SCHAFFNER, K.J., *Logic of Discovery and Diagnosis in Medicine*. Pittsburgh
  Series in Philosophy and History of Science, Berkeley: University of Cali-
  fornia Press, 1985.

The title of this collection of papers, originally presented to a workshop
in 1978, is a bit misleading: the book is much more about the nature and role
on the so-called "expert systems" than it is about the medical practice of dia-
gnostic decision making. Of course, if one is willing to accept that these "expert
systems" do represent the nature and structure of diagnostic reasoning, and
because quite a few of these systems are in use in the medical profession, one
could say that it is about the medical practice itself. Even in such a case, the
treatment and the discussion that some of the expert systems like INTERNIST I,
DENDRAL and metaDENDRAL get in several of the articles hardly does justice
to the topic: logic of discovery and diagnosis in medicine.

What, for instance, is the "discovery" that some of the participants talk
about, when they speak of its logic? Actually, only Bruce Buchanan in his
"steps towards mechanizing discovery" treats the subject directly, and it boils
down to a brief description of metaDENDRAL, which helps a chemist in 'dis-
covering' the structure of an unknown chemical sample. Important and impres-
sive though such a feat be, it is hardly the kind of problem that philosophers

of science are busy with regarding the "logic of discovery". Hempel, in his "thoughts on the limitations of discovery by computer", is therefore led to the belief that it might not make such sense to claim "that a computer program might lead to better theories than the efforts of human investigators" (p. 122). The reason for this is quite simple: the hypotheses that the computer discovers are those expressible within the logical means of the given computer language, within the available vocabulary antecedently fixed, and the limitations of the given empirical background assumptions (p. 118.) But, "the formulation of powerful explanatory principles, and especially theories, normally involves the introduction of a novel conceptual and terminological apparatus" (p. 119).

The rest of the papers are mostly about the logic of diagnosis, with the exception of Kyburg's article on the "logic(s) of evaluation in basic and clinical science" and Seidenfeld's response to it. The latter issues a warning (p. 150-51), which though specifically aimed at the users of DIALOG is valid for most "expert systems" working with sensitive and sophisticated statistical techniques, about the problem of the "fit" between the contents of a science and its statistical model.

Danner Clouser's article, "approaching the logic of diagnosis" is an informal introduction to Bayesian theory. Tristram Englehardt's discussion about the typologies of disease is a summary of his view on the concept of disease, something which the regular readers of *The Journal of Medicine and Philosophy* or the Philosophy and Medicine series are long familiar with. Also, it sits oddly sandwiched between the articles of Simon and that of Clouser. Simon intends to talk about the philosophy of diagnosis. But, when we read that "instead of conceiving symptoms as being associated with disease entities, we think of them as being *caused* by diseases" (p. 83), it is clear that his attempts at introducing "more theory— more intelligence— into a system for medical diagnosis" (ibid) has little to do with "nature and philosophy of medical diagnosis itself" (p. 72).

There are also discussions, some of them a bit detailed, about such expert systems as CADUCEUS and INTERNIST by Myers and Pople, critical responses by McMullin and Suppe.

Schaffner, the editor of this volume in the *Pittsburgh Series*, says at the end of his introduction that "exciting and dynamic interactions...took place at this set of meetings" (p. 29). If this is true, I see no reason to doubt his words, than it is a real pity that none of it is discernible in this collection. If there is any excitement to be felt, it is simply because of the nature of issues, around for quite some time now, to which some of the papers address themselves. If one has been busy either with "expert systems" or with philosophy of medicine, I am afraid one will not gain much from a reading of this book. On the other hand, one does not learn much from this collection if one is new to these domains either. A pity.

Balu.

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