Questions of policy, where a choice of aims has to be made, are often not the concern of science, as such; but questions of procedure may involve the professional reputation and self-respect of men of science. When an increasing number of the problems of government to-day transcend party issues, it is a matter for deep regret that steps should have been taken which prejudice the self-respecting association of the scientific and technical expert in the task of government.

A PHILOSOPHY OF SCIENCE

The Power and Limits of Science

A Philosophical Study. By E. F. Caldin. Pp. ix+196. (London: Chapman and Hall, Ltd., 1949.) 12*s*. 6*d*. net.

SINCE 1945 one of the features of the scientific life of Great Britain has been a growing interest in the 'philosophy of science'. The Philosophy of Science Group of the British Society for the History of Science was formed in 1948 with the express object of bringing together those men of science who wish to study the philosophical aspects either of their own special subjects or of science in general. The term 'philosophy of science', however, is somewhat ambiguous, for it is used to describe two distinct kinds of activity: the first, the study of science in relation to other human activities; the second, the critical examination of the fundamental presuppositions of particular scientific theories. The first kind of activity is concerned with the function of the various sciences against the background of history, and our attitude towards it depends on our general philosophical outlook. Indeed, in this sense of the term there is, strictly speaking, no 'philosophy of science'; there are only philosophies of science. The second kind of activity, however, is concerned with fields lying within science itself, and general agreement is a legitimate objective.

Bearing these distinctions in mind, a warm welcome can be extended to the stimulating and clearly written book by Dr. E. F. Caldin, of the Chemistry Department of the University of Leeds. The subject of his essay is the place of science in human affairs, and his outlook is that of a man of science who is also a neo-Thomist. His central thesis is that science is not the only rational approach to the world, but one of several differing in their points of view. This, of course, is a thesis about science as a whole and not about something within science. It is a philosophy of science of the first kind, and a reviewer's criticism must, therefore, largely depend on whether he is, say, Protestant or Catholic, neo-Kantian or neo-Thomist. Without adopting the author's particular philosophical point of view, one can nevertheless agree with many of his comments, in particular his criticism of the facile judgments, still all too common, that "philosophy is nothing but ossified science", and that "the procedure of natural science is the royal road to truth in every field".

The book is divided into three parts. In the first, the author sets out his view of scientific method; in the second, his philosophical critique of the presuppositions, scope and limitations of this method; and in the third, he discusses science in relation to society and general axiology. Some problems which he considers relate, of course, to philosophy of science of the second kind, notably those in his chapter on Eddington's "Fundamental Theory".

The principal objection to the author's treatment of his central thesis is his over-emphasis of the role of induction. Rightly, he stresses that scientific activity in general springs from certain fundamental beliefs concerning the orderliness of Nature; but, in the opinion of the reviewer, the twin pillars on which fundamental science rests are experience and deductive reasoning. Induction from particular instances is, of course, an invaluable heuristic method; but it can only suggest general laws and principles. If we regard it as the principal characteristic of scientific method, we are ultimately forced either to adopt the scepticism of Hume or to fall back on some form of dogmatic metaphysics to support our belief in the truth of science. This is the situation envisaged by the author. However, this is not the only way of looking at things. Since Kant's 'Copernican revolution', an entirely new perspective, or rather range of perspectives, has been opened to us, irrespective of our particular attitude to the precise details of Kant's own philosophy. Scientific theories can now be regarded as providing methods and programmes for analysing phenomena rather than as imperfect reproductions in the mind of processes necessarily occurring in Nature.

By bringing man more to the forefront of the stage in Kantian fashion, we annul the putative divorce between science and axiology stressed so emphatically by Dr. Caldin. In practice, of course, the influence of science on history has perhaps been even greater in the realm of values than in any other. On the whole, the fight against superstition, intolerance and tyranny has been most successful in those countries which were principally affected by the scientific revolution. Tyrannies tend to be anti-scientific.

In an interesting appendix the author discusses the cosmological argument for the existence of a first cause, an argument which can be traced back ultimately to Aristotle's idea of a prime mover. In this connexion, it might be mentioned that an acute critical examination of the argument was presented ten years ago by Prof. C. D. Broad in the *Journal of Theological Studies* (40, 24).

Whether one sympathizes or not with Dr. Caldin's views, his book can be recommended to all who wish to clarify their ideas on the place of science in human life and thought. It is a clear statement of a particular philosophy of science. G. J. WHITROW

SUPERSONIC AERODYNAMICS

Elements of Aerodynamics of Supersonic Flows

By Antonio Ferri. Pp. xi+434. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1949.) 50*s*. net.

JUST before the outbreak of war in 1939, Dr. Ferri was in charge of the supersonic wind tunnel at Guidonia, near Rome, then by far the largest in the world. There he made some fundamental experiments, now classical, to determine how far the theories of the Göttingen school, led by Prandtl and Busemann, and of Ackeret's Zurich school, were supported by reality. These theories described the limiting steady high-speed motion of a gas as the viscosity and thermal conductivity become vanishingly small. They were found to be correct except in certain minor respects, where the conflict is now becoming equally well