a finite number of hypotheses rather than to seek new truths. The results reported in this article are extremely interesting from that point of view. The next paper, by Gentry, Harlow and Martin, is on computer simulation of problems in molecular dynamics.

The next two papers are genuine aeronautics, the first by Mack on compressible boundary-layer stability, and the second by Morgan and Wrench on propeller design. Both of these are instructive not only in terms of actual results but even more for the very practical accounts of how the computational snags were overcome.

Following a paper by Henyey and Levee on stellar evolution the volume concludes with a study, by Abramovici and Alterman, of the propagation of a seismic pulse in a layered solid. The essential mathematical problem, the inversion of an operational solution, gave rise to a host of interesting incidental problems.

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Stat mech for graduate students

LES CORRELATIONS ET L'ENTROPIE EN MECHANIQUE STATISTIQUE CLASSIQUE. By J. Yvon. 241 pp. Dunod, Paris, 1966. 24 F

by Stuart A. Rice

All those interested in statistical mechanics will recognize the name of the author of this small book. His contributions to the theory of liquids, the theory of dielectrics, and numerous other subjects make any of his writing of more than usual interest.

The book under review is, as nearly as I can establish the equivalence, designed for an audience of graduate students just starting research. Unlike most texts in English, it starts with the molecular distribution function approach and emphasizes the study of the fluid of interacting, structureless particles. The derivations are clear, and the difficult points explained with care. Although the major emphasis is on the study of the equilibrium properties of fluids, some discussion of time dependent phenomena is included. A brief sampling of the contents is as follows: chapter 1 contains derivations of the formulas for the equilibrium pressure and internal energy of a fluid, along with the derivations of the general hierarchy equations and the general equations of continuity and momentum and energy conservation, all from the Liouville equation. Chapter 2 contains an interesting treatment of intermolecular correlations, using a cumulant analysis and functional differentiation. These results are used, in chapter 3, to provide an elegant description of the effect of intermolecular correlations on the entropy of the fluid. As might be expected, there are also excellent discussions of the microcanonical, canonical, and grand canonical ensembles (chapters 4 and 5), and of the cluster expansion of the thermodynamic functions of a fluid and of the equation of state (chapter 6), but the discussion of phase changes is very short (chapter 7). There is a very interesting discussion (chapter 8) of collective oscillations (density waves). Finally, in chapter 9 there is a discussion of the approach to equilibrium from the point of view of the time evolution of the entropy function. In this discussion, the classical viewpoint is emphasized, and the recent developments of Brout, Prigogine, Van Hove, Weinstock, Zwanzig and others are not even mentioned.

It is clear that this small text emphasizes aspects of statistical mechanics which in this country form an unfortunately small part of the traditional curriculum. By virtue of its clarity and incisive presentation, the text can be recommended (even in French!) to all first-year graduate students. It is unfortunate that the treatment of the approach to equilibrium omits discussion of the most important contemporary developments, but that weakness will not prevent me from recommending it to all of my students.

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