# ELEMENTARY BACTERIOLOGY AND PROTOZOÖLOGY: THE MICROBIOLOGICAL CAUSES OF THE INFECTIOUS DISEASES

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Elementary Bacteriology and Protozoölogy: The Microbiological Causes of the Infectious Diseases by Herbert Fox



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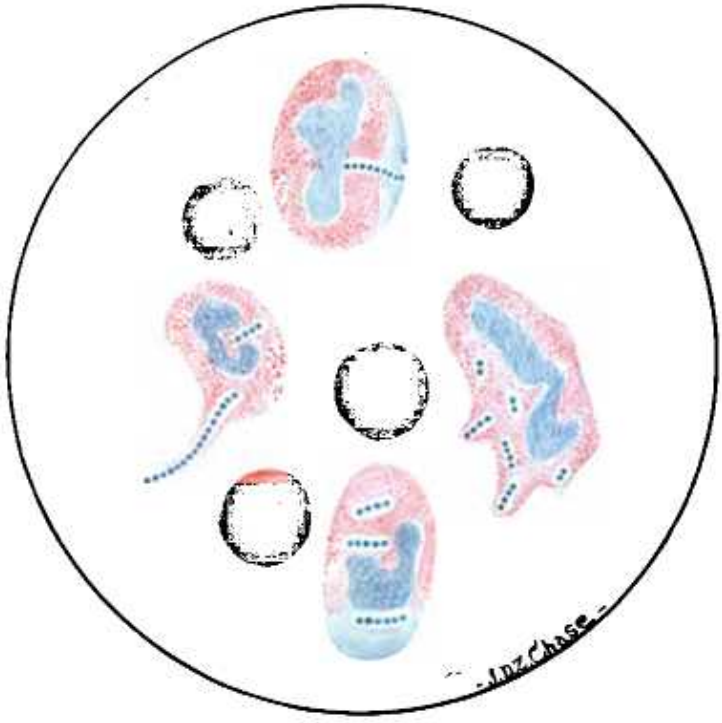
HERBERT FOX

# ELEMENTARY BACTERIOLOGY AND PROTOZOÖLOGY: THE MICROBIOLOGICAL CAUSES OF THE INFECTIOUS DISEASES

Trieste

PLATE I



White Cells of the Blood, Leukocytes, Acting as Phagocytes or Cell Eaters; Streptococci in Chains Being Consumed.

# PREFACE

THE present work has been prepared to give the nurse and the beginner an idea as to the nature of microörganisms and their relation to the world's economy, especially in disease. For this reason much technical material has been omitted, especially in the subject of biological differentiation. Emphasis has been laid upon how bacteria pass from individual to individual, how they enter the body and act when once within, and their manner of exit. Such general information concerning the character of the disease process has been included as seemed necessary to clarify the nature of the microbe action. Indeed, the subject matter in many places is but elementary bacteriological pathology. During the preparation of the work the author has had in mind a question he has been asked repeatedly: How do bacteria produce disease? That this question is answered as simply and as well as our knowledge of today permits is the author's sincerest hope.

H. F.

PHILADELPHIA, 1912.

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# BACTERIOLOGY AND PROTOZOÖLOGY

## CHAPTER I

## INTRODUCTION—HISTORY—THE PLACE OF MICROÖRGANISMS IN NATURE

### INTRODUCTION

The study of disease has brought to light many facts which demonstrate the effect of the association of different forms of life. Chief among these is the fact that minute beings live upon greater ones, either harmlessly or to the detriment of the latter. The study of these small creatures is called microbiology, this being the portion of general biology in which the use of magnification is necessary. Bacteria are classified as plants and their study is called bacteriology. The smallest animals, protozoa, are considered in the subject of protozoölogy. To explain the causation of infectious diseases the physician has been obliged to study both of these subjects, that is, the large field of microbiology. The lowest forms of life are unicellular bodies capable of leading an independent existence, in contrast to the single units of the cell groups which go to make up the compound organism, a higher animal or a plant. Some of these single-celled bodies have