Book Reviews

A Dictionary of Antibiosis. Compiled by Leonard Karel and Elizabeth Spencer Roach. New York: Columbia Univ. Press, 1951. 373 pp. $8.50.

The word antibiotic has, during the past decade, been employed with connotations ranging from its literal meaning through all shades of modification to the highly restricted meaning frequently used. The authors have chosen to use a liberal, rather than the literal, interpretation of the term and define an antibiotic as "a substance derivable from living organisms and capable of adversely modifying the vital functions of specific microorganisms."

A Dictionary of Antibiosis consists of an alphabetical list of members of both the plant and animal kingdoms, macroscopic and microscopic, that have been tested for antibiotic activity, the named antibiotic substances they produce, and the microorganisms used in the demonstration of the reported antibiotic activity. Under each entry is a short statement concerning, in the case of an antibiotic, its source, isolation, empirical or proposed structural formula where known, antibacterial activity, and toxicity; in the case of a plant, animal, or microorganism tested for antibiotic activity, the substance produced or a statement that no activity was demonstrated. Statements are keyed to bibliographic references at the end of each entry; these in turn are keyed by year (and letter where necessary) to the alphabetically arranged bibliography occupying the last 55 pages of the volume.

One gets the impression from using this dictionary that the authors have been lax in consulting and noting the earlier literature of antibiosis, and at times they are inconsistent in their listings. The antibiotic asiaticoside is listed with the unsatisfactory: "see *Centella asiatica.*" Under this entry one finds that *Centella asiatica* is a higher plant, derivatives of which are used in the treatment of leprosy, from which asiaticoside, centelloside, asiatic acid, centoic acid, and centellic acid have been isolated. The fact that asiaticoside is a glucoside consisting of two D-glucose and two L-rhamnose moieties bound to a triterpine acid, asiatic acid, is not mentioned, nor is the reported antitubercular activity, both *in vitro* and *in vivo,* of a water-soluble derivative, although this was published in a readily available journal. The entry opposite this, however, gives the empirical formula, fusing point of the crystals, method of extraction, and "spectrum" of a plant antibiotic of apparently no therapeutic value. Lupulon and humulon were reported as antibiotics 11 years prior to the earliest reference noted by the authors. Horseradish was shown prior to 1941 to contain a volatile antibiotic, allyl isothiocyanate, active against the colon bacillus and the human tubercle bacillus; the antifungal activity of the isothiocyanates had been shown three years previously. The reference under horseradish, however, is to a 1944 paper showing "extracts of which are ineffective *in vitro* against *Staphylococcus aureus, Escherichia coli, Phytomonas campestris* and *Ph. phascoli.*"

The task of the lexicographer is ever exacting, and the value of his labors is measured by the degree of exactness attained. Several dictionaries (or handbooks, if you will) of antibiotics have appeared, each succeeding one more ambitious than its predecessor and, in general, more valuable. The present dictionary is by far the most ambitious, and it is to be regretted that the success in dealing with the "words of antibiosis" is not commensurate with the scope of the work. It is, nevertheless, the best book on the subject yet to appear.

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Genetics in the 20th Century. L. C. Dunn, Ed., for The Genetics Society of America. New York: Macmillan, 1951. 634 pp. $5.00.

Celebration of the first half century of genetic research, and the publication of this volume as evidence thereof, serve a triple purpose in addition to paying homage to Gregor Mendel. First, the entire volume reminds us that great and significant facts can remain long unrecognized, as Mendel's did for 35 years, before their sudden impact jolts us into new ways of thought and action; it contains a profound lesson in humility and tolerance at a time when these virtues are judged vestiges of a bygone era. Second, each paper in the volume, by pointing with unconscious pride at achievements already made, serves to justify and to reaffirm our faith in the principle of truth established by verification at a time when the principle, particularly as it applies to genetics, is under ideological attack. And, third, each paper is also evidence that, despite the great advances made, and the far-reaching influence genetics has had on biological and philosophical thought, our knowledge of heredity is still fragmentary.

In the 26 papers presented, the reader will gain the impression that genetics has already become a central core of thought, penetrating, illuminating, and enriching many other fields of human endeavor and interest. Nevertheless, as a discipline, genetics has no vested interests it seeks to preserve, no dogma it wishes to perpetuate. Its very dynamism precludes such attitudes. To the continued credit of Mendel, it might be pointed out that one of the few seemingly certain facts of genetics that has withstood repeated scrutiny is Mendelian segregation, and, as subsequently shown by other workers, its physical relationship to the chromosomes. The fundamental unit of heredity—singly as the gene and collectively as the chromosome—is still very much an unsolved problem in its physical and chemical structure and its mode of action in development. Its role in evolution has only recently been put