

Review of: "Further Chaos and Dysfunction in the Brickyard and the Systems That Support It"

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Potential competing interests: No potential competing interests to declare.

I generally and intuitively agree with the broad concerns expressed in this paper, about serious Chaos and Dysfunction that has developed in modern Science in the last 60 years or so. But I am also concerned that after expressing those concerns in terms of a hypothetical "bricklayer / brick-builder" analogy, the paper goes little further in terms of better defining / adding Real-World specificity, definitions, or examples about its concerns, or possible solutions to the problems / issues. However, I think I can provide a prominent and recent Real-World example that very well illustrates the paper's concerns.

The current paper expresses concerns that the Quality of both "Science" and Scientists has further declined over the last 60 years since Forcher's 1963 paper, which originated the "bricklayer / brickbuilder" analogy. The concern seems to be that as government money and/or political influences over the funding of Science and/or Scientific publishing have grown, that too many poorly trained and inexperienced "Scientists" are being allowed to publish large numbers of poor-quality papers in multitudes of poorly reviewed journals, and are therefore degrading the Quality of Science and/or losing sight of the real purposes and/or justifications for Science.

Those problems are undoubtedly Real, Vast and very complex. There must be at least a few hundred-thousand "senior" scientists (bricklayers) training even larger numbers of new "junior" scientists (brickbuilders). The "bricklayers" are undoubtedly training the "brickbuilders" in a very large number of very different ways that produce very widely different "Qualities" of results, both in terms of the Quality of the young Scientists introduced into Science, as well as the Quality of the "Science" and the publications they produce.

I agree with the author's concerns, but the current paper does very little to go beyond the brick-builder / bricklayer analogy. I don't think merely expressing very broad and poorly defined metaphorical concerns is much of a "Scientific" contribution. The author should take some further steps to better define and address at least a few more specifically defined Real-World examples of his concerns, and hopefully then suggest some solutions to the narrower but better-defined problems.

I can provide a prominent recent example of such problems, "Green Chemistry". For almost 30 years now, literally thousands of Scientific literature articles have propagated a "narrative" to the effect that environmentally conscious "Green Chemistry" began at the US EPA and in Academia in the 1990s. That "1990s Green Chemistry Narrative" was and still is wildly incomplete and deceptive, and illustrates some several modern Scientific "Paradigm Changes" that were caused by poorly trained and inexperienced EPA officials / Academics stepping into a Real-World "Field" they knew very little about.

Those government bureaucrats and/or Academics, and their journal and popular press publishers used U.S. government grant money to publish thousands of “after-the-fact” wildly theoretical and historically inaccurate papers and books, lecturing experienced industrial people who had been addressing “Green” issues for decades, with what Nassim Nicholas Taleb calls “Soviet-Harvard Illusions” (lecturing birds to fly and then thinking that the lectures caused the flying). But there is even a bigger problem: assuming that all the relevant information is in Academic Scientific journals. That was one of the biggest sins of the perpetrators of the “1990s Green Chemistry Narrative” and the “12 Principles of Green Chemistry”.

How would I know about all this? Because I was one of the earlier Industrial “Brick-builders / Bricklayers”. I was the person who, in 1984, conceived the BHC Ibuprofen Process that won one of the first US “Presidential Green Chemistry Challenge Awards”. The last four years I have written and published four well documented articles that totally re-write the story and interpretations of the origins of “Green Chemistry”. The story is very well documented in an Open Access article in *Substantia* in 2022, available through the link below.

I think if you read the *Substantia* article you will find it very well illustrates some of the problems, some of the solutions, as well several Scientific “paradigm changes” in both industry and Academics over the past 50 years. Unfortunately, much of the poor training in the “Quality” of the training of Scientists, and the “Science” they publish is still propagating in the literature 30 years after it started. Far too many of those Academics and/or bureaucrats still assume and/or rely on theoretical “narratives” rather than empirical facts and genuine “Science”. Many, many current “Green Chemistry” articles based on the false “narrative” and “12 Principles” are still publishing in the Science journals. Many more “Scientists” need to recognize another “Paradigm Change”, i.e. that very complex Evolutionary processes are a very real part of how Science is conducted in the Real World, and that the “Soviet-Harvard lectures” about “Principles” need to change, a LOT.

I think the “Green Chemistry” story would make a great Real-World example to illustrate this author’s currently primarily metaphorical concerns. If you would like to discuss any of this further, this reviewer would be willing to consider participating in future verbal discussions.

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