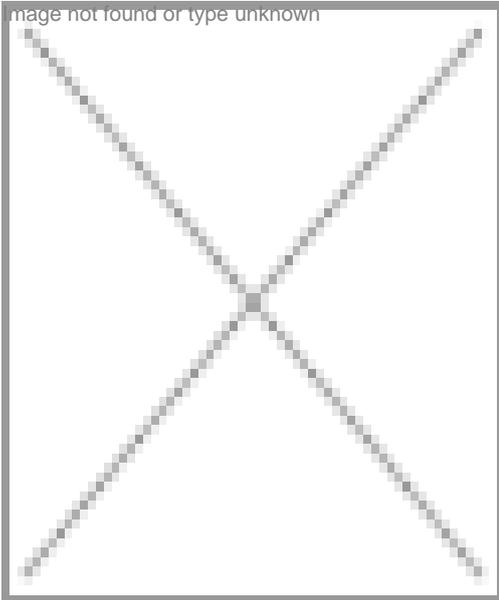


Sometimes Bad Science Does Save Lives



By *Hank Campbell* — January 21, 2016



The American Council on Science and Health has spent

nearly 38 years debunking "bad" science, by which we mean pseudoscience, junk science, scaremongering and various striations along those lines. (1 - see NOTES, below)

Yet we are fans of history and so we recognize that sometimes bad science to modern thinking was simply incorrect, and based on the evidence of the day. And sometimes even incorrect scientific reasoning can have good results. Case in point was detailed in Lee Jackson's *Dirty Old London*.

In London of old, no one really understood the link between germs and disease and they wouldn't accept it conclusively until Louis Pasteur proved germ theory in ~1864. Pasteur had good reason to worry; three of his daughters died from infectious diseases. But a lot of other daughters had died well before that and still no one was sure why. Germ theory had been bandied around since Girolamo Fracastoro had proposed it in 1546, but Aelius Galenus, Galen of Pergamon, the medical legend of ancient times, and his notion of *miasma* still held sway among the consensus. His hypothesis was that diseases like the Bubonic Plague were caused by bad air (*miasma* is Greek for "pollution"), namely particulate matter in decomposition. (2)

It had a logical basis, but it turned out to be completely wrong. (3) Still, though it was bad science, the process of fixing it ended up accomplishing something good.

Why bad? And how can that be good? It was bad because if the source of disease is miasma, then only the people in an area with contaminated water or foul air will get disease. Yet that was not true.

We now know diseases can be transmitted between people (and people and animals carrying

bugs) and miasma did not allow for that. The Black Death is just one example of when disease spread throughout Europe and impacted people who were not afflicted with bad smells in their neighborhoods.

A misunderstanding of the nature of disease still ended up being a good thing because in trying to fix the miasma problem, city officials fixed the real world issue -- nasty microbes.(4)

Starre Vartan at Mental Floss [spoke to Jackson](#) [1] about the conditions, and why miasma made sense at the time. London was really filthy in the 1800s and pundits of the day made the mistake of believing that correlation equals causation (Note 2, again): Slums smell and a lot of people there are sick, so the reasoning was that smells causes disease.

London's small churchyards were so ridiculously full, that decaying corpses were near to the top soil; 'graveyard gases' were a familiar aroma. In fact, gases from corpses are relatively harmless, Jackson said.

London officials wanted to remove the stink, thinking the stink caused disease. Regardless, their flawed understanding of disease still caused them to mitigate the real issue. To get rid of the stench, they built underground sewers, public bathhouses and public toilets. Once people stopped peeing (and you know what else) in the streets the smell was reduced, sure, but so was disease -- not because of reducing the smell, but because of exposure to far fewer germs.

Are there modern examples of where bad science can still solve a problem whose origin is misunderstood? If so, let me know in a comment.

NOTES:

(1) If you're not an expert, how will you know those from actual science? There is no guarantee, but a good rule of thumb is that if Mother Jones endorses it, or SourceWatch does not get paid to write a hit piece about the group discussing it, it is probably pseudoscience or junk science.

(2) If that sounds a lot like environmentalism today, well, they basically stopped learning science in 200 A.D also.

(3) The stage had been set for miasma to decline. In 1677, Antoni van Leeuwenhoek built a microscope, and in the drops of water he examined he saw tiny organisms. This discovery of a microverse delights children even today. van Leeuwenhoek didn't connect these *animalcules*, as he called them, with disease, nor did later scientists who observed germs in blood, because they believed that germs were an effect of disease, not a cause.

By 1880, miasma was officially dead; we had entered the Age of Bacteriology, which also led to the discovery of viruses and evidence-based medicine rather than treating symptom-based kind.

(4) Much like homeopathy can cure a disease, if what you really need is a glass of water.

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Links

[1] <http://www.mentalfloss.com/article/73002/fascinatingly-filthy-how-bad-science-saved-lives-victorian-london?source=acsh.org>