

# Fighting on a Miniature Front

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**As war is declared, you are swept up by the terrifying excitement which this entails. You begin to wonder, what it will cost to win? How many people will be lost? Are the insects on your side?**

Alright... maybe not the last one. However, this could be the difference between victory and defeat, survival and death; changing the course of human history. Now I'm not talking about the insects gathering in a committee and discussing which side they ally with, that would be ridiculous. I'm talking about how these minibeasts have shaped human history, both by being weaponised by humans, and by passively weakening armies just by their biology.

The most obvious way these brilliant bugs could be used in war is by throwing the naturally weaponised ones at your enemies... easy right? Entomological history is full of examples of projectile bees being used as warheads. The Tiv people of Nigeria developed an ingenious device, where bees were loaded into large horns and once nice and angry, pointed in the direction of the enemy and unleashed!<sup>1</sup> The Romans were the most impassionate users of the fling-and-sting technique, having catapulted so many hives that it has been suggested that the reduction in bee hives in the late Roman Era may have been due to how many they chucked at their foes<sup>1</sup> (I wonder if they shouted "*Bombus* away" when launching them). Not only were these harmful *Hymenoptera* used on the offensive, they

were also used defensively. This involved the laborious task of lugging these hives, sometimes weighing over 100 pounds, to the scene of the battle, so why not place the hives in areas for dual-use? In the U.K. so called 'bee bores' were developed into the south-facing walls of the castle, providing a defensive and honey-producing permanent resident<sup>1</sup>.

Defeat is often simply a situation of being in the wrong place at the wrong time. Alexander the Great, the Emperor of Macedonia, was on a perfect battle record of 20-0 when his campaigns finally halted on the banks of the Beas River in India. After growing his empire through Turkmenistan, Uzbekistan, Tajikistan, Afghanistan and Pakistan... why did he stop just short of such vast riches? Having traversed and camped among the swamps and rivers well into the summer mosquito season, his soldiers were riddled with diseases such as malaria<sup>4</sup>, spread by these pesky bloodsuckers. With his once formidable army reduced to a skeleton of its former self, it is no surprise that the campaign was abandoned and the trajectory of East Asian history was altered. This is not the only great leader who has been defeated by the humble insect. Napoleon Bonaparte was often being outwitted by such six-legged soldiers. For example, during three-day murderous spree of revenge in Jaffa, the flea caused a great plague to strike his soldiers with a massive 92% mortality<sup>3</sup>, some committing suicide rather than succumbing to their illness. He lost his

chance to incite rebellion against the Ottoman Empire and to weaken the British influence in India by losing this strategical vital clash.

As the world grew, so did the entomological arsenal. During the Second World War, Japan's Biological Warfare Unit 731, led by Lt. General Shirō Ishii, used these unwilling bugs to attack mainland China to devastating effect. Yagi Bombs, comprising of two compartments (one filled with houseflies, and one with a bacterial slurry which coated the flies just before release) were developed. Once released, they would happily spread this disease amongst the populous of China. It was declared in 2002 that Japanese entomological warfare in China was responsible for the staggering deaths of 440,000!<sup>5</sup> The Japanese also planned to attack San Diego in a similar manner by dropping with plague-infected fleas onto the populous in the cheerfully named 'Operation Cherry Blossoms at Night'<sup>5</sup>, however thankfully the surrender of Japan preceded this.

We have looked over how our ancestors have weaponised these tiny warriors, how chance can play its part and how in more recent conflicts they have been utilised for domestic attack, but what does the future hold for these insects of war, and should we be worried? Bioterrorism is a real threat we could face<sup>6</sup>, with insects being used to intentionally spread diseases as they are easily gathered and their eggs easily transportable without detection. US intelligence officials have suggested that insects could be genetically engineered to produce 'killer mosquitoes' or super effective plagues which could attack staple crops<sup>7</sup>. Although these ideas seem well into the realms of science fiction, they could be closer than thought. Therefore, we must all hope and work together to make sure the power of insects doesn't fall into the wrong hands...

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