chapter on reaction velocity (p. 343), these equations are referred to, but become, without explanation, the products of concentrations. Nothing is said about the critical complex or the importance of activities and their coefficients at a point where they are of the greatest importance. It has been repeatedly emphasized in the American literature for the past fifteen years that if the italicized statement and the equations (p. 226–227) were correct, there could be only negative salt catalysis and never positive salt catalysis in contradiction to well established experimental evidence.

The author is to be commended for introducing the concept of osmotic coefficient. This innovation, for an elementary book, will save the student from unlearning later erroneous statements about ionic dissociations.

Unfortunately, however, after all the preparation on fugacity, activity of the electrode (p. 273) and of the ions, (p. 268), one learns (p. 274), that "hydrogen ion concentration is the most exact measure of the 'acidity' of a solution." The student is given no inkling that pH really involves the activity and not the concentration of hydrogen ion.

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KINETIC THEORY OF GASES

An Introduction to the Kinetic Theory of Gases. By SIR JAMES JEANS, O.M., F.R.S. 311 pp. New York: The Macmillan Company; Cambridge University Press. 1940. $3.50.

THIS book lies somewhere between a treatise such as represented by the author's "The Dynamical Theory of Gases" and a text-book for advanced students. It is, in fact, the author's intention to supply a book which will provide such knowledge of the kinetic theory as is required by the average serious student of physics and physical chemistry, and at the same time give the mathematical student the equipment he should have before undertaking the study of specialist monographs.

The book differs from the author's larger work above cited in that the subject is covered in a more elementary manner, with less mathematical rigidity and with greater attention to the physical and descriptive aspects. The various concepts are illuminated, moreover, to an extent unusual in a book of this kind, by the inclusion of accounts of experimental investigations.

The book covers a wide field, and it is inevitable that there should be a considerable range of difficulty in the various parts. It is probable that the student who has already an acquaintance with the subject will get more benefit from the work than will a beginner; and to the semi-advanced student the book will constitute a valuable reference to which he may turn to refresh his memory when the practical need occurs for drawing upon various parts of the subject.

The work is rich in references both on the experimental and theoretical sides. It contains much useful numerical material and a helpful appendix, containing certain special standard theorems and also tables convenient for numerical calculations associated with the subject.

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SPECIAL ARTICLES

ISOLATION OF THE VIRUSES OF WESTERN EQUINE AND ST. LOUIS ENCEPHALITIS FROM *CULEX TARSALIS* MOSQUITOES[1]

IN North America three types of epidemic virus encephalitis are recognized. Two of these, the eastern and western types of equine encephalomyelitis, are believed to be mosquito-borne. Mosquito transmission has been repeatedly demonstrated in the laboratory (summarized by Davis[2]), but until now the virus has never been isolated from mosquitoes collected in epidemic areas. With respect to the St. Louis encephalitis virus opinions of observers have differed as to the mode of transmission. Lumsden[3] concluded that it was probably transmitted by Culex mosquitoes. Mitamura and associates[4] have reported successful transmission of this virus in the laboratory by *Culex pipiens*.

In the Yakima Valley, Washington, evidence was obtained by Hammon[5] and Hammon and Howitt[6] during the summer of 1940 indicating the probable presence in man and horses of both the western equine

[1] Part of a Cooperative Survey of Encephalitis in the Yakima Valley by the University of California, the State College of Washington, the Washington State Health Department, the Yakima City-County Health Department and the U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine. Aided by a grant from the Natural Foundation for Infantile Paralysis, Inc.

[2] W. A. Davis, *Amer. Jour. Hygiene,* 32: 45, 1940.

[3] L. L. Lumsden, Unpublished official report, 1933.

[4] T. Mitamura, S. Yamada, H. Hazato, K. Mori, T. Hosoi, M. Kitaoka, S. Watanabe, K. Okubo and S. Tenjin, *Tr. Jap. Path. Soc.,* 27: 573, 1937.

[5] W. McD. Hammon, *Jour. Am. Med. Assn.,* 117: 161, 1941.

[6] W. McD. Hammon and B. F. Howitt, To be published.