but also by the aid of other microbes, a precursory approach to treatment by antibiotics. Enthusiastically the author points to immunology, which Pasteur considered a natural law, and to Pasteur's dream of "chemical vaccines" which actually led to the birth of immunochemistry.

In his masterly translation of quotations, mainly from French sources, Dubos presents their meaning in harmony with the text. It is regrettable, however, that he neglects to document such information properly or to give a general bibliography. He might also have eliminated the unnecessary, repeated interruption of his narrative, had he given the whole biography of Pasteur in the opening chapter instead of scattering it throughout the text (see pages 34, 38-43, 63, 128-9, and 176-8). In this manner, the reader could have been acquainted with Pasteur the man, as an introduction to Pasteur the scientist.

Although the author does not explicitly mention that this volume was intended as a contribution to the history of science, its presentation of the development of biological sciences deserves great praise for filling a gap in the history of science.

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Thoracic Surgery Before the 20th Century. Lew A. Hochberg. Vantage Press, New York, 1960. 858 pp. Illus. $15.

Thoracic surgery came of age during the three decades encompassed by the First and Second World Wars, and it has undergone a phenomenal expansion in recent years. It is appropriate that a comprehensive history of thoracic surgery should be brought forward at this time. Such a survey, aside from its humanistic values, may serve as a guide for the future efforts of those laboring in this subdiscipline and as insurance against repetition of some past errors. Lew Hochberg has accepted this challenge at an opportune time, but as the title of his book suggests, in an incomplete fashion. Perhaps because of the enlarging scope of thoracic surgery, the rapidity of present changes, and a reluctance to sit in judgment on his contemporaries, the author has deliberately restricted himself, carrying this subject only through the closing years of the last century.

There are not many phases of thoracic surgery the evolution of which can be considered complete, or nearly complete, by 1900. The specialist in thoracic surgery, of course, can supply his own concluding chapters, but the lay reader or the occasional student of medical history may feel that he has been left dangling and that the final acts of a fascinating drama are still to be played out.

Hochberg treats the events of the medieval and Renaissance periods comprehensively in several well-written chapters. Beginning with the 1800's, however, he elects to approach the burgeoning material by individual subjects; for example, empyema, pulmonary suppuration, tuberculosis, diaphragmatic hernia, the mediastinum, the esophagus, and the heart and great vessels. Certain of these sections are more descriptive than interpretive. The writer uses freely the technique of lengthy direct quotations (with translation as necessary) from the original sources to lend, as he states, "authenticity to the present work and help correct some of the misquotations noted in the literature." His technique has accomplished these objectives, while yielding some insight into the hearts and minds of earlier surgeons as they sought new light to guide them on unfamiliar paths, and as they courageously made the trials that left them wide open to the criticisms and even abuse of their less enterprising and imaginative colleagues. But in so doing, Hochberg has been unavoidably repetitious, especially in the more than 80-page section on empyema. Whenever possible, however, he lightens this heavy fare with lively biographical sketches and entertaining vignettes of key personages.

Appended to the main text is a series of chapters, entitled "Nonsurgical contributions to the advancement of thoracic surgery." Those sections concerning percussion, auscultation, vital capacity (perhaps better titled "Estimation of pulmonary function"), and peroral endoscopy are excellent reading, among the best in the book. But in other chapters, antisepsis, anesthesia, and x-rays receive more cursory treatment, and of course these topics have implications beyond the scope of this work.

During the 20 or more years that the author has been delving into medical history he has turned up a great volume of important, and some new, material which will make his *Thoracic Surgery Before the 20th Century* a valuable source book for the serious student, as well as an easy reference work for the educator who illuminates his lectures and writings with appropriate historical notes. Time and again the reader is made aware that the first solution proposed for many surgical problems was an inspired and theoretically correct one, but finally rejected or forced to yield to necessary compromise or improvisation because of inadequacies in surgical technique, anesthesia, and supportive therapy. Those adjuncts are taken for granted in the present day and ensure almost routine success for modern surgeons, who may be less thoughtful and even less skillful than their sometimes frustrated predecessors.

Many of the 155 illustrations in this book are rare finds, and they deserve better reproduction than Vantage Press has managed to provide.

Hochberg's style of writing is simple, precise, and clear, attesting to the truth that the pursuit of medicine is still compatible with proficiency in the field of letters. The publication of his projected companion volume on the thoracic surgery of the present century will be eagerly awaited.

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Nuclear Photo-Disintegration. J. S. Levinger. Oxford University Press, New York, 1960. 144 pp. $2.

In this monograph J. S. Levinger summarizes all the available theoretical ideas about the nuclear photoeffect and relates them to the experimental results. Two outstanding chapters reflect the author's interest in sum rules and models. He begins by considering the fundamental interactions between photons and charges; the concept of oscillator strength is introduced, and sum rules are discussed and used to calculate the different moments of the charge distribution. These ideas are initially set forth for an atomic system, and then the proper modifications are made so that they become applicable to a nuclear system. Levinger emphasizes that the main features of the nuclear

photoeffect may be obtained from sum-rule calculations and are independent of the model assumed for the nuclear ground state. The nuclear systematics derived from sum rules are compared with experimental results, and reasonable agreement is demonstrated.

In the chapter devoted to models Levinger points out that both of the apparently conflicting models — the shell model and the collective model— are incomplete and that the truth surely includes them both. The relationships between the models are discussed, and distinctions are made between those features of the photon absorption cross section that are model-dependent, and therefore can be used to decide between models, and those that are model-independent.

The remaining chapters are devoted to deuteron photodisintegration, electromagnetic transitions between discrete energy levels, and the products of nuclear photodisintegration; they summarize experimental results and relate them to existing theories.

This little book is clearly a must for the specialist in photonuclear reactions. Those working in other branches of nuclear physics will find it a helpful summary, and the atomic physicist will enjoy seeing the connection between the atomic and nuclear problems.

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Food, the Yearbook of Agriculture, 1959. U.S. Department of Agriculture, Washington, D.C., 1960 (order from Supt. of Documents, GPO, Washington 25). xii + 736 pp. Illus. $2.25.

Food is important in keeping our people and our country strong. An abundance of food and the means of purchasing it are blessings of our economy. But do we know how to obtain the maximum vigor and vitality from the food we use? This question cannot be answered in the same affirmative sense. Despite spectacular progress made in biochemistry and nutrition during the last 30 years (about 50 essential nutrients have been discovered), the chapter on unidentified substances (by George M. Briggs) shows that we do not yet know all of the nutrients and that many new discoveries—such as the discovery that compounds containing selenium have important nutritional properties—are to be expected. On the other hand, the vast amount of knowledge already collected in the nutritional field has not yet reached the consumer; this could help the consumer in selecting his food and in preparing it in such a way that he could obtain the best possible nutritional benefits without sacrificing any of the pleasures of a well-prepared meal.

Because of the complexity of the subject matter, the outstanding textbooks of nutrition require a background in chemistry and physiology which even educated laymen do not possess, while most of the volumes written as popular books do not offer the information necessary for rational food planning and, in many instances, they even offer misinformation. This broad gap between two much and too little science is filled in an admirable way by the recently published *Yearbook of Agriculture, 1959*; its 65 chapters, written by eminent experts in all fields of nutrition, constitute a comprehensive presentation of our present knowledge of food and nutrition. While most of the well-written chapters are of a practical nature—for example, Elsie H. Dawson explains what happens to food in cooking—some chapters will appeal to scientists and will provide balanced information to those who have not specialized in the particular field of research covered in the chapter. I will mention only the chapter on metabolism (by Raymond W. Swift), the chapters on proteins and amino acids (by Ruth M. Leverton), and the one on fats and fatty acids (by Callie Mae Coons). The chapter on fat-soluble vitamins, written by the old master of nutrition, E. V. McCollum, shows that either too little or too much of a vitamin—for instance, vitamin C—may have harmful effects; the chapter on vitamin B complex (by Grace A. Goldsmith) records many interesting details about vitamin B_{12} and other less known vitamins of the group which, in minimal amounts, may exert a profound influence on our well being. Thus, the book will offer scientists and laymen alike a storehouse of theoretical and practical knowledge.

Hazel K. Stiebeling, of the Institue of Home Economics, organized the work and wrote an interesting chapter on the impact of food on human life.

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New Books

General

American Assembly, Columbia University. *The Federal Government and Higher Education.* Prentice-Hall, Englewood Cliffs, N.J., 1960. 205 pp. $3.50. Final report of the 17th American Assembly.

Battista, O. A. *Commonscience in Everyday Life.* Bruce, Milwaukee, Wis., 1960. 122 pp. $2.75.

Corte, Nicolas. *Pierre Teilhard de Chardin.* His life and spirit. Translated by Martin Jarrett-Kerr. Macmillan, New York, 1960. 140 pp. $3.25.

Edfeldt, Åke W. *Silent Speech and Silent Reading.* Univ. of Chicago Press, Chicago, Ill., 1960. 172 pp. $3.50. In the first part of this book, Edfeldt discusses the search for a proper method for investigating the true nature of silent speech, reviews earlier work, and describes the electromyograph (the instrument used in his experiment). Part 2 is a report of an actual experiment and a discussion of prevalent theories of silent speech.

Iverson, Robert W. *The Communist and the Schools.* Harcourt, Brace, New York, 1959. 435 pp. $7.50. The second volume in a series of studies of Communist influence in American life. The editor for the series was Clinton Rossiter; the survey was supported by the Fund for the Republic.

Kindler, Herbert S. *Organizing the Technical Conference.* Reinhold, New York; Chapman and Hall, London, 1960. 150 pp. $6.

Morris, Richard T. *The Two-Way Mirror.* National status in foreign students' adjustment. Univ. of Minnesota Press, Minneapolis, 1960. 229 pp. $4.50. The subjects of this study were 318 students from some 65 countries who were enrolled at the University of California at Los Angeles. The study seeks to determine to what extent the image of their native countries which the students believed Americans held influenced the foreign students in their reactions to their American experiences. It is the fifth study in a series of monographs resulting from a program of research sponsored by the Committee on Cross-Cultural Education of the Social Science Council.

Reinfeld, Fred. *What's New in Science.* Sterling Publishing Co., New York, 1960. 204 pp. $3.95.

Rubin, Theodore Isaac. *Jordi.* Macmillan, New York, 1960. 73 pp. $2.95.

Salzman, Michael H. *New Water for a Thirsty World.* Science Foundation Press, Los Angeles 3, Calif., 1960. 227 pp. $5.95.

Steen, Edwin B. *Dictionary of Abbreviations in Medicine and the Related Sciences.* Davis, Philadelphia, Pa., 1960. 102 pp. $2.50. Examples of contents: "HE viruses: human enteric viruses"; "RE: Radium emanation, reticuloendothelium, right eye."

Steiner, Rudolf. *Friedrich Nietzsche.* Fighter for freedom. Translated from the German by Margaret Ingram deRis. Rudolf Steiner Publications, Englewood, N.J., 1960. 222 pp. $4.75. Volume 2 of the major writings of Steiner, published in commemoration of the hundredth anniversary of his birth (1861).