Molecular Theory of Gases and Liquids. Joseph O. Hirschfelder, Charles F. Curtiss, and R. Byron Bird. Wiley, New York; Chapman & Hall, London, 1954. xxvi + 1219 pp. Illus. $20.

This truly gigantic volume has grown out of studies undertaken in a program sponsored by the Navy Bureau of Ordnance in the University of Wisconsin Naval Research Laboratory. The various chapters were originally issued as University of Wisconsin Naval Research Laboratory reports. It is an outgrowth of a National Defense Research Committee report on the thermodynamic properties of propellant gases. Some chapters or sections were prepared with the assistance of J. de Boer (Amsterdam), C. A. Boyd (Wisconsin), H. B. Palmer (Wisconsin), J. S. Rowlinson (Manchester), and E. L. Spotz (Wisconsin).

The volume consists of three parts. After an introductory chapter, Chapters 2 to 6 describe equilibrium properties in the following order: the statistical background; the equation of state of gases at low and moderate densities; the equation of state of dense gases and liquids; vapor-liquid equilibria and critical phenomena; the influence of quantum mechanics on the equation of state. Part II (Chapters 7–11) discusses nonequilibrium properties: the kinetic theory of dilute gases; transport phenomena of dilute gases; the transport properties of dense gases and liquids; the quantum mechanical theory of transport phenomena; hydrodynamic applications of the equations of change. In this last chapter such topics as energy transfer by radiation, sound propagation, formation of shock waves, flame propagation, shock wave propagation, detonation, and the flow of propellant gases in rockets are discussed. The last part is devoted to intermolecular forces: Chapter 12 discusses the electromagnetic basis of intermolecular forces; Chapter 13 shows how intermolecular forces can be derived by various methods; Chapter 14 discusses specific cases. A long appendix giving 32 tables and the usual indexes conclude this book.

There is no doubt in my mind that this volume will be consulted time and again by workers in the field and will be used as a standard reference. The authors can be congratulated on compiling and critically sorting out such a huge amount of data.

There are, almost naturally, some minor points on which I do not see eye to eye with the authors. They are purely minor criticisms and do not diminish my admiration for this scholarly and stimulating book from which I, for one, hope to draw research problems for some time to come.

I do not think that this book can be used as a textbook, notwithstanding the inclusion of problems. The style does not lend itself for such use because it still smacks of reports to the Navy. I regretted the use of petit ensembles in Chapter 3 for the derivation of the equation of state; de Boer, for instance, has shown how much more naturally the use of grand ensembles is in this case. The book unfortunately is not very critical in that it often gives two or more different methods for arriving at a result without clearly giving a preference for one of them—a preference that one would expect from the authors in view of their extensive experience. The title is slightly misleading, since the bulk of the text deals with gases and only small parts with liquids. This is, of course, no fault of the authors, for liquids are very badly understood. However, since liquids are treated mainly as dense gases, the inclusion of liquids in the title is slightly ambitious. The many references to reports to ONR and so on, which are not readily available to European readers should, in my opinion, have been avoided. Finally, although I can see the inevitability, the practically exclusive use of Lennard-Jones potentials is rather disappointing, inasmuch as the authors show in the last part of the book that the repulsive part of the intermolecular potential is exponential rather than of the Lennard-Jones form. However, the Wisconsin group has lately considered the so-called "Buckingham (6-exp) potential," so that a future edition of this volume will probably no longer see this extreme preponderance of the Lennard-Jones potential.

The high price of the book probably could not have been avoided, but I feel that a page size of 6½ by 9¼, instead of 4¼ by 7¼, which would have reduced the volume to about 650 pages, would have led to a book easier to handle than the present rather bulky volume.

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Peripheral Circulation in Man. A Ciba Foundation Symposium. G. E. W. Wolstenholme and Jessie S. Freeman, Eds. Little, Brown, Boston, 1954. xi + 219 pp. Illus. + plates. $6.

This volume contains the papers and discussions of a symposium of international scope held in London in May 1953. Topics and contributors have been carefully selected, and as a consequence this book provides a fitting complement to its companion volume, *Visceral Circulation,* which appeared in 1953.

Of the 18 scientific papers included in *Peripheral Circulation,* the first four, which comprise more than one-fourth of the book, are devoted to current methods of studying peripheral blood flow. Highlighting this group is A. C. Burton's critical survey of methods applicable to human beings. Subsequent articles deal with such currently important topics as the secretion and action of adrenalin and noradrenalin, peripheral circulatory responses to heat and cold, innervation and reflex control of cutaneous vessels, and peripheral circulatory responses to sympathectomy. Concluding the volume is a series of authoritative clinical contributions dealing with alterations in the vascular system during peripheral ischemia, the significance of cold hemagglutinins, and the influence of visceral distension upon peripheral circulation in the spinal man.

It is not the purpose of this review to discuss individual papers. Three or four suffer from a complete lack of supporting data; another loses much of its effectiveness through amazingly awkward phraseol-