

into his synthesis, but it failed to consider potentially confounding variables.

The Scientific American Library series brings together well-produced, accessible reviews for a general readership. This book extends the series in a new direction and breaks new ground in presenting a highly original synthesis. Excellent colour illustrations are a bonus of all the books in this series — the first thing I did with my copy, as with previous examples, was to produce new lecture slides.

Overall, Allman has produced a tightly written, judicious and entertaining account that will surely alter the way our brains think about the evolution of our brains. □

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Take with water (or a pinch of salt): model tablets for the 1936 Chemists' Exhibition in London.

The feelgood factor

The Placebo Effect: An Interdisciplinary Exploration

edited by Anne Harrington
Harvard University Press: 1999. 260 pp.
\$19.95, £12.50 (pbk)

John Galloway

The Placebo Effect helps to explain why medicine appears to be some way off relinquishing the certainty of faith for the uncertainty of science. The Latin *placebo* translates as: "I shall be acceptable or pleasing". Traditional medicine views placebos as medicines or procedures that make patients feel better simply by virtue of being given, rather than for what they are. However, scientific respectability has been lent by the current enthusiasm for controlled clinical trials. Placebos are the 'control' against which therapeutic effectiveness is measured.

Despite this, the idea of a placebo suggests a doctor's sleight of hand, a therapeutic illusion where benefit is no more than the patient's faith in their doctor rather than true clinical effectiveness. Is this just a confidence trick, practised by those unwilling to forgo reputation and income by admitting they cannot help, or is it an integral part of good medicine? The jury is still out.

This edited collection of reviews, despite not always being completely digested or integrated, repays reading for the nuggets of insight it gives into health care and its as yet not-so scientific underpinnings. First, does the placebo effect actually exist — or is it, as Elaine and Arthur Shapiro ask in their opening article, "much ado about nothing"? Are placebos distinctive, if nonspecific, in their action, or just part of a spectrum of care and cure? Trying to divide treatments into those that 'really work' and those that do not (even though patients or doctors think they do) raises more questions than it answers. Hence

the rise of evidence-based medicine.

In his review, Howard Spiro, a gastroenterologist, uses the example of stomach ulcers to illustrate the problem. For many years, patients were advised to drink milk for immediate pain relief. In the 1970s, this advice was dropped. However, it has been discovered recently that milk stimulates the release of endorphins, giving a 'scientific' reason for its pain-relieving qualities. Will this lead to milk's reinstatement as a treatment? Spiro asks if milk was a placebo then, or an antacid. And, with this new-found knowledge, is it now a placebo, or what?

He points out that cimetidine is now the drug of choice for stomach ulcers. It relieves pain and appears to reduce the size of the ulcer. But the relationship between ulcer size and degree of pain is not clear-cut, nor is the superiority of cimetidine over a placebo in controlled trials — in reducing either pain or the size of the ulcer. In the two-week trial period, half of the ulcers of people using cimetidine had healed, compared with a third for those on the placebo.

The designers of trials believe that the feeling of hopeful expectation induced by even the semblance of treatment is likely to influence how patients react, or at least how those carrying out the trial perceive they react. Otherwise, the placebo arm of the trial would have no point except for saving money. This feature, *de rigueur* for respectable clinical-trial design, is catch-22 for placebos, as it appears to rule out any scientific assessment of the effectiveness of the placebo itself. On the other hand, patients entered in trials do better than those not entered, all else being equal.

In the book's final article, David Morris, the associate editor of the journal *Literature and Medicine*, emphasizes that illness and disease are not always the same, although the one may tell you that you have the other. Disease, its causes and cures, are probably best

viewed as part of biology, with its emphasis on structure and the adaptation of structure to function. But illness may be better understood within frameworks of social anthropology and behavioural psychology.

Literature makes some contribution in this area. The central character in Pat Barker's *Regeneration Trilogy* (Penguin) is the eminent historical figure Dr W. H. R. Rivers, a pioneering neurologist and social anthropologist. During his time on a South Pacific island, Rivers saw how different the concepts of illness and treatment could be in other cultures. When he was injured after his boat foundered, the need to save the boat inspired him to such desperate action that, until the boat was safe, he was unaware of his pain and disability. Thus, under some circumstances, the mind can disregard the pain of injury or disease.

The complementary point is made in *The Placebo Effect*: that people who have lost limbs may continue to feel the pain in the lost part. A strong case is made for an integrated, bio-social view of illness. One implication is that the biological side of medicine may be overlaid at the expense of the social and cultural side. In the United Kingdom, it is possible that too much weight is attached to 'scientific' qualifications for entry to medical courses.

If the placebo effect can be demonstrated scientifically and its underlying mechanisms discovered, it brings together very different medical philosophies, whether science-based, complementary or even magical. This would be something of a paradox. No matter how unscientific the style of practitioners, faith in them would become very much part of science. Is a faith in doctors that is explained by science and, as Robert Brownning wrote, "diversified by doubt", better for you as a patient or worse? □

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Forced smile

Francis Crick has pointed out an error in Walter Gratzer's review of Freeman Dyson's *The Sun, the Genome and the Internet* (*Nature* 398, 770-771; 1999). The quotation in the penultimate paragraph was by Oliver Edwards, an acquaintance of Samuel Johnson's, as recorded in James Boswell's *The Life of Dr Johnson*: "You are a philosopher, Dr Johnson. I have tried too in my time to be a philosopher, but, I don't know how, cheerfulness was always breaking in."

From entropy to Duino to Pavia

The correct address for G. F. Bignami, who reviewed Carlo Cercignani's *Ludwig Boltzmann: The Man Who Trusted Atoms* (*Nature* 399, 32-33; 1999), is the Italian Space Agency, Via di Villa Patrizi 13, 00161 Rome, and the University of Pavia.