doing can the real engineering difficulties, the necessity for special materials and the economic incentives for high heat release-rates, be brought out. Although the choice of engineering topics is in question, those chosen are dealt with in a very elegant and satisfying manner. The text is concise and enjoyable, and the layout of the equations admirable.

The chapter on the reactor equations is particularly interesting, since slowing down and diffusion theories are dealt with in an unusual manner. The treatment has the great merit of uniformity and coherence, and teachers of this subject would do well to study it. The approach is direct and does not involve the use of such concepts as laboratory and centre-of-mass reference frames, buckling or reactor Laplacian. Dimensional analysis is applied to yield some interesting parameters, and a section is included on numerical methods. No treatment is given of fine-structure effects in natural or low-enrichment reactors. The value of this chapter to the engineer would be greatly improved if a comparison with experiment were provided.

There are two chapters on kinetics and shielding respectively. In the latter only basic principles are dealt with, and no design information is given.

In general, what has been done has been well done; but the whole book does not, in my opinion, justify the description given on the jacket. If the authors could be persuaded to write a book on reactor theory, expanding the treatment given in the present book, and dealing at greater length with numerical methods, a very useful work would result.

W. MURGATROYD

HUSSERL'S 'FIRST PHILOSOPHY'

Edmund Husserl

Erste Philosophie (1923/24). Erster Teil: Kritische Ideengeschichte. Herausgegeben von Rudolf Boehm. (Husserliana, Band 7.) Pp. xxxiv + 468. (The Hague: Martinus Nijhoff; London: B. T. Batsford, Ltd., 1956.) 26.25 guilders; 52s. 6d.

THIS, the latest addition to the series of 'Husserliana' to be issued from Louvain, is of exceptional importance in that it bridges the gap between 1913, when Husserl's "Ideen" appeared, and 1928, which year witnessed the advent of his "Formalen und transzendentalen Logik". In 1923-24, however, the master had delivered his great course on a 'First Philosophy' at the University of Freiberg-im-Breisgau, and it is the historical content of these lectures which is now before us. His treatment of the classic problem of phenomenological reduction is reserved for the next volume, to be published in due course.

The structure of the present work is tripartite. First comes an examination of the whole field from Plato to Descartes. This is followed by a close scrutiny of the initiation by Locke of an attempt in egology, and of the questions which such studies have generated. Then Husserl traces in minute detail the development of sceptical prototypes of phenomenology by Berkeley and Hume, followed by the rise of dogmatic rationalism. These highly specialized sections are rounded off by a large number of appendixes, together with some subsidiary remarks concerned, for the most part, with textual criticism.

Taking these main divisions in order, Husserl is at great pains to stress (what of course is well known and

appreciated historically) the accidental character of the term 'metaphysics', in its Aristotelian setting, and to fasten upon 'first philosophy'—which incidentally was very nearly equivalent to theology—as the potent phrase for the gradual build-up towards a conscious phenomenological system in the West. The claim to do this is made not only to avoid the vagueness inherent in any structure of metaphysics, but also and more positively to establish a discipline of first philosophy as basic for all science. This pattern of thought excludes the possibility of switching over at any period in history from concepts which are fundamentally devoid of scientific content to those of scientific value. In a word, the world of thought must begin how it means to go on. That it has not always consistently done so is probably a major factor in the recurrent crises (judgments) in European civilization, each one carrying the risk of a retrogression into barbarism. Yet phenomenology—as first philosophy—is closer to theology than some of Husserl's followers might always be ready to grant. He speaks of a 'philosophia perennis' in terms not altogether different from those of St. Thomas Aquinas.

In considering the period leading on to Locke's stress upon "actions of our own minds", the distinction between the empirical ego and the pure ego is important. The former concept is that of a number of conscious acts of which the individual can become aware by immediate introspection. There is a connexion here with Hume's 'bundle' theory, according to which the self consists of an aggregate of dynamic states, continually changing in a way suggestive of a revival of the philosophy of Heraclitus. In contradistinction, the pure ego is non-empirical, and is more in the nature of an inference from any data obtained by introspection.

The basic claim of phenomenology lies close at hand, which is that observation is not so much 'straightforward' as reflective. The former is descriptive of objects *per se*, the latter of objects intentionally. The difference is significant because, as Samuel Alexander once declared, the whole force of aesthetic appreciation may reside in contemplation, that is, in the power to reflect upon things (even our own handiwork), rather than merely to use them.

Husserl pays gracious and generous tribute, in the section dealing with phenomenological prototypes, to the genius of Berkeley regarding the influence which his pattern of thought has had upon the modern empirical theory of knowledge. His was, in fact, the first systematic attempt to make the world as we know it—as viewed subjectively—theoretically comprehensible. The misinterpretation, however, of the problems of constitution arises primarily from a lack of insight into the immediate field of consciousness, as might be expected when the fundamental assumptions are naturalistic in character. Nevertheless, phenomenology as we perceive it in the twentieth century has developed from a variety of sources, metaphysical as well as empirical; and this is as it should be, so long as the former always connotes 'first philosophy', rather than its fortuitous positioning by Andronicus of Rhodes.

For the scientist, phenomenology is valuable in that it aims relentlessly at rigour, not merely as a discipline, but constructively by placing 'the matters themselves' at the centre of his mental image; and in so far as they are self-given, he may assuredly accept them as true knowledge.

F. I. G. RAWLINS