Einstein’s Luck: The Truth Behind Some of the Greatest Scientific Discoveries


On the painting of his portrait, Oliver Cromwell instructed the artist, “Remark all these roughnesses, pimples, warts, and everything as you see me, otherwise I will never pay a farthing for it.” This line eloquently provides the premise of Einstein’s Luck: The Truth Behind Some of the Greatest Scientific Discoveries by John Waller. With every example discussed in this book, Waller sets out to unveil the truth about the conduct of scientific debate, the procurement of scientific fame, and the relationships between the great scientists, their nemeses, and the predominant ideologies of the world surrounding them. In so doing, his goal is to provide four points to the reader: approach scientific discoveries with the utmost skepticism; abstain from bestowing prophetic characteristics of genius to scientists, which Waller terms “presentism;” understand the context in which achievements were accomplished; and enjoy the follies and irrationality of some of the most renowned scientists in recent history.

Based on his academic background, Waller is a reliable and appropriate source to analyze the truth behind scientific discoveries. He is a Research Fellow at the Wellcome Trust Centre for the History of Medicine at University College London, has Masters degrees in both Human Biology and the History of Science and Medicine, and completed his Ph.D. on the social and intellectual origins of Sir Francis Galton’s ideas of heredity and eugenics at University College London in February 2002. The extent and details of his stories reveal the passion of the author for the subject at hand.

In its basic style, Waller’s format is effective in persuasively arguing each of his points in the cases that he presents. He often starts by citing a quote from a modern encyclopedia or scientific text regarding an innovation and its discoverer, and then continues to paint a portrait of the myth as it stands. Waller proceeds to methodically pick out points of the myth which have no relevance to what actually occurred and allows the reader to step back and reassess the myth. The reader is then able to ascertain what purpose the myth serves and how it came about in the first place.

The quintessential example is Waller’s discussion of the myth that Gregor Mendel discovered the theory of heredity and the laws of inheritance upon which the science of genetics is based. He gradually exposes fallacies that prove that the story as we know it today is spurious by presenting scientific data that chromosomes were discovered well after Mendel had died and examining his journals to prove that Mendel could not have fathomed that which is now connoted by his name. One example is the Law of Independent Assortment, which states that chromosomes capriciously segregate into daughter cells during the production of gametes. After noting that gene pairs were not discovered until 1903, nineteen years after Mendel’s death, Waller reveals that, “having no conception of gene pairs, this is not a law that Mendel could have possibly devised.” Waller diffuses some of the stories, Mendel’s included, with such strong evidence and dexterity that it leaves the reader wondering how the community could have accepted the claims in the first place.

The initial reaction to Waller’s attacks against the fabled reputations of these scientists is to question how they became associated with these discoveries in the first place if they did not, in fact, discover them in the manner in which they have been credited. For example, Waller turns to Joseph Lister to make the case in point. Although Lister advocated a germ theory of disease, it was actually erroneous. Furthermore, he not only omitted the use of some of the more effective hygienic techniques of the nineteenth century in trying to maintain a sterile environment in the surgical room, but he even went so far as to publicly denounce the techniques as superfluous and inefficient. However, through his own propaganda and self-aggrandizement, he was able to rewrite history. Once his opposition had passed away, he was able to associate his name with the renovations of surgical hygiene that others had actually realized and introduced to the scientific community by simple painstaking repetition in speeches and publications. It boggles the mind how Lister and other scientists could lie to their colleagues about their achievements and achieve fame through fabrication.

However, the reader must be cautioned that despite the thoroughness of the research done by Waller and his collaborators, there are claims throughout the book that are speculative at best. In his chapter “A Decoy of Satan,” Waller tries to prove that the claim by Sir James Young Simpson that conflict arose between scientists and the Church over the use of anesthesia is fallacious. From his research, Waller infers that there does not seem to have been such a divergence between the scientific world and the Church, but this deduction is not conclusive as even Waller admits, “Providing absolute proof that no arch-conservatives took a contrary view is clearly impossible.” The author does suggest several plausible reasons for why this potentially false feud may have never occurred, but no definitive evidence is offered. But all of this speculation incites the reader to question whether Waller himself might be jumping to conclusions or generalizing by dismissing the conflict. In his defense,
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this is only one of the few weak cases presented in this book.

On the other hand, Waller does an exquisite job of delineating the challenges a scientist must overcome in order to have a new theory seriously considered. Robert Millikan, though a clever scientist, first jumps onto the scene with utter honesty of both his successes and follies in his attempt to show that discrete particles are the basis for electrical energy. Yet, his naivete and frankness are quickly effaced as he catches a backlash from certain scientists in the community who rejected his theory and used his own errors not only to prove him wrong, but also to humiliate him in a public forum. Under such severe scrutiny, we watch Millikan evolve from the innocent scientist to a rather sly character who is willing to embellish the truth in order to gain momentum for his own theories by only revealing facts that support his hypothesis. At this point the reader can begin to understand why such apparent immoral and unethical actions start to surface among such fine scholars. As Waller puts it, “irrationality can have an important role in achieving scientific progress.”

Waller also takes time to remind the reader that without the unknown scientists who made the minor discoveries along the way, the ultimate Nobel prize-winning findings could never have been achieved. He emphasizes that both positive and negative results are equally important in making scientific progress. This point is relevant to the entire scientific community and is particularly appreciable by those who have spent endless nights in a laboratory only to ultimately fail.

The dominant characteristic of this book is its honesty in unraveling how some of the most important scientific discoveries were actually made, and how the history behind them became so distorted. However, Waller’s literary style can be too technical at times, even for the science-oriented mind. For example, the points he presents in the section discussing Sir Arthur Stanley Eddington’s experiments regarding gravitational fields, time, light, and relativity can be too complex in reviewing the history of scientific myths. Such subjects would most likely be confusing and disinteresting to the layman who has relatively little or no scientific background.

Einstein’s Luck leaves the reader with a sense of being cheated. For years, many of us have been told fables about great scientific heroes who changed the world as we know it, only to find out in this book that several of these accomplishments were exaggerated by epic proportions. Yet, in his conclusion, Waller concedes that the examples given are not substantial enough to conclude how typical such devious behavior actually is in the scientific arena. As a reader, one would like to read a follow up text exemplifying scientific ingenuities whose discoveries are supported by real and true events. Such a work would prove that the skepticism that Waller advocates is not always necessary and that many scientific discoveries are in fact authentic and commendable.

Waller is a talented writer and his presentation of the material and the pace at which it is delivered is certainly palatable. The detailed examples he presents of the misconduct of those who we consider to be reputable scientists will force the reader to take nothing at face value in the realm of science. He accomplishes this by providing key pieces of evidence that could only have been revealed in hindsight when the most intimate notes, thoughts, and opinions of these scientists are actually exposed; that is, after they have passed on from this world. Waller’s circumspect skepticism is initially surprising and questionable as the student of science generally expects the utmost adherence to the principles of research, especially by the greatest scientists ever. However, upon reflection, one can quickly realize that many leaps of faith and severe rule bending are necessary in order to make new discoveries that revolutionize the way science and the world interact.

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