Energesis includes all metabolic processes by which energy is released. It occurs at all times in all living parts of all organisms.

Respiration includes all processes by which a gas necessary for energesis is taken into an organism, or by which a gas produced by energesis is expelled.

The relationship between respiration and energesis is that which exists between a draft and a fire. Respiration is generally but not universally associated with life. Photosynthesis, where it is proceeding at a perceptible rate, furnishes the one gas and removes the other by chemical processes taking place upon the spot; it makes respiration unnecessary.

MITOSIS AND CELL DIVISION

In most organisms, whenever the division of a nucleus approaches completion, the cell containing it begins to divide. Many biologists think of the division of the nucleus and that of the cell as inseparable, and apply the term mitosis to the entire process. There exist, however, a considerable number of examples of the separation of nuclear division and cell division. In cells of *Vaucheria* and *Rhizopus,* and in the endosperms of most seed plants, mitosis takes place repeatedly before any cell division occurs. Bacteria exhibit cell division in the absence of any process recognizable as mitosis. The term *karyokinesis,* construed as an exact synonym of mitosis, refers, etymologically, specifically to the nucleus. The following definition is perhaps tenable:

Mitosis or karyokinesis is nuclear division in the typical fashion, producing two nuclei of exactly the same genetic constitution (overlooking aberrations) as the original one.

The use of many other terms is open to discussion, but I forbear.

H. F. COPELAND

SACRAMENTO COLLEGE,
CALIFORNIA

THE POSSIBLE ROLE OF CHARA FRAGILIS IN MOSQUITO CONTROL

IN 1919 Caballero[1] in Spain published papers on the role of *Chara foetida* as a mosquito larvicide. In 1924 Barber[2] in the United States secured negative results with *Chara robinsii.* There has been considerable study of the subject, which was summed up in 1930 by Matheson,[3] who suggests that ingestion of oxygen bubbles given off by the plant may be injurious to mosquito larvae.

The writer has experimented with *Chara fragilis,* furnished by the botanical institute of Central University of Quito, and has used the five most common mosquito species of Ecuador. These are *Culex fatigans, Aedes aegypti, Aedes eupochamus, Anopheles albimanus* and *Anopheles pseudopunctipennis* var. *pseudopunctipennis.* Two of these species are malaria vectors, while one may carry yellow fever and dengue. Experiments with each of the five species were conducted in the same way, as follows:

(1) In an aquarium with growing *Chara fragilis* were placed 4 eggs; in another aquarium with hay infusion were placed 4 eggs. Normal hatching and development occurred in both.

(2) Four eggs were placed in a Chara infusion and compared with 4 in water. Normal development occurred in both.

(3) In the same way a water extract of fresh stems of Chara was compared with water, using 4 eggs in each for each species. Again development was normal in both media.

(4) Oospores of *Chara fragilis* were dried, crushed, mixed with yeast, and given to growing larvae of the first, second, third and fourth instars. These larvae developed normally, as did those in the check.

(5) Rotted stems of *Chara fragilis* were used in the same manner as the spore preparation, with the same results.

It may be noted that this Chara was found with other algae in pools where mosquitoes were breeding in nature. It was also noted that larvae ingested small particles of Chara, as Barber observed.

These experiments fail to indicate any pronounced controlling action of *Chara fragilis* against mosquitoes.

ROBERTO LEVÍ CASTILLO

ENTOMOLOGICAL SERVICE,
ARMY OF ECUADOR

SCIENTIFIC BOOKS

CLINICAL DIAGNOSIS

Clinical Diagnosis by Laboratory Examinations. By JOHN A. KOLMER. First edition, revised. xlii + 1247 pp. 78 figs. 137 tables. New York: D. Appleton-Century Company, Inc. 1944. $10.00.

THE material in this book is concerned primarily with two phases of the physician's contact with his patient; when he is trying to decide what laboratory examinations will aid in either diagnosis or prognosis and when he has received the laboratory report and

[1] A. Caballero, *Bol. R. Soc. Esp. Hist. Nat.,* 19: 449–455, 1919.

[2] M. A. Barber, *Pub. Health Repts.,* Washington, 39(13): 611–615, 1924.

[3] R. Matheson, *Am. Nat.,* 64: 56–86, 1930.

is seeking to interpret it in relation to other findings.

The subject-matter is presented in three parts. Part I (641 pp.) is entitled "The Clinical Interpretation of Laboratory Examinations" and includes a comprehensive discussion of the many laboratory examinations from the fields of hematology, biochemistry, physiology, toxicology, parasitology, bacteriology, immunology and mycology, which are a part of the armamentarium of modern medicine. Each subject is accompanied by a discussion of normal functions and values, to aid in the understanding of pathological variations. Naturally, much of this material is standard, but the author has drawn considerably on his own extensive experience for aid in interpretation, and there is much recent material on such subjects as hormones and vitamins, for example, which in general is of excellent quality and not readily available elsewhere.

In Part II (328 pp.), the many diseases for which laboratory data are of value are discussed briefly but individually, from the point of view of clinical characterization and relevant laboratory information. There is considerable repetition of material from Part I in this section, which is perhaps unavoidable.

Part III (142 pp.) presents the technique of certain of the more common laboratory examinations and is intended for use in the teaching of clinical pathology and in the smaller laboratories. This section was not meant to be extensive, nor is it; its scope can be illustrated by the chapter on quantitative blood analysis, which contains, in addition to the recent copper sulfate method of Phillips, Van Slyke, *et al.*, for determining specific gravity of whole blood and plasma, methods for the following: sugar, CO_2-combining power, urea nitrogen, non-protein nitrogen, the plasma proteins, bilirubin and the sulfonamides. Visual colorimetry is described; modern photometric procedures, which are now routine in many hospital laboratories, have been ignored.

A noteworthy feature of the book is the author's emphasis upon what may be called the "pre-laboratory" phase of a laboratory examination, *i.e.*, the proper preparation of the patient and collection of material. The author feels, and rightly, that too much laboratory information may be rendered valueless because of ignorance or neglect in this respect. Another feature is the many tables found throughout the book which summarize textual material; while these may be open to the criticism that they tend to make controversial material appear established, there is no question but that they are a great convenience when used intelligently. There is also an excellent and up-to-date bibliography for each chapter.

Those portions of the book which deal with fundamental biochemical material are in general quite unsatisfactory. The sections on acid-base balance (pp. 99–102, 850–853) will scarcely be of value to any one who does not already understand the subject; a portion of the treatment of alkalosis on page 100 appears to be missing entirely. In the discussion of nitrogen metabolism such statements as these are found: that creatinine is a product of endogenous protein metabolism (pp. 73, 107); that urea is one of the chief products of protein digestion as well as of protein metabolism in the tissues (p. 102); that it is a major source of urinary ammonia (p. 72), and that it is formed from ammonium carbamate (p. 107); and in the table on page 62 we are told that the creatinine content of the urine is independent of the diet, whereas on page 73 the true state of affairs is given. On page 103 we read that the fatty acid equivalent of ingested protein is 42 per cent. by weight, a value presumably obtained by subtracting 58 from 100.

These are small points, perhaps, in only one of the many fields covered by the author, but they represent the level of biochemical knowledge found throughout the book, and this level must be regarded as inadequate. It does not appear unreasonable to expect as high a degree of technical precision in any particular field embraced by the author's treatment as one should find in a specialized treatment of that field, even though the scope be necessarily limited.

The book is printed in type which is clear and easy to read, and the general typographical arrangement is excellent; typographical errors are not too numerous. Those who purchased the first edition of this book, which appeared in September, 1943, priced at $8.00, will be interested in knowing that no differences whatsoever have been noted between the two editions except in (a) price, (b) the inclusion in the revised edition of the specific gravity method mentioned above.

WILLIAM H. SUMMERSON

CORNELL UNIVERSITY MEDICAL COLLEGE

CHEMISTRY

Systematic Inorganic Chemistry. By DON M. YOST and HORACE RUSSELL, JR. New York: Prentice-Hall, Inc., publishers. 423 pp. $4.60.

PROFESSOR YOST and Dr. Russell have set out to write a book which is complete on the elements discussed—nitrogen, phosphorus and the oxygen group—and have succeeded notably. "Systematic Inorganic Chemistry" will undoubtedly remain the standard reference text in its field for many years. By critical