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TROPICAL MEDICINE

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Effect of Heat (with John P. O'Brien)

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Foreword

During World War II, the then dean of tropical medicine in the United States, Colonel Richard P. Strong, in response to the urgent needs of the period, organized a superb course on tropical medicine at the Army Medical School in Washington. This course in tropical medicine, incorporating the contributions of a distinguished group of visiting lecturers, provided the format and substance of the first edition of the *Manual*. Subsequent editions, ever more multi-authored to insure authoritative coverage of a diverse subject material, have successfully preserved the original concise, yet comprehensive, format. The needs of the physicians and of other professionals dealing with tropical disease and the health problems of the developing areas of the world have been well served.

Today there is insufficient appreciation of the broad societal significance of tropical diseases and their impact on the United States. Since World War II the health gap has widened, as has the economic gap, between the developed and developing areas of the world. To be sure, yaws has been suppressed, and small-pox is being confined to an ever smaller geographic area. At the same time, however, pandemic cholera has appeared in Sub-Sahara Africa, malaria is resurgent in many areas, Shiga dysentery has produced high mortality in Central America, and schistosomiasis spreads as man increasingly relies on impounded water. For more than half of mankind, the burdens of endemic preventable infections and parasitic disease have not been lightened, but indeed worsen in synergistic lockstep with malnutrition as global production of food lags behind an expanding human population. Belatedly, economic planners and those concerned with population control are beginning to appreciate that mass misery due to ill health negates efforts directed at improving economic productivity and at stabilizing growth of human populations. The effective utilization of the huge sums of money now being contributed by the more affluent countries for the benefit of those less privileged will require a massive expansion of health-related activities. The supply of professional health workers skilled in the containment of tropical diseases, and of those capable of developing new knowledge of infectious and of parasitic diseases to meet the continuum of new problems posed by an ever-changing human ecology, likewise should be rapidly expanded. This societal need must be faced by those responsible for graduate education in the health professions.

There are few physicians in the United States who do not encounter problems in the area of tropical medicine with surprising regularity. Each day tens of thousands of citizens from the United States travel through or reside in the poorly sanitized areas of the world. There, the traveler, often poorly indoctrinated in approaches to personal preventive measures, like an innocent "sentinel monkey," ingests, inhales, or contacts potential pathogens or is exposed to vectors harboring such agents. With rapid jet air travel, return to the United States via plane may be a matter of hours after exposure. The immediate diagnosis and treatment of the patient with incipient cerebral malaria, or the recognition of acute African trypanosomiasis, are essential and may be lifesaving.

There is, however, a disturbing misconception inherent in the term "tropical medicine," for many tropical diseases are not exotic on the domestic scene. In some areas of the United States, diseases such as ascariasis, trichuriasis, and amebiasis are commonly seen. Symptomatic giardiasis is now encountered with increasing frequency in individuals who have not left the United States. The prevalence of some ectoparasites of man is directly proportional to hair length and to the degree of communal living. The training of the physician to provide primary medical care—a popular concept in contemporary medical education—logically should incorporate knowledge of indigenous "tropical diseases," as well as of those truly exotic.

This new edition arrives at an opportune time. It should assist in the preparation of the greatly expanded cadre of physicians and scientists needed to integrate health into the economic developmental process in the poorly sanitized areas of the world. It will provide the physician practicing in the United States with an authoritative reference source in an area of continuing medical importance.

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Preface to the Fifth Edition

The First Edition of *A Manual of Tropical Medicine* was prepared during World War II to meet the needs of the Armed Forces in the tropical and subtropical areas of the world. A concise presentation of the practical aspects of the important tropical diseases, stressing both the epidemiological and clinical aspects, resulted in wide acceptance of the *Manual* as a textbook and reference—for medical and graduate students, clinicians, and other military and non-military personnel in medicine, public health, microbiology and allied fields. Because of the expansion of health and medical education programs on a world-wide basis and changing needs, the book has been revised four times. With this, the Fifth Edition, it adopts the shortened title *Tropical Medicine*.

Political, social and economic trends during the past four decades have involved nations of the world in activities which dispersed their citizens to all areas of the world. This migration back and forth has increased the need for trained personnel in all disciplines encompassed by medicine and public health in the tropics and subtropics. The activities and responsibilities of the United States in the field of international health, which are being carried on in cooperation with many countries, are consonant with this nation's desire to contribute to the improvement of the standards of world health. The contribution of the United States to international health and medical education by means of professional cooperation and technical assistance in the attack on diseases of the tropics and subtropics is one of our finest exports and is symbolic of our country's humanitarian principles.

In the preparation of this edition, we continued to be challenged by the need to present to medical workers a concise yet explicit statement of the etiology, epidemiology, pathology, clinical characteristics, diagnosis, treatment, control and prophylaxis of the important infectious diseases, nutritional and physical disorders and other conditions constituting the health problems of the tropics. Although many of these diseases are also endemic or have their counterparts in the subtropical and temperate zones, the main attack on them must continue to be in developing countries in the tropics. There a multiplicity of adverse social and economic factors makes the task seem increasingly difficult. Principal among these factors are (1) an explosive population increase related to a high birth rate, (2) predominantly rural economies inadequate to provide the revenues from which national social and health services and improved communications must be financed, and (3) uncontrolled slum urbanization overwhelming local sanitation resources.

It is increasingly apparent that the fundamental remedies for the present proliferation of tropical diseases and malnutrition must come through enlightened political and economic practices in the areas of advancement of agricultural and industrial techniques, acceptance of an appropriate policy of family planning, and establishment of a network of health care centers throughout

each developing nation. Advice on these matters from international agencies and developed countries, however well-intentioned, will be fruitless unless a genuine national commitment exists on the part of the recipient.

A number of principal revisions and changes have been made in the Fifth Edition. The section on mycotic and actinomycotic diseases has been completely rewritten. Also, the section on viral diseases has undergone substantial rewriting and revision. New chapters include those on simple goiter and venereal diseases in the tropics. Additional subjects that have been included are infections by *Capillaria philippinensis*, *Schistosoma intercalatum* and *Angiostrongylus costaricensis*. Coverage of primary amebic meningitis due to *Naegleria* and *Hartmannella* spp. has been rewritten and expanded. Also, the material on amebiasis has been revised substantially in cognizance of modern concepts of the infection and disease. A more practical and clinical approach has been taken in the presentation on diarrheal diseases, making the content on this group of entities more useful for the clinician and student. Extensive changes also have been made, with new contributors, in the coverage of rickettsial diseases, toxoplasmosis, leishmaniasis, tuberculosis, leptospirosis, rat-bite fevers, *Pneumocystis* pneumonia and effects of heat. The addition of practical information on diagnosis and treatment of infestations by arthropods and on envenomization by insects should assist the physician in the management of such conditions. Treatment has been updated throughout. The numerous figures in the previous edition have been augmented with many new illustrations of value for clinical understanding and teaching of tropical diseases.

We have continued to include some of the more important references, both old and new, at the end of each chapter. It should be realized, however, that there has been no attempt to make such a listing complete, since this obviously would not be feasible.

The broad expanse of tropical medicine includes so many diseases and specialties that authoritative presentation is best obtained by the contributions of collaborators. Individuals recognized for special knowledge and for basic research in specific fields were invited to contribute to this revision. The contribution of each collaborator is indicated in the byline of each chapter or section heading. Chapters with no indicated authorship were written or revised by the authors.

THE AUTHORS

Acknowledgments for the Fifth Edition

As in the other editions, materials have been drawn from numerous medical, scientific and technical journals, recent monographs and abstracting journals, such as the *Tropical Diseases Bulletin*, without which such a revision would have proved an impossible undertaking.

We wish to express once again our deep appreciation to those individuals cited in the first four editions of *A Manual of Tropical Medicine* and especially to Dr. T. T. Mackie and Dr. C. Brooke Worth, two of the original coauthors who contributed so much to the writing of the earlier editions. The coauthors also express their appreciation to Dr. William W. Frye for his significant contributions as coauthor of the third and fourth editions.

We wish to thank our former collaborators who furnished the basic manuscripts covering subjects in their special spheres of interest. In many instances they provided or added original material. We gratefully acknowledge the help of the following persons who so generously collaborated in earlier editions: Drs. R. Tucker Abbott, George R. Callender, Gordon E. Davis, Paul D. Ellner, John P. Fox, Irving Gordon, Arthur P. Long, Harry Most, Albert B. Sabin, Arvey C. Sanders, Emanuel Suter and H. W. Wade.

Others including Drs. Bettie M. Catchings, Antonio Peña Chavarria, Dorothy Clemmer, John H. Cross, Jane E. Deas, Dieu-Donne J. Guidry, Cham-long Harinasuta, Graham E. Kemp, Max C. Miller, Adele H. Spence, George A. Thurber, Ernestine H. Thurman, Harold Trapido, Kenneth Walls, Lionel G. Warren and Rodrigo Zeledon advised and assisted the authors in correlating material in their specialized fields for the current edition.

Grateful appreciation is also due the Armed Forces Institute of Pathology for many of the illustrations of pathology. Many cuts *not* bearing a special acknowledgment were furnished through the courtesy of this group.

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Finally, the authors wish once again to express their sincere gratitude to the publisher, W. B. Saunders Company, for their deep interest, constructive criticisms and invaluable assistance, which made this fifth edition possible.

References

Listed below are a number of general references on tropical medicine. Interested students will find additional information or even different viewpoints in this material. Other references, including appropriate books, deal with more limited topics and are listed at the end of each chapter. It should be emphasized that these references are not intended to be complete. Many contain bibliographies that will permit the student to delve into the literature of a given subject more thoroughly.

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