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What's in the Darkness? Understanding Fringe and Pseudoscience

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Michael D. Gordin  
*Pseudoscience: A Very Short Introduction*  
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The “question of science” consists of many tiny, though rather complicated questions; but defining science, or at least the continuous *attempts* to characterize science in a unique way, has always had a peculiar socio-cultural implication. The question of what science is even led countless hard-boiled scientists—who otherwise expressed public disdain for anything philosophical—to express their (un)educated opinion about the non-quantifiable aspects of their enterprise. If you can say what science is, then you can obviously also say what *isn't*, and you are thus able to delineate the field of valid practices and legitimate fields of knowledge.

And let us not beat around the bush: if you define science, you get closer to identifying pseudoscience as well. But as it turned out in the twentieth century, it is painstakingly hard, or even seemingly impossible, to provide a closed, comprehensive, universal, and all-encompassing definition of science. Because of that, many philosophers and sociologists have put this never-ending story to rest. That doesn't mean, however, that there is no story to be told about pseudoscience. On the contrary!

### **Defining Pseudoscience**

In his latest book, *Pseudoscience: A Very Short Introduction* (which is a paperback re-edition of his previous *On the Fringe*, published also by Oxford University Press), the Princeton-based historian Michael D. Gordin has accomplished a major task: He has written a short, dense, yet approachable and useful book on how to come to terms with the countless forms of pseudoscience, and all those activities that are pursued *on the fringe*.

In Chapter 1, Gordin quickly recalls the question of demarcation, the problem of how to delimit science from non-science and thus to confine pseudoscience to its proper place. The most famous attempt is obviously Karl Popper's falsification, which claims that if you are able to test the statements of a purported scientific theory and know those points and joints where invalidating evidence would prompt theoreticians to abandon the theory, then the theory is indeed scientific. For Popper, and for his countless followers within philosophy, sociology, science, and science popularization, the hallmark of pseudoscience is the resistance to falsifying evidence, a spastic insistence on a beloved theory. But it quickly turns out that Popper's criterion falls short (it defines many explicitly scientific attempts as pseudoscience, and many obvious types of pseudoscience as scientific), meaning it fails to draw a sharp line between science and pseudoscience. In fact, not even a strict definition of science is possible if one looks only at the relevant and culturally given axes of scientific activity.

Gordin is on to something when he claims that we should indeed leave behind this business of strict and once-and-for-all demarcation, since it is either impossible or exhausting to find any characteristics that are shared by all the sciences, and only the sciences (42). Instead, “we

might sort fringe doctrines into ‘families’ that can be usefully analyzed together” (14). Two things must be mentioned here. First, this seemingly Wittgensteinian “family analysis” is a very interesting move forward for the field that is to be welcomed. Secondly, while the word “pseudoscience” appears regularly in the book, “fringe” is the term and notion that Gordin relies on most, as he consistently talks about “fringe doctrines,” “fringe practices,” “fringe theories” and all those other activities that are pursued “on the fringe.” Why is that important? Because stating that certain people are working “on the fringe” means that their status is questionable and flexible, thereby already placing them in a neat and culturally complex web of values and ideas. Gordin is not dismissive of fringe ideas from any authoritarian or epistemic high ground; he really tries to understand what is going on in regions whose rules and evaluation depend on too many things. Nonetheless, he still sees the danger of those fringe practices that might have non-desired epistemic and existential implications and comes down hard on non-consequential pseudoscience.

### **Categorizing Fringe Practices**

Gordin’s family of fringe practices and pseudosciences fall into four major categories. First, there are the “vestigial sciences” (Chapter 2), those “theories and beliefs that once counted as science but were rejected, so that they have morphed into being classed as pseudosciences” (17). This includes, for example, astrology and alchemy, which were considered respected sciences until the eighteenth century, when due to a slow change in scientific practices and measurement activities, they were relegated to the fringe of academic life.

The second group involves the “hyperpoliticized sciences” (Chapter 3), a strange category. Politics pervades everything around us, and science makes no exception; on the contrary, through institutionalized investigations, public universities, funding, and policymaking, science is politicized through and through. According to Gordin, the problem with such issues as the famous “German Physics” debate (which he calls “Aryan Physics,” to make explicit the Nazi background of the problem) or Lysenkoism is that “they were hyperpoliticized purely as arms of a particular political ideology” (31). That is, they were not simply influenced by political concerns, but were developed and shaped by political intentions with the promise of purely political power. One might think that such pseudoscientific endeavors emerge only in totalitarian regimes (like the Third Reich and the USSR), but Gordin shows that eugenics developed and flourished even in such democratic states as Great Britain and the United States. No one is safe from hyperpoliticized activities, though obviously, the risk is higher in oppressive regimes.

In Chapter 4, we get to know the trickiest fringe conceptions, which Gordin calls “counterestablishment sciences.” They are especially interesting, because in all their practices, they mimic the mainstream scientific community: they boast refereed journals, congresses, societies, institutes, funding—just like any consensually accepted and historically embedded scientific field. Furthermore, and perhaps more importantly, they consider the mainstream sciences to be dangerous, since they supposedly hide the truth, and prevent honest researchers and the public from gaining access to the true nature of things. For laypeople, it is hard if not impossible to recognize and differentiate between mainstream and counterestablishment sciences—their danger lies, especially, in their professional mimicry. The examples Gordin provides are phrenology (measuring the mind through the skull),

creationism (and its variants), cryptozoology, cosmic catastrophism, ufology, and flat Earth theory. All these fields exhibit the major structural characteristics of mainstream science, and in certain periods and on certain questions even aligned with it.

Chapter 5 presents a non-defined category of fringe activities relating to “mind over matter” and concerns the extraordinary abilities of the mind and mental sphere. Gordin discusses mesmerism (the idea that a special magnetic, superfine fluid penetrates all bodies), religiously inspired spiritualism, with all its ghosts and séances, and university-based parapsychology. These movements are interesting because, in a sense, they are obviously on the fringe, although scientific practice has embraced them from time to time. Thanks to them, new experimental, randomized, and statistical methods have been established in science (66-67), and despite the decades-long debunking activities of scientists, the matter has not been closed, with “new contenders” arising regularly. Sometimes, they crop up along the (fringe) lines of empirical discoveries (far-fetched matters for which there is empirical evidence), and sometimes as old wine in new bottles to make an old, metaphysical point that is empirically hard to refute.

Gordin’s strengths are, again, his interpretative abilities and understanding. In Chapter 6, he presents many examples (like polywater and cold fusion) of the “gray area” of controversial science. And neither does he hide instances of fraud, misconduct and error, or the misbegotten trials and recurring replication crises of the psychological and medical sciences. These are issues that have to be answered by anyone seeking to debunk pseudoscience for similar reasons.

### **Science-Pseudoscience Dynamics**

In the final chapter, two questions emerge, “Whom to blame?” and “What to do?”. Attributing blame is not easy—if the sciences are controversial in themselves, with even the best-intentioned scientists prone to err, and less and less consensus within major fields of science (like advanced theoretical physics), “it is no wonder that picking out the pseudoscientists on the fringes is challenging” (95). But what can we do? Many readers will not like Gordin’s answer, as he thinks that the mighty “science education” card (give people more information, and they will see the truth) cannot solve this problem. “Pseudosciences do not develop because people have insufficient scientific information,” since some “join these groups for a sense of community,” for excitement, or out of a “sincere quest for the truth” (104).

People often engage in pseudoscience for similar reasons why others become scientists. After all, “pseudoscience is the shadow of science” (104), and the bigger the science, “the sharper the shadow and the more robust the fringe”; the two go hand in hand. Perhaps this is one of the most interesting, constructive, and debatable points of the book. Gordin thinks that fringe activities, and thus also the pseudosciences, are nomological danglers: they do not fit into the established laws of science, yet there they are. If all goes well for science, people will surely want to construct a narrative of their practices that puts them in some relation to the sciences. Since our work is better, safer, more humane, and devoid of the dangers of mainstream politics, pseudoscience will give you all the respect and rewards of the sciences,

without their rotten, and conceived inhumane, and abstract regularities. One has to admit that it does kind of work, given how fringe ideas spread among doctors during the pandemic. It had a human touch.

Therefore, if we want to get rid of pseudoscience, perhaps the most essential and promising option is to get rid of science as well. That not being an option, Gordin prompts us to see the situation for what it is—not necessarily as an epistemic issue, but as a social one. Deal head-on and forcefully with those movements that cause actual public harm, he advises us, and embrace the rest as “a vibrant, but mostly unthreatening, phenomena of contemporary culture. Not all shadows hide monsters” (104).

*On the Fringe* is a masterly written and timely call for a better understanding of the science-pseudoscience dynamics. We are asked to sit down with this book over a (longish) cup of coffee on a rainy afternoon, or to read it on the train home after a long day of work. It is approachable, with almost no notes or references within the text (though a useful bibliography is provided at the end), so readers won't be tempted to put it down due to the usual academic interruptions. Over the course of a few hours, they will acquire a new perspective and will learn how to find light in the shadowy fringes. When entering a dark room, it matters where we shine the lights, and where we look first, as this defines both what we see and what we are afraid of. So, let us use them wisely!