

## Philosophy of Science

### DEMARCATIION OF THE ABSURD

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MEDICINE is an authoritarian institution which feels threatened when its dogmas are exposed as unfounded. In his Harveian oration, Sir George Pickering said that "from the time of Galen to our own, medicine has always presented a façade of systematic knowledge, or alleged knowledge, for, like religion, medicine could not tolerate ignorance".<sup>1</sup> Since medicine, unlike religion, aspires to be a science, it is torn by conflict between the need for criticism and the fear of it.

Medical education should teach the student how to winnow the chaff of charlatanism from the wheat of science. This will not be possible before the roots of hocus-pocus in medicine have been exposed and cut. The interest in and the exploitation of irrational healing methods by the medical profession are on the increase.<sup>2,3</sup> At present, the difference between a doctor and a quack lies not in the nature of their practice but in the possession of a medical diploma. Last year, *The Lancet* announced a controlled trial of faith healing of cataract, which is to be conducted by a professor of visual science in a reputable medical institution.<sup>4</sup> Medicine is defenceless against such travesty of reason because it lacks criteria for the demarcation of the absurd.

#### THE ROLE OF SCEPTICISM

"The aim of science is not to open a door to infinite wisdom but to set a limit to infinite error."<sup>5</sup> It is a paradox that scepticism both helps and hinders critical inquiry. As Bevan pointed out, a consistent sceptic is driven to a position in which he has to maintain that every dogma may be false and every superstition may be true.<sup>6</sup> This sceptical straw-man would refuse to incant the *Credo quia impossibile* (I believe it because it is impossible) of religious dogmatists, while conceding the *Non nego quia ineptum* (I cannot deny it because it is absurd) of credulous pseudo-rationalists. The rational sceptic does not fall into this trap.

Rational scepticism is the basis of scientific thinking, which is synonymous with critical thinking. In religious spheres, rational scepticism is often declared "dangerous" because it undermines belief, leaving knowledge uncertain. Irrational scepticism undermines rational knowledge, leaving beliefs intact. Irrational scepticism is characterised by an inability to accept the category of the absurd. Anything is possible. "You have to keep your mind open"—until your brains fall out.

#### WISHFUL THINKING

"Just as we swallow food because we like it and not because of its nutritional content, so do we swallow ideas because we like them and not because of their rational content".<sup>7</sup> Even the greatest thinkers, such as Descartes, Berkeley, or Newton, could not resist the overpowering pull of their own wishful thinking towards the abyss of the absurd. Bishop Berkeley believed that tar-water was the closest natural thing to drinkable God and a universal panacea.<sup>8</sup> Lord Bacon confessed that he did not entirely dismiss the weapon salve (ie, application of healing ointment not to the wound but to the weapon). Robert Boyle, the president of the Royal Society, believed that he was cured of the ague by wearing a bracelet. The first

Astronomer Royal, the Rev John Flamsteed, came to Ireland to be touched by the hand of the charlatan Greatrakes. The philosopher David Hartley, who was also a medical doctor, believed that he had been cured of stone by a Mrs Stephen's quack remedy; he wrote an adulatory book on the infallible cure for the disease of which he subsequently died.<sup>9</sup>

Margaret Mead was a fervent believer in the occult and found the evidence for the visits by the UFOs (unidentified flying objects) incontestable. The UFO sighting by Jimmy Carter, which he duly reported, turned out to be the planet Venus.<sup>10</sup>

How could the cool analytical mind of the creator of Sherlock Holmes believe in fairies and write a book about them?<sup>11</sup> How could the incomparable Isaac Newton write a whole book about the fulfilment of the prophecies of Daniel and the Apocalypse of St John? Newton discovered that the Church of Rome was the eleventh horn of the fourth beast of Daniel's vision, and computed that it would be erased from the earth between the years 2035 and 2054 (being a mathematician he provided a confidence interval).<sup>12</sup>

H. L. Mencken, in a review of a book on science and religion by an eminent American gynaecologist, Howard Kelly, who believed in Jonah and the whale, asked: "How is it possible for a human brain to be divided into two insulated halves, one functioning normally, naturally, and even brilliantly, and the other capable of ghastly balderdash?"<sup>13</sup>

Recently I was talking to two scientists who believed in homeopathy. It transpired that they knew next to nothing about the principles of homeopathy, but that did not stop them defending it. The absurdity of homeopathy becomes obvious when it is realised that the infinitesimal doses commonly used by the homeopaths exceed in dilution the Avogadro number. This means that the homeopathic medicine does not contain even a single molecule of the substance of which it pretends to be a dilution. Truly, "dilutions of grandeur".<sup>14</sup>

By considering these examples as deterrents, it is easy to construct rules for avoiding the baneful influence of wishful thinking, but it is extremely difficult to apply them. We know that "we must search our mind beforehand to find out what we would like to be true, and, having got that clear, constantly discount our natural tendency in that direction",<sup>15</sup> but we are only human.

#### OPEN MIND OR OPEN SINK?

"Alternative" medicine is usually defended by a "sceptical" argument, that we should keep our mind open. The open mind is not a prerogative of the irrational sceptics. Prof Paul Kurtz, from the State University of New York and chairman of the Committee for the Scientific Investigation of Claims of the Paranormal, stated: "We can ask, Does sleeping under a pyramid increase sexual potency? Do plants have ESP and will talking to them enhance their growth? Do tape recorders really pick up voices of the dead? All these claims have been proposed by paranormalists within the past decade. *They should not be rejected out of hand*"<sup>16</sup> (my emphasis).

Obviously, Kurtz lacks a demarcation of the absurd, although he is aware of the necessity of such demarcation: "thus we must keep an open mind . . . but one should make a distinction between the open mind and open sink."<sup>16</sup>

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"No testimony is sufficient to establish a miracle unless the testimony be of such a kind that its falsehood would be [even] more miraculous than the fact which it endeavours to establish."<sup>17</sup> This golden rule should bear the name Hume's Razor. In his *History*, Hume wrote that "it is the business of history to distinguish between the miraculous and the marvellous: to reject the first . . . and to doubt the second".<sup>18</sup> Here Hume adopts rational scepticism in advocating dogmatic unbelief in the absurd ("miraculous") and tentative unbelief in the unusual ("marvellous"). The *onus probandi* for unusual claims should rest with the claimant. Hume's rational scepticism was considered by the Church so dangerous that all his works were put on her *Index* in 1761;

the ban was renewed in 1827 and was still in force in the latest edition of 1948.<sup>19</sup>

Popper's criterion of falsifiability (testability) demarcates between empirical and metaphysical statements, but it is so wide that it allows non-metaphysical nonsense. A statement such as "In Azerbaijan there lives a man who was born in 1500", with his address and photograph supplied, is clearly absurd, though neither illogical nor untestable. The criterion of falsifiability alone is not sufficient to distinguish a crank from a rational scientist. Gruenberger proposed a screening test for crackpots in which the ten criteria included public verifiability, predictability, Occam's razor, and paranoia.<sup>20</sup> Bunge attempted to demarcate pseudo-science by attitudes towards ignorance, problem posing, hypothesis testing, criticism, and unfavourable data.<sup>21</sup>

In trying to demarcate the absurd, it is as important to know who says what and why, as to know what is being said and how. Absurdity is contextual. If a monkey types by accident "I AM MONKEY", the message is meaningless despite its surprising truthfulness. Why does a physicist show the door to a would-be inventor of a yet another *perpetuum mobile*, without bothering to inspect the contraption? Because in the context of thermodynamics the proposition is absurd.

When in 1905 Einstein postulated that Lorentz's transformations had a physical meaning, the consequences appeared absurd to laymen: absolute time had no physical reality; times shown on clocks in motion relative to each other were not simultaneous. The article, however, was accepted by the editors of *Annalen der Physik*, and by Einstein's peers, as a significant advance in theoretical physics. Einstein later recalled that "the type of critical reasoning which was required for the discovery of this central point [ie, the arbitrariness of the concept of simultaneity] was decisively furthered, in my case, especially by reading of David Hume's and Ernst Mach's philosophical writings".<sup>22</sup> Einstein praised in particular "the incorruptible scepticism" of Mach, who did not even believe in the existence of atoms. This did not diminish Mach as a physicist, since his disbelief was not irrational but erroneous. If, on the other hand, Mach believed in miracles, his scientific credibility would be at stake.

For a philosophical sceptic there is always a dilemma how to navigate between the Scylla of gullibility and the Charybdis of disbelief, as if the safe path had to lie in between. The Ulyssean analogy is lame; it does not follow that, if the two extreme positions are  $2 + 2 = 6$  and  $2 + 2 = 4$ , the truth lies in the middle,  $2 + 2 = 5$ . By choosing unbelief, we do not rule out a subsequent change of opinion, based on new evidence, and thus nothing is lost; whereas, by being gullible, we lose reason from the very beginning. The worst that can happen by following this pragmatic strategy is that the baby of truth will be thrown out with the absurd bath-water. The probability of this happening depends on the size of the bath. To pull the plug is a risk worth taking if the tub contains the whole Atlantic.

## REFERENCES

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