

**Methodology of the Social Sciences.** By Felix Kaufmann. New York and London: Oxford University Press, 1944. Pp. viii, 272. \$3.50.

Social scientists, including the lawyers, have not failed to notice the radical transformation which has occurred in the theory of logic since the pioneer labors of Peacock, Gregory, and Boole in the first half of the nineteenth century. Nor have they overlooked the success achieved by modern logic in the changes which it has brought about in the mathematical field. Although there is ground for belief that the application of the new logic to other domains of thought will yield a harvest as fruitful as that reaped in the mathematical, the results so far have been disappointing. The greatest advances have been in the understanding of the nature of scientific investigation, particularly in the direction of the requirements of generality. Thus, modern logicians regard it as a waste of time to concern themselves with inferences that involve particular cases. For the proposition "Socrates was a man, all men are mortal, therefore Socrates was mortal," they substitute the proposition "If anything has a certain property, and whatever has this property has a certain other property, then the thing in question has the other property." It is this kind of absolute generality that modern logic seeks, and it leaves to other sciences the task of discovering whether propositions of the Socratic type are true or false. But the conclusions of the new logic with respect to propositions of even the generalized type are far from settled. Only a few years ago the generalized proposition just quoted was held by the most advanced logicians to be quite self-evident. It is now taken to be a "stipulation," a condition to be fulfilled if the necessary demands of scientific inquiry are to be met, comparable to the observance of certain forms on entering into a contract.

Professor Kaufmann's volume is an effort, from the point of view of modern logic and other sources of knowledge, to place the methodology of the social sciences on a more solid foundation than it enjoys at present. At the outset he makes the assumption that there are certain invariable fundamental properties common to all the sciences. This does not mean in his system that a sound methodology would be applicable to all the sciences, equally, or even always applicable to one science. Thus, in Wölfflin's theory, the Gothic architect was faced with specific architectural problems, such as the wishes of the patron and the availability of materials, and his solution of them under those particular conditions gave to Gothic architecture its specific character. In Burckhardt's theory, Gothic architecture was a creation of Gothic man, and in order to understand it Gothic man must first be understood. Professor Kaufmann recognizes that both approaches are valuable for the history of art. His own theory is sufficiently general to allow for the methods of both Wölfflin and Burckhardt.

Professor Kaufmann regards scientific thinking as "a process of classifying and re-classifying propositions by placing them into either of two disjunctive classes in accordance with presupposed rules." He holds this to be the most general characterization of such a method of thought. It means, briefly, that the scientist is concerned with dividing synthetic propositions (i.e., propositions which restrict the "given" frame of possibilities, e.g., "There is blue at place  $p$  at time  $t$ ") into two disjunctive classes: accepted propositions and non-accepted propositions. But the decision which leads to the transfer of a proposition from one class to the other must not be arbitrary; grounds must be offered to justify it. Professor Kaufmann emphasizes that the term "ground" is ambiguous. In one sense it means that a premise is the ground for the acceptance of a

conclusion. In this meaning the term is assignable to formal logic. But the term is also used in a different sense, as when we assert that some proposition can be accepted because we have already accepted another, even though that proposition cannot be deduced from the other. Professor Kaufmann is interested exclusively in the term "ground" in the second sense, where it has relation to empirical procedure. For mere logical analysis in such cases will not determine whether a particular proposition is ground for another; resort must be had to rules of empirical procedure in order to settle the question. He is interested in empirical grounds and not logical grounds.

At this point Professor Kaufmann rejects the view, which has prevailed since the days of classical Greek science, that science is best defined as a hypothetico-deductive system of propositions. He observes that this definition implies that the set of propositions established by inquiry in a particular domain must form a deductive system. He believes that means that "most of the existing branches of knowledge could no longer be called sciences, and even the few 'sciences' then remaining would lose the title as soon as new experiences led to a 'disturbance' of the system." The first objection involves merely a matter of prestige. It is clear that some sciences are more developed than others, e.g., mathematical physics is further advanced than sociology. It is also clear that in domains where the most rigorous controls are exercised the special science involved may still be in a rudimentary stage of development, e.g., the branch of astronomy devoted to the analysis of variable stars. But one of the ideals of this latter science and of sociology is that of deductive system, and their relatively immature development is precisely chargeable in part to the fact that they have not achieved that ideal. However, it would seem proper to designate them "sciences," since both subjects attempt to establish their propositions in accordance with the principles of scientific method, and thus to pass beyond the realm of mere opinion. We cannot all be *les chevaliers sans peur et sans reproche* but that does not necessarily mean that all who fall short of that ideal are evil men. The second objection, that a formally complete science allows no place for new discoveries, involves a misunderstanding of the conception. No science known to man, including mathematics, is formally complete in the sense that we are certain that its postulates are self-consistent and will never lead to a contradiction. However, with the postulate sets with which the various sciences are now operating, new propositions are constantly being devised. They are new in the sense that no one had thought of them before, and, when once formulated, they are seen to be related to the initial set of postulates. This is almost an everyday occurrence in mathematics, and is simply illustrated by the game of chess. The rules of chess are few, but the games, notwithstanding their continual novelty, are all deducible from them. However, some day a game may occur, played in strict accordance with the rules, but which presents a contradictory situation, e.g., the impossibility of completing the game. In that case the rules would have to be revised or chess itself abandoned. This also is the normal procedure of science, particularly in the empirical field. Hypotheses are formulated to account for particular conditions, further observations show the need for a correction in the hypotheses, and they are corrected accordingly. It is difficult to understand why such corrections in the initial postulates make the "science" any the less a "science." That process in fact has been customarily regarded as having the opposite result.

For the hypothetico-deductive idea of science, Professor Kaufmann proposes to

substitute a conception of science in terms of rules of procedure. He distinguishes between the *structure* of a science, i.e., its rules of procedure, and its *corpus*, i.e., the set of propositions accepted at a given time in accordance with the rules of procedure of the science. When a scientist changes the corpus of a science, either by incorporating new propositions or eliminating old ones he makes a *scientific decision*. The rules of procedure state the conditions which must be satisfied before a change in the corpus is permissible. This is the heart of Professor Kaufmann's doctrine, and he devotes many pages to a consideration of the logical status of the rules of procedure. About one-half the volume is concerned with various methodological issues in the social sciences as seen from the point of view of Professor Kaufmann's conception of science.

Professor Kaufmann's analysis of a relatively neglected aspect of scientific method has merit, but his repudiation of the traditional conception of the subject is unnecessary. Little work of value has been done in the formal analysis of the rules of scientific procedure. Professor Kaufmann's volume is an attempt to isolate the logical elements in that process. If his results seem to amount to no more than truisms, they are nevertheless necessary as part of a complete understanding of methodology. He has unfortunately been content to leave his analysis at the descriptive level. Thus, most if not all of his results are of the kind "there are three different types of correct scientific decision in a science  $S$  concerning a given proposition  $p$ :  $p$  is incorporated into  $S$ ;  $p$  is eliminated from  $S$  without being replaced by an incompatible proposition; or  $p$  is eliminated and replaced by a proposition incompatible with it." Statements of this sort have the virtue of generality, but it is a generality of a kind different from that exhibited by modern logic. They are nothing more than descriptions, and differ from the fruitful concepts of contemporary logic, such as that of the propositional function, in that no general propositions of significance are derivable from them. That is to say, it is a generality without power. Furthermore, Professor Kaufmann's analysis is not inconsistent with the traditional view of the domain of scientific methodology which occupies itself with the problems of perception, discovery, explanation, verification, hypotheses, and so on. It is supplementary to that view and perhaps even a necessary prolegomenon to it. But to regard the problems of methodology, as Professor Kaufmann apparently does, as exhaustible through the logical analysis of procedural rules of the kind with which he is concerned is to maintain a position which is clearly untenable.

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The Selection and Tenure of Judges. By Evan Haynes. Washington: National Conference of Judicial Councils, 1944. Pp. xix, 308.

This work is the fifth in the noteworthy Judicial Administration Series published by the National Conference of Judicial Councils for the purpose of promoting a more efficient judicial system. Previous volumes have dealt with court organization, appeals in criminal and civil cases, and traffic courts. The present volume turns to a problem basic in judicial administration, the selection and tenure of judges.

The book is of course primarily concerned with the American situation, and some sixty pages are devoted to summaries of federal and state constitutional and statutory

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