affects both parts of (21), then the differential equations give the integro-differential equations that are a generalization of Boltzmann's equation, adapted to an investigation of gaseous mixtures of a variable chemical composition.

Second, for the particular case of a mixture of monatomic gases without internal degrees of freedom, located in a constant gravitational field, Eq. (22) indicates that they are satisfied if the following functions stand for the distribution functions:

$$f_i = a_i e^{-hm_i(u^2+2\chi)} \tag{23}$$

which corresponds to Boltzmann's distribution. In Eq. (23), m_i stands for the mass of the ith atom, χ the potential of the gravitational forces, and a_i certain constants.

Third, the method of sequential approximations can be used for solving (21) in a large number of cases.

References

[1] Vallander, S. V., "New kinetic equations in the theory of monatomic gases," Dokl. Akad. Nauk SSSR (Repts. Acad. Sci. USSR) **131,** no. 1 (1960).

[2] Belova, A. V. and Vallander, S. V., "Integral kinetic equations of the theory of monatomic gases in the presence of an external field of gravitational forces," Vestn. Leningr. Univ., Ser. Mat., Mekh., i Astron. (Bull. Leningrad Univ., Math., Mech., Astron. Ser.), no. 7, issue 2, 75 (1961).

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Comments on "Role of Radiation in Modern Gasdynamics"

S. S. PENNER
California Institute of Technology, Pasadena, Calif.

THE paper by Zhigulev et al.,* together with the material referred to by the reviewer, provides a useful introduction to radiation and gasdynamics. However, the reader who is interested in current professional activities and in broad coverage of modern research in this field might do well to avail himself of the unique opportunity for study provided by a series of four separate colloquium proceedings, all of which have been published or will be published in 1963. This heavy concentration of activity reflects the fact that the astrophysicists, who have been active workers on radiation and gasdynamics for more than thirty years, have not yet relinquished it to the aerodynamicists—who have been rediscovering this field of applied science during the last few years. The four symposium publications are briefly described in the following paragraphs.

Colloquium on Radiation Transfer in Stellar Atmospheres, edited by C. de Jager and A. B. Underhill, J. Quant. Spectry. & Radiative Transfer **3,** 98–220 (1963). This journal issue contains papers on "Fundamental Problems of Radiative Transfer," "Transfer in Lines and Related Problems," and "Computer Techniques Useful for Radiative Transfer Problems."

Proceedings of the Symposium on Quantitative Spectroscopy and Applications in Space Science, edited by S. S. Penner and L. D. Kaplan (to be published in J. Quant. Spectry. & Radiative Transfer, December 1963). These proceedings will contain papers on quantitative spectroscopy (using electric arcs, atomic beams, and shock tubes), spectral line shapes, induced intensities, and solar, interstellar, Venerial, and cosmological problems in spectroscopy.

Proceedings of the Sixth AGARD Combustion and Propulsion Colloquium, Part II, Radiative Transfer in Flow Fields, edited by D. B. Olfe (to be published by Pergamon Press, Ltd., London, October 1963.) This book will contain six papers dealing primarily with the influence of radiative transfer on shock propagation and re-entry heat transfer, as well as selected contributions on basic spectroscopy, temperature measurements, and radiation cooling.

High Temperature in Aeronautics, edited by Carlo Ferrari (to be published by the Politecnico di Torino, Torino, Italy, October 1963). This volume contains surveys on re-entry heat transfer, the influence of radiative transfer on shock propagation, material problems, etc.

The AIAA community will have the opportunity of first-hand exposure at the Aerospace Science Conference, New York City, January 20–22, 1964, where one session will be devoted to "Radiation and Gasdynamics."

* Zhigulev, V. N., Romishevskii, Ye. A., and Vertushkin, V. K., "Role of radiation in modern gasdynamics" AIAA J. **1,** 1473–1485 (1963).