

substances." The introduction of this new term seems rather unfortunate. It might lead to some confusion, since the term "steroid," introduced only a few years ago, refers already to the derivatives of cyclopentenophenanthrene in general.

"The Chemistry of the Sterids" is not a textbook, but a handbook; it is a combination of a "Houben-Weyl," "Landolt-Börnstein" and "Beilstein" of steroid chemistry. The author has undertaken the laborious task of selecting from almost countless papers all the facts concerning the chemistry of steroids, and presenting them in a logical and readable form.

After an introductory chapter on the history of the chemistry of "sterids," the author deals with the various methods of structural research, steric considerations, the chemical properties of naturally occurring steroids and of carcinogens, and molecular compounds. Over 400 structural formulas, which have been brought together on 46 separate pages, serve to illustrate the text.

Then follows a compilation of the physical properties of steroids. This includes much invaluable and interesting information, such as, for instance, a complete list of the known absorption spectra of steroids and references to steroid crystallography.

The bulk of the book, 336 pages, is taken up by the "Beilstein" section, "a classified catalog of sterids and their derivatives recorded before January 1, 1937." Here over 3000 substances have been arranged according to a very ingenious system which should appeal to all investigators in this field. A very fine bibliography, covering over 60 pages, has been added.

Because it is essentially a handbook, this work cannot be recommended to serve as an introductory text to a student possessing only a scant knowledge of the complexities of steroid chemistry. However, it will be welcomed as an invaluable source of information by those investigators who have more than a passing interest for this field of research. The author deserves their gratitude for this compilation, which will save them many hours of search through an endless literature.

WERNER BERGMANN

Perspectives in Biochemistry. Thirty-one Essays Presented to Sir Frederick Gowland Hopkins by Past and Present Members of his Laboratory. Edited by JOSEPH NEEDHAM and DAVID E. GREEN. Cambridge University Press: The Macmillan Company, 60 Fifth Avenue, New York, N. Y., 1937. ix + 361 pp. Illustrated. 14.5 × 22.5 cm. Price, \$4.75.

Scientific writing for the most part finds its way into journals whose reputations depend increasingly upon the size of their circulation and speed of publication. The exigencies of price curtail space and individual literary style is perforce sacrificed to a crisp staccato manner, highly satisfactory to enable large numbers of people rapidly to digest the contents of an article. Excellent from this point of view, there is little room for historical perspective, for philosophical rumination, or for guarded speculation. Although journals given over to reviews take care of the first need, rumination often becomes a private feast, and speculation is left for those who, having eschewed science

for journalism, can assure the eager and expectant public precisely what kind of a world this will be fifty years hence.

Among the amenities left to men of science is the pleasant habit of dedicating volumes to those they revere, especially their old teachers. But the Festschrift, or jubilee volume, has tended, with the rest of scientific writing, to be a collection of papers written by colleagues or students in the same style, and often in the same journals to which they normally contribute. The book which we are reviewing is not in this tradition. It is not a collection of reprints from scientific journals. It is a series of essays in which each author has taken time "to speculate a little on the likely paths of future thought and discovery."

The value of this volume depends upon the backgrounds and scientific insight of the contributors. All have at one time or other been students of, or associated with, Sir Frederick Gowland Hopkins. Of the thirty-one essayists many have international reputations gained from important experimental studies. Writing in this book to honor Sir Frederick they are in festive mood. Instead of dedicating to their great teacher their last paper they have sent him their most far reaching thoughts regarding the significance of their work. The result is arresting. It is good to know what R. A. Peters thinks of "Proteins and Cell-Organization." J. D. Bernal contributes "A Speculation on Muscle." Szent-Györgyi writes on "Oxidation and Fermentation," and N. K. Adam on "Molecular Forces, Orientation and Surface Films." Sir Edward Mellanby writes on "Toxamins in Food," and A. J. Clark on "Drugs and Mankind." The remainder of the thirty-one essays are no less varied in subject matter or treatment. Although this would be a break with the practice of exempting those honored from contributions, one cannot help wishing that this very catholic volume also contained an essay by Sir Frederick Gowland Hopkins on "Perspectives in Biochemistry."

EDWIN J. COHN

The Chemistry and Technology of Rubber Latex. By C. FALCONER FLINT, Ph.D., D.I.C., A.I.C., A.R.C.S., B. Sc., Imperial Chemical Industries, Ltd. Foreword by Lt. Colonel B. J. EATON. D. Van Nostrand Co., Inc., 250 Fourth Ave., New York, N. Y., 1938. xx + 715 pp. Illustrated. 16 × 24 cm. Price, \$14.00.

There are few people who by actual training are so well equipped to write a book on the chemistry and technology of rubber latex as is Dr. C. Falconer Flint. For many years a staff member of the Rubber Research Institute, of Malaya and now in charge of latex research and development with the Imperial Chemical Industries, Ltd., he combines personal experience of the raw material and its technical application. Although in the preface the author states that he used G. Génin's book "Chimie et Technologie du Latex de Caoutchouc" as a framework, he has not only brought this compilation up to date but has added freely to it, which justifies the reviewer to consider Flint's book as the outstanding contribution to the science and technology of rubber latex which has been written in English.

The first parts of the book present a short historical survey of the development of rubber plantations and earlier work on latex research. Then follows a discussion of the

rubber trees, the physiology and formation of latex and its production. These chapters clearly show the earmarks of the present author. The composition and properties of latex are carefully worked out contributions followed by detailed discussions of latex coagulation, preservation, and concentration. In the latter chapter the latest process of concentration by electrodecentration has not yet been included.

The chapter on compounding of latex discusses in great detail dispersing agents for latex compounds and offers a series of such materials as examples. It is interesting to note that sulfonic acid derivatives of organic compounds are not mentioned, although today their extreme efficiency is an established fact.

In the discussion on the use of sulfur we find the statement that colloidal sulfur generally consists of an aqueous suspension containing from 50–60% dry matter, the particle size being several microns. Although this is a frequent misnomer, the reviewer feels that it should not be found in a scientific treatise. Disperse sulfur is the correct term.

The section treating accelerators can safely be considered as an entirely new contribution and should prove very helpful to every latex compounder. From the point of view of an impartial reviewer, it would have been commendable had somewhat more attention been given to accelerators and other special compounding ingredients placed on the market by other manufacturers than I. C. I.

Referring to the vulcanization of latex and specifically to the Vultex process, Dr. Flint makes it clear that in his opinion, also, the addition of ultra-accelerators to latex which results in a certain degree of vulcanization upon storage cannot be considered as a patent infringement. This is in accord with a recent decision by Judge Brewster in the District Court of Massachusetts, U. S. A.

Other chapters are devoted to the technical application of latex, such as dipping, impregnation of fibers and fabrics, latex thread,¹ sponge rubber, microporous rubber, moulded rubber goods, latex bonded hair, the use of latex in the paint and varnish industry. There are also chapters on adhesives, its use as an anti-corrosive coating, as a binder in the manufacture of brake-linings and abrasives, its application in can sealing, the production of artificial leather, its use in the insulation of cables, as an ingredient for road or floor coverings, and other constructional applications.

The last chapter is concerned with the physical testing of latex rubber and the production of artificial rubber dispersions and synthetic latices.

Dr. Flint's new book deserves high praise from all those interested in latex who wish to keep currently informed on the rapid development in this field. The author has taken pains to have literature and patent references as complete as possible in such a type of book. It may be deplored that the book followed the American custom of adding the references at the end of every chapter, instead of in the form of pagewise footnotes, as this is a disadvantage to the majority of readers.

The print of the book is easy to read and well set. From a detailed survey of the numerous figures and plates,

among which the reviewer could not help noticing those copied from certain publications of his own, the reproductions of this book must be considered excellent. There are practically no typographical errors. The subject index needs amendment if the book is to be of value for quick reference. However, these minor objections are by way of constructive criticism only. The book as a whole is highly recommendable.

ERNST A. HAUSER

Die Korrosion von Nichtisenmetallen und deren Legierungen. (The Corrosion of Non-Ferrous Metals and their Alloys.) Edited by Prof. Dr. Phil. OTTO KRÖHNKE, Berlin-Schlachtensee, and Prof. Dr. Phil. GEORG MASING, Göttingen. Verlag von S. Hirzel, Königstrasse 2, Leipzig C 1, Germany, 1938. xxx + 901 pp. 409 figs. 17.5 × 25 cm. Price, RM. 66.50; bound, RM. 69.

This, the second volume of a series of four [see, THIS JOURNAL, 58, 1508 (1936)], covers the corrosion of non-ferrous metals and their alloys. The space devoted to each of the several metals is roughly proportional to its technical importance as judged by the present requirements of science and technology (in Germany). Metals having no essential "technical importance," such as building materials, are not discussed at all.

A summary of the principal contents of the several sections follows. The methods of corrosion testing and research, pp. 1–59, are discussed by P. Brenner under the headings, general testing procedure, necessary data, under natural conditions, laboratory tests, measurements of the amount of corrosion, criticisms of testing methods, review of selected tests. Copper and copper alloys pp. 60–287, by O. Dahl and W. Wunder, copper pp. 60–149, brass pp. 149–227, tin bronzes pp. 227–248, aluminum bronzes pp. 248–263, copper-nickel alloys pp. 263–275, and ternary copper alloys containing nickel pp. 275–280, copper-silicon alloys, pp. 281–283, are separately discussed in detail under the headings, corrosion in general, in liquids, and in gases. There are also brief treatments of copper-beryllium alloys, pp. 283–286, alloys of copper with magnesium, cadmium, manganese, phosphorus, and silver, pp. 286–287.

The corrosion of pure aluminum by R. Sterner-Rainer, pp. 288–318, takes up the influence of impurities, of physical state, and of different corrosion agents. A section which deals in considerable length with the corrosion of aluminum cast alloys by R. Sterner-Rainer, pp. 319–384, includes the influence of the added alloy constituent on the chemical stability, resistance toward natural corrosion agents, corrosion by chemicals, influence of corrosion including surface coatings on aluminum cast alloys on specific properties. A long section on malleable aluminum alloys by P. Brenner, pp. 385–444, discusses alloy composition, review of malleable aluminum alloys, heat treatment and cold working, corrosion and simultaneous mechanical movement, testing procedure, corrosion stability of malleable aluminum alloys, metal clad industrial materials. Magnesium and magnesium alloys by W. Schmidt and W. Schultze, pp. 445–477, discusses the influence of alloying metals, atmospheric attack, various corrosion protective measures. A lengthy discussion of lead and lead alloys by M. Werner, pp. 478–595, includes the physi-

(1) Here the reviewer misses a reference to the manufacture of "constrolastic" thread, which in his opinion certainly constitutes one of the most interesting developments of the last years.