

**ESSENTIALS OF BACTERIOLOGY:
BEING A CONCISE AND SYSTEMATIC
INTRODUCTION TO THE STUDY OF
MICRO-ORGANISMS, FOR THE USE
OF STUDENTS AND PRACTITIONERS**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649577194

Essentials of Bacteriology: Being a Concise and Systematic Introduction to the Study of Micro-Organisms, for the Use of Students and Practitioners by M. V. Ball

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

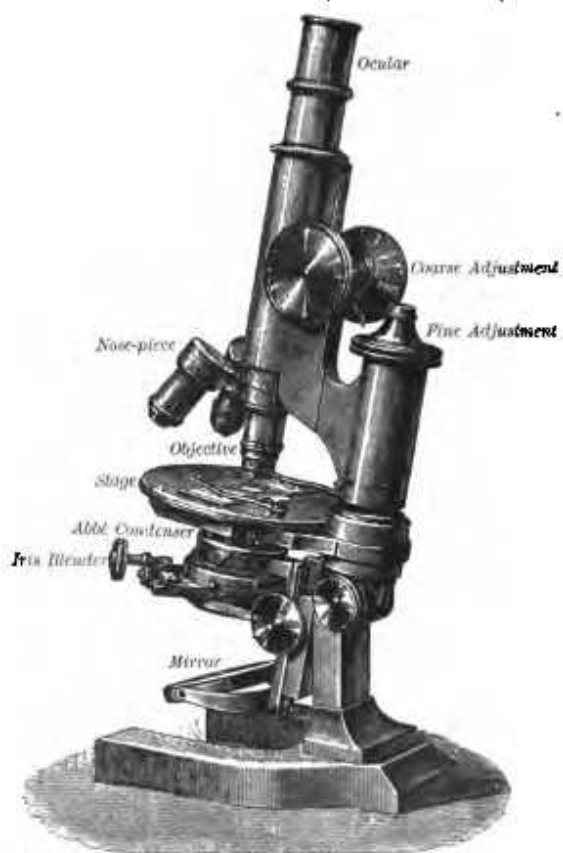
Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

M. V. BALL

**ESSENTIALS OF BACTERIOLOGY:
BEING A CONCISE AND SYSTEMATIC
INTRODUCTION TO THE STUDY OF
MICRO-ORGANISMS, FOR THE USE
OF STUDENTS AND PRACTITIONERS**



BACTERIOLOGICAL MICROSCOPE (WITH ABBÉ AND BLENDER IN POSITION).

ESSENTIALS OF BACTERIOLOGY:

BEING A

CONCISE AND SYSTEMATIC INTRODUCTION TO THE
STUDY OF MICRO-ORGANISMS

FOR THE USE OF

STUDENTS AND PRACTITIONERS.

1895

BY

M. V. BALL, M.D.,

PHYSICIAN TO THE EASTERN STATE PENITENTIARY AT PHILADELPHIA.

SECOND EDITION.

WITH EIGHTY-ONE ILLUSTRATIONS, SOME IN COLORS,
AND FIVE PLATES.

LONDON:
HENRY KIMPTON
82, HIGH HOLBORN, W. C.

1895.

(Printed in U. S. A.)



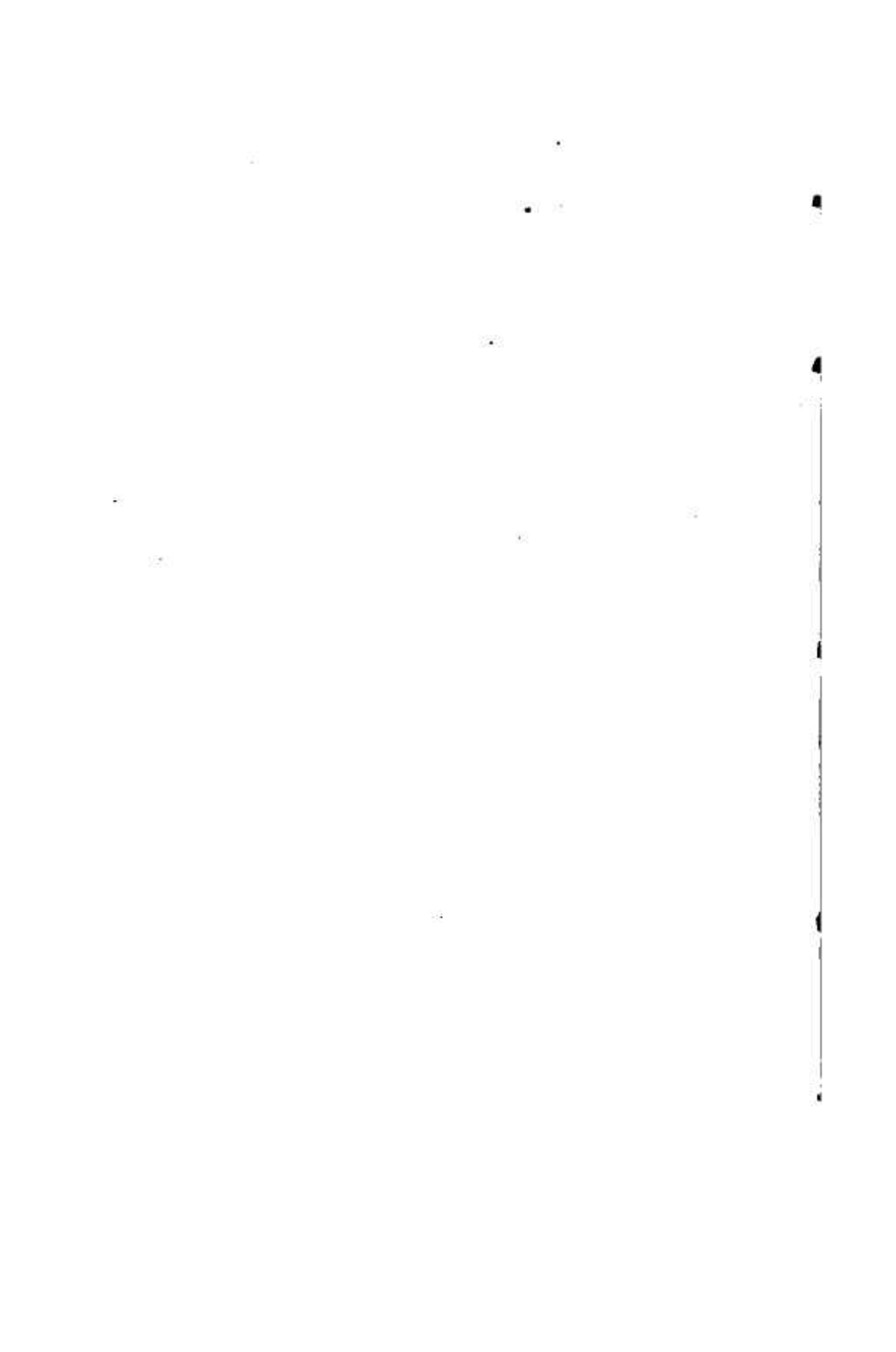
PREFACE TO SECOND EDITION.

IN this second edition, the results of last year's earnest work have been embodied. The efforts of Bacteriologists, since Koch's tuberculin announcement, have been directed to the elaboration of therapeutic agents from the chemical products of Bacteria. Physiological chemistry can accomplish more here than Bacteriology. The separation from the blood of Antitoxines, and their application to the cure of disease, will probably revolutionize our present method of treatment, and add some peculiar agents to our *Materia Medica*. The question of immunity is still unanswered, though the Phagocytic theory of Metschnikoff and the Alexines of Buchner are bringing us to the solution. Upon these lines the greatest efforts are at present being made.

We are very grateful to all those who have taken notice of our little effort, and we hope to merit a continuance of their regard.

The way in which the first edition was received assured us of its success.

M. V. B.



PREFACE TO FIRST EDITION.

FEELING the need of a Compendium on the subject of this work, it has been our aim to produce a concise treatise upon the Practical Bacteriology of *to-day*, chiefly for the medical student, which he may use in his laboratory.

It is the result of experience gained in the Laboratory of the Hygienical Institute, Berlin, under the guidance of Koch and Fränkel; and of information gathered from the original works of other German, as well as of French, bacteriologists.

Theory and obsolete methods have been slightly touched upon. The scope of the work, and want of space, forbade adequate consideration of them. The exact measurements of bacteria have not been given. The same bacterium varies often much in size, owing to differences in the media, staining, etc.

We have received special help from the following books, which we recommend to students for further reference:—

MACÉ: *Traité pratique de Bacteriologie.*

FRÄNDEL: *Grundriss der Bakterienkunde.*

EISENBERG: *Bakteriologische Diagnostik.*

CROOKSCHANK, E. M.: *Manual of Bacteriology.*

GUNTHER: *Einführung in das Studium der Bacteriologie, etc.*

WOODHEAD AND HARR: *Pathological Mycology.*

SALMONSEN: *Bacteriological Technique (English translation).*

M. V. BALL.

BUFFALO, N. Y., October 1, 1891.

62 Delaware Avenue.



CONTENTS.

PART I.

GENERAL CONSIDERATIONS AND TECHNIQUE.

	PAGE
Introduction	xiii
CHAPTER I.—CLASSIFICATION, STRUCTURE, AND RE- PRODUCTION	17
“ II.—ORIGIN, LIFE, GROWTH, AND PROPERTIES	23
“ III.—METHODS OF EXAMINATION	26
“ IV.—STAINING OF BACTERIA	30
“ V.—GENERAL METHOD OF STAINING SPECI- MENS	34
“ VI.—SPECIAL METHODS OF STAINING	37
“ VII.—METHODS OF CULTURE	40
“ VIII.—NUTRIENT MEDIA	46
“ IX.—SOLID TRANSPARENT MEDIA	49
“ X.—INOCULATION OF GELATINE AND AGAR .	55
“ XI.—GROWTH AND APPEARANCES OF COLONIES	60
“ XII.—CULTIVATION OF ANAEROBIC BACTERIA .	62
“ XIII.—MANNER IN WHICH BACTERIA ACT UPON BODY	64
“ XIV.—IMMUNITY	69
“ XV.—ANIMAL EXPERIMENTS	71