

Book review - *Venom: The Secrets of Nature's Deadliest Weapon*

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Venom: The Secrets of Nature's Deadliest Weapon. Ronald Jenner and Eivind Undheim (2017). Natural History Museum, Cromwell Road, London, SW7 5BD. 208 pp. ISBN 978 0565 0 94034. UK £14.99 (paperback).

In 2017, the exhibition *Venom: Killer and Cure* opened at the Natural History Museum in London, its organisation headed by researcher, Dr. Ronald Jenner. In conjunction with the exhibition, Jenner, and co-author Dr. Eivind Undheim of the University of Queensland, have written this popular science book on the subject of venom.

Following an introductory chapter, which defines what is meant by venom – ‘nature’s ultimate weapon’ – the book goes on to summarise the many animal groups with venomous members, as well as venom’s different functions, and mechanisms for its delivery. Subsequent chapters cover the techniques by which venomologists study their subject, including the collection of venom from live animals and the use of LD₅₀ values to quantify toxicity; the physiological actions of venom on the target’s body; and how natural selection acts upon venom, from ecological influences, to its metabolic cost. The history of our own relationship with venomous animals – particularly snakes – is largely saved for the penultimate chapter, though several case studies of envenomated humans are described earlier on.

The book is well illustrated, with colour photographs placed at relevant locations within the text. Tables and diagrams are also used effectively to convey information, such as a

run-down of numbers of venomous species and how many times venom is believed to have independently evolved. It ends with a relatively short glossary, which still manages to cover most of the terminologies that were not already explained in the text itself.

Jenner and Undheim put effort into explaining what an important evolutionary invention venom is, and successfully engage the reader, using both examples and their style of delivery. They convey their points in terms that any reader can appreciate, such as references to the beauty (or ugliness) of some venomous animals – and, in the case of the slow loris, the problems that can arise from being too aesthetically appealing. There are humorous moments, such as Jenner’s own recollection of being “assaulted by a venomous animal” while on holiday in Malaysia. (I won’t spoil what kind.) From the beginning, the authors note how people tend to automatically fear venomous animals and consider only a few particular examples (e.g. snakes, scorpions), before quickly explaining how widespread the usage of venom actually is, and the many positive impacts of the over 200,000 animal species which use it (including, but not limited to, the medical benefits of venom components). The whole book gives a very wide coverage of the subject of venom in the space available, utilising many different taxa as examples throughout.

For the most part, the book also succeeds in striking a balance between being comprehensible to the average reader while not sacrificing too much scientific detail. Almost all of the scientific terminology used is explained either in the text or the glossary.

Jenner and Undheim explain their principles as clearly as possible without oversimplifying, though some sections feel more aimed at readers already familiar with science – particularly Chapters 4 and 5, which cover how toxins act on ion channels, and why cysteine-rich peptides are good candidates for recruitment into venom.

Overall, Dr. Ronald Jenner and Dr. Eivind Undheim have produced a book which should appeal to a wide range of readers, including scientists: in terms of its ability to bring the fascinating and complex subject of venom to a general audience, it is certainly a great success.

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