



THE BRIDGE

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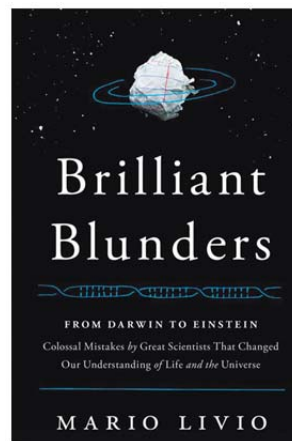
Brilliant Blunders, From Darwin to Einstein

by Mario Livio. Hardcover Simon and Schuster 2013;
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Mario Livio has written a book that I couldn't put down until my eyes hurt. He is an accomplished astrophysicist and prize-winning author of a number of books about science for the general public.

Brilliant Blunders describes "colossal mistakes" made by five of our most brilliant scientists: Charles Darwin, William Thomson (Lord Kelvin), Linus Pauling, Fred Hoyle, and Albert Einstein. In each case, Livio first describes the most seminal discovery or theories that each scientist correctly contributed to our collective understanding of biology, geology, physics, and cosmology. I personally learned as much or more from the author's description of each man's fundamentally correct body of work as I did about their blunders. Dr. Livio describes each great discovery in a way that is neither too simplistic and patronizing nor too technical and mathematical. He gives many anecdotes and references to the "path" to each discovery including personal correspondences by each scientist.

Following a chapter or two on each scientist's accepted correct theory or discovery is a detailed description of a particular and usually well-known blunder or stupendous oversight that each scientist made. As an example, Charles Darwin's theory of natural selection as the mechanism of evolution and formation of new species was incompatible with the accepted (including by Darwin) theory of blending inheritance that was current in Darwin's day. Another scientist named Fleeming Jenkin who was more statistically articulate than Darwin published a description of this inconsistency. Livio's book describes how Darwin intuitively understood this dissonance, but because he was admittedly non-mathematical, had not articulated it sooner, and had to struggle to reconcile with it. Darwin's theory required the not-yet elaborated Mendelian inheritance to make sense statistically. One of the more fascinating stories Livio tells is how Darwin almost discovered Mendel's laws of



inheritance himself, by crossing snapdragons and observing the lack of "blending inheritance", yet he couldn't quite manage to make the quantitative conclusion that led to the discovery of genes.

Like Darwin's "blunder", the remaining four cases are all highly idiosyncratic to the individual scientist, depending on their own unique psychology AND the particular set of observations made by others in their particular field relevant to their mistaken scientific conclusion or theory. The case of Linus Pauling's incorrect structure for DNA was described as a combination of competitiveness and hubris on Pauling's part and his apparent selective neglect of others' extremely relevant observations with respect to the chemical properties of DNA (e.g. Erwin Chargaff's "rules" for ratios of nucleotide bases).

William Thomson (Lord Kelvin), Fred Hoyle, and Albert Einstein's major blunders and oversights are also elaborated with insight, humor, and compassion in this book. Dr. Livio often points out results of psychological research that is relevant to how even the most brilliant of humans may misjudge their own capacity for objectively determining a scientific truth. I found Mario Livio's well-researched book as much fun to read as any mystery or spy novel.

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