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978-1-107-49472-5 - Sewage Purification and Disposal
G Bertram Kershaw
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CAMBRIDGE PUBLIC HEALTH SERIES

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SEWAGE PURIFICATION AND DISPOSAL

by

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EDITORS' PREFACE

IN view of the increasing importance of the study of public hygiene and the recognition by doctors, teachers, administrators and members of Public Health and Hygiene Committees alike that the *salus populi* must rest, in part at least, upon a scientific basis, the Syndics of the Cambridge University Press have decided to publish a series of volumes dealing with the various subjects connected with Public Health.

The books included in the Series present in a useful and handy form the knowledge now available in many branches of the subject. They are written by experts, and the authors are occupied, or have been occupied, either in investigations connected with the various themes or in their application and administration. They include the latest scientific and practical information offered in a manner which is not too technical. The bibliographies contain references to the literature of each subject which will ensure their utility to the specialist.

It has been the desire of the editors to arrange that the books should appeal to various classes of readers : and it is hoped that they will be useful to the medical profession at home and abroad, to bacteriologists and laboratory students, to municipal engineers and architects, to medical officers of health and sanitary inspectors and to teachers and administrators.

Many of the volumes will contain material which will be suggestive and instructive to members of Public Health and Hygiene Committees ; and it is intended that they shall seek to influence the large body of educated and intelligent public opinion interested in the problems of public health.

AUTHOR'S PREFACE

I N writing this book it has been the endeavour of the author to present the most recent knowledge relating to sewage disposal and purification as concisely as possible, giving a bibliography at the end of each chapter which may be referred to by those who are desirous of detailed information on any particular point in which they are specially interested.

Methods of treatment which are in the first stages of experiment have not been dealt with in detail, as this would often tend to mislead. It is unfortunately the case with many of these processes, when they come to be impartially investigated, that the initial and working costs are not infrequently found to be lacking; conversely, when these figures are forthcoming, reliable data as to the real efficiency of the process are often absent. Again, a method of treatment which yields satisfactory results on a small scale may fail when called upon to cope with the conditions met with in actual practice on sewage works.

In the treatment of sewage so as to yield a satisfactory degree of purification, the cost must always be the predominant factor; any degree of purification can be obtained if the expense is no object.

The disposal of sewage or sewage liquors by dilution is not discussed in this book, as this aspect of the question is being dealt with by Dr W. E. Adeny in a separate volume of the Cambridge Public Health Series.

The author has been engineer to the Sewage Disposal Commission since its inception some 16 years ago, and he has therefore had somewhat exceptional opportunities for investigating the various sewage treatment processes in use at the

present day, and frequent references are made to the reports of the Commission.

The valuable reports of the Massachusetts State Board of Health have been freely drawn upon, and it may not be out of place to express the hope that, some day in the near future, the matter in these volumes exclusively devoted to sewage may be extracted and issued separately by the Board.

In the chapter upon sludge disposal, many quotations have been made from Mr Kenneth Allen's book *Sewage Sludge*, by the courtesy of Mr Allen, and it is believed that due acknowledgment has been made in the case of all other quotations. To facilitate reference, American and Continental practice in sewage treatment has been printed in smaller type.

The writer's thanks are due to Messrs S. H. Johnson for the loan of the blocks used in Figs. 26 and 27; to Mr W. Clifford, A.M.I.C.E., for permission to reproduce the table and diagram given on pages 169 and 170 relating to the Wolverhampton sewage farm; to Messrs Crossley Bros., Ltd., for the photograph showing their spent tan plant; and to Mr J. Radcliffe for lending the block reproduced on Fig. 56; also to Mr Owen Travis for the plan and photograph of the Luton hydrolytic tank shown on Figs. 18 and 19; to Dr Ing. Karl Imhoff for photographs of the Wanne-Nord Imhoff tank installation, and to Messrs Ames Crosta and Co. for permission to reproduce the plan and section of the Fieldhouse tank. I am also indebted to the Controller of His Majesty's Stationery Office for permission to reproduce diagrams from the reports of the Sewage Disposal Commission (Figs. 4, 37, 38 and 46).

I owe a debt of gratitude to Mr J. E. Purvis—one of the editors of the Cambridge Public Health Series—for many kind suggestions and help, and I also wish to express my indebtedness to Mr F. O. Moore for valuable assistance in the preparation of the drawings and diagrams.

G. B. K.

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PREFACE TO SECOND EDITION

WHEN this book was first written in 1915, the activated sludge process of sewage treatment was in its infancy, and only the work of Dr Fowler was available. Since then much work has been done in connection with this process by various experimenters, both at home and abroad, and to bring the second edition up to date, a fresh chapter has been added, dealing with this method of treatment, together with other subjects—*e.g.* sludge digestion. With a view to increasing the usefulness of the second edition, the information previously given has been amplified and extended where it appeared to be necessary.

The great war naturally altered all previously accepted figures of cost relating to sewage treatment, and even at the present time (1925), prices are by no means stabilised. In cases where figures of cost are given in this book, and there can be no ambiguity as to the date to which they refer, pre-war figures have been retained, as they form a useful landmark.

In all post-war data regarding costs, the year to which they refer is given.

The author has endeavoured to meet the valuable suggestions of the reviewers of the first edition, and he trusts that the new matter may render the book of greater service to the reader.

G. BERTRAM KERSHAW

9, VICTORIA STREET,
WESTMINSTER, S.W.

January, 1925.

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