tion' of young stages without hard parts and therefore not preserved as fossils until they became adult in their new state. As for the abrupt appearance of fossils in "the lowest fossiliferous strata", the number of fossils discovered in Pre-Cambrian deposits goes on increasing and now includes algae and fungi in which eight amino-acids could still be recognized although they are 1,700,000,000 years old.

Dr. Himmelfarb states (p. 310) that chemists showed that all the pieces of the 'Piltdown find' revealed the same fluorine content. This was not the case. The earliest estimations by K. P. Oakley and C. R. Hoskins showed fluorine percentages varying from 3·1 to less than 0·1, estimations correct to within a range of $\pm$ 0·1. This proved that all the 'specimens' were not Lower Pleistocene. Subsequent estimations by more refined methods showed that the latest of these were not even Upper Pleistocene. But if Dr. Himmelfarb really thinks that the exposure of the Piltdown fraud "leaves the theory (of evolution), after a century of search, without the much desired link", *Proconsul, Australopithecus, Pithecanthropus* and Neanderthal man are there to bear witness to what Sir Wilfrid Le Gros Clark has demonstrated from them about the so-called 'much desired link'.

If ever the cult of personality should attempt to invade science, it would cease to be science ; and if scientists hold Darwin in honour to-day, it is because the evidence, all the evidence, and nothing but the evidence, provided by the observations and experiments of biologists who have undertaken research in this field, has shown that the natural selection of mutant and recombined genes is the mechanism whereby the evolution of plants and animals in Nature has been brought about.

GAVIN DE BEER

THE FAITH OF A REALIST

Blaise Pascal
The Life and Work of a Realist. By Ernest Mortimer. Pp. 240 + 4 plates. (London : Methuen and Co., Ltd., 1959.) 21s. net.

MUCH of Pascal's work, and several books about him, are readily available : what is not so easy to obtain is an assessment of his place in history in keeping with the pedestal upon which his fellow-countrymen are nearly unanimous in placing him. Furthermore, to find an answer to the question as to how much he means to us to-day is assuredly a rewarding task. These things the author has done and the result is a notable achievement. Pascal emerges as a character of gigantic intellectual and spiritual stature ; weak of body, indomitable of will, and relentless in his quest for truth.

In the present context, we may perhaps leave aside the well-known facts of his mathematical genius, his contacts with great minds like those of Descartes, Fermat and Desargues, and concentrate upon his theory of knowledge (Chapter 11), which developed from the intense strife going on within him, and which burnt itself out as a consuming fire. Pascal was no mere dreamer, but on the contrary passionately concerned with making things work. His technical skill, if he were alive to-day, would lift him to the summit of electronic computing, and to the highest triumphs of cybernetics and servo-mechanisms. In this sense, he was a realist ;

his faith transcended it, however, as he reached out towards that greater truth only to be found in charity.

It is from some such position as this that we can best approach Mr. Mortimer's treatment of Pascal's theory of knowledge, for it is essentially here that the present volume finds much of its *raison d'être*. Here too is Pascal's message for the world to-day.

The central concept is that of *le cœur*. By this Pascal did not envisage something "cardiac rather than cerebral". He uses the phrase to cover a species of synthesis, a type of thought in which analysis gives place to cognition. It seems as if this came out of a state of mind akin to despair, in that, for example, the propositions of Euclid needed acceptance of something "given" before any progress could be made, and thus real knowledge could never be obtained. In this, he was in effect anticipating Gödel's theorem, and the failure of Hilbert to construct a consistent system of mathematics purely mathematically. But for Pascal, truth is not apprehended by reason alone, which can only yield statistical properties.

Mr. Mortimer is at pains to point out that Pascal did not draw this inference himself ; it is nevertheless the gist of his whole argument. Here indeed is a startling preview of twentieth-century science, quantum theory, operationism and all. Nevertheless, the part to be played by *le cœur* remains, and it stands supreme if we are to 'know' the world around us. But what is it, if it is not rational knowledge ? Pascal gives his answer—"Le cœur a ses raisons, que la raison ne connait point". Metaphysics may be out of fashion at the moment : it looks, however, as if the faith of a great realist may have elevated such a discipline to a position otherwise unheeded.

As people exclaimed in another setting altogether. "We have seen strange things to-day". The author has written a book modest in compass but great in concept. He has brought Blaise Pascal, his tempests stilled at the last, into the centre of contemporary thought.   F. I. G. RAWLINS

ENZYMES—KINETICS AND CHEMISTRY

Behavior of Enzyme Systems
An Analysis of Kinetics and Mechanism. By John M. Reiner. Pp. xii + 317. (Minneapolis, Minn. : Burgess Publishing Company, 1959.) 6.50 dollars.

Proceedings of the International Symposium on Enzyme Chemistry
Tokyo and Kyoto, 1957, organized by the Science Council of Japan under the auspices of the International Union of Biochemistry. (I.U.B. Symposium Series, Vol. 2.) Pp. 541. (Tokyo : Maruzen, 1958.) n.p.

LET Dr. Reiner speak for himself. In his foreword addressed to "Timid Souls" he writes, "The foremost purpose of this book, accordingly, is : To make it possible for anyone to begin the book knowing substantially nothing, and to finish it an expert for all practical purposes". This is a bold ambition, even when restricted to the field of enzyme kinetics. A major adverse criticism of this book is, in the reviewer's opinion, the almost complete lack of reference to