brate erythrocyte proves to be a unit of variable size, the largest thirty or more times the diameter of the smallest. In rebuttal the authors might perhaps argue that this is the best of training in preparation for an economic and social order in which one must pass trippingly from one sliding-scale standard to another!

Like the illustrations which are selected from various vertebrates, the descriptions are to a considerable extent comparative as well. It is anticipated by the authors that certain of the descriptions given will not fit accurately the specific laboratory material used in a comparative course, but this is held to be advantageous inasmuch as it emphasizes variability. There is a certain magnificence in such authorial nonchalance which, thus disclaiming further responsibilities, places the comparative foundling so neatly on the doorstep of colleagues whom they set out to aid. But practically the outcome could scarcely be otherwise, and for college students the drawing of study material from comparative sources has too much in its favor to be discarded for the single-type approach. An excellent feature is the inclusion of a brief bibliography at the end of each chapter to call attention to representative original papers in the more accessible journals (mostly American) and to serve as starting points for more extended collateral reading. With but few exceptions these reference articles are in English—a matter of sound practical judgment since American college students are singularly incapable of making effective scientific use of the foreign languages over which they have labored so long in the classroom. A final chapter gives instruction in the fundamentals of histological technique.

This book should prove a useful and reliable aid to those teachers of general college courses who find it impractical to make use of a more ambitious text. If the average college student actually finished his semester in microscopic anatomy with a fair fraction of the contents of this book verified and digested, then his instructor would have ample reason for jubilation.

L. B. Arey
Northwestern University Medical School

ZOOLOGY

Three books published during the year 1935 have been received for review. These include a condensed outline of biology, a new and original general textbook of biology and a laboratory manual.

An Outline of General Biology. By Gordon Alexander. vii + 181 pp.; Barnes & Noble, New York, $0.75.

This little outline reminds one of Selenka's Taschenbuch. It begins with a well-executed "quick reference table to standard text-books," which should be useful to students and teachers. There are four divisions in the body of the work: (1) life in its simplest forms, (2) multicellular organisms, (3) general principles and (4) human relations of biology. Two appendices are devoted to a rather unprogressive classification of plants and animals and a brief, carefully considered but at times inaccurate glossary. On the whole the outline is succinct, thoughtful, interesting, accurate, sensible and well written.

An Introduction to Biology. By Edward Loranus Rice. xii + 602 pp. Ginn and Company, Boston. $3.20.

This book, by a man who has for a generation been respected by zoologists as a successful teacher, is an excellent introduction. It has been written for the use of college students with the idea that "an elementary course in biology can not give a very extensive knowledge of fact; it can and should give an insight into the significance of biology and an appreciation of its spirit." The first three chapters discuss biology, protoplasm, cells, osmosis and other fundamental matters; seven chapters are devoted to man—life functions, alimentation, respiration, excretion, circulation, reproduction, motion, nervous functions and chemical coordination; eight chapters deal with the frog; and the remaining chapters are devoted to classification, earthworm, hydra, amoeba, unicellular plants, higher plants, comparison of plants and animals, food and oxygen cycles, evolution, heredity, variation, evidences and methods of evolution and human evolution. Three appendices include a table of equivalent weights and measures, a bibliography and etymologies for scientific terms. The book is the work of one who understands biology and loves students. It is original, thoughtful and well done.

Laboratory Guide in Animal Biology. By Robert H. Wolcott and Eugene F. Powell. vii + 101 pp. McGraw-Hill, New York. $1.00.

This is designed to accompany Wolcott's "Animal Biology." It is an unprogressive example of "type-study" ideals. Type animals from amoeba to frogs are described in order; with interpolated exercises on the microscope, maturation and embryology and mytosis. Detailed directions are given as to how students are to observe, dissect and draw. To the reviewer the guide seems to be rather poorly written. Such terms as "forms," "ones" and "highly developed" are often used loosely. As an example of careless thought the irrelevant questions under "Thigmotropic Responses" on page 31 may be cited. Perhaps a student in a scientific laboratory should have a chance at times to

perform a task according to his own judgment. He might then have his work graded and criticized on the basis of whether he had done a good or a bad piece of work or whether his ideals of scientific procedure were right or wrong. It appears that a student who used the present manual would get a high grade if he did "what teacher said."

A. S. PEARSE

REPORTS

AWARDS OF THE ELLA SACHS PLOTZ FOUNDATION

DURING the twelfth year of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation, seventy applications for grants were received by the trustees, thirty-four of which came from the United States, the other thirty-six from fifteen different countries in Europe, Asia and South and North America. The total number of grants made during this year was twenty-five, one of these being a continued annual grant. Twelve of the new grants were made to scientific men outside of the United States.

In the twelve years of its existence, the foundation has made two hundred and fifty-two grants, which have been distributed to investigators working in Argentina, Austria, Belgium, Canada, Chile, China, Czechoslovakia, Esthonia, France, Germany, Great Britain, Hungary, Italy, Jugoslavia, Latvia, Netherlands, Palestine, Poland, Portugal, Roumania, South Africa, Sweden, Switzerland, Syria, Venezuela and the United States.

The list of investigators and the purpose of their researches aided in the current year is as follows:

Professor E. Aubel, Paris, the synthetic reactions of the liver and their rôle in specific dynamic action.

Professor Dr. G. Barkan, Tartu-Dorpat, Esthonia, the biology of iron and iron metabolism.

Professor Marston Taylor Bogert, Columbia University, New York, New York, synthesis from *p*-xylene.

Dr. S. J. Crowe, the Johns Hopkins Hospital, physiology of the ear.

Dr. William Dameshek, Boston, blood pigment metabolism in lead poisoning.

Professor Dr. Philipp Ellinger, London, the kidney and vitamin B deficiency.

Professor Erdheim, Vienna, a special joint disease of dogs.

Professor E. Gelhorn, University of Illinois College of Medicine, Chicago, the influence of hormones and vitamins on phagocytosis.

Dr. W. Gohs, Vienna, the etiology of blood diseases and osteodystrophy fibrosa.

Dr. Arthur Grollman, the Johns Hopkins University, the adrenals; crystallization of the hormone.

Dr. F. Gudernatsch, New York University, growth.

Dr. I. F. Huddleson, Michigan State College, Brucella infection.

Dr. H. A. Krebs, Cambridge, England, the mechanism of ketogenesis and anti-ketogenesis.

Dr. Jean LaBarre, Brussels, extraction of incretine from duodenal extract.

Dr. Hans Lampl, Vienna, mechanical heat regulation in animals.

Professor O. Loewi, Graz, anterior lobe of pituitary and carbohydrate metabolism.

Dr. Charles C. Lund, Boston, the hormone intermedin.

Dr. Michel Magat, Paris, France, the hydration of ions.

Dr. John R. Murlin, University of Rochester, New York, the mechanism of secretion.

Dr. Yellapragada SubbaRow, Harvard Medical School, Boston, isolation of materials.

Thorndike Memorial Laboratory, Boston City Hospital, (Professor George R. Minot, director), continued since 1927 in recognition of Dr. Francis W. Peabody's services to the foundation.

Professor Dr. Ernst Wertheimer, Jerusalem, the relationship between free and bound glycogen in normal and pathological conditions.

Dr. Carl J. Wiggers, Western Reserve University, the dynamics of the coronary circulation.

Dr. William F. Windle, Northwestern University Medical School, the development of behavior in the embryo.

Professor Dr. Fritz Verzar, Basel, physiological research by Dr. Laszt.

The maximum size of the grants will usually be less than $500. Applications for grants to be held during the year 1936–1937 must be in the hands of the executive committee before May 1, 1936. They should be sent to Dr. Joseph C. Aub, Collis P. Huntington Memorial Hospital, 695 Huntington Avenue, Boston, Massachusetts, U. S. A.

SPECIAL ARTICLES

THE ABILITY OF RATS TO DISCRIMINATE BETWEEN DIETS OF VARYING DEGREES OF TOXICITY[1]

IT is a rather common belief that animals possess the ability to select foods most beneficial to them when a choice is offered. In an area where the forage possesses varying degrees of toxicity this ability would have tremendous significance. In certain districts in the great plains area, seleniferous vegetation probably occurs as an interspersion of vegetation of varying

[1] Published with the permission of the director of the South Dakota Agricultural Experiment Station as communication No. 21 from the Department of Experiment Station Chemistry, and is Part XIII of "A New Toxicant Occurring Naturally in Certain Samples of Plant Foodstuffs."