Tuberculosis: a discussion of phthisiogenesis, immunology, pathologic physiology, diagnosis, and treatment. Francis Marion Pottenger. St. Louis, Mo.: C. V. Mosby, 1948. Pp. 597. (Illustrated.) $12.00.

This volume is a timely synthesis of current clinical knowledge on human tuberculosis, a harmonious conception built from accepted facts and plausible hypotheses.

The author's vast experience as a professor of medicine and a phthisiologist backed with 50 years of practice shows in this work through a clever condensation, in well-balanced chapters, of this varied and extensive subject, through a great consistency of thought and a shrewd application of scientific criticism. Also noteworthy is the lucidity of presentation and style. Those are several reasons why the reading of the book is captivating and highly suggestive of fertile ideas and research topics. A few recurring statements serve the evident purpose of focusing attention on essential facts.

The author rightly stresses the necessity of avoiding fruitless conjectures as well as reinvestigating those theories about to be reckoned as dogmas.

He lingers neither on historical backgrounds nor on past experimental works. However, on the one hand, a well-informed reader feels sure that every line relies upon the soundest of fundamental knowledge, both clinical and experimental; on the other hand, he who is less acquainted with the field retains the impression of having assimilated most of the essential basic notions because Dr. Pottenger has so cleverly impregnated his interpretation of clinical findings with accepted experimental conclusions.

The author is to be praised for insisting upon phthisiogenesis. Too many physicians take to phthisiology as a specialty without sufficient knowledge of that aspect. It is the basis of any reliable clinical or epidemiological study. Three chapters are given to reinfection with its specific and nonspecific factors. Whether reinfections are endogenous or exogenous is judiciously discussed, and the grounds from which the author explains the frequency of endogenous reinfections oblige to no mere thinking and outgrow a plain clinical interest: the very strategy of the fight against tuberculosis is here at stake.

To be noted are two valuable chapters on the visceral neurology of pulmonary tuberculosis and a short one on vaccination. Vaccination with nonvirulent bacilli would have two advantages, one positive, the other negative. "It would protect the host from infection with virulent bacilli but it would not furnish a focus of virulent bacilli from which metastases would take place and cause reinfection tuberculosis."

Every chapter ends with an abundant basic bibliography, mostly clinical. Concerning vaccination with BCG, it seems that the author, in view of present-day trends, could have given a well-deserved importance to an angle of antituberculous prophylaxis that enjoys so increasing an interest.

We would recommend this book to the phthisiologist as a vade mecum; to the practicing physician as an easily readable treatise comprising the sum total of today's fundamental knowledge along with the most modern clinical guiding principles on tuberculosis; to the research worker and to the epidemiologist as an almost complete source of physiological, pathological, and clinical data, absolutely necessary for intelligently carrying on research on tuberculosis or organizing the fight against it with logical and coordinate planning. Such an important subject must not suffer from departmentalization.

The magnitude of the problem calls for an equal magnitude in the study of the disease and the fight against it. A synthesis like Dr. Pottenger's is to be acknowledged as an invaluable contribution to that end.

ARMAND FRAPPIER
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Animal genetics and medicine. Hans Gruneberg. New York-London: Paul B. Hoeber, 1947. Pp. xii + 296. (Illustrated.) $5.50.

Written by an English scientist well trained in fundamental genetics and actively contributing to genetic research, this book is an attempt to aid contact and collaboration between animal genetics and medicine.

Two primary aims have been the demonstration that there exists a vast array of inherited conditions in animals, some of which are closely akin to human diseases, and all of which present problems the solution of which will aid directly or indirectly in the understanding of human diseases; and the demonstration that the etiology of these conditions can be approached with methods which would be impracticable in man.

The material concerning the value of inbred animals and the importance of animals over human beings in the study of disease is excellent and easily digested. When Dr. Gruneberg writes about genes (Chap. III), the book becomes fairly heavy for a medical man, and it is doubtful if an American doctor, combining research with practice, as many do, would go much further through the book.

The study of inherited diseases in animals is a new branch of medical science. The author hopes to convince a few more people of the value of a new tool for etiological studies. It seems unfortunate that material from a field such as cancer research, where the value of the animal in etiological studies is well recognized, was omitted.

The geneticist will find the book interesting and excellent.

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Histopathologic technic. R. D. Lillie. Philadelphia-Toronto: Blakiston, 1948. Pp. xi + 300. $4.75.

Histopathologic technic is commendably not an encyclopedic compilation of histologic and cytologic technical methods. It is devoted, for the most part, to descriptions of methods which in the author's laboratory have been found to give consistent results. The complexity of tissues and the influences of diverse physiological states in themselves make fixing and staining procedures behave capriciously. Such variables cannot be adequately controlled; however, the author has striven to include those methods which depend for constancy of results on con-

trollable factors, *i.e.* time, hydrogen ion concentration, temperature, purity and concentration of reagents, stains.

The subject is covered in 21 sections, as follows: Microscopy; Equipment; Fixation; Decalcification; Sectioning; Stains and Staining; General Staining and Mounting Procedures; General Oversight Methods; Nuclear Stains; Cytoplasmic Granules; Enzymes; Endogenous Pigments; Exogenous Pigments and Minerals; Various Cell Products; Fats and Lipoids; Connective Tissue Fibers; Fibrin, Bacteria, Protozoa, and Other Parasites; Glia and Nerve Cells and Fibers; Hard Tissues; Various Special Procedures; and Buffers and Buffer Tables. The author throughout carefully specifies the Color Index Numbers of the stains and also the reference standards of purity of essential chemical reagents otherwise called for in his methods. A very useful series of tables for the preparation of buffer solutions is included. In so far as is possible, the rationale for procedures and the modification of old methods is indicated. The book is made a practical and workably integrated unit by virtue of many cross references. It is excellently indexed.

This treatise on histopathologic technic will satisfy a need long felt by many pathologists and histologists alike.

KENNETH M. RICHTER
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Annual review of microbiology. (Vol. 1.) C. E. Clifton. (Ed.) Stanford, Calif.: Annual Reviews, 1947. Pp. vii + 404. $6.00.

This first volume is an attempt to provide a résumé of current research in the field of microbiology. It appears to be a critical evaluation of a wide range of subject matter including viruses, rickettsiae, bacteria, fungi, and protozoa, as well as some of their biological processes.

It is commendable that an annual review of this field has been started. Researchers now may have the opportunity to obtain a broad, comprehensive viewpoint in the working relationships of the various organisms.

There are 17 different subjects represented: Morphology and Cytology of Protozoa, Antigenic Variation in Protozoa and Bacteria, Life Cycle of Malarial Parasites, Variation in Phytopathogenic Fungi, Variation in Phytopathogenic Viruses, Some Aspects of the Problem of Growth Factors for Protozoa, Bacterial Metabolism, Nitrogen Metabolism, Industrial Fermentations, Quaternary Ammonium Compounds, Antibiotics, Chemotherapeutic Agents, Immunochemistry, Some Aspects of Active Immunization, Medical and Epidemiological Aspects of Enteric Infection, The Rickettsiae, and Respiratory Viruses.

Each of the 17 sections in this book is written by a contributor or contributors who have had personal experience with the particular subject. The editors have done an excellent job in their choice of contributors. The various authors have done exceptionally well with their assignments although somewhat handicapped for the sake of brevity. Each section is well documented by a good working bibliography. This will be extremely helpful for those who desire to obtain more information concerning the subject.

The volume concludes with an author and subject index totaling approximately 20 pages. Students and workers interested in the various aspects of microbiology will find this book a helpful and useful addition to their library.

BANNER BILL MORGAN
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Kampen mot Ogräset, 1935–1946. ("Weed control experiments.") Hugo Osvald. (Ed.) (Publications from the Institute of Plant Husbandry, Royal Agricultural College of Sweden, No. 2.) Uppsala: Almquist & Wiksells, 1947. Pp. 318. (Illustrated.) 25 kr.

This volume of 18 papers presents the results of 12 years of weed control research at the Royal Agricultural College of Sweden. The type and scope of these investigations are worth noting since weed research programs are now expanding rapidly along many lines. All of the papers are of high technical quality, and space permits a review of only a limited number of them—principally those concerned with weed biology. Although Swedish is the language used, excellent English summaries are included, and all illustrations and tabular material are provided with English translations.

Two papers on germination biology, by von Hofsten and by Kolk, are here considered together. These concern after-ripening, storage, and the influence of light (especially different daylight intensities), temperature, and moisture on the germination of weed species in 21 genera, many of which are common weeds in this country. Freshly harvested seeds of *Matricaria inodora* germinated well in light, but, as they became older, the germinative capacity in darkness increased. Old seeds of *Thlaspi arvense* germinated only under fluctuating temperatures. Light retarded the germination of both light brown and dark brown seeds of *Sinapis* (*Brassica*) *arvensis* when they were exposed to fluctuating temperatures. On the soil surface the light brown seeds germinated less well than the dark brown. Seeds of *Avena fatua* germinated at a temperature as low as 2° C. Freshly harvested seeds of *Chenopodium album* did not germinate at all, while older seeds did germinate, and about 5 or 6 times as well in darkness as in light.

Kolk notes that the effect of light is modified by the age of the seeds. Four groups are recognized: (1) species in which young seeds germinate well in bright daylight and old seeds well in weak daylight (e.g. *Cirsium arvense*), (2) species that germinate well in weak daylight (e.g. *Capsella bursa-pastoris*), (3) species that germinate well in weak daylight or darkness (e.g. *Stellaria media*), and (4) species whose young seeds are unaffected by light, while older seeds germinate well in weak daylight (e.g. *Agrostemma Githago*). Varying temperatures (between 5° and 22° C) favor the germination of most of the species studied (e.g. *Sinapis arvensis*) as compared with constant temperatures (20°–22° C). For most of the species the optimum of germination, in weak daylight as well as in darkness, was found at a water content in the substrate (sandy soil rich in humus) of 60% of the maximum water capacity. At 30% of the maximum