

The book is provided with a good index of persons and subjects. The frontispiece is an interesting old astronomical plate, with figures of Copernicus, Galileo and Kepler, reproduced from the fifth edition of John Wilkins's "Discourse Concerning a New World and Another Planet." The volume is printed on heavy paper, almost like cardboard—a little too inflexible for convenient turning of the pages. It is cordially recommended not only to all chemists but to every student of the history of science.

C. A. BROWNE

Die Vitamine, Kritische Uebersicht der Lehre von den Ergänzungsstoffen. VON RAGNER BERG, leiter des physiologisch-chemischen Laboratoriums auf Weisser Hirsch. (Germany.) Zweite, umgearbeitete Auflage. S. Hirzel, Leipzig, 1927. pp. 714, with subject index, author index and a bibliography of 3,500 titles.

THIS monograph is an able and useful treatise on *nutrition*, with special reference to the *vitamines*. It is much more than a manual on the *vitamines*. For example, we have comprehensive and critical chapters on the biological value of the different proteins, on mineral metabolism, on diet as related to growth, on nutritional edema and on pellagra, in addition to shorter sections on sprue, on "Mehlnährschaden" and on "Milchnährschaden." In the chapter on beri-beri and the various forms of polyneuritis the author gives a full and fair account of the data and views of the Japanese investigators who claim that human beri-beri is a different, or at least a more complicated, disease than the acute polyneuritis induced in animals by *vitamine B* free diets. The work of Evans, Sure and others on the so-called fertility *vitamine (E)* is reviewed in the chapter on "Growth," but Berg does not recognize this work as having demonstrated a new *vitamine*.

The final chapter includes an extensive table showing the distribution of the *vitamines* in foods. Here the author deviates from the usage in English nutrition literature in designating the antiarthritis *vitamine* as "*E*." In English and American nutrition literature this *vitamine* is usually given the letter "*D*," while "*E*" is being applied to the fertility *vitamine* of Evans and Sure. This is an unfortunate confusion.

The author is critical, catholic and fair in the treatment of the extensive literature. In the preface he extends special thanks to American investigators for sending him reprints and monographs in the *vitamine* field. The monograph ranks with the best on the subject.

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SPECIAL ARTICLES

A PRELIMINARY REPORT ON THE STUDY OF THE EMISSION SPECTRA AND SURFACE TENSION ALTERATIONS IN EXPERIMENTAL ANIMAL TUMORS¹

IN the Emery Laboratory of Experimental Radiology and Roentgenology an earnest effort has been made to study, from the physical and physical-chemical point of view, the initial alterations undergone when a cell is transformed from a state of normality to one of malignancy, and the resulting physical-chemical and biological changes accompanying such manifestations. A portion of the work, that already completed, has proved fruitful and has been reported on numerous occasions by one of the writers and shall not be included in this preliminary announcement which deals entirely with our studies of spectrum analysis and surface tensions.

Knowing the physical nature and *modus operandi* of the various spontaneous and induced radiations at our disposal, we feel that the true action of radium and roentgen therapy must be accurately studied and controlled to bring about a scientific treatment of the most dreaded disease which the medical and allied professions are called upon to combat.

To the present time, the portion of our researches reported in this communication have been confined almost entirely to the behavior of normal and cancerous tissues which have not been subjected to any form of ray therapy. This is necessary before we are able to study any effect resulting from treatment by radiation.

These investigations have offered results which are of extreme scientific interest and importance.

First, we shall consider the method and scope of our researches in the field of spectroscopy.

All animals used were killed by decapitation to eliminate the possibility of a tissue change due to the prolonged administration of ether anesthesia.

In order that all types of normal tissue occurring in the body might be studied, the heart, peritoneum, lungs, liver and brain from one or more rats were removed, weighed, ignited in a platinum crucible and thoroughly ashed in the flame of a blast lamp. When sufficiently cooled, the sample was again weighed, and the percentage of ash calculated, the ash then being reduced to a homogeneous powder in a chemically clean agate mortar.

In order that each of the organs previously men-

¹ From the Emery Laboratory of Experimental Radiology and Roentgenology, Hahnemann Medical College and Hospital, Philadelphia.