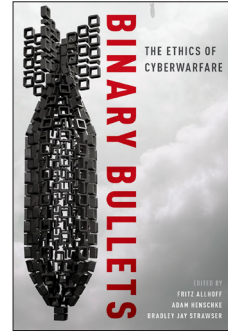


## Book Reviews

# Binary Bullets: The Ethics of Cyberwarfare



By Fritz Allhoff, Adam Henschke and Bradley Jay Stawser

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Reviewed by Squadron Leader Eoin Sands

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### Introduction

**B**inary Bullets is one of the first works to attempt to tackle the thorny problem of applying ethical theories from the just war tradition to the nascent and rapidly developing area of cyberwarfare. Comprising of twelve essays covering topics ranging from emerging international legal norms for cyberconflict to a suggested “Code of Honour” for cyberwarriors, the book is a brave and valuable attempt to stimulate academic discussion on what will be an increasingly important area for military ethics in the future.

The contributors come almost exclusively from the world of academia, with the majority being current or former professors of ethics, law or philosophy. While this means that each essay has been written by an expert in the field, it does reinforce the fact that this book is intended to provoke scholarly debate rather than to appeal to the casual reader. Most chapters assume at least a glancing familiarity with just war theory and international law, although it should be pointed out that an extensive background in the field of cyberwarfare itself is not a prerequisite. This is very much a book for military ethicists with an interest in cyber rather than the reciprocal.

That said, some chapters are more accessible than others, perhaps due to the presence of a former USAF officer on the editorial staff.

The book is split into four parts. The first explores the moral and legal normative framework that has already begun to emerge around the realm of cyberwarfare. The second investigates how easily cyberwarfare fits into the existing just war tradition, fundamentally asking whether there can be such a thing as a cyberwar (a question answered in the negative by Thomas Rid some years earlier in his seminal work *'Cyber War Will Not Take Place'*). The third section of the book considers the human element of cyberwarfare, both in terms of those who prosecute it and those who are affected by it. Perhaps the most accessible part of the book, it includes a fascinating chapter that examines through practical experimentation the psychological effects that cyberattacks can have on the individual. The book concludes by looking at "Cyberwarfare, Deception and Privacy" and includes an essay examining what is perhaps the salient question for the average citizen in the post-Snowden/Assange era: how ethical are national security surveillance programs.

Four practical examples of cyberattack dominate the book and they will be familiar to any student of cyberwarfare: the Stuxnet attack on the Iranian nuclear program; the Distributed Denial of Service (DDoS) attack on Estonia following the move of a Russian war memorial; Operation Orchard, the (alleged) Israeli Air Force raid on a Syrian weapons facility enabled by a prior cyberattack on the Syrian air defence system; and the alleged cyberespionage carried out by the Chinese military into a range of organisations and governments as detailed in the Mandiant Report. These examples highlight a fact that proves the importance of works such as *Binary Bullets*: cyberattacks to date have not involved death and large-scale physical destruction and therefore have fallen between the gaps of much of existing just war theory in a similar fashion to economic sanctions, diplomatic embargoes and other forces-short-of-war. Combined with the anonymity of cyberattacks (the so-called 'attribution problem'), this makes cyberwarfare an ethical minefield and one that demands attention.

Two works sit on the periphery of many of the essays and any prospective reader of *Binary Bullets* would benefit from also adding them to their collection. The first is the aforementioned *'Cyber War Will Not Take Place'* by Rid, which is in equal parts venerated and denounced in a number of the essays in this book (perhaps not surprising for what was an intentionally though-provoking and controversial piece). The second is *The Tallinn Manual*, perhaps the best attempt to date to codify rules for regulating the prosecution of cyberwar. Again, depending on the essayist, this work is either held up as a "very serious and expert document (p. 125)" or "a spectacular failure (p. 17)."

The presence of such contradictory opinions within the same book is indicative not only of *Binary Bullets'* ambition to spur academic debate but also of the absence of any existing agreed ethical frameworks for cyberwarfare. To further illustrate this point, in Chapter 5, Ryan Jenkins contends that cyberwarfare is a morally ideal form of war and as such the deployment of

cyberweapons should be morally favourable to a relevantly similar act of conventional war. Later on in Chapter 10, Heather Roff argues that any cyberattack (or at least any which results in death, injury or capture of adversaries) constitutes perfidy and is not only morally and legally prohibited but will also deleteriously affect the likelihood of *jus post bellum*. There can be few areas in military academia so undeveloped as to allow such opposing views equal credibility. This perhaps highlights the real appeal of *Binary Bullets*; it truly feels as if it is stepping into untrodden ground. It is not a book for everyone and casual readers will struggle with the occasionally impenetrable language used throughout. However, for those with a background or even merely an interest in ethics, it is essential reading.



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