the goals of US foreign policy are decided. Jimmy Carter, whom Fallows served as a speech writer, wanted, as Barnet points out, to cut the budget but ended up increasing it. Barnet analyses the work of the Committee for the Present Danger and shows how it decisively affected Carter's plans by lobbying actively and affecting three major decisions: the establishment of the B-Team, which gave official sanction to the idea of the Soviet threat; the confirmation debate of arms-control negotiator Paul Warnke; and finally, the failure of ratification of the SALT II Treaty.

For Barnet, the key question—what can military power, nuclear and nonnuclear, do for a great nation in today's world—was ignored. If the real limitation on the effective use of military power were recognized, Barnet believes that the United States could better come to terms with the changed world we face: Soviet military parity, economic challenge from other capitalist countries, and the inability of either superpower to control events in today's world. By focusing on who's ahead and whether or not the Soviets are bent on world domination, the United States fell victim to the perceptions competition: "Once the purpose of military spending is to create perceptions and weapons are procured primarily as symbols, there is never enough."

Barnet is least convincing in his arguments that the usefulness of military power has declined. Is all military power ineffective, or is its use limited only for the superpower? Clearly, the usefulness of military power declines where the goals of the user are unlimited and unrealistic. The recent wars in the Middle East and the Falklands suggest caution in making sweeping generalizations about military power or about the domestic unpopularity of leaders who resort to its use.

In sum, Fallows and Barnet have written useful primers, which complement each other. They teach an important though unintended lesson for newcomers to the national-security field who must move beyond the passion of protest to the realities of reform: Don't underestimate the contraints on reform nor the need to think through the implications of particular reforms.

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Direct Characterization of Fineparticles

B. H. Kaye
Wiley, New York, 1981. $72.00

"Fineparticles" is the term Brian Kaye pointedly employs to supplant "particulates" for clarity of usage and "particles" for bibliographic simplicity in this review of methods used in the counting and sizing of particulate matter in the nominal size range of 0.1–2000 microns. He chose this range evidently to accord with the needs of powder technology and to exclude the smaller aggregations of matter where questions not clearly defined by conventional physical considerations come to the fore (for example, Lifshitz–van der Waals forces in particle collisions, structural and other physical peculiarities of finite bodies, effects of transition-regime kinetic theory). By "direct" versus "indirect" characterization, Kaye posits a dichotomy in the measures of fineparticle characteristics that, while somewhat strained, is useful in restricting the scope of the material covered.

Kaye directs the text toward the technologist, that is, toward one who has practical needs for the determination of the mass, size, flow, and so on, of fineparticles in process streams, beds,

or other locations of primarily industrial interest. The text is strong on definitions and descriptive content, which is useful in a field where quantification is sketchy due to the limited scope of the theory and abstraction so far achieved. As is perhaps unavoidable, the coverage of the various topics is not uniformly up to date. The book presents some areas, such as sieve fractionation, gravitational and centrifugal sedimentation, elutriation, and extractive stream methods, in broad surveys with useful references. A particular strength is the emphasis on the development of information concerning collective behavior in fineparticle motion, where, for example, the fluid-mediated interaction of nearby fineparticles can exert significant influence on each other. In at least two cases, however, the presentation does not describe progress achieved by 1980. Kaye neglects laser Doppler velocimeters for remote sensing of particles, commercially available from several manufacturers, and single-particle suspensions and the measurements they make possible (methods of Arthur Ashkin, E. James Davis, Stephen Arnold, and collaborators).

While *Direct Characterization of Fineparticles* is primarily concerned with measurement methodology, its final chapter, on shape characterization, discusses descriptors of shape and concludes with some comments on the application of fractal dimensions, a current and growing field of interest in the physics literature and elsewhere.

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Irreversible Thermodynamics

Y. L. Yao
357 pp., Science Press, Beijing (US dist. Van Nostrand Reinhold, New York, 1981). $29.50

Thermodynamics, Statistical Physics and Kinetics

Y. B. Rumer, M. S. Ryvkin
600 pp., Mir, Moscow (US dist. Imported, Chicago, 1981). $12.00

These two books are intended both as texts and as references for active researchers. They share many of the same good and bad features; namely, they contain exhaustive discussions of the classical topics in these fields but are deficient in material of current interest. For example, the text by Y. L. Yao gives careful but uninspiring coverage to the conservation laws and to the standard formalism of linear irreversible thermodynamics and then consiers only briefly slightly nonlinear processes. There is no real mention of the recent, important developments in oscillatory chemical changes and their fascinating practical and mathematical implications. Although roughly half the book is devoted to applications, the discussion is resolutely formal: Yao makes no comparisons to actual experimental data. Needless to say, this detracts somewhat from the book's utility as a text. One of the more positive features of this book is the treatment of complex (but linear) systems in which a variety of generalized forces is present in a network of parallel and series elements. However, considerable space is given to the application of this formalism to electrical circuits (and entropy production in them), which is not really a significant part of irreversible thermodynamics.

The text by V. B. Rumer and M. S. Ryvkin, translated from the Russian, is an impressively dense mass of information which, considering the amount of material, is reasonably free of errors. The authors have devoted a quarter of the book to classical thermodynamics and they include a remarkable number