



# What Some Books Leave Out: Recent Cases of Negative Bias

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## Abstract

Citation bias and confirmation bias, as well as various forms of scientific misconduct, are well known concerns within the scientific community. Such types of bias usually oversell scientific or theoretical arguments. Here another type of bias, negative bias, is when authors undersell their arguments by overlooking scientific evidence that would support or would have supported their arguments. Scholars need to be aware of the potential for both types of bias, positive and negative, when evaluating the research literature and preparing literature reviews.

**Keywords:** Confirmation Bias; Negative Bias; Scientific Misconduct; Literature Review; History of Islam; Gulf War Illnesses; Anthrax Vaccine; Pyridostigmine Bromide; Petra; Mecca

**Abbreviations:** PB: Pyridostigmine Bromide; GWI: Gulf War Illness(es)

## Introduction

Books often garner significant attention for their authors, but do their contents tell the whole story? Popularity may not mean scientific completeness. Previously, scientific citation bias has been examined with respect to journal articles [1], but here are presented two examples where omission of important research information may leave readers with a less complete understanding of the topics considered within books, a concept we label "negative bias."

### History of Islam?

As a first example, Spencer [2] discussed the work of Dan Gibson [3,4] and his intellectual opponent David King, who argued over whether the original holy city of Islam was Petra or Mecca. Spencer's concern is the limited available information on whether the prophet Muhammad existed as well as on much of the rest of the early history of Islam. However, Spencer fails to mention that the theories of Gibson and King have been tested scientifically, with clear support for Gibson's theory about Petra during the first one hundred years of Islam and also with support for some of King's theories for mosques built in later centuries [5,6]. Thus, Spencer

in this area - undersells his arguments about the early history of Islam, although both he and Gibson have provided extensive and helpful corroborating evidence in many other areas.

### History of Gulf War Illnesses (GWI)

As a second example, Saran [7] has provided an excellent discussion of legal issues surrounding the military's use of anthrax vaccine and other medical interventions during the first Persian Gulf War and afterwards. He mentions the work of Russ Dingle, major, U.S. Air Force Reserve, who had found numerous flaws in the production (and probably the transportation) of the anthrax vaccine [7: 234-235] and that of Lea Steele [8] who had found issues with the health of soldiers who had received vaccines for the first Persian Gulf War. As with Spencer [2], Saran also undersells his case, overlooking research evidence that the original report on anthrax vaccine effectiveness [9,10] used an inaccurate statistical test had the best statistical test been used, the effectiveness of the vaccine would *not* have been significant and that the second report [11] was only statistically significant due to an unexpected rash of anthrax cases at the last of four mills being used as test sites

that occurred remarkably within a few weeks of the start of the vaccination program at the fourth mill.

Furthermore, the numbers of participants in the testing changed without explanation in the second report and four mill workers died of inhalation anthrax, in part because the informed consent protocols in place did not allow for workers in the control group being informed of their potential for contracting anthrax, especially inhalation anthrax, and how to obtain medical help to prevent progression of the disease [12-19]. Other reports have presented evidence about toxic exposures to soldiers during the first Persian Gulf War [20], including nerve agents [21], pyridostigmine bromide tablets [22-25], vaccines [26-29] and other related factors [30-34]. Recent estimates are that one quarter to one third of Gulf War veterans experienced long-term health problems associated with toxic exposures [33:468]. In conclusion, there is a substantial amount of scientific evidence that toxic exposures during the brief first Persian Gulf War did adversely impact the long-term health of many military personnel deployed to that region, evidence that would bolster Saran's [7] case.

## Conclusion

By overlooking scientific evidence in favor of their own arguments, book authors can undersell the evidence for their own points, another type of bias which is here labeled "negative bias" different than citation [1] or confirmation bias [35,36]. Scholars need to be aware of the possibility of these different types of bias when they seek to understand and interpret scientific literature, as well as various forms of scientific misconduct [37,38].

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