SCIENTIFIC BOOKS

TROPICAL MEDICINE

Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases. By RICHARD P. STRONG, M.D., Sc.D., D.S.M., C.B. Seventh ed. 2 vols. pp. xiv + 1747 + xl. 397 figs., 4 color plates. The Blakiston Company. 1944. $21.00.

THIS American text-book has been a necessary part of the library of every student of tropical medicine since Admiral E. R. Stitt brought it into being in 1914. When Colonel Strong undertook the task of preparing the sixth edition, he was able to add a wealth of personal knowledge and an experience of nearly fifty years in this field. Thus, in January, 1942, at a critical time in the development of American military operations in tropical areas, there became available a relatively exhaustive reference book on the diseases of warm climates. The sixth edition went through four printings and now the newer knowledge in the field is incorporated with the standard subject-matter.

It is neither possible nor necessary to elaborate on the diseases included in this extensive work. It is sufficient to state that it includes an able presentation of each of the many diseases produced by the protozoa, bacteria, filtrable viruses, rickettsias, fungi and poisonous plants, helminths, arthropods and other parasitic or poisonous animals. Nutritional diseases which constitute so important a part of the social and disease economy of native populations in tropical and Oriental countries are rather briefly but clearly considered. In addition, one section is devoted to "diseases not satisfactorily grouped in other sections," a chapter on the methodology of medical practice in the tropics, including the cosmopolitan diseases present in tropical countries. The appendix includes sections on clinical diagnosis, laboratory diagnosis, one each on group and personal hygiene and one on disinfectants and disinfestants.

There is no particular adverse criticism which is merited by this two-volume contribution, although a rearrangement of the section groups might have been advisable. For example, there might logically be an introductory section on climates in warm countries, their direct and indirect effects on human beings and methods of determining the existence and amount of illness and death among native peoples in the tropics. This would lead up to infectious diseases, which are so adequately presented, followed by deficiency diseases and a more adequate consideration of cosmopolitan diseases and their epidemiology in warm climates. The material in the appendix can not readily be integrated into the body of the text and constitutes valuable supplementary reference information. The size of the publication probably precludes more reference citations, but a reader not living in a center with extensive library facilities would be materially aided if more of the sources cited in the text were included in the "references" at the end of each chapter.

The two volumes are clearly printed on good paper, the format is pleasing, the illustrations are for the most part very good, and the binding is moderately strong and durable. Numerous typographic errors and minute inconsistencies which escaped the proofreader in the sixth edition have been eliminated. Both Colonel Strong and the publishers are to be thanked for this modern, distinguished contribution to American medicine.

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FOOD AND FOOD PRODUCTS

The Chemistry and Technology of Food and Food Products. Prepared by a group of specialists under the editorship of MORRIS B. JACOBS, Ph.D., senior chemist, Department of Health, City of New York. Set of 2 volumes. Volume I—xviii, 952 pages, including 79 illustrations and 218 tables—Volume II—xx, 890 pages, including 166 illustrations and 84 tables. New York: Interscience Publishers, Inc. 1944. $10.50 per single volume; $19.00 for the set of 2 volumes.

THE volumes under review constitute a broad treatment of the chemistry and technology of food and food products. The field is covered by 48 chapters well printed on good paper. Forty-one collaborators have prepared a unified authoritative work by approaching the problem from the point of view that an expert in any selected subject is best qualified to write about. Thus, to cover the various phases of the subject-matter, food technologists, chemists, biochemists, bacteriologists, sanitary engineers, public health officers, food inspectors and entomologists are represented among the contributors.

The two volumes are divided into a total of six parts. The first, on fundamentals, deals with the aspects of food chemistry which are common to all foods. The second part concerns the descriptive aspects of particular food groups, and includes some account of the history, statistics, definitions, standards, composition and chemistry of these food groups. In part three, unit operations and processes applicable to most foods are described. Part four deals with the maintenance of sanitary and quality control of foods and food products. In part five, the principal methods of preserving foods are delineated. Part six is concerned with production methods for the principal foods.

The editor and the collaborators are to be congratulated upon the excellent and comprehensive job which they have done. These encyclopedic volumes will be greatly appreciated as books of reference by

all those interested in the production, chemistry, sanitation and control of foods. They will serve also as interesting and informative reading sources by those who are not food specialists.

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FATS AND OILS

Fats and Oils (An Outline of Their Chemistry & Technology). By H. G. KIRSCHENBAUER. 154 pp. New York: Reinhold Publishing Corporation. 1944. $2.75.

THIS book represents one of the first attempts to present briefly both the chemistry and technology of the vegetable fats and oils. Of the 140 pages of written material, about one third is given to an outline of the structure of fats and fatty acids and to analytical methods; about 35 pages are used for descriptive notes and general characteristics of the more important fats; and the remainder of the book deals with technological aspects such as methods of production, purification, hydrogenation, hydrolysis, distillation, spoilage, detergents and lubricants. Although such a condensed treatment offers very little new material and information not previously available in the accepted references and monographs, it does provide a satisfactory introduction to the extensive field of fats and oils. Its use will be of very limited value to those engaged in either chemical or technological work with fats and oils.

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SPECIAL ARTICLES

NEW STRAINS OF PENICILLIUM NOTATUM INDUCED BY BOMBARDMENT WITH NEUTRONS[1, 2]

MODERATELY heavy spore suspensions in normal saline in test-tubes of a stable variant isolated from a strain of *Penicillium notatum*[3] were bombarded with neutrons from the 42-inch cyclotron of the physics department. Tubes were removed after 1, 2, 3.5, 4.5, 5, 6 and 7 hours on the first day when the beryllium target (other targets were also used subsequently) was being bombarded by 10 mev deuterons. On succeeding days, after increasing the total time of operation of the machine, additional tubes were removed from time to time.

RESULTS

Approximately 100 new strains or mutations have been isolated from cultures of the bombarded spore suspensions. This was done by comparing colony characteristics such as color, size and texture with those of controls which received no neutron bombardment.

Some of the new strains isolated have been cultured simultaneously in large batches on the surface of medium in half-gallon milk bottles by the well-known methods. Under identical conditions such as medium, time and temperature there have been found marked differences with respect to rate of sporulation; yields of antibiotic activity when compared by the cup assay method; and color and texture of the mats among some of the strains isolated.

As a typical example the results of quadruplicate cup assays of composites of several gallons each of surface-culture metabolism liquor from two different strains isolated after neutron bombardment are given in Table 1.

TABLE 1

Green Mat	Buff Mat
86	153
90	128
60	143
86	143
Aver. 80.5	142 Oxford units

Although the eventual yield of antibiotic activity by the buff mat strain was superior to the green mat strain by 76 per cent., the rate of sporulation of the green mat was much faster than in the case of the buff mat strain during the early stages of culture.

Preliminary experiments indicate that the antibiotic activity produced by many of the new strains does not differ qualitatively from that produced by the parent strain with respect to inhibition of growth of various bacterial species. Work is being continued to rule in or out the possibility that new antibiotics are being produced by the mold as the result of neutron bombardment.

The number of new strains which appears is in some measure proportional to the amount of bombardment. Thus only a few new strains were found in cultures of spores removed during the first day of bombardment, whereas new strains were very numerous in cultures of spores bombarded by neutrons each time the cyclotron was in operation (approximately 5 days each week) over a period of 4 months.

At present we are exposing suspensions of spores

[1] This study is a contribution from the Departments of Chemistry and Bacteriology of the Ohio State University under fellowships sponsored by the Wm. S. Merrell Company and administered by the Ohio State University Research Foundation.

[2] Experimental method.

[3] Obtained from the Northern Regional Research Laboratory.