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 But a large amount of new results, methods, and applications has been added, and many old developments have been replaced by more powerful and more general procedures.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.