This booklet — of about a hundred pages long — has fundamentally a polemical content, as the author wanted at first to answer P. Feyerabend's criticisms against his earlier book: "The structure and Dynamics of Theories". Hence a full appreciation of this work should rely on a thorough knowledge of the present state of existing literature about the approach called "non-statement view", which aims to replace the old formalist, "Carnapian" analysis of scientific theories by a more informal "set-theoretic" approach of Bourbakist style. Needless to say, this referee does not claim to have such a thorough knowledge of all the recent discussions in this literature of a very special nature. He has honestly tried to understand, behind the luxuriant flowering of set theoretic terminology used by the author and his colleagues, the essential points raised. Strangely enough — and to his own surprise — he found that many points evoked in these discussions do, in fact, make sense, and express profound and lasting problems of fundamental interest in the philosophy of science. Whether the set theoretic formalism used by these authors is in this discussion of any usefulness at all, is — to my opinion — extremely doubtful; hence the main objective of this review will be to translate this formalistic language into plain, ordinary language. But let us describe briefly the context of the book.

The book is divided into 12 Chapters, or paragraphs followed by a formal appendix. § 1 gives the definition of Non-statement-view 1, i.e. a Bourbaki-like programme of axiomatization of Physical Theories. The author exposes his motivations to axiomatize theories of Physics, following P. Suppes' attempts for classical Mechanics (and not trying to build a Kuhnian reconstruction). Here one uses set-theoretic instead of metamathematical methods. "Statement-view" (the old formalistic Carnapian approach) proved to be impossible — essentially because of the unmanageable length of proofs. Hence the pragmatic necessity to use a more "relaxed" way of elaborating an informal axiomatics — "without falling back anew into obscurantism".

§ 2 deals with distinguishing a theory of Mathematical Physics from a mere mathematical theory. Here the notion of T-theoreticity (J.D. Sneed) is introduced and discussed, as well as the Ramsey method for defining empirically theoretical terms. The use of T-theoretical terms allows to introduce entities which cannot be either defined, or measured in an immediate empirical way. The main technical description of physical theories are given. 1) Statements: "a is an S" (Suppes), where S is a set-theoretic predicate (for instance, an alge-
braic structure like a group). And the description due to J.D. Sneed (M,I,C), M set of models (realizations of S), I set of intended applications, C constraints, describing how two possible "words of application" partly overlap.

§ 3 discusses again the question of theoreticity. A statement like "a is an S" cannot be considered as an empirical statement. Hence the need of theoretical terms. Finally, the extension of the set S splits into three sets: M the set of all possible models satisfying the fundamental laws; M the set of all possible models of S reinforced by the apparatus of theoretical terms; M the set of all partial models obtained by throwing out the theoretical terms; C belongs to the set of parts of M. The terminology non statement-view 1, and non statement view 2 (acceptance of the "emended Ramsey" view: one single big empirical claim) are introduced.

§ 4 explains the technical improvement of replacing expanded cores by "theory-nets". Motivation for that is the need to define "special laws" and "subtheories", thus allowing the description of "Minirevolutions of theories" à la Putnam. The paradigmatic set of applications I is also introduced.

§ 5 deals with pragmatization: essentially how to describe theory-evolution within the new formalism.

§ 6 Here the notion of scientific progress is tentatively formalized. The notion of "progress branching", Kuhn-loss, of "incommensurability" and "reduction" between theories are introduced and discussed.

§ 7 In this rather stimulating chapter, one distinguishes between "general philosophy of science" as opposed to "special philosophy of science". The author defines statement-view-3 as the view according to which scientific theories, within the general philosophy of science, have to be considered as sets of sentences.

§ 8 Here the author takes a stand with respect to Kuhnian philosophy — in particular he discusses the apparent "irrationalism" of Kuhn. Should a theory always be valid on the paradigmatic set I of intended applications, thus defining an immunity domain for the theory? Several points about progress are again discussed.

§ 9 deals with Quine's holism, underdetermination of theories, and discussions about Lakatos' "methodology of research programmes".

§ 10 contains indications about some recent works (Balzer, Moulines, D. Mayr) on problems of approximation, and reduction.

§ 11 deals at length with the problem of "incommensurability" of theories, in particular Putnam's attempts to reconcile Kuhnian revolutions with some sort of progress in knowledge. Studying the example of mechanical theories (Galileo, Newton, Einstein...), the author meets again the problem of metrics, and the status of Geometry.