



*Jeffery A. Lockwood. Six-Legged Soldiers: Using Insects as Weapons of War. New York, NY: Oxford University Press, 2009.*

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While the title alone is enough to intrigue any curious reader, the content and delivery of *Six-Legged Soldiers: Using Insects as Weapons of War* does not disappoint. The main strength, though some might argue weakness, of Lockwood's monograph is its wide-ranging scope. The writer is careful to point out in the Preface that he is not a historian, military or otherwise. He is an entomologist setting out to discuss 100,000 years of global history by linking how insects have been used, are being used, and may in the future be used towards military ends. By way of my own declaration, I am not a

historian or entomologist. I am an anthropologist geographically focused on Japan and theoretically focused on human-animal-technology relations. The book came to my attention because it contains three chapters on Japan's use of "six-legged soldiers" from the 1930s through to the end of the Second World War and this topic coincides with my own research interest in security (very widely and philosophically construed) in contemporary Japan. Personal reasons for approaching the book aside, I suggest that most readers would agree it is a masterfully written book. It appeals to a general audience through taking what could be, to a non-military historian, a dull read full of dates and documents alongside what could be, to a non-entomologist, an incompressible barrage of Latin names and genetic explanations, and cleverly fuses them into an enjoyable and thought provoking account with hooks, humour, and humility.

The book begins with the story of bee 'bombs' in ancient Egypt and ends detailing the possibility of future human-made genomic infused mosquito weapons in North America. Thus, any attempt at a concise chapter-by-chapter summary would be daunting indeed. Section headings do provide helpful guidelines to the over-arching themes however. "Stinging Defeats and Venomous Victories" examines how from BCE to the late 19<sup>th</sup> Century insects were "recruited" as weapons of war. Lockwood explains that the pragmatic tactics of their deployment were usually dependent on their being part of the natural environment. Bugs could, with relative ease, be manipulated into service; lobbing a wasp's nest at a military target or staking a combatant to an ant hill, for example. He points out that in this early historical phase employing insects was often effective, but it was also unpredictable and generally misunderstood; the ends justified the means, and occasionally the ends were the reversal of what was planned. Wasps can be rather indiscriminate in any given human conflict in terms of where they will strike. "Vectors of Death" focuses on the gradual understanding of insects as carriers of disease. For example, insects took more lives than armaments from the Napoleonic wars through to the bitter trench warfare of the First World War. With increased understanding of their predictability and potential, "Bringing Fever and Famine to a World at War" underscores how, notably through Japanese initiative but with a significant focus on other nations' entomological programs, including Canada's, insects were 'harnessed' leading up to and throughout the Second World War. The

detailed research of this section, including the supplementary suggested readings, provides the reader with significant insight into the functioning of secretive government war machines on both sides which were conducting experiments on military and civilian targets, for example. "Cold-Blooded Fighters of The Cold War" is an extension of the previous section's focus. It moves from the Korean conflict, to the Vietnam War, and on to alleged covert operations in Cuba. It is rich in detail, yet unfortunately tends towards American programs and conflicts in the main. However, detail into 'secret' American entomological laboratories is an intriguing topic; back room deals with Japanese war criminals, experiments on unwitting civilian targets in the US, and insight into the documents of cloak and dagger agencies and accusations makes for a compelling if lopsided read. The final section, "The Future of Entomological Warfare," focuses on the potential of insects to be used in future conflicts; terrorist attacks with crop destroying beetles, fireflies as natural guardians against biological attack, or cyborgs used for bomb detection based on the body of a cockroach as the ultimate indestructible and mobile platform. The section ends with a 'journalistic' account of what government agencies perceive to be real entomological threats and how they are preparing to face them.

Again, the book has some problematic issues related to the use of source materials and the ambition of its scope, both flagged by Lockwood early on. For example, a Japanologist will find that there is a frustrating lack of primary source references. An anthropologist will be etching in the margins of their copy notes, inquiring how one can write about cyborg insects and avoid the work of Donna Haraway or the burgeoning school of the posthumanities. A social theorist will ask in vain where is the discussion of the bio-political in all this really? Nary a reference to Michel Foucault? But readers should note that it is also this over-extended reach that makes the book a spectacular springboard to future research trajectories and opens the way for philosophical speculations. Indeed the final chapter is one of the best, begging the big questions; where are the linkages between insect, human, and the bio-political to be found? And moreover, what does the future of entomological risk hold for us? Lethal influenza can transfer from insect to animal to human, West Nile Virus can make yearly progress across a wealthy continent, and malaria is still, seemingly, uncontrollable; such trajectories remain difficult to scientifically (and perhaps ideologically) trace. Lockwood ends by asking the reader to consider "...whether our ability to medicate humans and

control insects makes entomological warfare and terrorism impossible in today's world...[with his final ominous words] Consider yourself lucky. So far" (313).

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