

Review of: "[Commentary] The Zeroth Law of Science"

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As Carl Sagan said, "Extraordinary claims require extraordinary evidence." The author is making an extraordinary claim but offers no credible evidence to back it up. The claim ends up being that the laws of physics and chemistry might be dependent on the thinking of the experimenter. To be clear, the claim is *not* that different experimenters might measure the same thing and get different results. That, of course, can be true due to biases, differences in methodology, random error, human error, etc. Rather, the claim is that even in the absence of those kinds of reasons, thought and intention have a demonstrable impact on the results.

One example the author uses as evidence involves the measurement of the gravitational constant. Various labs over the years have measured the constant, and those results are not all within the expected uncertainty of each other. However, the paper that data comes from offers three possible reasons for the discrepancy: unknown biases (even specifying several examples of biases that affected the measurement of this constant), incomplete or inaccurate accounting of uncertainty, and, least likely, variations in the gravitational constant itself. Convincing anyone of the last possibility would require extraordinary evidence, but the author presents none.

The previous example is the most grounded example the author provides. Elsewhere, he mentions "a great number of anecdotes are reported which suggest exceptions to physical laws." No scientist should deny the possibility that some currently accepted physical laws are wrong or incomplete, but again, refuting those laws would require extraordinary evidence. Vague claims of anecdotes do not constitute extraordinary evidence. Later, he cites work published in the journal *Explore: The Journal of Science and Healing*, which is known to publish... unconvincing work. Including citations from less-than-reputable journals weakens the overall argument. And last, the author appeals to Biblical miracles as exceptions to physical laws, without providing any evidence of any miracles actually happening.

Again, scientists should not immediately dismiss claims that accepted physical laws are incorrect. There have been scientific revolutions before as a result of accepted laws being overturned! Perhaps some of the author's ideas will turn out to be true. But we should not simply accept those ideas without being given extraordinary evidence. At present, I see no reason to publish a paper such as this until such extraordinary evidence is provided. But hey, it was a fun read!