comes the kinetic theory. From the statistical properties of a single long-chain molecule are developed the probability and the entropy of a chain as a function of distance between the ends. The properties of the bulk material are obtained by analyzing a network of long chains. The predictions of the theory are compared with the experimental findings, with gratifying results. The book goes on to chapters on crystallization, swelling, photoelasticity, and flow. These matters are more complicated, and the degree of success in prediction is not so high.

So much for what the book is about. How well has the author done his job? Well indeed, in the reviewer's opinion. Merely to gather the significant results from the far-flung literature, more often than not technological or chemical rather than physical, would be a worthwhile undertaking. Treloar, however, has himself made important contributions to varied aspects of the field for over fifteen years. Hence he can bring to his task first-hand experience in evaluating and criticizing the material in the literature. This background, added to a good expository ability, has brought about a first-class monograph for both the novice and the specialist in the field.

If there is a fault to be found with the writing, it is that the thermodynamics of solids gets the usual slipshod treatment. With respect to the publisher's shortcoming, one suspects that the publication date of autumn 1958 represents more nearly dilatoriness of the press rather than currentness of the treatment. The latest date cited for a journal is 1956, and for that year there is only one reference.

The second edition is about one-third larger than the first (1949) and all sections except the introductory ones have been rewritten. It is gratifying that the editors of the Monographs are keeping their series up to date. It is gratifying also that the editors have dropped their earlier notice concerning the intention of the series, ". . . to summarize the recent results in academic or long-range research in materials and allied subjects, in a form that should be useful to physicists in Government and industrial laboratories". That notion was quaint, patronizing, and misleading.

Aerodynamics of Supersonic Flight: An Introduction (2nd Revised Edition). By Alan Pope. 243 pp. Pitman Publishing Corp., New York, 1958. $6.00. *Reviewed by Robert E. Street, University of Washington.*

This is a revised edition of what has been one of the more elementary introductions to the theory of supersonic flow for the past eight years. Intended as an undergraduate text, the original purpose is retained but additional material on wind-tunnel design and aircraft performance has been added. In all, fifty pages have been added, including one new chapter, new figures, and tables.

Comparing the new edition with the first one it is seen that the author has retained some of the errors, like the expression for T_2 in example 1:1 on p. 18 and

in Eq. (5:26) on p. 101, and introduced new ones as in three equations on page 12 and line 7 from the bottom of page 18. New material is inserted in the first two chapters, including a short section on heat addition to flow in a duct. Little or no new material has been added to Chapters 3, 4, and 5 which are devoted to two-dimensional flow. Chapter 6 on supersonic wind tunnels has been considerably enlarged and improved. Chapter 7 on three-dimensional flow has been retained without change and Chapter 8 is the new one which considers the static performance of an example supersonic fighter plane.

This reviewer believes that the new edition does not show any essential improvement over the shortcomings of the first edition, which are its lack of depth, as well as the superficial treatment of thermodynamics and its total neglect of subsonic and transonic flow. Other texts are available which give the student a deeper insight into the understanding of compressible fluid flow. It is true, however, that this one is on or about the level of understanding of the average engineering undergraduate, who does appreciate the detailed working out of most derivations, which is a feature of this book, even though their rigor is sometimes questionable.

Engineering Systems Analysis. By Robert L. Sutherland. 223 pp. Addison-Wesley Publishing Co., Inc., Reading, Mass., 1958. $7.50. *Reviewed by Peter L. Balise, University of Washington.*

Technology is becoming so complex that engineering can no longer be taught by a series of courses giving practical methods for solving various problems. Although some practical applications are necessary as examples, the variety of engineering work is so great that all the types of problems likely to be encountered cannot be covered in a few years of study. Recognizing this, engineering educators are stressing more and more the importance of a good understanding of fundamental principles. This emphasis is also appropriate in view of the progress of engineering from an art to a science; many subjects formerly treated by empirical formulae have now yielded to mathematical analysis. Another factor of great significance in engineering education is the growing interrelationship between the several divisions, such as electrical and mechanical engineering. While we sometimes seem to be developing more specialities, such as nuclear engineering and instrumentation engineering, actually these specialties require men whose minds can readily cross division lines.

Professor Sutherland's book has the objective of helping to develop students' minds in this way; it deals largely with analyzing analogous mechanical and electrical systems at the advanced undergraduate level. The second-order linear differential equation, which probably represents the best analogies with which to introduce the subject, is treated in detail for mechanical, electrical, and acoustical systems. The latter, usu-