

BORRELIA

STRAINS, VECTORS, HUMAN AND
ANIMAL BORRELIOSIS

OSCAR FELSENFELD, M.Sc., M.D.

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DEDICATION

TO: Dr. M. Baltazard, Director Emeritus, Pasteur Institute, Teheran; Professor A. Rafyi, Director Emeritus, Hessarak Institute, Iran; Professor A. Geigy, Swiss Institute of Tropical Medicine, Basel; Dr. Charles M. Wheeler, Research Entomologist and the Memory of the late Professor E. Brumpt, Parasitology Institute, Paris whose patient instructions, friendly guidance, kind encouragement, competent support, and understanding criticism have made my studies of *Borrelia* possible and pleasurable during the past 35 years.

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PREFACE

DESPITE PERIODIC REPORTS that tick-borne relapsing fever occurs sporadically over more than half the area of the entire Continental United States, the numerous deaths due to this disease in the drier parts of Asia and Africa including the thousands who become its victims in Ethiopia and the Sudan every year, the unknown toll in lives and suffering that the disease is still taking in Central and South America, and the ever-present danger of recurrence of epidemics should the louse-borne form burst out of its present confines if or when a disaster creates favorable conditions for such spread, only scanty notes on relapsing fever can be found in the medical literature of the United States today.

One is amazed at the confused nomenclature and the mass of misinformation concerning the transmission and vectors (some of which has managed to creep into even respectable textbooks). The considerable variations in the clinical picture during various outbreaks and in widely separated localities, and the unusual immunologic conditions that accompany the infection should be emphasized so that the medical profession can be alerted should an outbreak occur in this country.

The genus *Borrelia* that causes human relapsing fever includes some species that are of interest to the dentist (*Borrelia vincentii*), and to the veterinarian (*B. anserina*, *B. theileri*). *Borrelia* infections appear in man as relapsing fever and in animals as so-called fowl spirochetosis, or tick-transmitted spirochetosis in cattle, which are clinically defined entities. This monograph deals principally with human relapsing fever and fowl spirochetosis, while exploring other conditions in which borreliae may play a role. The discussion of

the borreliae and their vectors, the pathology caused by them, and other features will be presented in separate chapters discussing borreliosis as human relapsing fever, cattle and fowl disease, and Vincent's angina, respectively. Each of these chapters will deal separately with the species of *Borrelia* involved, and with the consequences of the infection. Borreliae that have been isolated from vectors only, and not from man or animals, will also be enumerated.

O. F.

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