, Smith continued applying galvanic current until both he and the poisoned dog were ‘restored to life and health’.

Given these dramatic proofs, how could colonists doubt the potency of local snake venoms—or the ‘cures’ effected before their eyes? While it is easy from such examples to view colonial Australia as a ‘paradise of quacks’, peddling false hope and nostrums to credulous crowds, Smith and Shires embodied procedures entirely typical of snakebite studies up to Federation in 1901.

Museums, zoos and classrooms

Although European loathing of serpents had deep cultural and scriptural roots, fear that Australian snakes might prove dangerous did not emerge until the 1810s. Concern was roused as much by observing snakebite in imported animals—cattle, sheep, poultry and especially dogs—as from fatal human cases. Such folk knowledge, informing what I have called ‘spectacular serpents: Snakebite in colonial Australia’,
elsewhere described as a ‘colonial animal matrix’, underwrote the credibility of staged antidote ‘experiments’.3 4 Only in the late 1860s did European models of toxicology, described the cumulative effects of agents introduced into animals, intersect with these popular commercial demonstrations. 

Echoing the Smith–Shires spectacle, taxonomic ‘expertise’ was also constantly negotiated between medical, zoological and lay authorities. In 1869 Gerard Krefft, Director of Sydney’s Australian Museum, published The snakes of Australia, the first monograph devoted to the subject. He was immediately embroiled in a controversy when a diamond snake bite at Talbot, Victoria, was treated with ammonia injection, as recommended by Melbourne University’s professor of medicine, George Halford. Halford suggested that the assailant was a tiger snake (Notechis scutatus), in which ‘Krefft had recently noted, Tasmanians knew as the ‘diamond snake’. But, countered a medical critic, Krefft had declared the ‘diamond snake’ harmless. He had, but in reference to the New South Wales Zoo, which by 1881 displayed Australian serpents ‘in such a way as to inform about the venomous characteristics of each one’.5 Although Joseph Shires attested that these constrictors ranged well south of the border, Krefft himself believed the culprit was a copperhead (Austrelaps superbus). Frederick McCoy disagreed. As Professor of Natural History at Melbourne University and Director of the National Museum of Victoria, he blamed the common brown snake (Pseudonaja textilis). An exasperated Talbot resident, Frederick B. Talbot, likewise dismissed Krefft’s expertise, favouring his own twenty-five-year experience ‘dissecting the heads of different snakes, endeavouring to form an approximate estimate at what period of the year the poison arrived at its maximum’.6

Most settlers were less obsessed with formal taxonomy. A ‘black snake’ may have implied the species now known as the red-bellied black snake (Pseudechis porphyriacus), a black tiger snake, or simply any serpent seen in poor light. Black was indeed the commonest hue, but colonists also described yellow, brown, blue, green, grey, silvery or coppery snakes; a settler complained in 1847 that ‘you scarcely pass a summer without seeing several sorts’.8 Appearing from 1862, zoological gardens offered little to the general public. ‘Venomous snakes’ were incarcerated at Melbourne’s Richmond Police Barracks; in 1876 another description ‘were disinterred and dissected at the request of the Medical Officer of Health’. Charles Windett, assistant surgeon to the Police Commissioner, observed that ‘when a snakebite experiment is conducted in a public place, a quantity of fowls, a fine calf, and … about a dozen snakes of all ages, sizes, and figures’ were exhibited.9

If identifying dangerous snakes was vexatious in nineteenth-century Australia, establishing effective treatments proved vi trolic. Excepting the germ theory of disease, there was no more contentious arena for new-fangled ideas of ‘scientific medicine’ than snakebite. Moreover, not just ‘facts’ were on trial, but the very means of knowing what constituted proof: the epistemology of modern science.

Before the 1890s, little separated ‘amateurs’ from ‘professionals’, indeed, showed like Shires pioneered live experiments in domestic animals. Until 1870, extracting evidence from such vivisections was as alien to surgeons trained through apprenticeship, such as Smith, as it was to clinicians trained in Britain’s new medical schools. Thereafter, British practitioners accepted knowledge generated via experimental physiology, but most colonial doctors continued following classical or clinical traditions, or dissecting their truths via comparative anatomy and morbid pathology.10

When colonial doctors did take to animal testing, their snakebite studies remained largely public. Presided over by a magistrate, coroner or government medical officer, many experiments occurred in authoritative institutions: hospitals, museums and police depots. Charged both with controlling stray animals and investigating violent deaths—including snakebite experiments in domestic animals, snakebite studies slowly receded from plebeian scrutiny.11

← Back to the Document

snakebite experiments in cats and rats at his Museum of Curios in Sydney. Curators might invoke their own painful experience or consult European experts, but most sources were local and anecdotal: field collectors, Aboriginal informant s, newspaper stories and medical cases. Once a snake was established as dangerous—often from a single incident—information circulated well beyond museum walls. Krefft’s monograph proved a strong seller, as did its 1897 replacement, A popular account of Australian snakes, by Australian Museum zoologist, Edgar Waite. Venomous serpents were the first animals appearing in Melbourne’s Prodromus of the zoology of Victoria (1885–90). "Venomous Snakes of Victoria"—was widely displayed at state schools, railway stops and police stations. In 1895 a Sydney publisher issued another popular series of educational posters, ‘Venomous snakes of Australia’, embellished with the New South Wales Board of Health’s recommended first aid measures.

Seeking for some great specific

If identifying dangerous snakes was vexatious in nineteenth-century Australia, establishing effective treatments proved vitriolic. Excepting the germ theory of disease, there was no more contentious arena for new-fangled ideas of ‘scientific medicine’ than snakebite. Moreover, not just ‘facts’ were on trial, but the very means of knowing what constituted proof: the epistemology of modern science.

Before the 1890s, little separated ‘amateurs’ from ‘professionals’, indeed, shown like Shires pioneered live experiments in domestic animals. Until 1870, extracting evidence from such vivisections was as alien to surgeons trained through apprenticeship, such as Smith, as it was to clinicians trained in Britain’s new medical schools. Thereafter, British practitioners accepted knowledge generated via experimental physiology, but most colonial doctors continued following classical or clinical traditions, or dissecting their truths via comparative anatomy and morbid pathology.10

When colonial doctors did take to animal testing, their snakebite studies remained largely public. Presided over by a magistrate, coroner or government medical officer, many experiments occurred in authoritative institutions: hospitals, museums and police depots. Charged both with controlling stray animals and investigating violent deaths—including snakebite experiments in domestic animals, snakebite studies slowly receded from plebeian scrutiny; only in the late 1870s could reporters suggest that ‘[a] detailed account of the experiments would be uninteresing to the general public’.11
Sometimes, as at Hobarton General Hospital in 1850, or Melbourne Gaol in 1877, animal studies were designed to discredit lay antidotes. Conversely, into the 1880s, museum directors publicly sought to endorse lay remedies brought before them. As late as 1897, it was neither a doctor nor a scientist who tested an expensive new French antivenene (antivenin) in dogs at Melbourne Veterinary College. Rather, ‘Professor’ William Davis was another showman, who himself succumbed to snakebite onstage in 1903. Little wonder that in ‘Johnson’s Antidote’, from his phenomenally successful 1895 collection, _The man from Snowy River_, poet ‘Banjo’ Paterson satirised a rural entrepreneur who sacrificed his sheepdog in ‘Seeking for some great specific that would cure the serpent’s bite’.

**Statistics and scientific medicine**

In one sense, such industry is difficult to apprehend. By World War I, only two years—1887 and 1914—had seen more than twenty snakebite deaths reported across the continent. Although notoriously rubbery, such statistics paled against the scarlet fever epidemic which despatched over 5000 colonists in 1875–76. Compiling the most thorough survey of snakebite before Federation, Sydney Hospital physician Louis Ralston Huxtable concluded in 1893 that ‘in the great majority of cases strong and healthy adults recover from the bite of even our most venomous Australian species without the aid of treatment’, although children remained another matter. Concurrently, Melbourne University’s demonstrator in physiology, James Barrett, asserted to the Royal Society of Victoria that in killing one per 17 886 colonists—comprising 0.5 per cent of violent demises—snakebite represented ‘one of the most insignificant causes of death in our midst’. Yet as with epidemics, fluctuating fascination with serpents was never just about numbers. Almost every medical or ‘scientific’ periodical published in the Australian colonies from 1821 to 1914 included, within its first volume, at least one article on venomous local fauna. Most extreme was the _Australian Medical Gazette_ which in its first year, 1869, dedicated almost a quarter of its 280 pages to snakebite. Across its entire three-volume run, the proportion averaged nearly 17 per cent. Yet the competing _Australian Medical Journal_ barely commented, remaining similarly taciturn over 1890–93 while the _Australasian Medical Gazette_ allotted up to 10 per cent of its content to envenomation.

Similar disparities were evident in pharmacy, natural history and science journals, reflecting clinical fads, personal obsessions or vigorous rivalries. The twin poles of contention were the nature of venom—and hence how to counteract it—and what counted as appropriate evidence. Smith and Shires illustrated that professionals and ‘amateurs’ could happily coexist. Indeed, in 1867 Shires demonstrated

---

**Cat. 44 Snakebite kit arranged by Dr Randle, instructions from Dr A Mueller for his antidote of strychnia, 1892; wood, metal, cardboard and glass; 2.7 × 11.2 × 8.2 cm. Gift of Dr Robert G Sim, Medical History Museum, MHH002691**
As practitioners embraced the new science of immunology, especially its diphtheria
first condition for the Indian authorities was that ‘experiment on the lower animals be
Venom: Fear, fascination and discovery, Medical History Museum

42 By 1895, however, clinical testimony was wavering in Britain, India and Australia.
Society of Victoria dismissed his limited clinical evidence. Berating their conservatism, he
official trial of strychnine injection. Claiming a moral abhorrence of vivisection, Mueller’s
Antivenimeux in 1900, none of these technical triumphs entered Australian clinical
practice.27

1827–40 Rare and curious specimens: An illustrated history of the Australian Museum,
Evolution of a zoo: A history of Melbourne Zoological Gardens, 1857–1900
Settlers and convicts: Or recollections of sixteen years’ labour in the Australian backwoods

Over 1892–95, Sydney University physician Charles Martin characterised
Australian snake venoms in unprecedented detail via chemical tests and vivisections.
Moving to Melbourne University, he created an experimental antivenene against Pseudochis
porphyriacus venom in 1897.23 Comparing his agent with the Pasteur Institute’s ‘universal
Serum Antivenimeux’—raised against East Asian snake venoms—Martin asserted that
antivenenes only counteracted the venoms used to generate them. Having immunised a
horse against Notechis scutatus venom, in 1901 Martin’s colleague Frank Tidswell found
his antivenene effective in rabbits.24 Yet aside from a single patient treated with Serum
Antivenimeux in 1900, none of these technical triumphs entered Australian clinical
practice.25


4 3 4

Venom: Fear, fascination and discovery, Medical History Museum
10  'Snake poison and its antidotes', Argus, 8 November 1961, p. 3; Ann Towell Archives, Brownlee Biomedical Library, University of Melbourne, Folder 928, 'Vouchers in the experiments in snake-poisoning', 1879; Leonard Fawsett to Tharp Girdlestone, 25 January 1876.

11  'Snake experiments', Geologist Times, 7 February 1877, p. 3.


14  'Snake-bit and antidote', Queensland Times, 20 February 1897, p. 421.


19  George B Halford, Thoughts, observations, and experiments on the action of snake venon on the blood, Melbourne: Sedgwill and Co., 1894, p. 29.


