The Language of Taxonomy. An application of symbolic logic to the study of classificatory systems. John R. Gregg. Columbia Univ. Press, New York, 1954. ix + 70 pp. Illus. $2.50.

Taxonomy is the study of kinds of organisms. One of the procedures used in dealing with kinds is classification. Recent advances in genetics and the rise of the science of ecology have resulted in a current interest in taxonomy on a much broader plane than was historically the case. With this increased interest has come a series of new difficulties caused by the use of certain words of inexact meaning or varying implication. Attempts at definition have not clarified the situation; indeed, in some cases they have further confused it.

John Gregg's book is an attempt to develop a language for use in metataxonomy—the study of statements about taxonomy—by introducing the concepts of set-theory, which is one of the symbolic methods of formal logic. These concepts seem suited to the study of classifications, where they can emphasize the distinctions between kinds, classes of kinds, and categories of classes. Failure to distinguish these has been the cause of much semantic difficulty, with resultant confusion of thinking.

In order to show the application of set-theory to metataxonomy, Gregg has developed the appropriate set-theory concepts in the early chapters. Thus, an interested student will find the book self sufficient although highly technical. It concludes with the presentation of a problem for further study—the complications introduced by category overlapping (class A includes only one order, b, and therefore A and b are identical groups and the categories are overlapping). This difficulty appears to be a result of certain short cuts commonly used in writing down classifications. If it can be shown that the difficulty is not real, then further development of this language will be facilitated, and solution of some of the practical problems of taxonomic language may be undertaken.

R. E. Blackwelder
Society of Systematic Zoology, Washington, D.C.

Recent Progress in Hormone Research. vol. X. Proceedings of the Laurentian Hormone Conference. Gregory Pincus, Ed. Academic Press, New York, 1954. 511 pp. Illus. $9.80.

This volume contains the proceedings of the tenth annual meeting of the Laurentian Hormone Conference, which took place in September 1953, at Mont Tremblant, Quebec. Six major topics are reviewed, namely: (i) nervous system, hormone interrelationships (R. W. Porter, H. Hoagland, D. M. Woodbury); (ii) thyroid hormone physiology and biochemistry (J. Gross, R. Pitt-Rivers, H. A. Lardy, G. F. Maley); (iii) comparative endocrinology (D. Bodenstein, E. Scharrer, B. Scharrer); (iv) protein hormones (R. G. Romans, E. E. Hays, W. F. White); (v) the role of hormones in blood and blood-forming organs (H. S. Kaplan, C. S. Nagareda, M. B. Brown, A. S. Gordon); (vi) aspects of clinical endocrinology (B. Zondek, R. Luft, B. Sjögren, D. Ikkos, H. Ljunggren, H. Tarukoski, J. W. Conn, S. S. Fajans, L. H. Louis, H. S. Seltzer, H. D. Kaine).

Endocrinologists throughout the world are particularly indebted to Gregory Pincus for the thoughtful preparation, both of the conferences themselves and of the printed proceedings, which make the former more generally available. It is a particularly attractive feature of these proceedings that they contain not only the formal papers (presented by the authors listed here) but also transcripts of the informal discussions made by various other participants following each presentation.

It would, of course, be impossible to give anything like a summary of such a complex symposium, but since all the speakers are eminently competent authorities in their respective fields, there can be no doubt about the value of this volume. The type, illustrations, and binding are excellent, and the book is supplied with carefully prepared indexes of authors and subjects.

Hans Selye
Institut de Médecine et de Chirurgie expérimentales, Université de Montréal

Traité de Génétique. Ph. L'Héritier, Presses Universitaires de France, Paris, 1954. *Le mécanisme de l'Hérédité. Génétique formelle,* Tome I, 343 pp. Illus. F. 1500; *La Génétique des Populations,* Tome II, 173 pp. Illus. F. 900.

The publication of a new textbook of genetics in the French language is a matter of more than ordinary interest, since, in the opinion of many who are in a good position to judge, the lack of adequate textbooks has been a real handicap to the teaching of genetics in France. L'Héritier's *Traité de Génétique* will undoubtedly go a long way toward filling this vacuum and will give welcome support to the general awakening of interest in genetics that has been evident in France since the war.

Traité de Génétique is projected in three volumes of which two have now been published. The third volume, dealing with physiological genetics, is in preparation. Volume I is concerned with the formal aspects of chromosomal inheritance. It is an exposition of classical genetics that is almost unique in its purity of approach. The author's aim, judging from the result, is to present the principles of genetics and the evidence on which they are based in their most logical and economical form. We find no chapters on derivative aspects of genetics, such as medicolegal applications, clinical heredity, sociologic implications, and similar topics that have been found useful in bolstering up the sagging attention of premedical students. The examples, chosen for their soundness as evidence, rather than on the basis of their exotic value, are drawn almost entirely from the literature of the well-studied genetic organisms, especially *Drosophila.* In

other words, this book is intended for the instruction of students who are already convinced that genetics is an interesting subject and who wish to get a professional insight into its theoretical foundations. It is probably too difficult for any but the most inspired beginners.

Volume II is devoted to population genetics, a subject in which the author has long had a special interest. The first chapter deals with the mathematics of genetically stable populations under panmictic and assortative systems of mating. The second analyzes the roles of selection, mutation and migration, and chance fluctuation as causes of changes in gene frequency, the treatment closely following that of Sewall Wright. The third and final chapter contains a summing up of the neo-Darwinian view of evolution and a discussion of the genetic definition of species. The presentation is lucid and careful throughout.

Each chapter in both volumes is followed by a list of selected references. It is to be hoped that the third volume will contain an index.

N. H. Horowitz
Laboratoire de Génétique, Faculté des Sciences, Paris

Analytic Geometry. Edward S. Smith, Meyer Salkover, and Howard K. Justice. Wiley, New York; Chapman & Hall, London, ed. 2, 1954. xiii + 306 pp. Illus. $4.

A statement in the preface indicates that the following changes of the first edition have been made in this edition: (i) revised problems; (ii) new articles on analytic proofs of geometric theorems and on cylindrical and spherical coordinates; (iii) improved treatment of the angle between two lines, excluded values, asymptotes, bisector of an angle, tangent to a circle, radical axes, and parametric form of the equations of a line; and (iv) a four-place table of trigonometric functions, with angles in radians and degrees.

This book constitutes a very thorough treatment of all the topics usually found in analytic geometry courses. Following the treatment of the straight-line and conic sections in type forms, space is devoted to the general equation of the second degree, tangents and normals, transcendental curves, polar coordinates, parametric equations and empirical equations. There follows a section in "Solid analytic geometry," which treats the line, plane, locus problems, and the quadric surfaces in type forms. If sufficient time can be allowed to do the textbook in its entirety, much time could be saved in the calculus courses by making it unnecessary to review, or to give for the first time, topics that are well covered here. A well-rounded course of shorter duration can be selected from the book without loss of continuity. Any student who continues in mathematics beyond the course in analytic geometry will find this to be an excellent reference.

Two chapters seem worthy of particular mention. One is given to a careful description of the intersection of a cone by a plane. The relation of the position of the interesecting plane to the definitions of the conic sections as loci is shown by careful drawings and explanations. The chapter on empirical equations is concerned with fitting curves to given sets of data and emphasizes the straight-line formula, the power law, the exponential law, and the parabola.

The book contains a large number of exercises of varying degrees of difficulty. Nearly all the exercises are geometric, and one might hope for some applications to problems arising in the physical sciences and engineering. Explanatory drawings are plentiful and carefully made. The format is pleasing, important formulas are in boldface type, and theorems and statements of particular emphasis are in italics.

J. A. Cooley
Department of Mathematics, University of Tennessee

Heterocyclic Compounds with Indole and Carbazole Systems. Ward C. Sumpter and F. M. Miller. vol. VIII of *The Chemistry of Heterocyclic Compounds.* Arnold Weissberger, Ed. Interscience, New York–London, 1954. xii + 307 pp. Single copy, $10; subscription, $9.

In this monograph the authors have undertaken "to present a thorough and comprehensive treatment of the methods of preparation, the properties, and the reactions of these compounds without attempting to duplicate the coverage of Beilstein (or of Elsevier's *Encyclopedia* when completed) by listing every compound." The result is a volume that lacks the completeness of its predecessors, but it does enable one to gain a background of information quickly.

The volume suffers from inadequate editing with respect to style, nomenclature, typographical errors, and organization of material, as the following random examples show. Page 61, "Indolenines of the type of 2,3,3-trimethylindolenine yield dimers on treatment with Grignard reagents, [335] the compound behaving as though it had the formula I." Page 54, "2-Methylindolemagnesium bromide reacts similarly . . . while 3-methylindolylmagnesium bromide gives. . . . On page 80, line 2, a sentence begins without capitalization and on line 8 of page 81 an "of" is omitted. On page 31, the arsonic acids derived from indoles are found under the heading "Halogen derivatives of indole." Fortunately, these errors are for the most part annoying rather than misleading.

The strength of the volume is in Chapter VIII, a 90-page discussion that brings together a mass of material on the many and varied naturally occurring products that contain an indole nucleus.

A. H. Blatt
Department of Chemistry, Queens College