# Book Reviews

***Advances in protein chemistry.*** (Vol. 3.) M. L. Anson and John T. Edsall. (Eds.) New York: Academic Press, 1947. Pp. xii + 524. (Illustrated.) $7.50.

This third volume, like its predecessors, contains thorough and critical reviews by specialists of some of the fields of protein chemistry which have been particularly explored during the past few years.

In "The Chemical Determination of Proteins," P. L. Kirk discusses the physical and chemical methods used and emphasizes *inter alia* the pitfalls that can be encountered in the uncritical use of the Kjeldahl method for nitrogen in one or another of its innumerable modifications and the uncertainty of results obtained with salt fractionation of protein mixtures. This review is complemented by that of Max S. Dunn and Louis B. Rockland, "The Preparation and Criteria of Purity of the Amino Acids," which contains also a section on the synthesis of amino acids containing isotopic atoms. Particularly useful are the tables on the specific rotations, resolution, and solubilities of the amino acids, the Van Slyke nitrous acid and ninhydrin manometric methods, and the paragraphs on the semimicro Kjeldahl determinations. A table of references for microbiological determinations is also given.

Roger M. Herriott reviews the "Reactions of Native Proteins With Chemical Reagents" in oxidation, reduction, alkylation including the mustards and 2,4-dinitrofluorobenzene, acylation, deamination, diazotization, etc. Henry B. Bull presents "Spread Monolayers of Protein," primarily from the physical standpoint, while Alexander Rothen, in "Films of Protein in Biological Processes," reviews film transfer, spreading, enzyme films, immunological reactions, and his own results in studying plastic-covered protein films. Arne Tiselius, in "Adsorption Analysis of Amino Acid Mixtures," contributes a detailed discussion of the techniques and methods developed in his laboratory.

Anthony A. Albanese reviews "Amino Acid Requirements of Man," and Robert Elman, "The Use of Protein and Protein Hydrolyzates for Intravenous Alimentation." Both authors, however, seem to have overlooked an added use of protein hydrolyzates in the treatment of the hypoaminoacidemic crises of nephrotic children.

Leonor Michaelis discusses "Ferritin and Apo-Ferritin," and Alexander E. Braunstein reviews "Transamination and the Integrative Functions of the Decarboxylic Acids in Nitrogen Metabolism." The concluding article, "The Plasma Proteins and Their Fractionation," by John T. Edsall, is the most complete summary to date on the plasma proteins, their fractionation, physical properties, amino acid composition, and functions.

The great value of this book is enhanced by the very complete bibliographies and subject and author indexes.

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***A bibliography of birds: with special reference to anatomy, behavior, biochemistry, embryology, pathology, physiology, genetics, ecology, aviculture, economic ornithology, poultry culture, evolution and related subjects.*** Reuben Myron Strong. Chicago: Field Museum of Natural History, 1939 (Pts. 1 and 2), 1946 (Pt. 3). Pp.464; 469; 522.

This is a monumental work for which no praise is too great. When one reads the subtitle above, one wonders if anything has been omitted. And when one has leafed through Parts 1 and 2 (including rules and symbols employed, key list of abbreviations for periodicals cited, list of periodicals not cited but related to birds, and author catalogue of references) and has searched through Part 3 (Subject Index), he is convinced that no effort has been spared to provide the investigator with everything of value (except distribution, and systematics or classification). And yet no one knows better than the former editor of Vol. III of the *Bibliography of fishes* how impossible it is to get all the citations. No bibliography is ever finished. But for all this, Dr. Strong's *Bibliography of birds* will be the sure and solid foundation on which avian bibliographers will build in the long future.

Years ago, when Dr. Strong first conceived the idea of a bibliography of birds, the reviewer's advice was asked as to the method of procedure. It was suggested that he take the *Bibliography of fishes* (imperfect as it would be found in places) as a guide and that he improve on this work wherever possible. This Dr. Strong has done.

In the front of Part 1 is a key list of abbreviations for periodicals cited, with the names of the periodicals printed in full. This section standardizes the abbreviations and is of great help to beginners and to any who have to do with little-known journals.

When one comes to look up a citation one finds the surname of the author in bold-faced type and his given names in italics, set in a line on the left by themselves. In the vertical line below the surname is the date of each article, also set in boldface. Having author and date of publication in a vertical line on the left, it is easy to pick out the article wanted. If more than one article has been published in one year, these are indicated as 1910a, 1910b. Had these been set 1910.1, 1910.2, as in the *Bibliography of fishes*, they would look better and, with the period separating the 1 from the 1910, would be more easily read. Then too, at outer top of right and left pages are abbreviated guide names in boldface. It would have been better to have put the full name.

Another improvement of great value is the appearance at the end of certain book or journal references (if these are rare or little known) of such hieroglyphics as IJC, etc. Reference to pages 12 and 13 of Part 1 gives the name of the library in which the rare book or journal may be found. This will be of inestimable value to a host of users.

If, as we often hear said, bibliography is the sound basis of all research, then Parts 1 and 2 may be likened to a great

storehouse of learning. Part 3, the Subject Index, is the guide to the particular shelves on which the wished-for data may be found. Here are segregated in alphabetical, chronological order the references to any particular bird, organ, or subject in which the researcher is interested.

But such an extensive warehouse must have a chart or guidebook to help the seeker. This, the Subject Index covering 522 pages, is the most extensive and elaborate known to the writer. The major headings have subdivisions, the latter have their subdivisions, and so on. Evidently Dr. Strong has not depended on the titles for indexing, but has looked up the articles themselves. This prolonged search will explain the multiple or cross references to many articles and books. The use of bold-faced type for the year of publication of an entry (with or without an asterisk) indicates an outstanding article, generally with extensive citation of literature.

One has to work over the Subject Index, however, to realize its thoroughness and its complexity. So great are these things that an alphabetical Finding Index is a necessary key for unlocking the door to the great wealth of the vast and complicated Subject Index. Such an index, now in preparation, is to be published as Part 4. When this has been accomplished and the treasures of this great work made easily available, it will be seen that this is surely *the* Bibliography of Birds, the most valuable tool ever forged for students of ornithology and an imperishable monument to the labors of the author.

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***Organic analytical reagents*** (Vol. I.) Frank J. Welcher. New York: D. Van Nostrand, 1947. Pp. xv + 442. $8.00.

The use of organic substances as reagents in inorganic analysis dates back to the early days of chemistry; indeed, almost 2,000 years ago Pliny tested for iron with papyrus soaked in a solution of nutgalls. This test for iron is still used in vinegar works, although filter paper, cotton, etc. replace the papyrus. It was not, however, until 1905, when Tschugaeff introduced dimethylglyoxime as a specific and highly sensitive reagent for nickel, that the significance of organic analytical reagents was strikingly brought to the attention of chemists. Since 1905, especially during the past two decades, many new organic reagents have been discovered and improved techniques have been developed. In addition to serving as specific or selective reagents in gravimetric and colorimetric analysis, organic compounds have many other uses in analytical procedures, serving as solvents, dry extractants, concentrating liquids, wash liquids, buffers, oxidizing and reducing agents, protective colloids, flocculating agents, stabilizers for certain reagent solutions, coupling agents, primary standards, pH indicators, etc.

*Organic analytical reagents* is to be published in four volumes, making available in one place a description of all organic compounds employed in making analyses as well as laboratory directions for their use. Volume I includes Chapters on: "The Electronic Theory of Valence" (5 pp.), "Coordination Compounds" (11 pp.), "Chelate Compounds" (9 pp.), "Types of Chelate Rings" (17 pp.), "The Effect of Structure on Solubility" (7 pp.), "Hydrocarbons" (13 pp.), "Substitution Products of Hydrocarbons" (7 pp.), "Alcohols" (50 pp.), "Phenols" (71 pp.), "Miscellaneous Phenolic Compounds" (36 pp.), "Amino Phenols" (16 pp.), "Phenol Sulfonic Acids" (20 pp.), "8-Hydroxyquinoline and Its Derivatives" (81 pp.), "Azo Derivatives of 8-Hydroxyquinoline" (13 pp.), "Ethers" (15 pp.), "Aldehydes" (19 pp.), and "Ketones" (35 pp.). The book concludes with an index of names and synonyms of organic reagents and one on their uses, arranged alphabetically under the element or radical for which they are employed.

The volume is conveniently arranged for ready reference. The formula, molecular weight, Beilstein reference, properties, and method of preparation are given for each reagent, as well as references to the original literature.

In the first printing of a work of this nature and scope it is difficult to avoid errors. The following are representative of those noted. In Table 5 (p. 22) the bond angles for 8-membered rings should be $-25° 32'$ and $-21° 35'$ for zero and one double bond, respectively, and $-9° 44'$ for four double bonds; for 9-membered rings with four double bonds the value is $-16° 29'$. On page 21. third paragraph, three of the bond angles for 7-membered rings are incorrect; the correct values are given in Table 5. On page 249, the molecular weight of $(HO_3S)_2$-$C_6H_2(OH)_2$ is given as 358.2; the correct value is 270.23. Actually, the monohydrate of the disodium salt of this acid is employed, and its molecular weight is 332.2. The sensitivity of this reagent for titanium (p. 251, line 5) should read: "1 part of titanium in 100,000,000 parts of solution . . . ."

The great number and variety of organic compounds offers one of the most promising sources for new and better analytical reagents. Volume I of this series is a valuable addition to the reference works in this interesting field of analytical chemistry and, together with the three succeeding volumes, will make a most useful treatise on organic analytical reagents.

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## *Scientific Book Register*

COLIN, EDWARD C. *Elements of genetics.* (2nd ed.) Philadelphia-Toronto: Blakiston, 1947. Pp. xiii + 402. (Illustrated.) $3.50.

EIDINOFF, MAXWELL LEIGH, and RUCHLIS, HYMAN. *Atomics for the millions.* New York-London: McGraw-Hill, 1947. Pp. xiv + 281. (Illustrated.) $3.50.

MARKLEY, KLARE S. *Fatty acids: their chemistry and physical properties.* New York: Interscience, 1947. Pp. x + 668. (Illustrated.) $10.00.

MICHENER, WILLIAM H. *Physics for students of science and engineering.* New York: John Wiley; London: Chapman & Hall, 1947. Pp. x + 646. (Illustrated.) $4.25.

RIDENOUR, LOUIS N. (Ed.) *Radar system engineering.* New York-London: McGraw-Hill, 1947. Pp. xviii + 748. (Illustrated.) $7.50.