Methods of Biochemical Analysis. vol. I. David Glick, Ed. Interscience, New York, 1954. x + 521 pp. Illus. $9.50.

There are few research areas in biochemistry that do not have their own special experimental procedures. Indeed, it has been necessary, in many cases, that the development of adequate methods precede other significant advances. Hence, in the last decade or so, biochemistry has been characterized by the development of many new and versatile research tools. In turn, the value of these has been well demonstrated during the consequent marked evolution of biochemical knowledge. As Glick points out in the preface, with respect to the latter phase of this sequence of events, "Annual review volumes . . . have proved their value repeatedly and are now widely used and well established." It follows that biochemists will welcome the appearance of the first review designed to keep them familiar with the ever-increasing number of new methods as well as with new refinements and applications of older methods.

Two aspects of *Methods of Biochemical Analysis* are worthy of particular note. The first is the variety of methods discussed. Many of them are amenable to much wider application than is implied by the use of the word *analysis* in the title. The methods discussed in chapters entitled "Zone electrophoresis," "Chromatographic separations of steroids of the adrenal gland," and "Ultracentrifugal analysis of serum lipoproteins," to cite only a few examples, are appropriately described as analytic only in the broadest, and perhaps not the usual, sense of the word. The second notable aspect is a feature rather unique to the review under discussion. More typical review arrangement would have included the subject matter of the last two chapter titles in broader discussions of chromatography (or at least chromatography of steroids) and ultracentrifugal analysis. In fact, "Zone electrophoresis" is the only chapter title that mentions the method discussed without further restricting it to a particular type of compound, and in many cases chapter titles are further restricted to compounds of a given source, as illustrated at the beginning of this paragraph. Other examples of this use of very restrictive chapter titles are "Determination of sulfhydryl groups in certain biological substances," "Microbiological assay of vitamin B_{12}," "Analysis of mixtures of sugars by paper and cellulose column chromatography," and "Chromatographic analysis of radioactive iodine compounds from the thyroid gland and body fluids."

The first impression that results from these aspects of the review is that it would be more appropriately entitled "Biochemical Methods" and that the chapter titles should be a little more general. There is, however, a favorable consequence of this new approach that may well outweigh its disadvantages. This is illustrated in the introduction of the chapter entitled "Analysis of phenolic compounds of interest in metabolism." Here it is explicitly stated that "Only those methods with which the authors have had personal experience have been described in detail." The editor's choice or acceptance, as the case may be, of relatively restricted topics for review permits the authors to write from firsthand experience. This makes for short, clear, and concise chapters and allows the inclusion of valuable and reliable experimental details.

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Biochemistry and Physiology of Nutrition. vols. I and II. Geoffrey H. Bourne and George W. Kidder, Eds. Academic Press, New York, 1953. vol. I, xiii + 569 pp. Illus. $13. vol. II, xi + 641 pp. Illus. $15.

This concise treatise was written by 14 British, Scottish, and Australian scientists and by 14 scientists living in the United States. All the authors and editors have made important research contributions in their fields of specialization. The two volumes are primarily concerned with the basic metabolic functions of animals because these "have assumed a definite and indispensable place in the science of nutrition." There are 23 chapters, and approximately nine of them are essentially in the category of fundamental biochemistry. Substantially all of the others follow the usual nutritional pattern for discussions of dietary essentials and factors affecting their utilization, but in many of these chapters there is also emphasis on the roles of food components in metabolic reactions.

The major topics include a review of the early history of nutrition, history of vitamins, water and electrolyte metabolism, biochemistry of amino acids, carbohydrate metabolism, lipid metabolism, biosynthesis of protein, concise review of fat-soluble vitamins, vitamin-B complex, vitamin C, vitamins and hematopoiesis, structural changes in vitamin deficiency, microbiology of the alimentary tract, nutrition of invertebrate animals, biological oxidations, extensive discussions of enzymes and coenzymes, and brief reviews of iron metabolism and of calcium and phosphorus metabolism. There is a comprehensive chapter on trace inorganic elements. The treatise is concluded with a chapter of 75 pages on "Application to human nutrition," written by Grace A. Goldsmith. The "biochemistry" and the "nutrition" are about equally divided in each of the two volumes.

The editors assert that the authors were allowed a large measure of independence in the development of their chapters. This is evident in the considerable repetition of subject matter and in the fact that many relevant topics either were not included or were treated with undue brevity. For example, there is no reference to relationships between nutrition and cataracts of the eyes except for brief mention of cataracts referable to riboflavin deficiency or resulting from the administration of ascorbone. Although there are many papers on the relationships between fat utilization and melting point, length of the fatty-acid chains, and so forth, this subject is not mentioned. Nevertheless, the two

volumes contain a great wealth of valuable information for all categories of nutritionists and especially for those who are concerned with enzymology and intermediary metabolism. The discussions are extensively documented with tables, figures, and references to the literature. In general, the writing is clear, readable, and remarkably free from errors. The organization and format are good. All students of the science of nutrition in its many aspects will find the treatise of much value.

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Dvorine Pseudo-Isochromatic Plates. Israel Dvorine. Israel Dvorine, 2328 Eutaw Place, Baltimore, Md., ed. 2, 1953. $12.

This is a conventional type of color-vision test, identical in principle and similar in appearance to earlier pseudo-isochromatic plate tests, such as those of Stilling, Ishihara, and the American Optical Company. By way of explanation, it may be noted that a pseudo-isochromatic plate is a figure and ground composed of many small disks or dots of irregularly varied color and size; ideally, there is enough hue difference between the figure and ground to permit the color normal to distinguish the figure but not enough for the color blind.

The Dvorine test plates are assembled in a six-ring binder between hard covers about 7 in. square. The first section contains 15 number plates, including a demonstration plate with a number anyone can read. The second section, headed "Alternate testing plates," contains eight trial plates in which the figure to be identified is not a number but rather an irregular path to be traced by the testee. The sections of plates are preceded by instructions regarding illumination and administration and a sample score sheet. Incorrect responses to three or more plates of the first section or to two or more plates of the second section are said to indicate defective color vision.

An advantageous detail that is not found in most tests of this type is the loose-leaf binder, which permits rearrangement of the plates to baffle malingerers. The similarity of the dot patterns on all plates is designed to provide another stumbling block for the unscrupulous. Such devices augment the difficulty of responding to secondary criterions rather than to the test figures themselves. On the other hand, the Dvorine test lacks a valuable diagnostic feature of the Ishihara test, namely, the double identification plate. Such a plate is difficult to produce, but it affords the double check of presenting different figures that are readable, respectively, by persons with normal color vision and those with abnormal color vision.

The Dvorine test is similar to the new edition of the Ishihara test in respect to an especially important limitation—there remains to be published validation data to demonstrate whether or not, or how well, the test does detect defective color vision. In view of this limitation, several of the deviser's representations cannot be accepted, at least at the present time. They include the assertions that this is the most sensitive test yet devised for red-green color blindness, that certain specific critical scores (mentioned earlier) separate the normals from the color weak, and that as few as two or three plates suffice to diagnose specific protanoid and deuteranoid types.

A review of a test can scarcely be of value to readers interested in using tests unless it provides some indication of validity. Therefore, I sought to secure, by reference to a few unpublished data, some advance idea of what a proper validation of this test might eventually reveal. Number-plates tests of 47 color-deficient and 16 normal subjects (most of which were made by Louise Sloan and others at Eastman Kodak Company) seem to indicate that the Dvorine test compares quite favorably with better tests of this type. There was only a single case of misclassification and this particular case also had given trouble in other plate tests.

The relationships between the first and second editions are not without interest. The present edition includes four plates that, to persons with normal vision, appear to be essentially identical to the plates in the first edition. All the present plates, however, are said to be new printings. A more significant point, perhaps, is the fact that the first edition was associated with an abortive effort to improve color vision by training, whereas the present edition is presented simply as a test of color vision without any claim to a special capacity to modify the testee's status. As such, it may well prove to be a satisfactory screening test.

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Sea-Birds. An introduction to the natural history of the sea-birds of the North Atlantic. James Fisher and R. M. Lockley. Houghton Mifflin, Boston, 1954. xvi + 320 pp. Illus. + plates. $6.

This is a review of the sea-birds that nest on the shores of the North Atlantic from the Arctic Ocean to the equator, with special reference to their habits and place in nature. All must lay their eggs on land, and many do so in spectacularly crowded colonies at some favorable spot. The characters of at least their major nesting stations on the circumference of the North Atlantic, and the species pertaining to each, are considered, with somewhat greater emphasis on the northeast quadrant of the ocean, which is presumably most familiar to the authors.

A chapter on "Sea-birds, numbers and man" shows that man is their greatest enemy and introduces data on which the conservation of sea-birds may well be based. A companion chapter on "What controls the numbers of sea-birds?" sets forth the argument that food supply is the chief factor, and it undoubtedly is an obvious and very important factor and states that species, however closely related, when successful