

Teaching Pigs to Sing

An Experiment in Bringing Critical Thinking to the Masses

A skeptic encounters psychics, astrologers, and other strange creatures and discovers firsthand how they react to science and reason. Included: a fable about testing the Tooth Fairy.

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A couple of years ago, I saw an announcement for an astrology presentation to a local discussion group called Mingling of the Minds. My first reaction was, “Surely, nobody really *believes* in astrology anymore! At least not in my well-educated community.” I decided to go “mingle my mind” and find out.

I was appalled. These people had heard some of the arguments against astrology, but they entirely discounted them. Their personal experience was that astrology worked, and that’s all they cared about. The speaker had prepared charts for several members of the group, with scientific-looking symbols and calculations, and they seemed very impressed. I tried to introduce a bit of skepticism by asking questions like, “How did the first astrologers learn which human characteristics corresponded to which heavenly signs?” The speaker said that was an interesting question that could never be answered, because we lack any historical records. Of course, he didn’t doubt that they had obtained their knowledge by some reliable means.

Sure they had. I heard about a woman who told a group of friends she had identified new constellations for a more up-to-date astrology; instead of names like Sagittarius and Pisces, the new constellations had names like Vacuum Cleaner and Telephone. She explained how those born under the Vacuum Cleaner are perfectionists who like everything to be neat and clean, and how those born under the Telephone sign are verbally oriented, good communicators, and have lots of friends. Her friends didn’t get the joke. They asked where they could learn more about this great new system!

In retrospect, I probably should have told the astrologer I wasn’t going to believe in astrology because my horoscope said I shouldn’t be gullible.

Future “Mingling of the Minds” sessions were planned with psychics and other strange creatures. I decided that these people were in desperate need of a resident skeptic, so I appointed myself. I knew there was no hope of converting any true believers, but I thought there must be at least a few people who had not irrevocably made up their minds and might like to know the facts.

My skeptic friends tried to warn me: “Never try to teach a pig to sing; it wastes your time and annoys the pig.” I knew this, but I didn’t think it applied here. I’m an optimist—these were nice, friendly, reasonable people, and I thought at least some of them would enjoy learning some of the things I had learned. I used to believe a lot of weird things myself, until evidence and reason persuaded me to change my mind. I find it intellectually satisfying to discard an error and learn a truth. I thought others might get the same satisfaction. My friends laughed at my naïveté; but I am a skeptic, so I had to find out for myself.

It was the beginning of an odyssey that introduced me to a strange race of people who believed in angels but not in germs. I can only compare it to visiting a carnival freak show of intellectual, rather than physical, anomalies. I observed how the average nonskeptic member of the public reacts to these anomalies. It almost destroyed my faith in human reason.

We heard from a *feng shui* practitioner. He explained that *feng shui* is a science, and he went into details like how you should position the head of your bed to the north. I asked him if he meant geographic north or magnetic north. I’m not sure he even knew the difference, but he guessed that it was probably magnetic north because *feng shui* has to do with forces that are sort of like magnetic forces. The magnetic north pole is in northeastern Canada; I asked him what he would tell a client who lived in northeastern Canada, directly north of the magnetic north pole—if the client put the head of his bed towards the magnetic north pole, it would be actually be pointing due south. His only answer was, “Gee, that’s an interesting question.” I thought so too. It’s an interesting science if it only applies to certain parts of the globe.

The *feng shui* guy also sells Chinese medicines. He always checks by opening each bottle and tasting or at least looking to be sure it contains what the label says, because sometimes he finds an entirely different herb in the bottle. That’s his idea of quality control. Nevertheless, he is quite confident that these herbal products are safe. One of the safe remedies he showed us was a Chinese pain reliever called Lemonin. I could see from the label that it was an overpriced mixture of paracetamol, caffeine, and vitamin C. He didn’t know that paracetamol is the British name for acetaminophen (Tylenol), so of course, he couldn’t warn his victims (oops, I mean *clients*) that taking Tylenol along with Lemonin could result in a fatal overdose.

A chiropractor insisted that newborn babies needed immediate chiropractic adjustment, because their necks are stretched to over twice their normal length during childbirth, even by C-section. I told him that I knew that was not true, because I used to deliver babies. It couldn’t be true, because that amount of stretch couldn’t happen without killing the baby. He assured us that, yes, it really does a lot of damage.

Another chiropractor explained that he doesn’t believe in the germ theory, because if germs caused disease, we’d all be dead. The only reason some people get sick is because their spines are out of alignment. He has never been vaccinated, yet he is confident he could be exposed to any infectious disease without catching it. Next time we need volunteers to treat a case of Ebola, let’s call on him!

A third chiropractor told us how he diagnoses allergies. He has the patient hold a closed vial containing an allergen in one hand, and he tests the muscle strength in her or his other arm. If it is weaker than before, they are allergic to what’s in the vial. He thought one patient might be allergic to his workplace, and he didn’t have a vial of “Boeing,” so he had the patient just *think* about Boeing, and that worked just as well. He found people were allergic to all kinds of things they had never imagined. He had all kinds of testimonials about miraculous cures. I pointed out that this method, called applied kinesiology, had failed all controlled tests and was rejected even by the

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majority of his own profession. I read him the words of a professor of chiropractic, who essentially said applied kinesiology was about the stupidest quackery any chiropractor had ever fallen for. He was not impressed: *his method works*.

I took out a small implement and handed it around the group. No one could guess what it was for. I explained that it was a fleam, a lancet used in bloodletting. The ancient Greeks believed there were four humors, and they balanced

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the humors by bleeding the patient for fevers and other illnesses. George Washington's death was hastened (if not caused) by bloodletting. The treatment was in use for many centuries, until science finally tested it and found out it did more harm than good. I told the chiropractor that I could come up with more testimonials for bloodletting through the centuries than he had for muscle testing. If he rejected the scientific evidence that applied kinesiology didn't work, it would be consistent to reject the scientific evidence that bloodletting didn't work. If he accepted the evidence of testimonials for muscle testing, it would be consistent to accept the evidence of many more testimonials for bloodletting. Would he use a fleam? No, he wouldn't. A lady friend asked, "But what does his method hurt, as long as his patients *feel* better?" I reminded her that bloodletting also made lots of people *feel* better, and I offered to use the fleam on her to see if it made *her* feel better. She declined. I can't imagine why.

A massage therapist specialized in energy medicine. She could feel the energy fields around a patient's body and twiddle them to help patients heal. She knew this was real, because a scientist had actually measured the human aura with some scientific instrument. What kind of instrument? Where were the data published? She didn't have the specifics, but she assured me I could learn about it in a book called *The Isaiah Effect*. I got that book and read every word of it, but couldn't even find the word *aura*, much less anything remotely scientific. It is arguably the worst book I have ever read, with an average of one and a half errors of fact or logic per page—I counted. I told her that I found nothing in the book about measuring auras, and her only answer was, "Oh."

A couple of self-styled "intuitives" (i.e., psychics) spoke to us, and did some amateurish cold readings. One explained away apparent failures by saying that she might be seeing something in the *future*, and that her intuitions could not perceive time; she immediately contradicted herself by saying the next person would have a new job "within the next three years"! She "read" a hypochondriac man and apparently intuited that he wasn't worried enough already, so she told him she could see something terribly wrong in his abdomen that needed urgent care. Another psychic told us she could actually see angels beside each of us. (In psychiatry, this is called a hallucination and is a sign of mental illness.)

Here are just a few of the astounding comments I heard:

"A molecule made in a plant is natural, so it has to be better than the exact same molecule made in a lab."

"I had to stop taking my homeopathic sleep remedy because it caused side effects." (*Water* causes side effects?)

"I know my headache didn't go away because of any placebo effect, because I would be able to tell if it were just placebo." (So why do you think scientists bother with placebo-controlled double-blind trials?)

"Truth doesn't matter."

"What's true for you may not be true for me; it's okay if we disagree."

"We create our own reality."

I asked one woman what she would think of me if I still truly believed, at my age, that the Tooth Fairy *really exists*. She said, "I'd think that was really sweet!"

The last meeting I went to was a pro-and-con discussion of dowsing. The "pro" side consisted of "I saw it work; there are lots of dowzers." I gave the scientific "con" side, explaining the ideomotor effect and the consistent failure of dowzers to find water beyond the level of chance when tested objectively. My information did not go over well. They wanted to hear more about how it works and less about how it doesn't work. The "pro" presenter explained to me that science just hasn't learned how to test dowzers to get a positive result; it doesn't know the right questions to ask. He also explained that science is based on assumptions, so he doesn't trust science; he trusts his intuitions more, even though he admits his intuition can be wrong.

The Pig Instructor Reconsiders

At this point, I had to recognize that these people did not inhabit my universe. They rejected the scientific method, they didn't care about objective truth, and they were happy in their superstitions. I tried hard to understand them, but I failed. I find science and reality far more exciting than superstition. I agree with Lily Tomlin that "the best mind-altering drug is the truth." Why were the people at "Mingling of the Minds" so reluctant to give up their unfounded beliefs?

Maybe there was something wrong with me. Whenever I told my father I had changed my mind about something, he used to tell me, "If I had a mind like that, I'd change it too." After being exposed to all these "minglers" who refused to change their minds, I began to wonder if *I* was the one who

was abnormal. Maybe I lacked the gene for certainty. Maybe I am unduly prejudiced in favor of reality testing. Maybe they are right: personal experience and belief are all that matters. I was really beginning to get worried.

Then two things happened to reassure me. First, I read the list of obituaries in the *Encyclopedia Britannica* yearbook. Among the famous in all walks of life, the important people, the people who mattered, there were plenty of scientists who had contributed to human knowledge and welfare; there wasn't a single homeopath, astrologer, or psychic on the list. Second, I read *Saturday*, by Ian McEwan. Enough people are reading this novel to put it on the best-seller list, and its main character is a skeptic and critical thinker who says, "...[belief in] the supernatural was the recourse of an insufficient imagination, a dereliction of duty, a childish evasion of the difficulty and wonders of the real, of the demanding reenactment of the plausible." Maybe science and reason are slowly winning the war against superstition, even if they are losing some of the smaller skirmishes.

In a sense, the people I met at Mingling of the Minds were the norm and I was the anomaly. Minds are not meant to change easily. Absolute certainty based on authority and eyewitness accounts must have had some evolutionary survival value. Humanity has managed pretty well with instinct, magical thinking, and superstition for a very long time, and it will probably continue to muddle through. The scientific method is a recent innovation; it isn't easy, and it doesn't come naturally.

Time is money, and I finally had to admit that Mingling of the Minds was not a good investment. I cut my losses and resigned. I'm too stubborn to not get the last word in, so I wrote this little fable and sent it to Dan, my opponent in the dowsing debate.

Is the Tooth Fairy Real?: A Fable

Harriet told her little brother Dan that there was no Tooth Fairy; it was their parents who put the money under the pillow.

Dan refused to believe Harriet. He *knew* there was a Tooth Fairy. Every time he put a tooth under his pillow, there was money there the next morning. And all his friends said the Tooth Fairy brought them money too. And it couldn't be Mom and Dad because he'd wake up if they came in the room and lifted his pillow. Anyway, Mom and Dad said there was a Tooth Fairy, and they wouldn't lie.

Harriet asked him how he thought the Tooth Fairy found out about lost teeth, how she got into the house, where she got the money from, and what she did with the teeth. Dan said he didn't know, but wasn't it a wonderful mystery? Harriet pointed out that older kids all eventually stopped believing in the Tooth Fairy. Dan said that only proved that the Tooth Fairy would only bring money to those who still believed in her.

Harriet got several neighborhood kids to help test whether the Tooth Fairy would appear if the parents didn't know a tooth had been lost. It turned out that every time the parents knew about the tooth, there would be money under the pillow the next morning, and every time the parents didn't know about the tooth, there would be no money. Dan said the Tooth

Fairy was just refusing to cooperate in those cases, because she wouldn't bring money if she knew she was being tested.

Harriet got out her Junior Detective kit and dusted Dan's Tooth Fairy money for fingerprints. Sure enough, she found their parents' fingerprints on it. Dan said that didn't prove anything, because there are lots of ways the Tooth Fairy could

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get hold of money the parents had previously touched. Or she could have magically put the evidence there to confuse us. And of course, the Tooth Fairy wouldn't leave any fingerprints of her own because she was magical.

The next time Dan lost a tooth, Harriet spread flour on the floor, and the next morning, she showed Dan their parents' footprints between the door and the head of his bed. He said that didn't prove anything—his parents had probably just checked on him, and the Tooth Fairy had come later. There were no Tooth Fairy footprints, because fairies don't leave footprints.

The next time Dan lost a tooth, Harriet set up a video camera in Dan's room and caught their parents in the act. (For those readers with dirty minds, I mean the act of removing the tooth and putting money under the pillow.) Dan told her that didn't prove a thing. Maybe the Tooth Fairy wouldn't appear when a camera was present. Maybe she is a shape-shifter who made herself look like their parents on videotape. Maybe she asked Mom and Dad to do the job for her just this once.

Harriet led Dan into their parents' bedroom, opened a dresser drawer, and showed him a box containing all of Harriet's and Dan's baby teeth neatly labeled and dated. She said that was proof their parents were taking the teeth and leaving the money. Dan said it was no such thing; the Tooth Fairy probably passed the teeth on to parents for keepsakes, or maybe she sold teeth to parents to raise the money she put under the pillows. Hey, yeah, that would explain the fingerprints!

Harriet and Dan confronted their parents, who admitted they had been taking the teeth and leaving the money under the pillow. Dan said either they were lying before or they're lying now, and they're probably lying now. Why trust what anyone says? He was just going to ignore everything except what he *knew*: the tooth-under-the-pillow thing *worked*. The Tooth Fairy was *real*.

Harriet screamed in frustration and tore all her hair out. She left it under her pillow. It was still there in the morning. □