

Bad Science

Book by Ben Goldacre

Reviewed by Brian Wolf

As a basis for *Bad Science*, Ben Goldacre, utilizes shocking statements and media stories to create a novel that depicts and dissects the relationships between science, media, and consumers. Since 2003, Ben Goldacre, a doctor for England's public healthcare system (NHS), has been writing a column for the *The Guardian*, on the abundance of careless science reporting in the media. His articles mainly focus on the bad science that exists in the world. It appears as though he is waging a one-man battle against a band of imposters that promote bad science. By combining his knowledge of epidemiology and public health, research skills, legal assistance, and, most importantly, his steadfast commitment, Goldacre aims "to teach good science by examining the bad." Right now, the public needs more Ben Goldacres, who act in the best interest of the consumer, not the producer.

With topics that range from homeopathic remedies to health epidemics, Goldacre's book begins with a chapter entitled "Matter" that describes a detox footbath that uses various techniques to "adjust the bio-energetic field" of water. By sticking your feet into this bath, a murky fluid forms, which is said to be toxins released from your body. Based on the toxins released, a so-called professional can read the toxins to determine the condition of your body. However, the toxins (or, rather, rust) are produced whether or not your feet are in the bath. These fake results from the "theatre of goo" exemplify the increasing need for control experiments to test hypotheses. What is most surprising about this example is that it involves the prevalence of deception that exists in various fields of medicine, ranging from herbalists to pharmaceutical corporations.

The main audience for *Bad Science* is the mainstream public who should be aware of the facts that affect their lives. Everybody can learn something from this book. The chapter on "Why Clever People Believe Stupid Things" discusses how individuals want to see patterns and causal relationships where there are none. Confirmatory information can support hypotheses and individuals are less inclined to challenge these hypotheses if they appear to be wrong. According to Goldacre, "It's not safe to let our intuitions and prejudices run unchecked and unexamined."

While Goldacre writes about how the system as a whole is at fault, he focuses numerous chapters on specific individuals, ranging from nutritionists to lab researchers. The individuals under scrutiny by Goldacre have many fake qualifications and make fortunes using science jargon and formulas to sell ineffective treatments for complex problems. With each chapter, Goldacre damages the credibility of these "psuedoscientists" while drawing the reader's attention to what the media inappropriately sells.

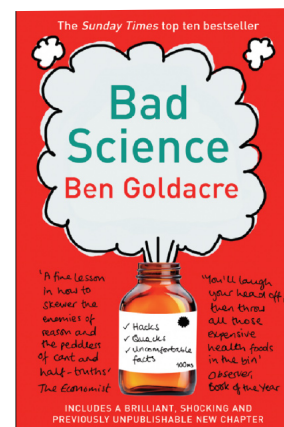
As an example, during the MRSA (a bacterial infection)

crisis in England, *The Evening Standard* received letters from microbiologists that expressed doubts about the tests that the newspaper reported. The newspaper received their information and results from a single lab, which was later discovered to be a garden shed. The microbiologists asked this "lab" for their samples; the results showed a rare strain of the bacteria that is usually only found in Australia. Since the lab had done work for the Australian press, a high probability of cross contamination existed. In response to the letters from the microbiologists, *The Evening Standard* responded, "We believe the test media used... were sufficient to detect the presence of pathogenic type MRSA." It takes chutzpah for a newspaper with limited knowledge about microbiology to cavalierly tell a group of well-respected microbiologists that their information is wrong.

Despite Goldacre's best intentions to protect the public, he is constantly threatened with libel action from the individuals that he criticizes. In 2008, Goldacre beat off the legal threats of Matthias Rath, a doctor who denounces the need for antiretrovirals for HIV in order to promote his nutritional supplements as a better treatment. Although his ideas seem ludicrous, Rath made millions from his treatments and false claims. When Rath decided to drop his case and pay for Goldacre's legal fees, Goldacre released a new version of *Bad Science* that stresses Rath's wrongdoings and the need to prevent Rath's ideas from spreading.

The "dumbing down" of science articles is the greater concern to Goldacre. Without a strong foundation in scientific studies, journalists, according to Goldacre, have difficulty understanding the studies conducted and write articles that lack "any scientific meat." Goldacre stresses the need for the media for journalists who write articles on science to be able to evaluate the findings and present the correct information to the public. With good science, there is also bad science. Ben Goldacre has exposed to the public that anyone with a good set of research skills can distinguish between good and bad science.

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