

red down to about 2000 Å in the ultraviolet. Raman spectroscopy is also included. Another chapter is concerned with sample preparation, appropriate solvents, cells and cell windows, and the like. Several chapters are devoted to theoretical aspects and to interpretations of absorption. These include brief treatments of classical and quantum mechanics, electronic states and electronic spectra, molecular vibrations and rotations, and the principles of molecular spectroscopy. One chapter treats the use of absorption as a tool of qualitative analysis, demonstrating its value both in identifying compounds and in showing the presence of characteristic groups in unknown compounds. Still another chapter explains and demonstrates how absorption spectra may be used to analyze quantitatively a mixture of several absorbing compounds, and as an aid in this treatment, matrix methods are treated in an appendix. Other appendices consider nomenclature and character tables.

This book meets an extensive current need, and in addition to its classroom functions, it should find a place in many libraries and research laboratories.

F. E. BLACET

*Department of Chemistry,
University of California, Los Angeles*

Fluorometry

Fluorescence Assay in Biology and Medicine. Sidney Udenfriend. Academic Press, New York, 1962. x + 505 pp. Illus. \$14.

Although this book fulfills its purposes, namely, to serve as a practical reference and laboratory manual on fluorometry for those who are engaged in various fields of biology and medicine, it is written in such an informal and elementary manner that it is primarily a text for the truly unsophisticated novice. This is regrettable, in view of the much more urgent need for an authoritative text, which this book might have been, that would provide a frankly critical evaluation of the instrumentation and methodologies presently applied in fluorometry, not only for the practical applications of chemical assay but, perhaps more importantly, for the purpose of obtaining the unique information about molecular structure and properties that can be derived from carefully deter-

mined spectral measurements of fluorescence (and phosphorescence). Although they will be gravely disappointed by this default, those who are already knowledgeable or who are experts, to use the author's euphemism, will nevertheless find this book of some value, not simply as a handy reference intended for useful practical information but more so for its very comprehensive and fairly up-to-date bibliography.

The major portion of the book is devoted to specific assays of various compounds, arranged in topical order according to their biochemical classification; this, of course, leads to grouping the compounds in a chemically unrelated manner. This may be a convenient and possibly logical arrangement for a laboratory manual in biochemistry, but it was ill-chosen for a general reference text on fluorescence assay, in which the correspondence of molecular structure with the physical property of fluorescence is of major topical concern. Moreover, the procedures that have been detailed are incorporated in the main body of the descriptive text; this is a particularly poor format for a working laboratory manual, since each specific assay must be sought out.

The last three chapters are somewhat perfunctory surveys of the extension of fluorescence assay to a number of applications which most likely will be of only passing interest to those concerned with the basic assays that comprise the major sections of the book. However, the initial chapters on instrumentation and on the practical considerations to be taken into account in the technique of fluorometry merit attention, particularly by those who seek some practical guidance on the type of instrumentation and the technical requirements that need to be considered for specific types of application.

By having the temerity to write an introductory text on a discipline that is in such an extraordinarily dynamic phase of growth and new development as a result of the remarkable advances being made in modern technology, this competent author has exposed himself to the basic criticism that such a laboratory manual is somewhat premature and that it is predestined to a very short lifetime of useful service because of the great pressure of change; this change is not only within the particular sphere of fluorescence but also in contesting disciplines which potentially

could adumbrate its practical significance and usefulness. The task, it would seem, for those who would further the use of fluorometry as a basic technique, is not its popularization, which could lead to discreditation by abuse and misuse as a result of the push-button nature of modern instrumentation, but rather to provide the necessary guidance, either by demonstration or instruction, for its properly sophisticated use.

HERBERT JAFFE

Rockefeller Institute, New York

Natural Continuum

The Sciences and the Arts. A new alliance. Harold Gomes Cassidy. Harper, New York, 1962. 182 pp. \$4.75.

The author, a professor of chemistry at Yale, attempts to fling a philosophical bridge between the "two cultures"—science and art. The result is a brilliant and highly abstruse analysis.

Cassidy asserts that "if humanists understood science and would effectively make their voices heard, they could, with the aid of scientists, control the forces of cultural change in the process of their actual generation." He goes further and asserts that such a conjunction would enable men to direct cultural change toward "the morally and ethically just ends that arise from a union of art and science."

Of what is this bridge to be constructed? The central argument of the book is that a natural continuum exists between all of the disciplines of the intellect; every activity is a dialectic, interpenetrated by "analysis, synthesis, and reduction to practise." All three activities, he says, "must go together for science or art to be healthy." He asserts that it is a failure to distinguish between the analytic and synthetic functions, accompanied "often by a preference for one or the other," which is "one of the chief causes of schism between scientists and humanists."

To demonstrate the continuum, Cassidy presents several delightful essays comparing the processes involved in a mathematical theorem with those in a poem, those in geometry with those in sculpture, and so on. He brings to these essays a certain architectonic flair: "There are," he writes, "too few constructive efforts to bring