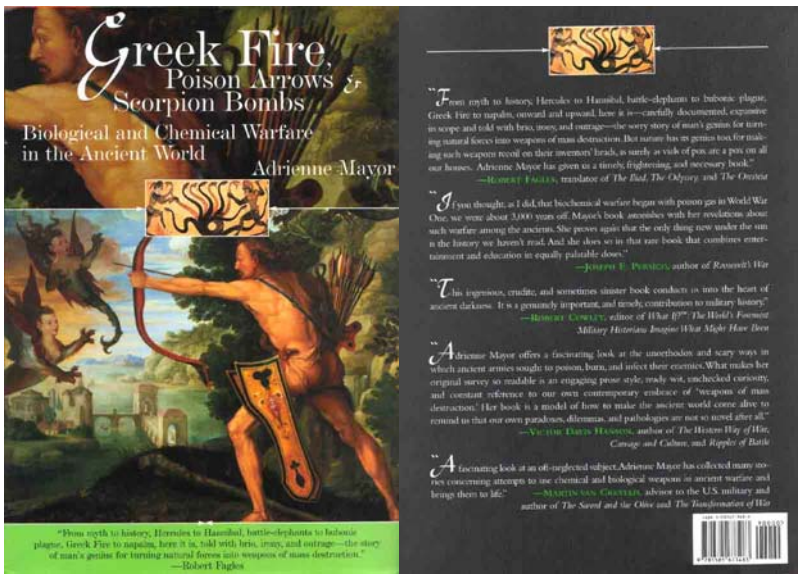
Mayor, A. 2003. Greek fire, poison arrows and scorpion bombs. Biological and chemical warfare in the ancient world. – New York, The Overlook Press

Book review by A.J. Clapham



This book makes a brave attempt to trace the origins and subsequent use of biological and chemical warfare in the ancient world. It may also be considered as a history of the development and use of weapons of mass destruction. In certain aspects this is achieved although there are several pitfalls encountered on the way. The author uses mainly historical and mythological sources which are used as far as I can tell, accurately and critically. This cannot be said of the archaeological evidence. This is accepted at face value and used sparingly and in many cases not referenced which makes it difficult for the reader to judge the interpretation of the evidence cited.

There are seven main chapters in this book with an introduction and afterword covering the different aspects of biological and chemical warfare in the ancient world. The introduction tells us about the rules of ancient warfare and how the use of biological and chemical methods of achieving victory was considered to be an underhand practice as well as being immoral. Chapter 1 covers the supposed invention of these weapons, suggesting that the origins lie within mythology. The first use of biological weapons, according to the author, is by Hercules who dips his arrows into the slashed body of the poisonous Hydra that he has just slain. Chapters 2 to 7 detail the different ways in which biological and chemical agents have been used in the past. Chapters 2 and 3 cover poisoned arrows, the use of plants and chemicals to poison water and the use of noxious gases. Chapters 4 to 7 describe the deliberate spread of diseases, the adulteration of foods, animals in warfare and finally chemical warfare. The afterword considers the problems of using these agents in war and the problems of disposal and contamination both in the ancient and modern world.

As an archaeobotanist I was looking forward to reading this book as it may have provided new ideas for the interpretation of some of the plant assemblages that I study. But I was constantly disappointed as I found many inaccuracies in the use of the botanical evidence and nomenclature. For example, on page 67, Mayor says that the christmas rose is *Helleborus orientalis* when in fact this species is the lenten rose. The real name for the christmas rose is *Helleborus niger*. On the same page she refers to *Veratrum* as being a member of the Liliacea where in fact it is a member of the lily family Liliaceae. The latin name for white hellebore mentioned in the text is *Veratrum album* whereas *Veratrum* species in general are usually referred to as false hellebores.

On page 94, concerning the use of centaury (*Centaurium* spp.) for healing wounds, the author states "Supplies of centaury have been discovered by archaeologists in the ruins of ancient Roman military hospitals in Britain". Several questions are raised by this statement. Firstly, where were these Roman hospitals? Secondly, in what form were the "supplies of centaury" found? Was it pollen? As seeds? Were they whole plants or just leaves or flowers? This statement is not referenced; therefore it is difficult to decide whether the information is correct. I am unaware of any large deposits of centaury being found on any British site of *any* age and it would have been useful to have the source in order to relieve my ignorance.

On page 127, the use of jimsonweed as a poison was quoted in the *Arthashastra,* a military treatise written in 4th century BC India. Jimsonweed is the common name for *Datura stramonium*; this is a North

American plant. So unless there was pre-Columbian contact in 4th century BC India, this plant could not have been present and thus used.

On page 160 Mayor mentions that mandrake contains strychine, but as far as I am aware this is not true. Mandrake contains hyoscyamine. The major sources of strychine are members of the Strychnaceae, especially *Strychnos nux-vomica* (nux-vomica).

Apart from these inaccuracies there were several other disappointing features to the book. These include the overuse of figures which bear little or no relation to the text and in many cases poorly reproduced. In several cases they look as though they have been directly downloaded from the internet or scanned. The maps were also poor looking like outlines of continents with lots of names spread over the interiors conveying very little useful information.

Besides these complaints and the fascinating theory of biological and chemical weapons being invented by mythological characters, this book is interesting to read. Although a chapter on how the various plants, animals and chemicals were collected and how the collectors protected themselves without poisoning themselves would have added to the value of this book.

The publication of this book could be considered timely with the current concern with weapons of mass destruction. What this book does show is that these weapons are not modern phenomena but have a long and terrible history.

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