Analysis (four papers); (3) Micromechanics (four papers); (4) Unidirectional Composites (five papers); (5) Laminates (five papers); (6) Stress and Strength Analysis (six papers); and (7) Experiments and Tests (seven papers).

In general, the papers emphasize the analytical aspects of fracture mechanics. Relatively little experimental data are presented for modern advanced composite materials. Most papers are well written. It is interesting to note that the papers by Russian authors often reference western authors, but the western authors only rarely reference Russian works. This seems to be a clear indication that more effort should be given in the western world to the study of Russian papers. This volume provides the western reader with an opportunity to make a positive step forward in the direction with a minimum of effort.

Strömungsmechanik Nicht-Newtonscher Fluide. By G. Bohme. B. G. Teubner, Stuttgart, 1981. 280 Pages. Price DM 34.

REVIEWED BY D. D. JOSEPH[7]

This book is a contribution to the literature on the mechanics of Non-newtonian fluids. Many books, at least six, on non-Newtonian fluids have been published in the last 10 years. Most of these emphasize rheological aspects of the subject, with emphasis on constitutive equations derived either from molecular theories or from continuum mechanics or on the simple flows that define instruments used in rheological measurements. Böhme's book differs from others. It treats the subject in the tradition of fluid mechanics. The mathematical level expected of readers of this book is slightly less than what is required for Lamb's book on hydrodynamics or Batchelor's book on fluid dynamics. This level is well suited for graduate courses in engineering. In addition to standard topics, like kinematics, elementary constitutive theory, and the theory of viscometric flow, many new topics are treated in this book and some old topics are treated in a new way. The chapters on simple unsteady flows, almost viscometric flows, and secondary flows all contain some new material. The analysis of the linearized dynamics of the step jump in velocity problem (Rayleigh's problem) for shear flow between parallel plates differs from that given in other rheology books in that the solution is derived rather than assumed. Böhme's book shows that the evolution of the wall shear stress is different than is generally assumed, particularly at early times when transients are important. The section of tuning of a vibration damping device has a good example of analysis of problems with industrial applications. The theory of almost viscometric flow has applications in lubrication theory, boundary layer theory, and in the theory of hydrodynamic stability. Böhme's book is the only one to treat such applications.

Böhme's book does not go deeply into the theory of constitutive equations. He uses asymptotic expressions for the constitutive equations near slow motions or viscometric motions. There is no discussion of molecular models. This is perhaps desirable in a mechanics textbook since the theory for such modeling is represented in other books and is quite confusing, with as many models as there are rheologists.

I think that a serious defect of the book is a lack of references. Böhme says that he decided against including references to works that influenced his because he could not make such a list complete, and some deserving works would not be cited. The decision not to give any specific references and only to give a small list of general references is a bad one. Students of the subject who get interested in some topics need some leads for further study. The teaching that is done by a book is more important than assuaging egos of authors not mentioned.

I would like to see Böhme's book published in English after he adds a useful list of current references for each live subject.

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