of the microscope is given in chapter 9, with just enough optical theory to make the beginning student feel comfortable. In addition, brief descriptions of rather advanced microscopic techniques are included. Chapter 10, which deals with stains and staining principles, is brief but informative. Routine staining and mounting procedures are covered in chapters 11 and 12, while methods for specific tissues and cell products are given in chapters 13 through 20. Chapters 21 through 24 deal with rather sophisticated special procedures, such as histochemistry, autoradiography, electron microscopy, chromosome cytology, and others. Although the author's preface states that such descriptions are intended merely as introductions, they seem rather detailed. One can only hope that the student will follow the author's admonition to refer to the original literature. The last two chapters are essentially appendixes of helpful hints and reference tables which seem extremely useful.

The rather parsimonious use of illustrations may account for the book's modest price, by today's standards. However, one wishes that the publisher of a text on histological technique could have seen his way clear to include one photomicrograph of some tissue—any tissue.

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A Catalytic Career's Records

Adventures in Radioisotope Research. The collected papers of George Hevesy. vols. 1 and 2. Pergamon, New York, 1962. 1047 pp. Illus. $30.

There are few who will cavil at the statement that we are living in a golden age of biology, and certainly there are none who will deny that George Hevesy is one of its major architects. For by his discovery of the technique of using isotopic tracers and his elaboration of its methodology, Hevesy contributed a tool that has proved essential in the creation of modern quantitative biology. The labors of this quietly unassuming and very great investigator have won him the encomiums of the civilized world, among which are included the Nobel Prize and the Ford Foundation's Atoms For Peace Award. Therefore, it is an occasion of some importance when the essential corpus of Hevesy's great career in biological and chemical tracer research appears in the form of a two-volume set, which contains 100 original research papers that were selected, annotated, and evaluated by him.

The presentation is organized under the two headings—inorganic and physical chemistry (15 papers) and life sciences (85 papers). Under the two headings, papers are grouped chronologically in sections, each of which covers a single research area. At the end of each section, Hevesy has provided a critical commentary. A special feature is a preface that presents a charming and informative autobiographical sketch.

The great breadth of Hevesy's interests are best appreciated by a list of the topics that underlie the book's classification into sections. Thus, under the general heading of inorganic and physical chemistry, we find analytical applications (for example, determinations of solubility of lead salts), activation analysis (for example, neutron activation of rare earths), electrochemistry, studies of interchange in solid and liquid phases, self-diffusion, and researches on the existence of new stable elements. In the life sciences, the list ranges over practically every aspect of modern biochemistry and physiology—for example, studies in distribution, permeability, the dynamic state of cellular constituents, metabolism, radiation biology, the dynamics of plant growth and nutrition. Nor should we neglect to mention Hevesy's most recent interests—clinical researches on tumor metabolism, prefigured by some studies of uptake and excretion in human subjects, two papers on which are included in the present set.

These papers represent all but a few of Hevesy's publications on tracer research. Not included are a very few that appeared originally in languages other than English. However, these omissions do not affect significantly the statement that the present collection constitutes the essential body of Hevesy's contribution to tracer methodology.

These two volumes not only contain a tremendous wealth of material for investigators in a staggering variety of research areas, but they also contain material of intense interest to the historian of science. The intelligent layman will also find much to fascinate him. Everywhere there is evidence of the remarkable ingenuity and bold imagery which have characterized Hevesy's researches.

The format is of good quality, and there appear to be few misprints. Modern scholarship in all areas of biological science is indebted to Hevesy, and to the Pergamon Press, for the successful prosecution of this undertaking which brings together all of the relevant papers by a great innovator and pioneer, so that their study is greatly facilitated.

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Practical Investigator

The Psychology of Jung. A critical interpretation. Avis M. Dry. Wiley, New York, 1962. xiv + 329 pp. $6.

The author of this work, a psychologist "and in some measure a historian," examines the various aspects of Jung's analytic psychology with a view to making it "more understandable to interested though uncommitted general readers." That this is a sizable task can be readily appreciated.

Although we know little about Jung as a person, we come to know of the complicated elements and the "many layered native soil from which his system drew its first nourishment and in which it is spiritually rooted." Early, Jung saw psychiatry as the meeting point of medicine and philosophy—with Schopenhauer *et al.* in the foreground and the great idealistic systems in the background. Unlike Freud, Jung desired his system to be eminently practical. He was not an investigator for investigation's sake. His questions were "does it work?" and "will it help people?" The reason why it worked was "a problem for his spare time."

Jung's early productions were universally acclaimed as important; his later efforts were controversial. In his book we see him first alone, then on the edge of the Freudian epoch in psychopathology, then as a friend of and the "heir apparent" to Freud, and finally, after a quarrel with Freud, again on his solitary path.

The author leads us through each step in the development of Jung's conceptions of mind, and he compares Jung's views with the views of those who held similar ideas. All of the latter seem to place more importance on

events that happened in the individual's earlier years than did Jung, and none of them seemed to spend time theorizing on either religion or occult phenomena.

Neumann saw Jung's work as the "grandest attempt yet made to construct a theory of the psyche." Glover saw it as a "mish mash of oriental philosophy with a bowdlerized psychobiology." The historians will decide in the future who was nearest the truth but, in the meantime, should one want to read a fair, dispassionate survey of the work of this admittedly great man, this book is recommended.

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Applied Mathematics

Methods of Mathematical Physics. vol. 2, *Partial Differential Equations*. R. Courant and D. Hilbert. Interscience, New York, 1962. xxii + 830 pp. $17.50.

The second volume of the mathematical classic, the Courant-Hilbert *Methoden der mathematischen Physik,* appeared in 1937, and it is still an indispensable handbook for anyone who has to deal with partial differential equations. It has served as the basis for countless courses in applied mathematics and advanced mathematical physics; it has stimulated and strongly influenced mathematical research during the past quarter century. The present volume is the long-expected English translation and, at the same time, a very much enlarged and revised edition of the original book, which covers the subject matter found in the first six chapters of the German edition. The seventh chapter, which deals with existence proofs for elliptic equations by variational methods, has been omitted in this translation and will form the nucleus of a projected third volume of the Courant-Hilbert. But even with this omission the volume has increased by almost 300 pages; a comparison of the material in the two editions is most instructive and provides a good concept of the developments in partial differential equations. The organization of the original volume and even the six chapter headings have been preserved. But a large amount of new results, methods, and applications has been added, and many old developments have been replaced by more powerful and more general procedures. The new edition is characterized by a trend toward greater generality and by a larger degree of abstraction. More stress is placed on the role of differential systems, and many existence and uniqueness proofs are reformulated to apply to systems rather than to simple differential equations. Uniqueness proofs under weakened assumptions are added, the concept of a generalized solution is introduced, and the replacement of differential equations by integral conservation laws is discussed. Functional analysis plays a central role in the book. Fixed point theorems in function spaces are applied to prove the existence of solutions in nonlinear boundary value problems, and the theory of distributions is used with elegance in the theory of linear hyperbolic systems to generalize the Riemann solution theory. However, all less conventional topics are clearly explained, and all new concepts are well motivated. Indeed, there is an appendix of about 30 pages which gives a succinct but clear survey of distribution theory. Thus, these new ideas may soon become familiar tools to even the more application-minded user of differential equations. Illustrations and examples from fluid dynamics, electromagnetic radiation, optics, and magnetohydrodynamics have been enlarged, or added, which show the significance of the general concepts and which will surely justify the use of heavier mathematical apparatus.

The book obviously owes much to the intensive and cooperative research activity of Courant's group of colleagues and disciples. It is an inexhaustible source of small methodological tricks, remarks, and observations which are so useful and essential to creative work in every field of mathematics. It shows the intense activity in and the vitality of the theory of partial differential equations. The rapid development of the theory also has an unfortunate and a less pleasing consequence. While the first edition was a self-contained survey of the theory, the new edition necessarily cites many references to current literature which cannot be elaborated in detail, and the reader is sent to monographs for full proofs even in such vital topics as the Schauder a priori estimates on solutions of elliptic equations. However, the authors could not possibly attain the previous completeness within the compass of a single volume, and it should be stressed that all facts which are not proved are very clearly and precisely formulated so that the general ideas and concepts are easily understood.

An appendix by L. Bers, on pseudo-analytic functions and quasiconformal mapping, deserves special mention for its clarity and for the great amount of interesting information condensed into very little space.

It is evident that the new edition will serve for a long time as a reference source and an inspiration for mathematicians and users of mathematics in all fields of science.

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Descriptive Presentation

Structure and Properties of Organic Compounds. A brief survey. Carl R. Noller. Saunders, Philadelphia, 1962. v + 255 pp. Illus. $6.

This text is precisely what its author states it to be, a brief survey of the structure and properties of organic compounds which is designed for use by those who need only be conversant with the field. With few exceptions, no attempt is made to present the experiments upon which the organic chemist bases his science. Instead, the presentation is descriptive and may seem arbitrary to the student. It will be mastered best by the student with an excellent memory. In this feature, Noller's text presents no great departure from most of the short texts that have preceded his. It may be seriously questioned, however, whether this or any similar short text is adequate for premedical students. One of Noller's more comprehensive texts would be a better choice for this purpose, in my opinion.

The book is remarkably free from errors, but there are a few. On page 134 Noller states that sympathomimetic amines "mimic the action of the sympathetic nervous system." This is a big order for a mere chemical! A transposition converts Chevreul (1786–1889) from one of the world's oldest chemists into a shortlived one by making his birthdate 1876 instead of 1786. In similar vein, Van't Hoff is represented as dying 10 years before he received the Nobel Prize rather than 10 years after.