

is a good one. In starting with the abdomen of the insect, which is the easiest part to demonstrate and explain to the beginning student, and in taking up the more difficult and complicated parts—the thorax and the head—later, DuPorte gives evidence of long experience as a teacher.

In the introduction DuPorte emphasizes that he is especially interested in the evolution of insects. Even though he does start with generalized forms and moves on to more complex ones, this important phase of the subject seems to be played down.

Undoubtedly DuPorte covers these points completely in his lectures and in the laboratory. Apparently, in his cautious conservatism, he considers such material to be out of place in a laboratory manual for undergraduates. I hope that sometime in the future he will expand this phase of his work, thus providing in his published work the stimulus which a scholar such as he is capable of giving.

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Anatomy of the Human Body. R. D. Lockhart, G. F. Hamilton, F. W. Fyfe. Lippincott, Philadelphia, Pa., 1959. ix + 695 pp. Illus. \$13.50.

The drastic reduction which has been made in the amount of time allotted to the teaching of gross anatomy in the curricula of many medical schools in this country has probably been a factor in encouraging both authors and publishers to bring out textbooks for such courses which, though considerably more comprehensive than those designed for non-medical students, are still somewhat briefer than the traditional *Gray*, *Morris*, or *Cunningham*.

This volume by Lockhart, Hamilton, and Fyfe represents the most recent of these attempts to "lighten the burden of the student of anatomy," as these authors define their objective in the first sentence of their preface. It contains 697 pages, as compared with the 1500 to 1700 pages of the larger textbooks of gross anatomy. The reduction in the amount of text, however, cannot be gauged accurately by this comparison, because the use of a somewhat smaller type and of two 3-inch columns per page effects a considerable saving in space. As a result, a full page in this volume contains about one-third more words than

an average page in one of the larger textbooks of anatomy. Since, however, there are more than 125 full-page illustrations in addition to at least twice that number of part-page illustrations of one-half page or more, it is obvious that the authors have achieved a very great reduction in the amount of text material. The illustrations (approximately 950 in number and most of them in color) are, in general, excellent, and their quantity and scope are such that the volume would serve most students quite satisfactorily both as an atlas and as a text.

The section on the nervous system deserves special comment, because of the unique way in which the text and the related illustrations are combined. Many of the illustrations are printed on the same page as that part of the text which pertains to them; indeed, the pertinent text is, in some instances, arranged in irregular columns which conform to the available space between adjacent illustrations. The names of key structures in the text are set in bold-faced type and are connected directly by lines to those parts of the illustration in which the structures are pictured. Thus, verbal description and pictorial representation are brought together in a manner which should be very helpful to the reader.

I am quite aware that it takes rather less wit to pick a few flaws in someone else's work than it does to create something half so meritorious. I hope, however, that at least the first two of the following three minor criticisms will be considered constructive ones, as I intend them to be.

On pages 142 and 143, the authors present a series of outline drawings showing, among other features, the position, age at first appearance, and age at fusion of various secondary centers of ossification. The ages given for some of these—those for the centers of the hand, for example—are not correct. Adequate data on the age at which these skeletal changes occur are now available from a number of radiographic studies of normal living children in Europe and in this country. The authors may wish to consult these data when they prepare the next edition of their book. The relative skeletal precocity of girls as compared with boys would seem, also, to deserve some mention in this connection.

On page 183, in the description of the *rectus abdominis*, the authors define the *linea semilunaris* as delimiting the lateral, convex margin of that muscle. Spieghel originally applied the term *linea semilunaris* to the line of approximately half-moon shape which marks

the border between the muscle fibers and the aponeurosis of the *transversus abdominis* muscle. The *linea semilunaris*, as thus defined, is for the most part situated lateral to the lateral border of the *rectus abdominis* muscle. This is, admittedly, a minor point and one which would not be worth mentioning if one were not commenting on a book in which such a generally high degree of terminological accuracy has been achieved.

One of the authors' expressed intentions in writing this book was to eliminate "such obvious statements as 'the skin covers the body'" and "to modify the rigid formula for relations known to produce such answers as 'the mouth is situated on the face and its anterior aspect externally communicates with the atmosphere.'" They have succeeded admirably in fulfilling this intention, but, in at least one instance, they seem to have slipped. On page 342, in discussing the nerves to the bladder, we find this little gem: "disturbance of micturition (evacuation of the bladder) is of great practical importance." It is reassuring, in these troubled days, to encounter at least one statement upon which there would be unquestioned international agreement—even among anatomists!

The present volume gives evidence of much sound scholarship, a great amount of labor, and considerable ingenuity in devising methods of increasing the effectiveness of illustrations as teaching aids. The book's obvious merits will commend it to medical students, to teachers, and to all others who have occasion to use it.

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Applications of Finite Groups. J. S. Lomont. Academic Press, New York, 1959. xi + 346 pp. Illus. \$11.

It has been a matter of pride with most physicists to announce that they do not use group theory to obtain their results. Actually, what they do is to replace an organized, logical, and general method by rudimentary "common-sense" methods.

The avoidance of group theory has led to many misleading statements in our textbooks. For example, in most books on quantum mechanics the author starts from the commutation relation for p_1 and q_1 and derives the commutation relations for orbital angular momentum.

Then he "generalizes" these to any angular momentum. Actually, the commutation relations for the total angular momentum of a system are a consequence of the assumption of isotropy of space.

For problems with complicated symmetry properties (molecular vibrations, crystalline fields, nuclear models), the power of the group-theoretical methods has been recognized, and physicists working in these fields have been forced to learn the requisite mathematics.

The use of invariance principles to determine the possible types of elementary systems has only recently become familiar to physicists. E. P. Wigner, in particular, has stressed this approach to fundamental problems. The study of relativistically invariant systems should be based on the properties of the representations of the Lorentz group, and not on a particular differential equation.

Lomont's book is an encyclopedia of theorems concerning finite groups, plus sections enumerating results for the three-dimensional rotation group and the Lorentz group. Very few theorems are proved. The reader who is already familiar with group theory will find many remarkable results quoted, so that the book serves as a valuable guide for finding out what problems have been solved. In this respect the value of the book would have been greatly increased had the source of specific theorems been indicated.

Applications of group theory to molecular vibrations, perturbation theory, atomic structure, and crystal lattices are given. In most cases, the concise presentation would make excessive demands on a reader coming upon the subject for the first time.

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New Books

Absorption and Dispersion of Ultrasonic Waves. Karl F. Herzfeld and Theodore A. Litovitz. Academic Press, New York, 1959. 553 pp. \$14.50.

The Human Integument. Normal and abnormal. A symposium. Publ. No. 54. Stephen Rothman, Ed. AAAS, Washington, D.C., 1959. 270 pp.

Medical Sciences. vol. 2. J. C. Bugher, J. Coursaget, J. F. Loutit, Eds. Pergamon, New York, 1959. 296 pp. \$15. Some of the papers relating to medical sciences from the Second International Conference on the Peaceful Uses of Atomic Energy (1958) are published in this

volume. In his preface Bugher states that the editors have attempted to make the volume representative of the content of the conference. An appendix gives details of the medical sessions.

Molecules and Mental Health. Frederic A. Gibbs, Ed. Published for the Brain Research Foundation by Lippincott, Philadelphia, Pa., 1959. 201 pp. \$4.75.

Pathology of Tumours of the Nervous System. Dorothy S. Russell and L. J. Rubinstein. Arnold, London, 1959. 324 pp. \$13.50.

Physics, an Exact Science. Harvey E. White and Eugene F. Peckman. Van Nostrand, Princeton, N.J., 1959. 518 pp. \$5.96.

Physiology of Prematurity. Transactions of the third conference. Jonathan T. Lanman, Ed. Josiah Macy, Jr. Foundation, New York, 1959. 157 pp. \$3.

The Population of the United States. Donald J. Bogue. With a chapter on "Fertility" by Wilson H. Grabill. Free Press, Glencoe, Ill., 1959. 892 pp. \$17.50.

Poisonous Amphibians and Reptiles. Recognition and bite treatment. Floyd Boys and Hobart M. Smith. Thomas, Springfield, Ill. 1959. 162 pp. \$4.75.

Principles of Geology. James Gilluly, A. C. Waters, A. O. Woodford. Freeman, San Francisco, Calif., ed. 2, 1959. 544 pp. \$7.50.

Pueblo de Arroyo Chaco Canyon, New Mexico. Misc. Collections vol. 138, No. 1. Neil M. Judd. Smithsonian Institution, Washington, D.C., 1959. 230 pp.

Radar Meteorology. Louis J. Battan. Univ. of Chicago Press, Chicago, Ill., 1959. 172 pp. \$6.

Radioisotopes for Industry. Robert S. Rochlin and Warner W. Schultz. Reinhold, New York; Chapman & Hall, London, 1959. 200 pp. \$4.75.

Ramification Theoretic Methods in Algebraic Geometry. Shreeram Abhyankar. Princeton Univ. Press, Princeton, N. J., 1959. 105 pp. \$2.75.

Recent Progress in Hormone Research. Proceedings of the Laurentian Hormone Conference 1958. vol. 15. Gregory Pincus, Ed. Academic Press, New York, 1959. 520 pp. \$12.50.

Seventh Symposium (International) on Combustion. At London and Oxford, 28 August-3 September 1958. Published for the Combustion Institute, by Butterworths, London, 1959. 1005 pp. \$35. Contents: pt. 1, "Mechanism of combustion reactions"; pt. 2, "Spectroscopy of flames"; pt. 3, "Ionization in flames"; pt. 4, "Structure and propagation of flames"; pt. 5, "Ignition and limits of inflammability"; pt. 6, "Interaction of flames and surfaces"; pt. 7, "Turbulence in flames"; pt. 8, "Combustion in practical flowing systems"; pt. 9, "Detonation and its initiation"; pt. 10, "Special fuels"; pt. 11, "Instrumentation in combustion research." There were 254 participants from Great Britain, United States, Germany, France, Belgium, Netherlands, Canada, U.S.S.R., Japan, Spain, Sweden, Africa, Australia, Poland, Hungary, Liechtenstein, Norway, and Yugoslavia.

Simple Methods of Contraception. An assessment of their medical, moral, and

social implications. Winfield Best and Frederick S. Jaffe, Eds. Planned Parenthood Federation of America, New York, 1959. 63 pp.

The Technology of Printed Circuits. The foil technique in electronic production. Paul Eisler. Academic Press, New York, 1959. 415 pp. \$12.

Textbook of Toxicology. Kenneth P. DuBois and E. M. K. Geiling. Oxford Univ. Press, New York, 1959. 313 pp. \$6.50.

Theoretical Organic Chemistry. Papers presented to the Kekule Symposium. Butterworths, London, 1959. 315 pp. \$9.50. The symposium, organized by the Chemical Society on behalf of the Organic Chemistry Section of the International Union of Pure and Applied Chemistry, was held in London, 15-17 September 1958. The 19 papers published in this volume provide the full proceedings of the symposium.

Transplantation of Tissues. Skin, cornea, fat, nerves, teeth, blood vessels, endocrine glands, organs, peritoneum, cancer cells. vol. 2. Lyndon A. Peer, Ed. Williams & Wilkins, Baltimore, Md., 1959. 703 pp. \$20.

Turbulent Transfer in the Lower Atmosphere. C. H. B. Priestley. Univ. of Chicago Press, Chicago, Ill., 1959. 137 pp. \$3.75.

When Negroes March. The march on Washington movement in the organizational politics for FEPC. Herbert Garfinkel. Free Press, Glencoe, Ill., 1959. 224 pp. \$4.

Reprints

Bees. Their vision, chemical senses, and language. Karl von Frisch. Cornell Univ. Press, Ithaca, N.Y., 1958 (reprint of ed. 1, 1950). 128 pp.

Conceptual Thinking. A logical inquiry. Stephan Korner. Dover, New York, 1959 (republication of ed. 1, 1955). 309 pp. \$1.75.

From Euclid to Eddington. A study of conceptions of the external world. Edmund Whittaker. Dover, New York, 1959 (republication of ed. 1). 221 pp. \$1.35.

Experience and Nature. John Dewey. Dover, New York, 1959 (republication of ed. 2). 463 pp. \$1.85.

Philosophy and the Physicists. L. Susan Stebbing. Dover, New York, 1959 (republication of ed. 1, 1937). 311 pp. \$1.65.

The Philosophy of Space and Time (Philosophie der Raum-Zeit-Lehre, 1927). Hans Reichenbach. Translated by Maria Reichenbach and John Freund. Dover, New York, 1957. 311 pp. \$2.

The Primitive World and Its Transformation. Robert Fedfield. Cornell Univ. Press, Ithaca, N.Y., 1959 (reprint of ed. 1, 1953). 198 pp.

Science and Imagination. Marjorie Nicolson. Cornell Univ. Press, Ithaca, N.Y., 1959. 249 pp.

A Way of Life and Selected Writings of Sir William Osler. 12 July 1849 to 29 December 1919. Dover, New York, 1959 (reprint of *Selected Writings of Sir William Osler*, 1951). 298 pp. \$1.50.