New Books

Vitamin Methods. Volume I. Edited by Paul György. Academic Press Inc., New York, 1950. 569 pp. \$ 10.

Eric T. Stiller: Physical methods of vitamin Assay.

Paul György and Saul H. Rubin: Chemical methods of vitamin assay.

Otto A. Bessey: Microchemical methods.

Esmond E. Snell: Microbiological methods in vitamin research.

Erich Hirschberg: Instrumentation in vitamin analyses.

Literature concerning vitamin determination is comprehensive, and it is often difficult for less experienced to choose the most suitable method among the many modifications which have been proposed. It is therefore of great value that vitamin methods are assembled and critically reviewed by acknowledged experts in their subjects.

The book *Vitamin methods*, volume one, deals with the physical, chemical, microchemical and microbiological methods of vitamin assay. A second volume to appear, will treat biological methods of vitamin assay.

The material is presented not around the various vitamins, but around the assay methods employed. Consequently the volume is divided into the chapters mentioned above. Even if this way of presentation makes it possible to treat the assay technique separately, it is questionable whether this arrangement has made the subject more surveyable than if built around the various vitamins.

In many cases the determination of a vitamin in different substances will differ

quite considerably, whereas the final method of measurement is simple, at least as far as physical and chemical procedures are concerned.

The physical methods of vitamin determination comprise the application of ultraviolet absorption spectrophotometry, fluorimetry and some special physical methods. Much of this chapter deals with the spectrophotometric determination of vitamin A. There has been and still is much confusion regarding the conversion factors when the vitamin A concentration is to be expressed in the different units still in use. A survey of conversion factors and vitamin A units is given, and this shows clearly that a revision of the standard fixed by the Health Organisation of the Ligue of Nations (1934) is highly necessary.

The different methods for the U. V. spectrophotometric determination of vitamin A in different sources are well reviewed, and procedures to avoid errors due to irrelevant absorption are also included. The application of spectrophotometry to other vitamins, such as vitamin E and K etc., which may in special cases be of interest when working with pure or nearly pure concentrates is also dealt with in this chapter.

The fluorimetric method has long been used in thiamine research and has now also found wide application for riboflavin assay, since it is far more sensitive than the colorimetric measurement. The most reliable procedures for thiamine and riboflavin assay in different substances are described.

The chapter "Chemical methods of vitamin assay" deals with the colorimetric

determination of vitamins. It is a well known fact to all experienced in vitamin research that colorimetric methods must be applied with great criticism, as most of them suffer from lack of specificity. It is therefore of importance that the author considers the objections raised by research workers familiar with the different methods. The wide field of colorimetry in vitamin research is covered in this chapter. It may be mentioned that the colorimetric determination of riboflavin has been used by many investigators and is in many cases a suitable method. It is, however, not mentioned in the book.

Microchemical methods are chiefly described as assay methods for body fluids. In this chapter determination of other nutritive essentials of special interest for clinical laboratories is also included.

It is a matter of course that the microbiological assay methods have occupied a great space as these methods have found extensive use in vitamin B research during the latest years. Detailed description of

microbiological methods available for assay of vitamin of the B-complex is given.

It is repeatedly pointed out that, when extracts of food stuffs are tested, unknown factors may often have an influence on the growth response and the metabolism of the microorganisms, causing erroneous results. The compensation method developed by Nielsen, Hartelius and Johansen accounts for such unknown factors (*Naturwissenschaften* 1943) and has been used in studies on pantothenic acid (Schmidt, Copenhagen, 1949). In the reviewers opinion, this procedure should have been considered in this chapter.

In the last chapter of this volume a description of different optical instruments used in vitamin analyses is given.

The numerous references are conveniently arranged at the end of each chapter.

As a conclusion it should be stated that the *Vitamin methods* is a valuable handbook for all laboratories working on vitamin analyses.

Hans Kringstad