

**A witchcraft trial -- and the triumph of a key skeptical concept**

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# A Witchcraft Trial

## - and the triumph of a key skeptical concept

### Learning a skeptical lesson from history



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When I have time, I like to read old texts. I admire David Hume, Herbert Spencer, and Francis Bacon, among others. There's a kind of excitement in receiving the ideas and arguments of someone from the past. I doubt, though, whether anyone would read all of Pliny the Elder's *Natural History* for fun. This 37-volume monstrosity was the first encyclopaedia<sup>1</sup>. In it, Pliny set out to chronicle all of the knowledge of humanity, as it was in 77CE.

Who was Pliny the Elder? He was a Roman who lived from 23-79 CE. He seems to have been a workaholic who wrote 75 books on history, military matters, grammar and philosophy. He died as commander of a Roman fleet in the Bay of Naples. When he learned that Vesuvius was erupting, Pliny went ashore to find the cause and reassure the survivors. He was overcome by the fumes and died (Dennis 2004).

Pliny's *Natural History* is his only surviving work. It was quite unique in its day. Pliny set out to "set forth in detail all the contents of the entire world." As Pliny himself said in the introduction:

*There is no one among us who has ever attempted it, nor is there any one individual among the Greeks who has treated of all the topics.*  
Pliny (77a)

To write the *Natural History* Pliny, by his own account, did a great deal of work:

*I have included in thirty-six books<sup>2</sup>, 20,000 topics, all worthy of attention*

*... gained by the perusal of about 2000 volumes ... and to these I have made considerable additions of things which were either not known to my predecessors, or which have been lately discovered.* Pliny (77a)

Even with all his labours, Pliny was aware that he could not cover all knowledge. As he wrote in the introduction:

*Nor can I doubt that there still remain many things which I have omitted; for I am a mere mortal, and one that has many occupations.*  
Pliny (77a)

As we shall see, the problem with Pliny is not that he did not include everything; the problem is that he included things that are not so — and in some cases he should have known that they are not so. Still, the work had some real virtues. Pliny clearly thought the world was a fascinating place, and he set out to chronicle all its wonders. He was also intellectually honest, in that he credited his sources. As he wrote in his introduction, while studying older works, he found that many authors copied from others with no acknowledgement. Pliny, instead, lists all the sources he has used, arguing that:

*For I consider it to be courteous and to indicate an ingenuous modesty, to acknowledge the sources whence we have derived assistance, and not to act as most of those have done whom I have examined ... For indeed it is the mark of a perverted mind and a*

*bad disposition, to prefer being caught in a theft to returning what we have borrowed, especially when we have acquired capital, by usurious interest.* Pliny (77a)

In modern research work, acknowledging your sources is a key part of the discipline. Indeed, failure to acknowledge them is a major academic crime, that of plagiarism. At least one Vice-Chancellor, David Robinson of Monash, was forced to resign because of such conduct (Rodan 2004).

Pliny's successors were less scrupulous than he. His work was copied, adapted and plagiarised for centuries. Indeed, as Europe sank into the Dark Ages, and then moved into the Middle Ages, Pliny's work was taken as an infallible source of knowledge. Which is a pity, because, for all his learning and ethical scruples, Pliny was prone to believing the most absurd stories. As the modern skeptic, Michael Shermer (2001), would say, he had no filter: he seems to have been unable to weigh up the evidence, and decide what was plausible and what was not.

Let's look at a few examples of Pliny's claims. He has a fearsome passage on the destructive powers of a menstruating woman:

*On the approach of a woman in this state, must<sup>3</sup> will become sour, seeds which are touched by her become sterile, grafts wither away, garden plants are parched up, and the fruit will fall from the tree beneath which she sits. Her very look, even, will dim the brightness of mirrors, blunt the edge of steel, and take away the polish from ivory. A swarm of bees, if looked upon by her, die immediately; brass and iron will instantly become rusty, and emit an offensive odour; while dogs which may have tasted of the matter so discharged are with madness, and their bite is venomous and incurable.* Pliny (77b: 278)

Clearly, every Roman legion should have had a few, to spread misery and despair in hostile lands. On the other hand, menstruating women also have their uses, as Pliny makes clear:

*... it is said that if a woman, while her monthly sickness is upon her, be set into the wind abroad with her belly naked, she will scare away hailstorms, whirlwinds, and lightnings; yea, and avert any violence of the weather whatsoever.* Pliny (77b: 278)

What amazes me about statements of this kind is not that they are wrong. What amazes me is that many of them are easily testable, and yet they went essentially unchallenged for over fourteen hundred years! This suggests that the doubting, seek-the-evidence approach characteristic of modern science and of skepticism is a fragile bloom, prone to perish when the climate is not right.

For me, the key problem with Pliny is not that he was always wrong; he wasn't. The problem is that he mixes truth and falsehood together indiscriminately, so that there is no obvious way of sorting out one from the other. Occasionally they are mixed in the same sentence, like this:

*Seldom do women shed their hair clean, and become bald: but never was there any gelded man known to be bald: nor any others that be pure virgins and have not sacrificed unto Venus.* Pliny (77b:131)

The statements that women rarely go bald, and that eunuchs do not go bald are plausible, but where does Pliny get the idea that male virgins do not go bald? This mixture of truth and falsehood is perhaps the greatest danger in Pliny. Instead of going through endless examples of his errors, let us look at a couple more, and then go to the important skeptical principle he recounted.

*If the rheum cause the mur, the pose<sup>4</sup> or heaviness in head, I find a pretty medicine to rid it away, by kissing only the little hairy muzzle of a mouse.* Pliny (77b: 315)

Poor mouse! It would be minding its own business when a creature the size of a ten-storey building — in proportion to the mouse — oozing catarrh and phlegm from assorted

orifices, insists on kissing it. This is blatant cruelty to animals. Note that Pliny claimed that he himself found this to be a useful medicine. Perhaps he tried it out, with apparent success. The dangers of anecdotal evidence of this kind should be familiar to all skeptics (Bratman 2005).

The last example is perhaps less ludicrous, but far more easily testable.

*And here I cannot choose but note unto you by the way, the strange property and wonderful nature that egg-shells have: for so hard, compact and strong they be, that if you hold or set an egg endlong, no force nor weight whatsoever is able to break and crush it, so long as it standeth straight and plumb upright, until such time as the head incline to a side and bend one way more than another* Pliny (77b: 300)

Test this by all means. Eggs are stronger than one might think, but you will have a clean-up to perform afterwards.

Pliny's influence lasted for over 1400 years, until the rise of scholarship in the west led to a tidal wave of criticisms, and the ultimate discrediting of his *Natural History*. However, Pliny is not all error and, buried within this massive work, I found a beautiful illustration of the working of Occam's Razor.

As most skeptics will probably know, Occam's Razor is a short precept formulated by William of Ockham, a theologian, politician and thinker of the fourteenth century. Occam's Razor is deceptively simple. It states: "*It is vain to do with more what can be done with fewer.*" (Caso 2001) Although it looks simple, Occam's Razor is crucial for skeptics. It means that whenever a natural explanation exists for a phenomenon, there is no need for a supernatural one. So, for example, when Barry Williams (1993) demonstrated that a 'filmed UFO' could be explained by the planet Venus, there was no longer any necessity to postulate a UFO: it is vain to postulate both a UFO and Venus, when Venus alone can explain the evidence.

## Witchcraft Trial

Pliny gives an excellent example of Occam's Razor in action, though he shows no sign of seeing the logic which underlies it. The story begins with a lowly farmer who is rather too good at his work:

*There was one C. Furius Cresinus, late a bondslave, and newly enfranchized, who after that he was set at liberty, purchased a very little piece of ground, out of which he gathered much more commodity than all his neighbours about him out of their great and large possessions: whereupon he grew to be greatly envied and hated, insomuch, as they charged him with indirect means, as if he had used sorcery, and by charms and witchcraft drawn into his own ground that increase of fruits which should otherwise have grown in his neighbours' fields. Pliny (77b: 167)(Emphasis in the original)*

The picture is a vivid one. The lowly ex-slave out-produces the better endowed farmers around him, and the resentful muttering starts. One can imagine the furtive discussions: "It cannot possibly be that we are not doing as well as we could. He must be doing something wrong. I bet it's sorcery"<sup>5</sup>.

Cresinus was indicted. This was not a time of hysterical witch-hunts, but he knew that if he were found guilty of using sorcery, charms and witchcraft, he would face a large fine. The problem was, what could he do? How do you prove that you are not guilty of doing these illegal activities? In later ages, this impossible problem led to the death of tens of thousands of accused 'witches' (eg, Trevor-Roper 1969; Shermer 1997).

Cresinus was almost certainly uneducated, but I suspect he was a man of considerable ability — and not just at farming. When the day of the trial came, he had his defence ready. He,

*... brought into the common place his plough with other instruments and furniture belonging to husbandry: he presented likewise in the*

*open face of the court his own daughter a lusty<sup>6</sup> strong lass and big of bone; yea, and . . . well fed and as well clad. He shewed himself . . . his tools and plough irons of the best making, and kept in as good order; main and heavy coulters<sup>7</sup>, strong and tough spades, massy and weighty plough-shares, and withal his draught oxen, full and fair. Pliny (77b: 167)*

This was the start to his defence. Cresinus was showing that he had good equipment, good farm animals and a strong and hard-working daughter, What is more, he took good care of all of them. Then he began to speak.

*"My masters" quoth he "you that are citizens of Rome, behold these are the sorceries, charms, and all the enchantments that I use" (pointing to his daughter, his oxen, and furniture abovenamed) : "I might besides" (quoth he) "allege mine own travail and toil that I take, the early rising and late sitting up so ordinary with me, the careful watching that I usually abide, and the painful sweats which I daily endure; but I am not able to represent these to your view, nor to bring them hither with me into this assembly." Pliny (77b: 167-8)*

This is a clever speech. Cresinus begins with a joke. He points to the humdrum means by which he raises his crops — the spades, ploughs, oxen and so on — and refers to them as his sorceries, charms and enchantments. Then comes a masterstroke. He diverts attention from the fact that he cannot prove his innocence, and instead talks about something else he also cannot prove — or perhaps he can. He points to the daily slog of work on his farm, the hours he puts in and the sweat he produces. Now probably many of his hearers would have seen Cresinus or his daughter working long hours on the property. Although he cannot 'bring hither' this evidence, his hearers might well have known how hard

he worked, and have accepted this point as well.

How did the assembled citizens react to Cresinus's defence? Pliny tells us the verdict was swift:

*The people no sooner heard this plea of his, but with one voice they all acquit him and declared him unguilty without any contradiction. Pliny (77b: 168)*

Pliny's conclusions from this story are rather disappointing. He hardly goes beyond what Cresinus himself said.

*By which example, verily, a man may soon see, that good husbandry goeth not all by much expense: but it is painstaking and careful diligence that doth the deed. Pliny (77b: 168)*

In fact, Cresinus was using a form of Occam's Razor in his argument. Faced with a charge of using magic to increase his crops, he showed that he had good equipment and maintained it well, that he had good help on his farm, and he probably appealed to common knowledge in saying that he was a hard worker. In short, Cresinus was arguing that his fellow citizens did not need magic to understand how he raised such crops: there were perfectly good explanations for his productivity without witchcraft. And, since Cresinus was able to explain his prosperity in mundane terms, there was no point in multiplying the explanatory entities. Apart from modern scientific explanations, it is hard to think of a more elegant example of Occam's Razor — more than a millennium before William of Occam!

I am tempted to rename Occam's Razor as Cresinus' Razor, since the latter's use of it was so much earlier. That will probably never be accepted, as the idea is now enshrined in the name of Occam. Still, whenever we apply the Razor, it would be good to remember the clever ex-slave who thought it up by himself, and the Roman citizens who accepted its validity.

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## Young Man

been to take what Randi taught me and find new mediums in which to use it. A lot of that is television and a lot of that is just finding ways to entertain and educate.

**RC:** *So you're a volunteer or a...?*

**AM:** I pop in there every now and then and add my two cents, whether it's asked for or not. I just started my own non-profit, the Children's Media Lab to make video content available to schools and public television.

**RC:** *Do you have a strategy to reach those who don't know about you?*

**AM:** There are opportunities to do more outreach but part of what I wanted to do was solidify what we were going to try to bring. It's one thing to say to a teacher, "you've got to teach critical thinking and that is all you have to say".

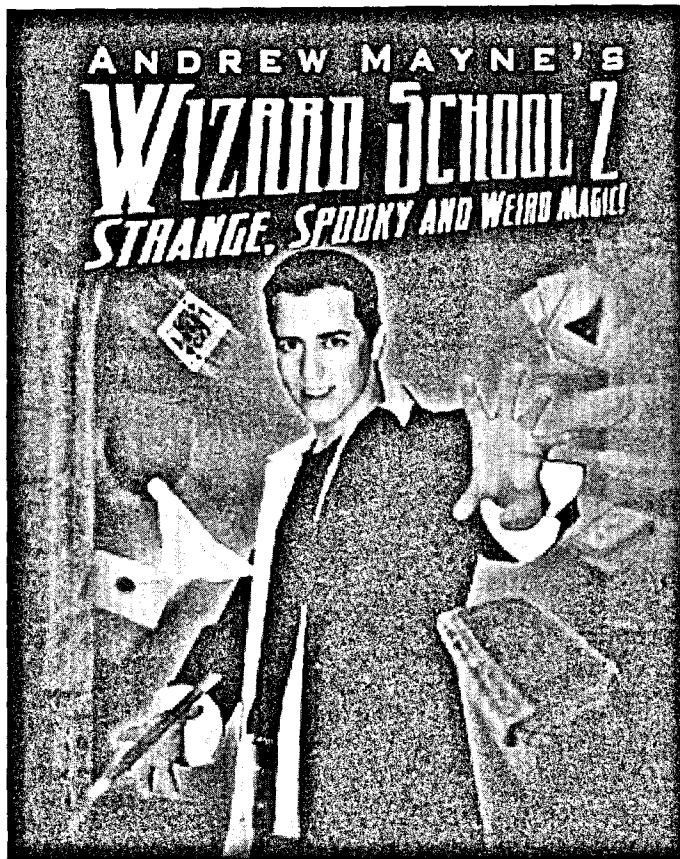
That's not enough. You need to bring tools. I've only been in this for a short period of time compared to Randi and others. I've tried to figure out what kind of tools would be helpful? Some tools are self-explanatory. When I put together a three-minute clip for public television, a kid is going to find out without a teacher. So much learning exists outside of the classroom.

There are tools we can develop for teachers, and we are going to do more outreach programs, going to teacher's conferences — instead of skeptics' conferences — and saying we've got this material for you, this is what it can do. It is free or it's available at almost no cost. That is one part. The other part is outside of school, creating these resources for kids to stumble upon so they say, "this is interesting, this talks to me, I want to find out more about scientific thinking".

**RC:** *How do you handle being viewed as Randi's successor?*

**AM:** I don't think that's the way it is.

Penn put it eloquently; it is like trying to replace Elvis. That is absolutely correct, you can't do that. Randi wants to know that what he has been doing is going to continue.



There are going to be people out there pointing out the frauds, pointing out the bad people, and looking out for people who haven't had the benefit of reading *Skeptic* magazine. There are people like that, doing a wonderful job — Michael Shermer is a hero of mine. Watching how the Skeptic Society has grown. *Skeptic* magazine was published and has grown. He is doing a lot of what Randi has done.

Watching Penn & Teller perform, these guys put on a show where you see them entertain you while they show they are critical thinkers. They did a program, *Bullshit*, which for someone in children's television it's hard for me to say the name, but that's the name so I have to say it <laughing>. They do a fantastic show.

There are these people out there doing great stuff. The torch has been

passed on. Randi started lots of fires in people and got them going. He got Penn & Teller going; he was very inspirational to Shermer, to me. No one person can sit in Randi's chair,

he's a little guy but he has very big shoes and nobody can fill them.

**RC:** *Would you want to be the leader of JREF?*

**AM:** The next phase of that really requires someone with a different experience base than I have. There is a lot we can do to find grant money for teachers to develop curriculum, organizing more conferences; that is a skill set I don't have. That is what a leader of JREF has to be capable of doing. As far as someone who speaks on behalf of JREF, we are putting together more and more people we feel comfortable with. So when it comes to astronomy we can say why you don't talk to Jack Horkheimer or Phil Plait, when it comes to physics we've got Dr Bob Park.

Randi can do a lot of those

things; we can't replace him, but to come close takes a pool of people with a lot of talent.

**RC:** *Sometimes skeptics' conferences can seem anti-religious. Could you comment on how we sometimes miss the importance of religion?*

**AM:** My sister-in-law is from the Dominican Republic. I've been to different South American countries and we, living in major cities in the USA, forget what religion means to people in other parts of the world. It's not just a matter of whether or not you believe there is some higher power; it is a matter of culture. You get married in a church not just because you have a belief about it but because that is what you do. That is where invite your friends, that is what everyone is involved with. I grew up in the Pacific Northwest and was raised Protestant. For me church wasn't really about the

things they told me about how the world worked. It was about potluck dinners, going roller-skating, and playing softball with a bunch of my friends. It had a very heavy tie to the community. When we start talking about religion this and religion that, we have to remember that people have a different perception. If you're brought up in that environment and you hear someone saying religion is all bad you'll think, 'Gee, I like getting together with my friends.' As a kid I'd get the same stuff out of it that other people get out of secular activities. Sometimes we tend to forget that religion means a different thing, not just that one thing.

**RC:** *What is next for you?*

**AM:** Last summer I opened up an office at Universal Studios in Orlando. Since then things have really taken off. I've got some exciting television stuff in the works. Also with the Children's Media Lab I've got a little bit of a foothold in getting on public television on short segments. I just shot a pilot for an educational show with one production group. I've also been presented with a development deal with another production group that has a big presence on television. It's a really crazy time right now.

**RC:** *You mentioned that you are involved in a program for kids at the JREF.*

**AM:** I'm trying to put together a special program to fund children's educational content, whether it is a classroom videos or something else. Fortunately, I'm in the position now where I have the production experience and I've got some of the capabilities to facilitate that.

**RC:** *I've just interviewed Brian Brushwood. Can you tell me what you know about him?*

**AM:** I just met him here. One of our interns is a big fan of his, studied from him and spoke very highly of him. Brian came to TAM because he

wanted to see what other people were saying about talking about critical thinking and skepticism. That is encouraging.

You've probably gone to a number of conferences and I can remember maybe eight years ago when it was a bunch of old white guys sitting in a room talking about stuff. It is getting more diverse in every possible way, which is a wonderful thing.

I see a young man out there talking about going to college campuses, and he seems to be very entertaining, talking about "I do magic but I also do things about Bigfoot". It is terrific.

**RC:** *What do you see for the future of skepticism?*

**AM:** In the last 10 years, I would argue, there has been a tremendous amount of skepticism and critical thinking. It doesn't call itself by that name. It is *South Park* and the way they treat popular figures like John Edward and other people who make stupid claims; or the *Daily Show* with John Stewart which is reaching out to a whole new generation; Penn & Teller's show on *Showtime*; or *Mythbusters*.

Ten years ago, cable channels were around but people were trying to imitate what the three big networks were doing. There was one way of looking at things but that has changed. Political correctness is still there, don't criticize somebody else's beliefs or ideas. Some people still hold to that but now some people say "hey, I want to be able to criticize and analyse anything". We see that all the time now.

It's a great time to be a skeptic. It is a great time. There is so much out there for us.

**RC:** *Thank you very much.*

**AM:** Cool, my pleasure.



## Witchcraft from p 34

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### Notes.

1. I am using two versions. A shortened one-volume version (Pliny 77b) and a full-length version on the internet (Pliny 77a)
2. The other book is the introduction.
3. New wine
4. ie, a heavy cold with lots of catarrh
5. Jews and overseas Chinese would probably smile ruefully upon seeing this passage: so often their industry and productivity has been the target of resentment from surrounding populations. The latest example seems to be in Honiara.
6. Stop thinking that. It means strong and hard-working.
7. The cutting blade of a plough

