

# **VENTILATION OF BUILDINGS**

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Ventilation of Buildings by W. F. Butler & James L. Greenleaf

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**W. F. BUTLER & JAMES L. GREENLEAF**

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OF BUILDINGS**



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BUILDINGS.

BY  
W. F. BUTLER.

RE-EDITED AND ENLARGED BY  
JAMES L. GREENLEAF, C.E.



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1885.

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## INTRODUCTION

TO

## SECOND EDITION.

A few words of explanation may be useful in presenting this small book once more to the attention of those interested in sanitary matters. Its size precludes any detailed treatment of the broad subject indicated in the title, and the space is still more curtailed by the discussion of subjects not immediately connected with it.

The pages on the ventilation of underground railways are not of any special practical interest to architects or householders, but they are interesting, inasmuch as they treat of a difficult problem that the London public has to face, and hence have been retained. So also with the ventilation of sewers; a subject of interest to all sanitarians, although only remotely connected with the ventilation of buildings.

The remarks on house-plumbing may perhaps be more readily reconciled with the title, and although they present truths made widely familiar within the last few years, are too im-

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portant to be excluded on the score of consistency.

Leaving out of mind these excrescences, which may be explained by the fact that the origin of the book was a paper prepared by Mr. Butler for delivery before an audience, the plan of treatment is, first to discuss the needs for ventilation, and the amounts required; and second, to give a method for ventilating private houses, showing how to adapt it both to old and to new buildings.

The conditions for which it was written are English, and consequently there are some features of the methods advised that cannot be recommended for use in America, although suitable for an English climate. Also, some of the views expressed, that are quite independent of climate and custom, cannot be held in the light of modern opinion.

The aim has been to adapt this new edition more thoroughly to American conditions, and where the second editor cannot agree with Mr. Butler, his views are expressed in foot-notes referring to the text.

In the reasoning by which Mr. Butler derives his data regarding the amount of ventilation required, he is particularly at variance with the latest and best conclusions, and on this topic a paper is reprinted at the end of the book from *VAN NOSTRAND'S MAGAZINE*, entitled "How

Much Ventilation?" which presents the subject  
as understood by the editor of this new edition.

JAMES L. GREENLEAF.

School of Mines,  
November, 1885.



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# VENTILATION

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I do not claim to have discovered anything new in the art of ventilation. All I have endeavored to do in the following pages is to lay down principles, which shall be applicable to almost every case where ventilation is required.

One object of the paper is to insist upon the great and increasing importance of the subject, and, if successful in this, I am satisfied that it will not have been read in vain.

Before proceeding further, I think it will be desirable to explain what I mean

by the term "Ventilation." Briefly, it is this—a gradual, continuous and complete changing of the air contained in any structure; a substitution, in fact, of fresh air for foul, but so gradual a substitution that the motion of the air should be imperceptible.

Of course, in factories, imperceptibility need not be so much regarded, and in the cases of sewers and underground railways, it is obvious that any method may be followed which promises the most perfect results.

The importance of the subject under consideration, which can hardly be overestimated, has been the constant theme of writers on ventilation; thus, Dr. James Johnson, in a work called "A Diary of a Philosopher," says that all the deaths resulting from fevers are but as a drop in the ocean, when compared with the numbers who perish from bad air.

It is to the efforts of science that we must look for an alteration in so disastrous a state of things, and men of science may be assured that society will ere