

**ELEMENTS OF WATER
BACTERIOLOGY: WITH
SPECIAL REFERENCE TO
SANITARY WATER ANALYSIS**

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Elements of Water Bacteriology: With Special Reference to Sanitary Water Analysis by
Samuel Cate Prescott & Charles-Edward Amory Winslow

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WATER BACTERIOLOGY.

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SANITARY WATER ANALYSIS.

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DEDICATED
TO
William Thompson Sedgwick
BY TWO OF HIS PUPILS,
AS A TOKEN OF GRATEFUL AFFECTION.

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PREFACE TO FIRST EDITION

THE general awakening of the community to the importance of the arts of sanitation — accelerated by the rapid growth of cities and the new problems of urban life — demands new and accurate methods for the study of the microbic world. Bacteriology has long since ceased to be a subject of interest and importance to the medical profession merely, but has become intimately connected with the work of the chemist, the biologist, and the engineer. To the sanitary engineer and the public hygienist a knowledge of bacteriology is indispensable.

In the swift development of this science during the last ten years perhaps no branch of bacteriology has made more notable progress than that which relates to the sanitary examination of water. After a brief period of extravagant anticipation, and an equally unreasonable era of neglect and suspicion, the methods of the practical water bacteriologist have gradually made their way, until it is recognized that, on account of their delicacy, their directness, and their certainty, these methods now furnish the final criterion of the sanitary condition of a potable water.

A knowledge of the new science early became so indispensable for the sanitary expert that a special course in the Bacteriology of Water and Sewage has for some years been given to students of biology and sanitary engineering in the Biological Department of the Massachusetts Institute of Technology. For workers in this course the present volume has been especially prepared, and it is fitting, we think, that such a manual should proceed from an institution whose faculty, graduates, and students have had a large share in shaping the science and art of which it treats. We shall be gratified, however, if its field of usefulness extends to those following similar courses in other institutions, or occupied professionally in sanitary work.

The treatment of the subject in the many treatises on General Bacteriology and Medical Bacteriology is neither special enough nor full enough for modern needs. The classic work of Grace and Percy Frankland is now ten years old; and even Horrocks' valuable "Bacteriological Examination of Water" requires to be supplemented by an account of the developments in quantitative analysis which have taken place on this side of the Atlantic.

It is for us a matter of pride that Water Bacteriology owes much of its value, both in exactness of method and in common-sense interpretation, to American sanitarians. The English have contributed researches of the greatest importance on the significance of certain intestinal bacteria; but with this exception the best work

on the bacteriology of water has, in our opinion, been done in this country. Smith, Sedgwick, Fuller, Whipple, Jordan, and their pupils and associates (not to mention others) have been pioneers in the development of this new field in sanitary science. To gather the results of their work together in such form as to give a correct idea of the best American practice is the purpose of this little book; and this we have tried to do, with such completeness as shall render the volume of value to the expert and at the same time with such freedom from undue technicality as to make it readable for the layman. It should be distinctly understood that students using it are supposed to have had beforehand a thorough course in general bacteriology, and to be equipped for advanced work in special lines.

Boston, *March 10, 1904.*