

CRITICAL REVIEWS IN
**TROPICAL
MEDICINE**

Edited by R. K. Chandra

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CRITICAL REVIEWS IN TROPICAL MEDICINE

Volume 1

Edited by

R. K. Chandra

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St. John's, Newfoundland, Canada*

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Cambridge, Massachusetts*

PLENUM PRESS · NEW YORK AND LONDON

Library of Congress Cataloging in Publication Data

Main entry under title:

Critical reviews in tropical medicine.

Includes bibliographical references and index.

1. Tropical medicine. I. Chandra, Ranjit Kumur. [DNLM: 1. Tropical medicine—Periodical. W1 CR216Y]

RC961.5.C74 1982

616'.00913

82-15129

ISBN 0-306-40959-3 (v. 1.)

©1982 Plenum Press, New York
A Division of Plenum Publishing Corporation
233 Spring Street, New York, N.Y. 10013

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Printed in the United States of America

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TROPICAL MEDICINE

Volume 1

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Preface

Numerous economic, sociocultural, and health problems continue to impede the optimal progress of many millions of people in the developing countries in tropical and other geographic regions of the world. Thus, tropical medicine has many aspects including parasitology, bacteriology, and virology, environmental sanitation and hygiene, nutrition, pharmacology, immunology, agriculture, economics, political science, anthropology, sociology, and behavioral sciences. Like the mythical Proteus, the individual dealing with tropical medicine must assume many roles.

There is a growing recognition of the unique problems of the tropical countries. This has led to concerted efforts by many international agencies to attempt to obtain new tools to control many of the tropical diseases that have defied previous attempts at large-scale control. The involvement of the world's leading scientists and institutions as well as the best talents and resources of the developing countries themselves has inspired considerable research in tropical medicine with an inevitable exponential growth in publications. The new series *Critical Reviews in Tropical Medicine* is being launched to provide topical state-of-the-art critiques of selected subjects in this burgeoning field. Authored by active investigators in their chosen topics, these reviews should be useful for all health professionals, social scientists, and administrators involved in planning interventions, both preventive and therapeutic, in developing regions of the world. Contributions included in Volume I span parasitology, infectious disease, immunology, gastroenterology, liver disease, and nutrition. The very variety of subjects discussed in this volume emphasizes the widening horizons of tropical medicine. Future volumes will maintain a balance among the different facets of tropical medicine.

R. K. Chandra, M.D., F.R.C.P.(C)

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Priorities for Medicine and Health in the Tropics

C. E. GORDON SMITH

1. INTRODUCTION

The problems of health and disease in tropical countries differ from those in the temperate zones in several important respects. It is by no means a question only of climate, nor of the parasitic and vector-borne diseases which are largely confined to the tropics and subtropics because their causative parasites require high ambient temperatures for development or because their vertebrate and/or invertebrate hosts are restricted to warm climates. Equally important are the social, nutritional, educational, and environmental factors characteristic of the poverty—both rural and urban—that afflicts the majority of the peoples of most tropical developing countries—poverty not only of income but also of public services and resources, and increasing in many areas because of galloping population growth in the face of slow and often faltering economic growth. In such circumstances, existing knowledge capable of improving health and controlling diseases cannot be effectively utilized, and further advances in knowledge from research will be equally ineffective unless they can be interpreted into economically feasible and socially, culturally, politically, and ecologically acceptable programs of action.

2. THE PRESENT STATE OF HEALTH AND MEDICINE IN THE TROPICS

The high mortality in infancy and early childhood that characterizes the poorer populations of tropical countries is largely attributable to lethal combina-

tions of diarrheal and respiratory infections with undernutrition and, in many areas (especially Africa south of the Sahara), with malaria. These together give infantile mortality rates as high as 150 or even 200 per 1000 and child death rates (aged 1–4) of around 20 per 1000 in the poorer developing countries (World Bank, 1979). Some infections that are relatively mild in industrialized countries are much more clinically severe in populations immunodepressed by undernutrition or by certain concurrent infections such as malaria. The World Health Organization has estimated that diphtheria, pertussis, tetanus, measles, poliomyelitis, and tuberculosis together cause some 5 million deaths annually in developing countries and that, in 1970, less than 10% of the 80 million children born in these countries received immunization.

The mortality rates in adults are much less dramatic, but morbidity rates are very high and largely attributable to infections. Whereas viral and most bacterial infections generally cause short-term illnesses, many endemic parasitic infections cause chronic disease that develops slowly with only slight apparent effects on the individual over periods of years. But because whole populations may be infected by several species of parasite simultaneously, the disability and misery caused by these infections are often greatly underestimated. In certain helminth infections (notably filariasis), the frequency and intensity of infection determine the severity of disease so that an environmental change that increases the worm burden of the population may increase morbidity without much change in the proportion of people infected.

The distributions, incidences, and prevalences of parasitic and vector-borne diseases depend on ecological factors, particularly population densities (and population changes) of the vertebrate and invertebrate hosts of the infections and the degree of contact of the human population with them (Smith, 1964). All of these factors are influenced by human behavior (including travel and migration), both individual and occupational, and by environmental changes (usually man made): the growth of cities, man-made lakes and smaller water impoundments, irrigated agriculture, deforestation, etc. (Smith, 1975). New and serious infections have been recognized in the Third World during the past decade, for example, Marburg and Ebola fevers (Smith, 1978), and infections have appeared in epidemic form in new areas, e.g., Rift Valley Fever in Egypt (Abdel-Wahab *et al.*, 1978).

Although the incidence of noninfective chronic diseases such as degenerative and malignant diseases is steadily increasing in many tropical countries, such conditions predominantly affect a relatively small affluent sector of their populations. By contrast, hypertension and its complications do not behave as simple “diseases of affluence.” Although absent in a few remote and very poor rural communities, they are generally common in tropical developing countries, and in the West Indies they constitute the leading cause of death in adults (Ashcroft and Desai, 1978).