an electronic mechanism, the former dealing with experimentally inferred atomic and molecular motions, formation of intermediates, role of environment, etc., and the latter being concerned largely with experimentally unverifiable rationalizations of electronic motions during the reaction. The whole approach relies heavily on the notion that a reaction mechanism is "probably correct" if it involves some reasonable sequence of electronic shifts adaptable to expression in the recondite curved arrow symbolism. It is feared that this attitude may breed a superficiality which will cause the student to overestimate the power of current organic theory. Actually, the determination of the mechanism of even a simple organic reaction is ordinarily a difficult and complex physicochemical problem, and it will probably come as a shock to those educated with this book that relatively few of the mechanisms discussed are supported by compelling experimental evidence. All too often there is only a superficial reasonableness which, in the reviewer's experience, has a poor batting average when subjected to precise experimental test.

Some of the favored mechanisms are at variance with experiment or currently accepted interpretations. Examples are: the *n*-propylamine-nitrous acid reaction (p. 227), the reduction of aromatic diazonium compounds with ethanol (p. 234), the coupling of phenol with diazonium salts (p. 240), the addition of bromine to olefins (p. 265), and the decarboxylation of acetoacetic acid (p. 282).

Another criticism is the use of some unnecessary and misleading symbolisms, including cyclic structures for enolate anions and allyl cations.

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Manual of Standardized Procedures for Spectrophotometric Chemistry. Harold J. Fister. New York: Standard Scientific Supply, 1950. 500 pp. $30.00.

This volume is a loose-leaf compilation of instruction sheets describing 126 analytical methods of clinical interest. The methods are based on published techniques and usually incorporate the most recent improvements and modifications of the original procedure. References to the sources are cited.

The author has translated each analytical method into a series of enumerated steps leading to the final determination of the transmittancy of the reaction mixture and the calculation of the sought-for concentration. The great detail in which the procedures are described is evidence that they are the products of the author's own extensive experience. Directions are given for the preparation of every reagent used, together with the specifications for each item of glassware, filter paper, and other necessary supplies. Care has been taken to include notation of temperatures, times, and other procedural factors. Manual operations are described down to the manner of mixing and rinsing. Of particular value are the suggestions on the useful life of unstable reagents and appropriate methods for storing them.

In a brief introduction to the manual, the author states that it "is designed and outlined for the use of those with little or no experience with spectrophotometric techniques." This aim is accomplished by setting down a precisely delineated course of action which seldom requires and rarely permits any exercise of judgment. In this sense, the use of the word "standardized" in the title appears to be justified.

It is this reviewer's impression that the manual was inspired by the problem faced by many clinical laboratories—that of producing accurate analyses in large numbers despite the lack of personnel whose training goes beyond the performance of routines. The manual deals with this difficulty by substituting the author's experience for experience lacked by the user. If the assumption is granted that an analytical laboratory can be successfully sustained by such a procedural surrogate, one can offer little in criticism of this work.

However, examined from the viewpoint that a manual designed for inexperienced technicians should educate as well as direct, some weaknesses can be found. Most obvious is the failure to mention the physical principles governing transmission measurements. At no point is the reader made aware of the exponential character of absorption functions. Instead, he is instructed to "plot the observed values on semi-log paper." The meaning of this act is further obscured by the fact that the sample plots that accompany each set of directions have unlabeled ordinates, marked with a scale of undesignated magnitude.

Similarly, no explanation is offered for the selection of the wavelength at which the technician is directed to set his instrument. No absorption spectra are given, and too frequently even the substance responsible for the color analyzed is not mentioned. Lacking such information, a technician would be helpless if faced with the need for running an analysis in the presence of extraneous light-absorbing material.

If the commendable thoroughness of the manual were extended to include this type of information, its usefulness would go beyond the narrow limits of guaranteeing the success of routine analyses. The manual might then leave its mark on the technician as well as on his notebook.

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