Anecdotal Thinking: You'd Better Believe It (Sometimes)

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One of the pet peeves of many so-called skeptics is something called "anecdotal thinking." In anecdotal thinking, one draws conclusions from personal experiences instead of from controlled scientific studies. Skeptics often claim that anecdotal thinking shouldn't be taken seriously.

Here is an example of anecdotal thinking. Suppose that Jack has an illness that does not normally cause nausea. Jack takes a particular medicine for his illness. A few minutes later, he feels queasy in the stomach. Jack persists in taking the medicine, and keeps feeling a nauseated. After a few doses, he stops taking the medicine. Shortly after that, he stops feeling nauseated. Jack draws the conclusion that the medicine made him feel nauseated.

If scientists carry out a clinical trial of the medicine, and find that no one becomes nauseated as Jack did, then Jack's experiences will be labeled "anecdotal." Skeptics who believe strongly in scientific methods are likely to discount the connection between the medicine and the nausea, and to feel confident that Jack is only imagining the connection between the medicine and the feeling in the stomach.

The problem with the skeptics' confidence is simple: it overlooks the real possibility that the medicine caused Jack's nausea. The human body is an excruciatingly complex chemical system. Weird things go on in the body all the time—and usually we are not conscious of these weird things. What is more, every body is different from every other body; people are not made with a cookie cutter. Perhaps Jack's body chemistry was changing in some subtle way when he took the medicine. Perhaps this change made the medicine hit him the wrong way. If anyone in the clinical study had happened to be in a biochemical state similar enough to Jack's, then that person might have had the same side

effects. Then the nausea might have been recorded as a documented side effect of the medicine. But there did not happen to be such a person in the study, so the side effect was not recorded.

If this scenario of Jack and the drug really happened, then Jack's belief about the effects of the medicine might be more accurate than the skeptics' belief. Of course, there also would be a possibility that the skeptics were right, and Jack's nausea after taking the medicine was coincidental. But Jack could well be right instead.

Skeptics who read this story will argue that the coincidence explanation is "more probable" than Jack's belief that the medicine caused the nausea. But we must examine this skeptical argument critically. It may be true that coincidence is the more probable explanation, based on the statistical probabilities calculated from the scientific study. But when the study was made, the investigators did not have Jack's experience among their data. If Jack had been a subject in the study, maybe his odd reaction would have been documented as part of the study, instead of being dismissed as "anecdotal evidence." Maybe the study just didn't happen to include anyone with an individual body chemistry similar to Jack's.

The skeptics' argument does not rule out the possibility that Jack experienced a real side effect. At best, their argument only shows there is no scientifically confirmed reason (yet) for us to believe that Jack experienced a real side effect. It could be that Jack experienced a real side effect that scientists have not yet detected and confirmed. And even if scientists have not confirmed the effect, Jack still might have a rational reason to believe in it, as the following gruesome example shows. Suppose Jack took a certain medicine and started vomiting blood immediately. Suppose Jack took the medicine again a week later, and again two weeks later, and vomited blood immediately each time. Suppose there were no other known reason Jack might have vomited blood (no severe stomach virus going around, no ulcers, and the like). I can't give anyone medical advice, but if I were Jack, I would be mighty suspicious of that medicine—even if there were no scientific studies supporting my suspicion! In this fictional example, reliance on "anecdotal thinking" might be quite reasonable.

This example suggests that is possible, under some circumstances, for a person to

have a reason to believe something (at least in a tentative way) even if scientists do not have such a reason. "No scientifically confirmed reason to believe X" is not the same as "no reason for Jack to believe X."

The examples of anecdotal thinking that attract the most attention from skeptics are examples involving paranormal belief. I'm not going to argue for or against paranormal belief here; I just want to make a single point about anecdotal thinking. Occasionally, someone reports a strikingly odd sequence of events that seems too weird to be a coincidence. For example, someone dreams about being in a building they have never seen before. The next day they happen to go into a new building for the first time; the interior of the building matches the dream in all details, even down to the details of what's in the room. Sometimes these odd sequences of events get labeled as "paranormal phenomena." (I won't try to give examples of these alleged phenomena here; there are plenty of other places to read stories about them.) According to standard skeptical doctrine, all happenings of this kind are simply coincidences. The skeptical argument runs, more or less, like this: "There are many people in the world. People are undergoing all sorts of different events and experiences all the time. Therefore, it's likely that some extremely odd things will sometimes happen to people just by coincidence. Therefore, we can safely dismiss all odd events as coincidences."

Make no mistake about it—I'm not going to argue that odd events are more than coincidences. I just want to point out that skeptical explanations in terms of "coincidence" sometimes fail to mesh with rational thinking and good sense. The following story shows what I mean by this.

John takes a trip to visit his relatives. First he visits his uncle Joe. While John is approaching Uncle Joe's house, two birds land in John's hair. Then John visits his aunt Mabel in another town. While John is in that town, a bird (different from the first two birds) lands in John's hair. Then John visits his cousin George, who lives far from the first two relatives. A bird lands in John's hair. Finally, John visits his cousin Melbert out on the farm. Three birds land in John's hair, one at a time.

In all the places that John visits, there are no unusual crowds of birds. In each case, the birds land only on John, and not on his relatives or on any passersby near John.

If you were John, would you think this is all just coincidental? Or would you start to suspect there is something about your hair (or in your hair) that's attracting birds? Which thought would be more reasonable? Of course, it's logically possible that it's all a coincidence. There's nothing truly irrational about assuming that it's all coincidental. But wouldn't you begin losing confidence in that explanation after the fourth or fifth bird?

Personally, if this happened to me, I'd wash my hair. To undergo this series of events, and still not have doubts about the contents of one's hair, seems to me to be a breach of critical thinking. I think John has justification for thinking this set of experiences might *not* be coincidental—and, in fact, that coincidence is not the most reasonable explanation of the events. John can't rule out the possibility that the events are coincidental. However, the hypothesis that they are not merely coincidental is plausible and perhaps even probable. It becomes more plausible each time more birds land on John's head.

To finish the story: John washes his hair, and some seeds come out. He doesn't know how the seeds got there, but he speculates that maybe they blew in on the wind during a storm he encountered on the road. So much for the mystery.

What does all this have to do with the paranormal? There's nothing paranormal about having seeds in your hair. The point of the story is that it was reasonable for John to believe, tentatively, that something about his hair was attracting birds. This tentative belief was reasonable because of John's own experiences. John did not have to have scientists in white coats tell him, "Yes, John, there really is a causal link between seeds in the hair and repeated bird landings for some people. We have studies that prove it. It might not be a coincidence." John already knows that it might not be a coincidence. He knows that the belief that it is not a coincidence is plausible. He knows this precisely because of his personal experiences—or, as the skeptics call them, "anecdotal evidence."

This last remark brings us to the core of the notion of "anecdotal thinking." Ultimately, what skeptics call "anecdotal thinking" is just belief based on personal experience. If I have a series of experiences and draw the conclusion (tentatively) that they are not coincidental, then I will be found guilty of "anecdotal thinking." We have

seen that this thinking may sometimes be rational, and can even be extremely useful at times (recall the example of the vomit-inducing medicine).

This is not to say that we should trust anecdotal thinking uncritically. (Uncritical thinking of any kind can be dangerous.) I am claiming only that anecdotal thinking *sometimes* is rational. But there is a deeper difficulty with the blanket condemnation of anecdotal thinking. The difficulty comes from the fact that all scientific studies make use of personal experience. In the end, all scientific knowledge rests on the personal experiences of scientific observers. When scientists read meters, question test subjects, and so forth, those scientists are having personal experiences. Scientific data—the data that scientists collect—are just the records of personal experiences. If the same personal experiences occurred outside the context of a scientific study and without careful preparation and recording, they would be regarded as anecdotal. Even the statistical analysis that scientists do with their data involves an element of personal judgment. Scientists strive to make this analysis impersonal and objective—but in the end, someone has to examine the statistical analysis and judge that it is correct. That involves a human being's good judgment, influenced by personal background, reflection, and experience, as much as it involves mathematical theorems.

Human judgment based on personal experience—that is what John used when he decided he needed to wash his hair. That is what Jack relied on when he began to wonder about the wonder drug. And that is all that scientists have to go on when they collect their data. All scientific studies have deep roots in a kind of knowledge which, if found in another context, would be called "anecdotal." And that should give the skeptics—who often hold idealized views of science—a moment of pause.