cal training. Attention is not confined to the problem of the formation of carbohydrates; the synthesis of fats and proteins is also mentioned. There is a most useful summary of the sources from which each of the enzymes concerned in the postulated carbon cycle have been obtained. Reference is also made to chloroplast structure and the mechanism of energy conversion in photosynthesis.

In a book of this size the specialist will inevitably note many omissions. For example, three killing procedures are mentioned (boiling alcohol, liquid nitrogen followed by boiling alcohol and alcohol at room temperature) but no comparison of the results for a single tissue type is given. This is to be regretted in view of a recent publication from the same laboratory in which new results obtained from cold killing have been described. Also on p. 29 it is stated that "methods of culturing these algæ vary considerably from one laboratory to another. . . . Experience has shown that these variations affect the resulting labelled carbon pattern in some cases causing important intermediate metabolites to occur in vanishingly small concentrations". Some results illustrating this statement would have been of the greatest value to other workers in this field. The investigation of very rapid changes in concentration of intermediates following a change in external conditions represents a notable development of a classical physiological technique. The figure on p. 51 indicates a rapid decrease in concentration of phosphoglyceric acid with lowering of carbon dioxide pressure during the transition phase, but the opposite effect when a steady state is established. This distinction is not made in the text and it is not made clear that the changes during the transition state alone are consistent with the postulated mechanism.

Such points as these will mainly concern the specialist. They should not deter the general reader, who will find in this book a lucid statement of the many researches *in vivo* which culminated in the formulation of a detailed mechanism of carbon reduction which has since in large part been justified by *in vitro* studies.

C. P. Whittingham

AERODYNAMICS

Elements of Gasdynamics

By H. W. Liepmann and A. Roshko. (Galcit Aeronautical Series.) Pp. xv+439. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1957.) 88*s*. net.

ONE of the first text-books to be written in English on compressible flow was the "Introduction to Aerodynamics of a Compressible Fluid", by H. W. Liepmann and A. E. Puckett (1947). In view of the rapid development in the subject, the senior author has decided against revising the original book and has joined with A. Roshko in producing the first of two new books on compressible flow. This first volume discusses the fundamentals of gas dynamics. A second more advanced work is to follow, with special emphasis on the aeronautical and missile fields.

The contents of the new book are, in general, similar to those of the "Introduction to the Aerodynamics of a Compressible Fluid" but are considerably amplified. Concepts of thermodynamics, one-dimensional gas dynamics, wave motions, channel flows, general three-dimensional frictionless flows, small perturbation theories, similarity rules in high-speed flow, transonic flow and the method of characteristics are all covered more thoroughly than in the original book. A more general discussion of methods of measurement, reflecting the considerable experimental ability and experience of the team of research workers at the California Institute of Technology, has been added. Other additions, such as those on reacting and dissociating gases, concepts of gas kinetics and slender-body theory, reflect current interest in problems of flight at high speed and low density.

The coverage of all these subjects is comprehensive and rigorous. One would refer in particular to the chapter in which the equations of frictionless flow are concisely and lucidly stated. Less satisfactory are those sections dealing with internal flows in which heat transfer and friction may be important. The analyses of the Fanno and Rayleigh processes are omitted and the idea of introducing the normal shock process as the intersection of the Fanno and Rayleigh lines on the enthalpy-entropy chart is not developed. Although the simple analyses of compressible Couette flows are extremely informative, the discussion of momentum and heat transfer in the turbulent boundary layer (with no reference to Reynolds analogy) is inadequate.

In general, however, the authors are to be congratulated on producing an excellent book on a rapidly developing subject.

J. H. Horlock

RACIAL PREJUDICE

The Race Question in Modern Science

Pp. 373. (Paris: Unesco; London: Sidgwick and Jackson, Ltd., 1956.) 17*s*. 6*d*.

THE publication of this volume is, we are informed in the foreword, intended to be regarded as part of Unesco's endeavour "to lead the campaign against race prejudice and to extirpate this most dangerous of doctrines". The campaign itself was instituted by a resolution of the General Conference, passed in 1950, instructing the Director General "to study and collect scientific materials concerning questions of race; to give wide diffusion to the scientific information collected; to prepare an educational campaign based on this information". The object of the present book is to collect, and to some extent to collate, the opinions of social scientists representing a wide variety of methods of approach and many Western countries to the problems of race and racial differences falling within the general framework of the General Conference's resolution.

The result is to make available in a single volume a series of interlocking points of view, and thus, perhaps, to give the general impression that social scientists are in general agreement in opposing racial prejudice, exploitation and oppression. The concept of race, it is asserted, can only be established in cultural rather than in biological terms so far as human societies are concerned. "All men," it is said, "belong to one mating circle, and share in a common pool of genes. There is thus no biological justification for race hatred or prejudice." Moreover, it is argued from the cultural point of view that there can be no ranking of the so-called races of mankind in a hierarchical order, for "the truth is that all cultures have their successes and failings, their faults and virtues".