

# THE SEVEN SINS OF PSEUDO-SCIENCE

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**SUMMARY.** In this paper I will argue that a profile of the pseudo-sciences can be gained from the scientific pretensions of the pseudo-scientist. These pretensions provide two yardsticks which together take care of the charge of scientific prejudice that any suggested demarcation of pseudo-science has to face. To demonstrate that my analysis has teeth I will apply it to Freud and modern-day Bach-kabbalists. Against Laudan I will argue that the problem of demarcation is not a pseudo-problem, though the discussion will bear out that Laudan's replacement question, namely the question whether someone's theory is well-confirmed, is not, as Lugg claimed, independent of the question as to whether that person is a pseudo-scientist. I further argue that my prototype pseudo-scientists do not have the shortcomings highlighted in Thagard's recent analysis of pseudo-science.

*Key words:* demarcation criterion, science, pseudo-science, Bach-kabbalists, Freud, Laudan, Lugg, Popper, Thagard.

## 1. INTRODUCTION

In this paper I will argue that a profile of the pseudo-sciences can be gained from the scientific pretensions of the pseudo-scientist. These pretensions provide two yardsticks which together take care of the charge of scientific prejudice that any suggested demarcation of pseudo-science has to face. To demonstrate that my analysis has teeth I will apply it to Freud and modern-day Bach-kabbalists. Against Laudan I will argue that the problem of demarcation is not a pseudo-problem, though the discussion will bear out that Laudan's replacement question, namely the question whether someone's theory is well-confirmed, is not, as Lugg claimed, independent of the question as to whether that person is a pseudo-scientist. I further argue that my prototype pseudo-scientist do not have the shortcomings highlighted in Thagard's recent analysis of pseudo-science.

## 2. THE QUEST FOR A DEMARCATION CRITERION

There was a time that a philosopher could dare to present a demarcation criterion that separated science from pseudo-science with one single scoop. That time is past now. The features appreciated in science turned out to be present in the pseudo-sciences as well, and the sins of pseudo-science showed up abundantly in science. It seems then that the quest for a demarcation criterion has failed.

Recent sociologists of science are quite outspoken on this matter: the distinction between science and pseudo-science is a case of local rationality,

that is, a case of local prejudice. But also Laudan, who can hardly be suspected of ganging up with the sociologists, has declared that 'the problem of demarcation between science and pseudo-science is a pseudo-problem' (1983, p. 124). Changing standards of science and its epistemic heterogeneity should make us face up to 'the probable futility of seeking an epistemic version of a demarcation criterion' (p. 124). The term 'pseudo-science' is 'just [a] hollow phrase which [does] only emotive work for us' (p. 125). The important distinction, or rather the only relevant distinction according to Laudan, is between well-confirmed and poorly confirmed theories. So his advice is: do not ask if a theory is scientific, ask if it is well-confirmed or not.

In spite of the increasingly bad reputation of the problem P. Thagard has tried to characterize the pseudo-sciences in his (1980, 1988). Stagnation, resemblance thinking, and neglect of empirical matters are the three main earmarks of his pseudo-scientific profile. Against this proposal Laudan already pointed out that many sciences exhibit those very features which Thagard wants to reserve for the pseudo-sciences. There is also the reverse problem: Thagard's criteria do not fit alleged pseudo-scientists such as Freud and modern-day Bach-kabbalists. These pseudo-scientist do at least *prima facie* underscore the importance of empirical evidence and even of critique, as I shall show in the sequel. They are not resemblance thinkers, that is, they do not typically confuse similarity with causal relations,<sup>1</sup> and their research program is not stagnant.<sup>2</sup>

A. Lugg (1987) accepts Laudan's conclusion that the 'prospects for a criterion [in terms of necessary and sufficient conditions] of demarcating scientific theories from pseudo-scientific ones are exceedingly dim' (p. 211). But he objects to Laudan that 'it is a mistake to fall back on the position that these theories differ only with regard to how well they are confirmed' (p. 221).<sup>3</sup> We should understand that the criticism of a theory as pseudo-scientific 'has nothing to do with the question of how well they are supported by the evidence' (p. 225). The difference between pseudo-science and science is not just a matter of degree. Pseudo-science is not merely ill-founded, it is a 'conceptually unsound', 'structurally flawed' practice (p. 225).

We may well agree that pseudo-science is not just ill-confirmed science, this in contradistinction to Laudan's claim. Yet Lugg's approach raises the question what these structural flaws are by which we recognize the pseudo-sciences. At this point Lugg is not so helpful: pseudo-science is a case of 'fallacious argument' (p. 226), and by 'assimilating new cases to old ones and ... [by] extending the principles exemplified by old cases to cover new ones' (p. 226) we can come to criticize some activity as a pseudo-science. Lugg gives the example of parapsychology. This is a pseudo-science because it 'fails to conform to the standard canons of good experimentation and sound statistical analysis' (p. 227).

The problem with this approach is that it is open to the charge of scientific prejudice. How do we decide what is Good and what is Bad? And when