



The Irrational Ape

David Robert Grimes • Simon and Schuster • 2019 • £14.99

Bob Rees

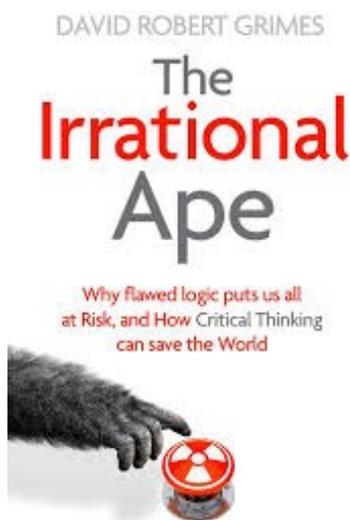
EVERY living person on Earth owes their very existence to a man called Stanislav Petrov from Vladivostok in Russia. At the height of the Cold War in 1983, he was in charge of a Soviet early warning station when they spotted five incoming American intercontinental ballistic missiles. His orders were to inform Moscow immediately, thereby initiating a chain of mutually assured destruction (MAD), a nuclear holocaust which would have obliterated all human life on Earth.

Instead, he decided that his equipment must be faulty! He reasoned that if the US were to launch a pre-emptive attack, it would be an all-out attack with thousands of missiles to overwhelm the Soviet defences and wipe them out before they could respond. A mere five missiles didn't make sense to him, and the fact that we are here today is testimony to the veracity of his reasoning. The equipment did indeed turn out to be faulty. Nevertheless Petrov was severely reprimanded, the whole matter was hushed up by the military, and the world never heard of the incident until 1998. The Author of *The Irrational Ape* uses this and similar thought-provoking stories throughout the book to illustrate the fact that, especially when emotions are running high, logic and clear reasoning are absolutely vital.

It is this ability to reason and infer that best characterises humans as a species, and *The Irrational Ape* is a warning that most of us are blithely abandoning this unique endowment. This is readily apparent when we consider the worldwide rise of populism in politics, and anti-intellectualism in popular attitudes to matters such as fluoridation, immigration, creationism, holistic cures, and GM foods, for example. This trend away from reason is being promoted by single-minded populists and devious propagandists. Bertrand Russell observed that "in the modern world, the stupid are cocksure while the intelligent are full of doubt", leaving absolutists and fundamentalists to manipulate public opinion.

The author's frustration with anti-intellectuals is palpable. He points out that if we don't ask for evidence, we are powerless against the demagogues, dictators and charlatans who daily seek to exploit us, though he admits that healthy scepticism can be painful, often requiring the slaughter of a sacred cow or two (such as religious belief).

Dr. Grimes warns against accepting combative debate as an arbiter of truth, pointing out that debate usually



rewards the most devious and manipulative orators who seek a veneer of legitimacy for their untenable claims, and who use sophistry, fallacy and emotion to sway their audiences. He claims that topics such as climate change or vaccine efficacy are factual matters, no more suitable for 'debate' than is the existence of Greenland. But in order to drum up a newsworthy controversy, the media frequently give false equivalence to the claims of climate change deniers, anti-vaxxers and others with a flat-earth mentality.

When the vast weight of evidence and the scientific consensus points one way, unsupported claims that the opposite direction is equally valid give credibility to nonsense, while the media justify their stance by claiming that they are only demonstrating their impartiality. The author offers several instances, such as: the tobacco industry's doubt campaigns implying that the cases for and against smoking were equally valid; the equal air-time given to arguments for creationism against the established facts demonstrating evolution; the claims for the greater efficacy of homeopathy and 'natural' cures against established medicine; and emotive doubts about the safety of nuclear power stations and genetically-modified crops in the face of factual historical and scientific evidence. Such undue media attention to marginal opinion is newsworthy, but it is disinformation, at best confusing and misleading for consumers of news.

While warning against debate, Dr. Grimes commends informal discussion as a means for helping our views to evolve and develop, encouraging us to ask ourselves 'why do I think that?' If we are to tackle problems such as climate change, antibiotic resistance and geopolitical instability, we urgently need to think like scientists, reflecting before we react, guided by evidence over emotion and readily changing our minds when the evidence changes. But he warns that the social media are the worst place for such a discussion.

Charlatans know how to exploit the social media. They know: that we hear what we want to hear and disregard the rest; that it is much harder to debunk a myth or a rumour than it is to initiate it; and that lies travel farther, faster and deeper than truth, especially when they elicit emotions such as disgust, fear or anger, and when they are repeated many times and appear to come from multiple sources. They know that an absence of simple, easily-understood answers is fertile ground for conspiracy theories, such as the notion that —>

mobile phones cause cancer; and that sowing disagreement about basic facts and premises will effectively stymie all constructive discussion. Even without any malicious intent, the most popular social media sites feed only cherry-picked confirmatory information to members of like-minded groups in order to maximise their number of 'clicks' (and hence, revenue), but incidentally reinforcing their beliefs through confirmation bias and echo chamber effects. Subsequently, it becomes impossible for different groups which have been fed contradictory information to agree even on basic premises, making discussion impossible.

Intellectualism is anathema to demagogues, fascists, populists and flat-earthers, hence their attacks on 'eggheads', 'intellectuals' and qualified scientists. Dr. Grimes acknowledges that the rejection of science is often also motivated by ideology, especially political conservatism. But in this age of fake news and disinformation, he quotes Voltaire: "Those that can make us believe absurdities can drive us to atrocity", making us malleable to all evils, because divided, we are incapable of collaborating.

He warns against an over-dependence on our own personal experiences, showing that our memories are fallible and undependable as sources of factual information, and our perceptions are often no better. We see things that aren't there under the influence of psychedelic drugs and sleep deprivation, but also as suckers impressed by the spiritualist's trickery, fortune tellers' 'rainbow ruse', alternative medicine's dependence on placebo effects, and the water diviner's exploitation of the ubiquity of water.

The book contains several anecdotes about misunderstood statistics, including the Monty Hall problem, statistical probabilities, and the effects of correlation fallacies and confounding variables. Relative statistics always sound more sensational than absolute numbers, and significantly, drug companies use relative terms. But Big Pharma gets off lightly in this book, which has its sights set firmly on 'alternative' treatments, from reflexology to homeopathy to craniosacral therapy, which, the author claims, are 'verified' using dodgy data/statistics from badly designed trials which have not been properly peer reviewed, and which depend on phenomena such as placebo effects, regression toward the mean, and the patient's own immune system for their apparent efficacy.

The 'wellness industry', which covers natural holistic mind-body-spirit health products and procedures, is worth a staggering \$4.2 million million p.a., including detox and cleanse products (\$5,000m p.a) and alternative medicines (\$360,000m p.a.). Dr. Grimes claims that "pseudo-profound bullshit is endemic in the Wellness community", quoting as an example, "wholeness quiets infinite phenomena", (which seems pretty unarguable, to me), and he warns us against being swayed by anecdotes or testimony, especially from 'celebrities'. The difference between science and pseudo-science is often blurred: it depends primarily on the quality and the totality of the evidence, the validity of the logic used, and the testability of the claims, bearing in mind that the burden of proof rests on those making the claim.

As an instinctive opponent of nuclear energy, I was swayed by the chapter describing the effects of the Chernobyl and Fukushima disasters. Chernobyl was spectacularly badly managed after the accident, yet the UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) reported that, after 20 years, a total of 28 firemen had died from acute radiation sickness and a further 15 from thyroid cancer. That's all. This massively contradicts Greenpeace's claims of 93,000 fatalities in Chernobyl.

Similarly, Japan's Fukushima incident led to only a single death attributable to radiation, but 16,000 attributable to the tsunami that caused it. Conversely, the 1975 failure of the Banqiao hydroelectric dam in China killed 171,000 people and displaced 11 million more, and fossil fuels kill over 5.5 million every year from air pollution alone. Nuclear power offers an alternative to fossil fuels which currently release 100 million tons of CO2 into the atmosphere every day. So, assuming Dr Grimes' data are correct (the discrepancy with Greenpeace's data needs an explanation), then surely we must reconsider the nuclear option. There is no shame in being wrong, just in refusing to admit our mistakes when faced with conflicting evidence. However, changing minds alone is insufficient; as emotional creatures who feel first and think later, concurrent changes of heart are equally vital...and nuclear radiation is invisible and scary.

In the course of this excellent book, the author includes over twenty five examples of logical fallacies such as the false dichotomy, the non sequitur and the straw man argument, which are routinely used by those who would manipulate our beliefs and behaviour. They are embedded in stories which he uses to illustrate the supreme importance of critical thinking in these times of fake news and populism.

Dr. David Robert Grimes, scientist and cancer researcher, was born in Dublin in 1985, and studied in DCU and Oxford Universities. It is a measure of his distaste for pseudo-science that in June last year, he launched legal proceedings against the well-known anti-vaxxer Gemma O'Doherty, following her criticism of his campaign for a greater uptake of the HPV vaccine. □

