

## Homeopathic 'mumbo-jumbo'

Many scientists these days have at least the odd moment when they feel that their view of the world is under threat from a tide of what the journalist Francis Wheen, in his best-selling book, termed 'mumbo-jumbo' (1).

For scientists, 'mumbo-jumbo' manifests itself in the rejection of scientific understanding of how the physical world works in favour of mystical beliefs derived from a range of sources.

The examples are too numerous to list, but as the debate swirls it occasionally coalesces around particular issues. Recent flash-points are the challenge to evolutionary theory from so-called 'Intelligent Design' (2), and the question of whether complementary and alternative medicine has any scientific basis.

Homeopathy has recently taken centre stage in this latter debate. In May an open letter signed by 12 senior doctors and scientists (including several Physiological Society Members) urged that alternative therapies unsupported by evidence of efficacy should not be used in the NHS (3). Later, the demonstration that homeopathic pharmacies advised homeopathic formulations, which have no antimalarial action, as malaria prophylaxis garnered national media attention (4).

Following the homeopathic malaria remedy media exposé, it might be thought that the scientific absurdity of homeopathy had been clearly demonstrated. Imagine, therefore, the surprise of many scientists and doctors when the Medicines and Healthcare Products Regulatory Agency (MHRA), the body charged with controlling the safety of medicines in the UK, decided to allow homeopathic remedies to be sold with packaging featuring – for the first time in 30 years – claims about what the remedy purports to treat (5).

Previously a homeopathic remedy in a high street chemist would have been labelled '6c dilution of Gelsemium sempervirens', or something similarly obscure. It can now be sold, quite legally, as 'NoCold-Max cold and flu remedy ... homeopathic'.

And as the web site of the European Council for Classical Homeopathy (6) puts it: 'To make such a claim, the manufacturers need only show that the product has been used to treat those particular conditions within the homeopathic industry.' No scientific basis. No clinical trials. No evidence of effectiveness.

The homeopaths, and the companies that produce over-the-counter homeopathic remedies, are understandably delighted.

Well, you might say, so what? The placebo effect is not new, and a fool and his/her money are soon parted. Most scientists would agree that the labelling is a joke, but in a world awash with ridiculous claims, why get worked up?

Well, firstly, perhaps, because the MHRA, acting on our behalf, is supposed to care – their web site states they 'enhance and safeguard the health of the public by ensuring that medicines and medical devices work, and are acceptably safe.' (7). How they reconcile the first part of this statement with the change in the homeopathy rules is not clear.

'The Physiological Society is concerned with the scientific investigation of how the body works ... It is our view that "alternative medicine" has, with very few exceptions, no scientific foundation, either empirical or theoretical. As an extreme example, many homeopathic medicines contain no molecules of their ingredient, so they can have no effect (beyond that of a placebo). To claim otherwise it would be necessary to abandon the entire molecular basis of chemistry. The Society believes that any claim made for a medicine must be based on evidence, and that it is a duty of the regulatory authorities to ensure that this is done.'

Secondly, because – at the risk of sounding incredibly pompous – there is a principle at stake, namely that decisions of this kind should be made on the basis of scientific and medical evidence and understanding.

Finally, the MHRA's decision to allow licencing and sale of homeopathic remedies in this way is likely to be widely interpreted as approval of alternative remedies in general. This in turn will foster the perception that they work.

The Physiological Society, like other scientific societies, has been asked by the lobby group Sense About Science (5) to comment on the MHRA decision and has issued a statement reaffirming its belief in scientific evidence, and decisions based on it.

The Society's statement (box) is not, note, a blanket dismissal of all the things the public commonly regard as complementary therapies. Physiologists have long studied the effects of exercise upon the body, and the physiological actions of plant-derived substances. Work goes on into the possible physiological basis of

acupuncture, or the physiological effects of alterations in diet.

But scientists want evidence, not anecdotes and hand-waving. If proper science shows real physiological effects, beyond those of a placebo compound or sham intervention, and if these can be made to work as a treatment, what you have is a therapy. Rather than being a question of 'alternative' or 'mainstream', it is down to what works – or more precisely, what we can be sure works because it can be shown to work in a properly-designed scientific experiment.

Which highlights something else we should be thinking about – our failure, as professional scientists, to inform enough of the public about what proper controls are, and exactly why some experiments are convincing, and others are not. About what the placebo effect is in medical experiments and trials. About what homeopathy actually is – you would be surprised how many people, including a good few bioscience graduates I have met, think it means 'herbal remedies' rather than 'infinitely dilute nothing' – and why it is scientifically nonsensical.

None of these is terribly complex to explain, and many of them go to the heart of what science is, and how it is done. In many ways, this seems a golden opportunity to use the public interest to put across how science offers a clear way to divide what actually works from what doesn't.

As the immortal Richard Feynman put it: 'Science is a way of trying not to fool yourself. The first principle is that you must not fool yourself, and you are the easiest person to fool.'

As this issue went to press, The Society's statement, along with many others, was being passed to interested members of the House of Lords in advance of a debate on the new homeopathy regulations on 26 October. By the time you read this, we should know if it did any good. But whatever the result, get polishing your homeopathy-debunking speech. And I like to think Feynman would not mind us pinching his lines.

**Austin Elliott**

1 Wheen F (2004). How mumbo-jumbo conquered the world: a short history of modern delusions. Harper Perennial.

2 <http://www.royalsoc.ac.uk/news.asp?year=&id=4298>

3 <http://www.timesonline.co.uk/article/0,8122-2191985,00.html>

4 [http://news.bbc.co.uk/2/hi/uk\\_news/5178488.stm](http://news.bbc.co.uk/2/hi/uk_news/5178488.stm)

5 <http://www.senseaboutscience.org.uk/index.php/site/project/86>

6 <http://www.homeopathy-ecch.org/>

7 [http://www.mhra.gov.uk/home/ldcplg?ldcService=SS\\_GET\\_PAGE&nodeld=5](http://www.mhra.gov.uk/home/ldcplg?ldcService=SS_GET_PAGE&nodeld=5)

