BOOK REVIEWS

Piagetian Theory

Psychology and Epistemology: Towards a Theory of Knowledge. By Jean Piaget. Translated from the French by P. A. Wells. Pp. vii+107. (Allen Lane, Penguin Press: London, 1973.) £2.50.

IN his novel *Juan in America,* Eric Linklater remarks that the inhabitants of the American Middle West, though speaking English, think German thoughts. Piaget, on the contrary, though writing French, thinks English thoughts. This is nowhere more manifest than in this new collection of six essays from recent Piagetian writings.

The theme of the collection is the relationship between psychology and philosophy, though there are occasional remarks about the relationship between the former and other academic disciplines such as sociology and economics: but the main burden of argument turns on possible relationships between developmental psychology and epistemology and logic in particular.

It is Piaget's view that the concrete studies of psychologists, particularly developmental psychologists, can provide a kind of fundamental groundwork of hints for the conceptual analyses of operations and concepts which are the province of philosophers proper. The upshot is a kind of synthesis of what one might call the "Cambridge" and the "Oxford" ways. The Cambridge way looks to the formal analysis of concepts as the method of philosophy, while it has traditionally been the Oxford style to base all conceptual analyses in a set of very concrete exemplars. This perhaps is a way of representing the difference between the formalist and ordinary language schools of analysis in contemporary philosophy. In his inimitable way, Piaget succeeds in reaching a point of synthesis between these two main contemporary trends.

The synthesis is achieved by paying attention to the developmental history of a conceptual or logical operation. For example, Piaget shows in the case of number how some kind of synthesis between the Russellian conception of number as a set of sets, and the Peano conception of number as a simple ordering of objects according to a certain scheme, can be brought into some kind of relationship. Developmental psychology shows that a child first has to acquire the idea of a set from the notion of simple ordering. He will conceive of a set in the first instance only if it is capable of an organization of the Peano conception. Once the notion of set has thus been grasped, the child is capable of setting one set in one-one correspondence to another similarly derived. Finally, by an act of abstraction, the child comes to grasp that the order of the elements in the set is of no numerical consequence and that all that matters numerically is the one-one correspondence between like sets. In this way Piaget, in this and many other examples, sees the possibility of a synthesis between the formal and the concrete.

There are all sorts of other ideas developed in more or less detail in the book. Perhaps the most significant for the contemporary scene are his ideas about the possibility of inter-disciplinary studies. He envisages a very large number of combinations between sociology, linguistics, psychology, new forms of abstract engineering such as cybernetics and information theory, all related in one way or another to and through philosophical analysis. It is only at this point that one feels that Piaget's isolation within an essentially French-speaking world has led to him being somewhat surprisingly out of touch, though of course this may be due to the fact that these essays were written some years ago. He seems not to be aware that the project which he sketches of a thoroughgoing interaction between psychology, sociology and philosophy is already in full flood in what has come to be called "the ethogenic movement", derived from many sources, some of which, such as phenomenology, one would expect Piaget to be fully familiar with. One might say that he has identified the place where development can take place but has apparently not yet discovered that there is where the action is.

In one other and striking way these essays seem a little out of touch. They embody a curiously naive "laws in deductive structure" view of science, though Piaget is quick to repudiate an identification of his method with that of any form of logical positivism. In this way he shares the assumptions of many of his generation as to the proper analysis of science, while rejecting the logical positivism from which it ultimately derived. This is matched by an apparent lack of awareness of the rapid contemporary decline in confidence in both experimental psychology and formal methods of philosophical analysis, to both of which Piaget remains devoted. And yet it is clear that the spirit of the rapprochement between epistemology and developmental psychology that he advocates points strongly in the direction of the new and radical ideas as to what empirical psychology and philosophical analysis ought to be. In short, this book is as interesting and provocative as Piaget's more major works. One ought to remark finally on the excellence of the translation. As I said earlier in this review, Piaget's style of thought is, I think, more Anglo-Saxon than French, and perhaps this leads one to feel that in translation the book reads as if it were written directly into English.

ROM HARRÉ

Fourier Probabilists

Fourier Analysis in Probability Theory. By Tatsuo Kawata. Pp. xii+668. (Academic Press: New York and London, November 1972.) $32.

FOR many years now the theory of Fourier series and integrals has been a powerful tool for studies in the mathematical theory of probability. But as classical Fourier analysis has retired from the front of the mathematical stage, many probabilists find themselves ignorant of the possible refinements of the tool, and their mathematical armoury is correspondingly weaker. If this book succeeds in reminding practitioners of probability theory of the deep and powerful results of old-fashioned hard Fourier analysis, it will have performed a useful service.

Most of the book is a workmanlike account of the theory of the Fourier transform and its relatives in the classes L_1 and L_2. Although this treatment is written with applications to probability theory in mind, it includes many results