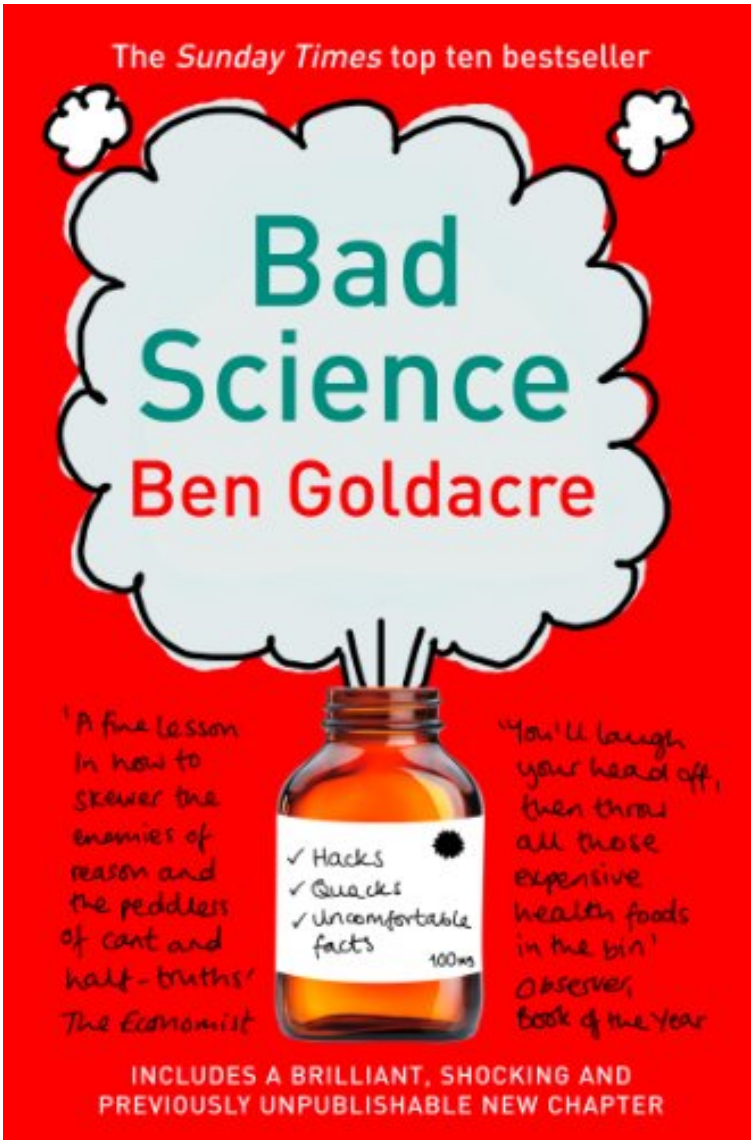
Bad Science



Par Ben Goldacre
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Par Ben Goldacre : Bad Science before purchasing it in order to gage whether or not it would be worth my time, and all praised Bad Science:

Description :

Prsentation de l'diteurBen Goldacres wise and witty bestseller, shortlisted for the Samuel Johnson Prize, lifts the lid on quack doctors, flaky statistics, scaremongering journalists and evil pharmaceutical corporations.Since 2003 Dr Ben Goldacre has been exposing dodgy medical data in his popular Guardian column. In this eye-opening book he takes on the MMR hoax and misleading cosmetics ads, acupuncture and homeopathy, vitamins and mankinds vexed relationship with all manner of toxins. Along the way, the self-confessed Johnny Ball cum Witchfinder General performs a successful detox on a Barbie doll, sees his dead cat become a certified nutritionist and probes the supposed medical qualifications of Dr Gillian McKeith.Full spleen and satire, Ben Goldacre takes us on a hilarious, invigorating and ultimately alarming journey through the bad science we are fed daily by hacks and quacks.Extrait1MATTERI spend a lot of time

talking to people who disagree with meI would go so far as to say that its my favorite leisure activityand repeatedly I meet individuals who are eager to share their views on science despite the fact that they have never done an experiment. They have never tested an idea for themselves, using their own hands, or seen the results of that test, using their own eyes, and they have never thought carefully about what those results mean for the idea they are testing, using their own brain. To these people science is a monolith, a mystery, and an authority, rather than a method.Dismantling our early, more outrageous pseudoscientific claims is an excellent way to learn the basics of science, partly because science is largely about disproving theories, but also because the lack of scientific knowledge among miracle cure artistes, marketers, and journalists gives us some very simple ideas to test. Their knowledge of science is rudimentary, so as well as making basic errors of reasoning, they rely on notions like magnetism, oxygen, water, energy, and toxinsideas from high school-level science and all very much within the realm of kitchen chemistry.DETOX AND THE THEATER OF GOOSince youll want your first experiment to be authentically messy, well start with detox. Detox footbaths have been promoted uncritically in some very embarrassing articles in the New York Daily News, the Telegraph, the Mirror, The Sunday Times (London), GQ magazine, and various TV shows. Here is a taster from the New York Daily News: its a story about Ally Shapiro, a fourteen-year-old who went to a detox center run by Roni DeLuz, author of 21 Pounds in 21 Days: The Marthas Vineyard Diet.The first day I did it, says Shapiro, the water was completely black by the end. By day three, twenty minutes in the footbath generated a copper-colored sludgethe color of the flushed buildup from her joints related to arthritis, DeLuz explained. The hypothesis from these companies is very clear: your body is full of toxins, whatever those may be; your feet are filled with special pores (discovered by ancient Chinese scientists, no less); you put your feet in the bath, the toxins are extracted, and the water goes brown. Is the brown in the water because of the toxins? Or is that merely theater?One way to test this is to go along and have an Aqua Detox treatment yourself at a health spa, beauty salon, or any of the thousands of places they are available online, and take your feet out of the bath when the therapist leaves the room. If the water goes brown without your feet in it, then it wasnt your feet or your toxins that did it. That is a controlled experiment; everything is the same in both conditions, except for the presence or absence of your feet.There are disadvantages with this experimental method (and there is an important lesson herethat we must often weigh up the benefits and practicalities of different forms of research, which will become important in later chapters). From a practical perspective, the feet out experiment involves subterfuge, which may make you uncomfortable. But it is also expensive: one session of Aqua Detox will cost more than the components to build your own detox device, a perfect model of the real one.You will need: One car battery charger Two large nails Kitchen salt Warm water One Barbie doll A full analytic laboratory (optional)This experiment involves electricity and water. In a world of hurricane hunters and volcanologists, we must accept that everyone sets their own level of risk tolerance. You might well give yourself a nasty electric shock if you perform this experiment at home, and it could easily blow the wiring in your house. It is not safe, but it is in some sense relevant to your understanding of MMR, homeopathy, postmodernist critiques of science, and the evils of big pharma. DO NOT BUILD IT.When you switch your Barbie Detox machine on, you will see that the water goes brown, due to a very simple process called electrolysis; the iron electrodes rust, essentially, and the brown rust goes into the water. But there is something more happening in there, something you might half remember from chemistry at school. There is salt in the water. The proper scientific term for household salt is sodium chloride; in solution, this means that there are chlo ride ions floating around, which have a negative charge (and sodium ions, which have a positive charge). The red connector on your car battery charger is a positive electrode, and here negatively charged electrons are stolen away from the negatively charged chloride ions, resulting in the production of free chlorine gas.So chlorine gas is given off by the Barbie Detox bath, and indeed by the Aqua Detox footbath, and the people who use this product have elegantly woven that distinctive chlorine aroma into their story: its the chemicals, they explain; its the chlorine coming out of your body, from all the plastic packaging on your food and all those years bathing in chemical swimming pools. It has been interesting to see the color of the water change and smell the chlorine leaving my body, says one testimonial for the similar product Emerald Detox. At another sales site: The first time she tried the Q2 [Energy Spa], her business partner said his eyes were burning from all the chlorine that was coming out of her, leftover [sic] from her childhood and early adulthood. All that chemically chlorine gas that has accumulated in your body over the years. Its a frightening thought.But there is something else we need to check. Are there toxins in the water? Here we encounter a new problem: What do they mean by toxins? Ive asked the manufacturers of many detox products this question time and again, but they demur. They wave

their hands, they talk about stressful modern lifestyles, they talk about pollution, they talk about junk food, but they will not tell me the name of a single chemical that I can measure. What toxins are being extracted from the body with your treatment? I ask. Tell me what is in the water, and I will look for it in a laboratory. I have never been given an answer.After much of their hedging and fudging, I chose two chemicals pretty much at random: creatinine and urea. These are common breakdown products from your bodys metabolism, and your kidneys get rid of them in urine. Through a friend, I went for a genuine Aqua Detox treatment, took a sample of brown water, and used the disproportionately state-of-the-art analytic facilities of St. Marys Hospital in London to hunt for these two chemical toxins. There were no toxins in the water. Just lots of brown, rusty iron.Now, with findings like these, scientists might take a step back and revise their ideas about what is going on with the footbaths. We dont really expect the manufacturers to do that, but what they say in response to these findings is very interesting, at least to me, because it sets up a pattern that we will see repeated throughout the world of pseudoscience: instead of addressing the criticisms, or embracing the new findings in a new model, they seem to shift the goalposts and retreat, crucially, into untestable positions.Some of them now deny that toxins come out in the footbath (which would stop me measuring them); your body is somehow informed that it is time to release toxins in the normal waywhatever that is, and whatever the toxins areonly more so. Some of them now admit that the water goes a bit brown without your feet in it, but not as much. Many of them tell lengthy stories about the bioenergetic field, which they say cannot be measured except by how well you are feeling. All of them talk about how stressful modern life is.That may well be true. But it has nothing to do with their footbath, which is all about theater, and theater is the common theme for all detox products, as we shall see. On with the brown goo.EAR CANDLESYou might think that Hopi ear candles are easy targets. But their efficacy has still been cheerfully promoted by The Independent, The Observer, and the BBC, to name just a few respected British news outlets. They pop up endlessly in American local papers desperate to fill space, from the Alameda Times-Star to the Syracuse Post-Standard. Since journalists like to present themselves as authoritative purveyors of scientific information, Ill let the internationally respected BBC explain how these hollow wax tubes, Hopi ear candles, will detox your body: The candles work by vaporizing their ingredients once lit, causing convectional air flow towards the first chamber of the ear. The candle creates a mild suction which lets the vapors gen tly massage the eardrum and auditory canal. Once the candle is placed in the ear it forms a seal which enables wax and other impurities to be drawn out of the ear. The proof comes when you open a candle up and discover that it is filled with a familiar waxy orange substance, which must surely be earwax. If youd like to test this yourself, you will need: an ear, a clothespin, some poster putty, a dusty floor, some scissors, and two ear candles.If you light one ear candle, and hold it over some dust, you will find little evidence of any suction. Before you rush to publish your finding in a peer-reviewed academic journal, someone has beaten you to it: a paper published in the medical jo...Revue de presseYou'll laugh your head off and then throw all those expensive health foods in the bin. --The Observer Book of the Year