Book Reviews

Fluorochemistry: a comprehensive study embracing the theory and applications of luminescence and radiation in physicochemical science. Jack De Ment. Brooklyn, N. Y.: Chemical Publishing Co., 1945. Pp. xvii + 796. (Illustrated.) $14.50.

This book is devoted to a discussion of fluorescence and phosphorescence from both the theoretical and experimental points of view. The author's literary style is such that one receives the impression that he writes with little effort. Ordinarily this characteristic would make a book a great relief from the more ponderous efforts of some other writers, but in this case the author either has not read or has not understood the literature basic to the field, and therefore much of the book is worthless. The compilations of statements concerning fluorescence and phosphorescence such as are found in Chapters III, IV, VII, VIII, and IX may be found useful but are admittedly not complete. For example, the list of fluorescent organic substances given in Chapter III is stated to be one-tenth of a list published elsewhere.

The reviewer wishes to point out some examples of the errors made in the theoretical discussion. On pages 31 and 53 the author uses the term "quantization" as equivalent to excitation. That he really intends such usage is shown by his definition of the term on page 738. Apparently he does not realize that unexcited atoms and molecules are in definite quantized states. His unfamiliarity with the quantum theory is apparent also in his discussion of spectra. On page 58 he speaks of a $1S_{\frac{1}{2}}$ term; on pages 61 and 62 he has a weird jumble of comment about the Raman effect and atomic spectra; on pages 55 to 58 he discusses atomic spectra but seems to be unfamiliar with the standard notation. On pages 64 and 65 he attempts to discuss the Franck-Condon principle and ends up with a statement in which that principle and the effect referred to as predissociation are confused. Another confusion of ideas appears on page 91, where he undertakes to discuss the "thermodynamics of fluorescence" without distinguishing between a true equilibrium and a photostationary state.

Another objectionable feature of the book is the author's attempt to attach his name to principles which did not originate with him. For example, on page 2 he speaks of De Ment's first law of fluorescence, claiming that he stated it in 1942 as: "Before emission can occur from a luminescent system, absorption must first take place." The reviewer does not know when that statement first appeared, but he found the following in the *Encyclopedia Britannica* (11th ed., Vol. 10, p. 577): "Fluorescence is always associated with absorption, but many bodies are absorbent without showing fluorescence." His other principles and laws have the same degree of originality.

The binding of the book is poor, but it will probably last as long as is necessary. Other books costing less money are more valuable.

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