Science, Homoeopathy, and the 'Ugly Fact'

E.

Ernst

Exeter

Many will recall the story which made headlines not only in science journals: A French group of scientists led by professor Benveniste apparently showed that extremely highly diluted and vigorously shaken ('potentiated' in homoeopathic nomenclature) dilution of IgE antiserum induced significant changes in the behaviour of white blood cells. Why should this be relevant? The finding was claimed to prove one essential axiom of homoeopathy, namely that water has a 'memory' and therefore remembers some information of the molecules it has been in contact with, even when so dilute that not a single molecule is left in it. An exciting finding for homoeopaths, but a disturbing one for scientists: If confirmed it would imply that the laws of physics to be rewritten.

Even though the highly reputed journal 'Nature' initially published these results [1], it subsequently sent a team of investigators to Benveniste's laboratory to check. After only a few days' work, they concluded that Benveniste (without being dishonest) had made methodological errors and that the findings would not stand up to utmost scrutiny and would not be reproducible in the hands of others.

An emotional battle ensued where Benveniste essentially claimed the 'Nature' investigators had vandalised his laboratory and had failed to understand his method. The 'opposition' more or less implied that Benveniste was slowly going 'round the bend'. Unfair prosecution or paranoia? In the years to follow Benveniste publicly announced that others had confirmed his results. Yet no peer-reviewed paper was published confirming this. In all these arguments, it was forgotten that, if Benveniste

had been right, he had demonstrated one axiom of homoeopathy to be correct. But, at the same time, he had also shown the second axiom, namely 'like cures like', to be wrong. Now a British group (sponsored by the Research Council of Complementary Medicine) has repeated the experiments in the most precise manner possible according to the original protocol [2]. No evidence was found for any of the effects originally shown by the French group; the new data is solid and thus convincing. Again it was 'Nature' that published them. Huxley coined the phrase of the 'tragedy of science – the slaying of a beautiful theory by an ugly fact'. In this case the fact might seem ugly to homoeopaths, yet I doubt that it will (in their view) slay the theory. It has not shown that water has no 'memory'. It merely suggested that the instrument to detect it was too blunt. Such disputes boil down to the question whether it is enough for science to show that the earth is round or whether it has to prove that it is not flat. Homoeopathy, I fear, has soon to come up with other and more convincing evidence for its ideas. I suggest that it continues to provide solid proof for clinical effectiveness; some evidence does in fact exist, yet it is too weak to impress the sceptics [3]. For the time being, the rewriting of the textbooks of physics may be too ambitious after all.

References

Davenas E, Beauvais F, Amara J, Oberbaum M, Robinzon B, Miadonna A, Tedeschi A, Pomeranz B, Fortner P, Belon P, Sainte-Laundy B, Poitevin B, Benveniste J: Human basophil degranulation triggered by very dilute antiserum against IgE. *Nature* 1988;333:816-818.
Hirst SJ, Hayes NA, Burridge J, Pearce A, Foreman JC: Human basophil degranulation is not triggered by very dilute antiserum against human IgE. *Nature* 1993;336: 525-527.
Kleijnen J, Knipschild P, ter Riet G: Clinical trials of homoeopathy. *BMJ* 1991; 302:316-323.

E. Ernst
Postgraduate Medical School
Barrack Road
GB-Exeter EX25DW (UK)
© 1995 S. Karger GmbH, Freiburg