

FROM SNAKE HANDLERS TO WILDLIFE ENTREPRENEURS

The process of obtaining raw venom for research purposes and for the production of life-saving antivenoms is a highly skilled undertaking that carries with it considerable risk for the individuals involved. An error in judgement or a lapse of concentration could result in a bite with serious consequences including death. The production of antivenoms has not been possible without a small number of individuals willing to risk their health, and sometimes their lives, to milk highly venomous snakes of their precious venom. The 'milking' procedure most commonly employed involves holding the snake's head against a beaker over which a membrane of rubber or latex has been stretched. The snake's fangs penetrate the membrane and venom collects in the beaker. Bill Haast, the charismatic owner/director of the Miami Serpentarium Laboratories which opened to the public in 1947, popularised snake milking to an American audience, milking tens of thousands of snakes in front of rapt audiences throughout the life of this facility. The public interest in such performances proved to be just as strong in Australia, when snake expert, Eric Worrell, milked dangerous snakes for an appreciative audience at his Australian Reptile Park from the late 1950s.

The venom needs of pioneering venom researchers Charles Kellaway and Neil Hamilton Fairley at the Walter and Eliza Hall Institute, Melbourne, in the late 1920s and early 1930s, were met largely by former snake showman, Tom 'Pambo' Eades, who was by that time in charge of the reptile collection at Melbourne Zoo.¹ Other snake collectors provided snakes to Kellaway and his team, including a young 'snake man' from Tasmania, Jimmy Murray, who supplied him with hundreds of black tiger snakes. Eades ultimately left the zoo to work for Kellaway, for whom he collected snakes such as tigers, browns, copperheads and death adders and extracted their venom.² Following the completion of Kellaway's project, Eades went to work for the Commonwealth Serum Laboratories (CSL) where he was responsible for collecting, maintaining and milking the venomous snakes used to supply venom for the production of antivenoms.³ After Eades' retirement in 1941, another CSL employee, Charles Ricardo, replaced him and milked mostly tiger snakes held at Melbourne Zoo on behalf of the CSL.⁴ During the early 1940s, additional quantities of tiger snake and copperhead venom were provided to the CSL by David Fleay, who worked at Melbourne Zoo before being appointed as director of the Sir Colin MacKenzie Sanctuary at Healesville.⁵

Cat. 155 **Snake catching stick**, c. 1920; wood; 16.5 × 181.5 × 3.0 cm. Museum Victoria, HT002827



Up until this point, the milking of venomous snakes had been undertaken largely outside of the public gaze. This, however, was to change and one man was to make the milking of dangerous snakes an important part of his identity, an identity which became famous across the country as Australia's 'snake man'. Eric Worrell was born in Sydney's Paddington in 1924 and reptiles were the focus of much of his childhood. Regular visits to watch the 'Snake Man of La Perouse', George Cann, only heightened his determination to build a career involving their study. By the age of twenty-six, he achieved the first stage of his childhood ambition by owning a facility where he could keep and study Australian reptiles. Located near Woy Woy on the NSW central coast, he called it Ocean Beach Aquarium and it was opened to the public in 1950.⁶

Worrell had established a reputation as a writer of Australiana and natural history (particularly about reptiles) through his many articles published in magazines such as *Walkabout*, *Outdoors and Fishing* and *Australian Country* and by the late 1940s he had decided to write a handbook that would enable Australians to identify the country's dangerously venomous snakes. His research for this book took him to the CSL so he could better understand the composition and nature of snake venoms, as well as include the most up-to-date first aid advice for snakebite. The project was very good for Worrell, resulting in a book, *Dangerous snakes of Australia*, which ran to five editions and the decision by the director of the CSL, Dr Frederick Morgan, in 1951, to offer Worrell the job of working at the CSL in the role that Eades and Ricardo had previously filled. As tempting as the offer undoubtedly was, Worrell declined, but proposed an alternative arrangement: that the CSL engage him as an 'agent' supplying venoms from his base at Ocean Beach Aquarium.

At this stage, the overwhelming bulk of venom required by the CSL was from the tiger snake, necessitating that Worrell collect and maintain large numbers of this species. Luckily, his friend and mentor, George Cann, knew of many locations along the Murray, Lachlan and Murrumbidgee Rivers where tiger snakes could be found in great quantities. Another mutual friend, Ken Slater (who later made important contributions of venom from species of snakes he found in New Guinea), joined him on some of these early trips, as did his friends, the acclaimed photographer and photojournalist, Jeff Carter and his writer wife, Mare. These hauls of tiger snakes were kept in a pit at Ocean Beach Aquarium while surplus snakes were kept in pits at Cann's home in Sydney, where he would milk them on Worrell's behalf.⁷

In 1952 Worrell supplied nearly fifty grams of dried tiger snake venom obtained from almost 2000 milkings. He exceeded this the following year with sixty-four grams. The early 1950s saw Worrell perform around 3000 milking events each year to satisfy the CSL's need for venom, which occasionally resulted in a bite requiring medical treatment. Many of these milkings took place in front of an audience of visitors to the aquarium. Although he had a quiet personality and was softly spoken, Worrell nevertheless had a flair for showmanship. Dressed in his trademark safari jacket and slacks, Worrell milked tiger snakes for audiences of 1950s Australian families who stood in awe as he massaged the venom glands of

venomous snakes to promote the flow of the toxic stream into the glass beaker. They gazed with a mixture of fascination, disgust, concentration and quiet admiration. When Worrell worked with his snakes, milking them for the crowd, he melded modern science and medical research into his presentation along with an entertaining and engaging style.⁸

Worrell's reputation as a 'snake man' and producer of snake venom was enhanced considerably through his involvement in the supply of taipan venom. The bite of the coastal taipan was, up until the advent of a specific antivenom in 1955, almost always fatal. In July of 1950, a young Sydney snake collector, Kevin Budden, mounted his own expedition to Cairns in search of this snake, which he intended to make available to the CSL for venom research purposes. After some weeks of searching, Budden found what he was looking for, but his quarry came with a hefty price: the young man's life. While attempting to 'bag' the snake, the taipan managed to bite him on the hand. Bravely he persevered and secured the enraged snake before seeking assurance from his friends that regardless of the outcome, the snake would be sent, unharmed, to the CSL in Melbourne. Budden was rushed to Cairns Base Hospital, but died the following day, far from his family and friends in Sydney.⁹

Respecting Budden's wishes, the taipan was flown to Melbourne where Morgan asked Fleay to milk it.¹⁰ Fleay considered the request carefully overnight as he had never even seen a taipan, let alone handled one that was a proven killer. As he wrote, 'That night did not pass at all quickly. I kept thinking that a young, alert and expert snake catcher had been killed by this very reptile and that I had no experience with taipans whatever.'¹¹ However, the fact that Budden had given his life to provide the specimen for scientific study tipped the scales for him, and Fleay accepted the dangerous assignment the next day, milking the taipan without incident at the National Museum of Victoria. Research into the production of a specific antivenom for the taipan could now commence, thanks to the bravery of Kevin Budden and David Fleay.

In 1952 CSL asked Worrell whether he would collect and milk taipans on their behalf. Worrell agreed and over the next few years mounted a number of trips to the Cairns area to search for these large, dangerous snakes. His first trip, organised by his friend, John Dwyer, resulted in three taipans being caught but only one was brought back alive to Sydney where it was sold to Sir Edward Hallstrom, president of the Taronga Zoo Trust. Hallstrom had offered fifty pounds for a live taipan that he could display at Taronga Zoo, and was pleased to be able to hand over the money to Dwyer (being the expedition leader) in exchange for this snake. The highly-prized snake was maintained at the zoo by Cann, who by this stage was in charge of its reptile collection. Hallstrom allowed Worrell to regularly milk this snake and it was the venom from this taipan and that of Budden's, together with some venom supplied by Mackay-based snake handler, Ram Chandra, which formed the basis of the first batch of taipan antivenom. This antivenom became commercially available in 1955 and was used soon after to save the life of a young boy, Bruce Stringer. Worrell continued to make annual trips to North Queensland in order to collect enough taipans to satisfy the venom requirements of the CSL.

These trips were arduous and extremely risky for Worrell and his friends and associates, who put their lives in danger in order to collect these highly dangerous snakes.

By the late 1950s, Worrell's ambitions had outstripped his small aquarium, and in 1958 he bought land at Wyoming, a couple of kilometres north of Gosford, where he established his iconic Australian Reptile Park (ARP), opening it to the public in October 1959. By doing so he was fulfilling his childhood ambition of developing a 'reptile research centre' where he could keep and study reptiles. In particular, Worrell was keen to expand on the venom production work and he envisaged the ARP playing a major role in helping to understand the medical applications of snake venoms.¹² He built a comprehensive collection of Australian and overseas venomous snakes and other reptiles (as well as a range of native mammals and birds) and continued to provide venoms to CSL, and later other institutions and researchers both within and outside Australia. He forged a strong and enduring friendship with the CSL's Dr Struan Sutherland, who in the late 1960s began an ambitious research program into the venoms of Australian snakes. During these early days of the park's existence, Worrell provided venoms of taipan, tiger snake, death adder, brown snake and king brown, as well as Papuan black snake, to the CSL. By the mid-1960s, Worrell established a network of men such as Eric West and Roy Reynolds, who supplied him with venomous snakes so that he could focus on other aspects of his operations and leave the collecting of most of the snakes to others.

The public milking of highly venomous snakes became an important aspect of the park's array of visitor experiences, and large crowds gathered on Sunday afternoons to stand in awe of Worrell or one of his other staff, as they effortlessly milked the dangerous snakes of their venom. In the early 1970s, Worrell trained two of his female staff, Lyn Abra and Robyn Innes (who would later become Worrell's second wife), to milk the snakes as well, their gender adding an extra dimension to the dangerous performance.

Although Worrell maintained his reputation as the chief supplier of snake venom to the CSL, continuing to feature snake milking demonstrations at the reptile park, by the late 1960s the bulk of the snake milking was not carried out at the park, but in Kuranda on the Atherton Tableland by John McLoughlin, Worrell's 'North Queensland agent'. Worrell had initially shifted the milking of taipans to McLoughlin in 1965 as it was easier to maintain these tropical snakes in the area in which they naturally occurred, and the two had come to an agreement a couple of years later that McLoughlin would maintain and milk the other species of snakes that CSL was interested in on Worrell's behalf.¹³ McLoughlin was a skilled keeper and handler of snakes and in the several decades of him supplying venoms from a broad range of dangerous snakes he was never bitten. Unlike Worrell, however, McLoughlin was not a showman and was more than happy to tend to his snakes and extract their venom away from the public gaze.

Mutton-bird Roy Goss, bitten by a tiger snake, receives an injection of antivenom from Eric Worrell, Flinders Island, 1955, in Eric Worrell, *Song of the snake*, Sydney: Angus and Robertson, 1958, p. 197



By the mid-1960s, Worrell shared the supply of snake venoms to CSL with a friend of his, Charles Tanner. Tanner, originally from Melbourne, had moved to Cooktown in the early 1960s and established a snake venom supply business, providing venom mostly from taipan, king brown, brown snake and death adder. He also provided sample venoms from a wide range of venomous Australian snakes which form part of the national collection of venoms held by the Australian Venom Research Unit,¹⁴ and his expertise in venoms and snake natural history was appreciated by scientists such as Struan Sutherland at the CSL and Jeanette Covacevich at the Queensland Museum. Tanner was the first to milk venom from the inland taipan, which had been 'rediscovered' in the early 1970s, and he contributed to several scientific and medical papers on this species. Tanner retired from the snake venom business in the mid-1980s and McLoughlin continued as the major venom supplier with additional quantities provided by Peter Mirtschin of Venom Supplies, based near Adelaide. Today, the Australian Reptile Park, under the directorship of John and Robyn Weigel, oversees a large venom supply operation, and continues the relationship with CSL that Worrell commenced in 1951. In addition to supplying snake venoms, the park continues to be the sole supplier of Sydney funnel-web spider venom, which it began providing in the late 1960s.

The story of Australian venom research and the application of this research to the development of life-saving antivenoms would not be complete without recognising the bravery, skill and ingenuity of those men and women who have willingly risked their lives to extract the venom from an array of dangerous snakes. The dried, purified crystals of venom contained in pristine glassware on the laboratory bench is the outcome of the courage, physical effort and determination of this group of unusual people who searched for the snakes in the field, collected them unharmed, maintained them in captivity, and carefully and skilfully extracted their venom.

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- 1 John Cann, *Snakes alive! Snake experts and antidote sellers of Australia*, rev. ed., Kenthurst, NSW: Kangaroo Press, 2001, p. 158.
- 2 AH Brogan, *Committed to saving lives: A history of the Commonwealth Serum Laboratories*, Melbourne: Hyland House, 1990, pp. 44-5.
- 3 Brogan, *Committed to saving lives*, pp. 44-5.
- 4 Kevin Markwell and Nancy Cushing, *Snake-bitten: Eric Worrell and the Australian Reptile Park*, Sydney: UNSW Press, 2010, p. 41.
- 5 Rosemary Fleay-Thomson, *Animals first: The story of pioneer Australian conservationist and zoologist, Dr David Fleay*, Nerang: Petaurus Publishing, 2007, p. 112.
- 6 Markwell and Cushing, *Snake-bitten*, p. 33.
- 7 Cann, *Snakes alive*, p. 139.
- 8 Markwell and Cushing, *Snake-bitten*, p. 137.
- 9 Markwell and Cushing, *Snake-bitten*, pp. 53-5.
- 10 Fleay-Thomson, *Animals first*, p. 166.
- 11 Fleay-Thomson, *Animals first*, p. 166.
- 12 Markwell and Cushing, *Snake-bitten*, p. 77.
- 13 Markwell and Cushing, *Snake-bitten*, p. 148.
- 14 Peter Mirtschin, 'The pioneers of venom production for Australian antivenoms', *Toxicon*, vol. 48, 2006, pp. 899-918.

Cat. 15 **Endura car first aid kit including Trafalgar snake bite outfit**, c. 1950s; vinyl, glass, print on paper; 4.7 x 13.4 x 21.0 cm. Gift of Dr John Paull, 2013; Medical History Museum, MHM02013.58

