

**The Black Swan: The Impact of the Highly Improbable**, by Nassim Nicholas Taleb. New York: Random House, 2007, xxviii + 366 pp. \$26.95 (hardcover). ISBN-10: 1400063515, ISBN-13: 978-1400063512 .

*The Black Swan* is part entertaining rant and part serious epistemology. Almost all of my reading time was spent smiling.

Historians of Greek philosophy sometimes tell the story of one of the first philosophers, Thales of Miletus, that he once was watching the stars, and fell into a well. The citizens of Miletus made fun of him being an impractical philosopher. To prove them wrong, he used his knowledge to corner the market in olive oil, and made a fortune.

Not a very plausible story, but appealing to us academics. (Like Thales, we like to think we could all be rich, if we didn't have higher goals.) Well apparently Taleb is the real Thales. He wanted to be a philosopher, got rich on Wall Street using his epistemological insights, and is now using his wealth to finance his musings on whatever he cares to muse on.

Taleb's central thesis is that we systematically overestimate our knowledge, and underestimate the probability of unexpected events. The book's main title comes from the story that Europeans once thought that all swans were white, until the first black swan was sighted in Australia. As defined (and capitalized) by Taleb, a Black Swan has three characteristics: "rarity, extreme impact, and retrospective (though not prospective) predictability." (p. xviii)

The book's subtitle, "The Impact of the Highly Improbable," is a bit misleading, because a part of the book's message is to argue that what is usually considered highly improbable is actually more probable than is usually thought. This argument is expressed in various versions. One of them is to say that we think we live in "Mediocristan," although we actually live mainly in "Extremistan." Another is to argue that we apply the bell curve everywhere, even though it is an increasingly inaccurate representation of most of what is important in our world.

The bell curve implies that events away from the mean quickly become so improbable that they effectively can be dismissed or ignored. For example, when I was a graduate student in economics, we were sometimes taught that it was acceptable to delete outliers from the statistical analysis, because any observation so far from the mean was most likely due to measurement error. Such reasoning may be sensible in a world ruled by the bell curve, but it is pernicious if observations away from the mean are more common than the bell curve implies.

Taleb goes further. Not only are uncommon events more common than is usually believed, uncommon events are also more important to the history of the world, and to our practical well-being, than is commonly believed.

He argues that we attribute undue certainty to the currently-dominant theories, and accord undue prestige to the leading academic purveyors of the currently-dominant theories. We do this partly because we find it reassuring to believe that we have a high level of understanding of our world. And maybe we also partly do it because the "experts" have an

interest in convincing us that the theories that the “experts” have mastered, are worthy of our time and financial support.

The book does not have a strongly disciplined focus. For example, in different parts of the book, Taleb argues for his vision of the good life (pursue erudition, do not race to catch trains, etc.); tries his hand at fiction, in recurring brief scenarios about a novelist Yevgenia Krasnova; and gives advice in personal finance (combine safe investments, with a diversified portfolios of bets on ‘black swans’).

So it would be no surprise if different aspects of Taleb’s book end up appealing to different audiences. He writes with wit, sarcasm, and over-the-top opinions, so those who find Voltaire entertaining, may also enjoy Taleb. His belief in irreducible uncertainty, makes him skeptical of most long-term planning, and sympathetic to individual experimentation and entrepreneurship. This leads him to a skepticism toward big government and big corporations, that may be appealing to libertarians who favor an entrepreneurial form of capitalism. He also has advice for successful financial investing; most notably, to make many modest investments in low-probability, but high payoff, Black Swans. Such advice may be of interest both to professional investors and to ordinary citizens looking to improve their personal finances.

But parts of the book are also likely to appeal to members of the Society for Scientific Exploration (SSE). According to Taleb, many academics ascribe more certainty to their models than is justified by the evidence. As a result, they find ways to ignore, or dismiss, observations that are inconsistent with the theories. Taleb contends that such observations are both more common, and more important, than mainstream theorists allow.

Taleb's explicit scientific methodology is largely Popperian. The problem of induction implies that you can never confirm theories. The best you can do is to refute false ones, by seeking observations that do not fit. Since the members of SSE take observations seriously that do not fit current theory, we are doing what Taleb says must be done to advance truth.

Although Taleb's broad arguments are relevant to SSE's aims, his specific examples are usually less so. He mainly presents examples from areas in which he has experience and interest, and these areas tend to be mainly from the social sciences, especially economics. When he does use a non-social-science example, it is frequently from medicine, often involving his praise for an obscure empirical, practice-based school of medicine associated with the names of Menodotus of Nicomedia, and Sextus Empiricus.

In a chapter section on "Inadvertent Discoveries" Taleb argues that important scientific discoveries are not usually the result of scientists finding what they are looking for, based on current theories. Instead, most important discoveries result from serendipity. If Taleb is right, then what is important for the advance of science, is that we try to expose ourselves to discrepant and unexpected phenomena, and that we be open and alert to such phenomena, when they turn out to be present.

Other respectable students of science have reached a similar conclusion. Taleb credits Sir Francis Bacon, and Arthur Koestler, especially in his book *The Sleep Walkers*. More recently, in his much-anticipated *The Dimming of Starlight*, Gonzalo Munévar argues that a primary benefit of continued space exploration is that it greatly increases the opportunity for us to encounter serendipitous discoveries.

Besides a view of the world that supports the SSE research program and methods, *The Black Swan* may be of secondary interest to SSE members for its skewering of the academic establishment. What he offers here, serves both to amuse and to provoke thought.

As for amusement, that is partly a matter of taste. I, for one, smiled broadly at Taleb's discussion of "peer cruelty," from which I extract a characteristic sentence:

If you are a researcher, you will have to publish inconsequential articles in "prestigious" publications so that others say hello to you once in a while when you run into them at conferences. (p. 87)

Taleb provokes thought through comments that are skeptical of the incentives, traditions and institutions of academia. He believes that the best science and philosophy are done by those, like himself, who understand the practical significance of their research. In contrast, he believes that many academics, like the early medical doctors, are pompous frauds, whose theories have no record of practical success. (In modern times, he especially goes after economists, whose failures to predict, result in excuses, but not in major revision of theories, or greater modesty in making further predictions.)

In the end, I fear that I have not done justice to a book that I believe is full of important, and well-defended, insights. I thoroughly enjoyed the nonlinear style of the book; and the style, arguments and evidence, produced a substantial cumulative case. But the lack of linearity, makes that case very hard to adequately summarize; or, at least, such is my excuse.

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