

BOUTROUX ON MATHEMATICAL IDEALS

L'Idéal Scientifique des Mathématiciens dans l'Antiquité et dans les Temps Modernes. By Pierre Boutroux. Paris, Felix Alcan, 1920. 274 pp.

What conception do mathematicians have of their science? What plan do they follow in their research? What principles direct their activity? What is the goal which they seek? These are the questions which the author of this book sets himself and to which he seeks an answer. Few probably will deny the value and importance of such questions nor the desirability that the devotees of mathematics should ask them of themselves and that they should have some clear notions as to the answers. In the vast complexity of modern mathematics, it is surely highly desirable that the man who is working in some particular corner and possibly on a very restricted problem should occasionally pause in his work in order to gain in proper perspective a view of the whole. Whither is he tending? What is his object? What constitutes real progress in mathematical investigations? What is important and why?

Although everyone will probably admit the importance of such considerations, it is to be feared that relatively few have seriously set themselves these questions. Still fewer perhaps have been able to formulate satisfactory replies. Indeed the present work shows how very difficult it is to answer the questions proposed.

The author sets himself a very definite problem. While his inquiry is in the nature of the case philosophical in the broad sense of the term, he is not at all concerned with the question of what place mathematics has in a general system of philosophy. He is concerned merely with the philosophy of mathematics as such. Nor is he concerned at all with the metaphysical aspects of the problem, but purely and simply with answers to the questions proposed. Furthermore he seeks an objective answer. He would eliminate as far as possible all personal bias and seek to discover answers to his questions in the actual work and progress of mathematics itself. His method therefore is, as he says, historical and critical. By a careful examination of the development of mathematics through the centuries he seeks to discover what the leading tendencies were and are. In a word, as indicated in the title of the work, what scientific ideals mathematicians of the past and present have set themselves. He is well aware of the difficulties of his problem and indeed there are many places in the book where the reader will be inclined to differ from the author in his placing of emphasis on such matters. There can be no doubt, however, that the author has written a very stimulating book which may be highly recommended to everyone interested in the questions discussed and should prove of special value to the young investigator starting upon his career and seeking orientation in his chosen field.

The author distinguishes three great epochs in the development of math-