

**SMOKING FIRES,  
THEIR  
CAUSE AND CURE**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649400188

Smoking fires, their cause and cure by Alex. Colvin Ainslie

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Cover @ 2017

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**ALEX. COLVIN AINSLIE**

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# SMOKING FIRES

THEIR

CAUSE AND CURE

BY THE

REV. ALEX. COLVIN AINSLIE M.A.

VICAR OF CORFE SOMERSET



London

LONGMANS GREEN READER AND DYER

TAUNTON F MAY HIGH STREET

1869

173. f. 4.

## INTRODUCTION.

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WHAT a strange picture is presented to the eye of the occupant of a room on the fifth or sixth floor of one of the great London Hotels, as he looks down upon the world of roofs beneath and around him, but nothing in the picture so wonderful, so saddening, so humbling, as the countless multitude of unsightly distorted earthen and metal tubes through which thousands of fireplaces pour out their black pollution into the London air. Saddening I call it, for each tortuous chimney pot gives outward token of a smoky fire below, and the array of such hideous contrivances which forms the sky-line in almost every London picture represents an amount of human discomfort more than enough to call forth the sympathy of the philanthropist. Humbling I call it, because in these days when science and constructive art go hand in hand to scan the starry heavens, to reduce the electric fluid into submission, to make the earth discover her secrets and her treasures, science

seems to have thought the domestic chimney either beneath or above her notice, and constructive art which I suppose, like other things in this world, "non omnibus horis sapit," has devoted herself, at her very maddest moments, to the fabrication of chimney pots.

Mere unsightliness would be pardonable, if unavoidable (though in picturesque country houses appearances must be considered which may be disregarded in a London street); but the utter absence of an intelligent principle to guide the mind and hand of the makers of these monstrosities is hardly creditable to our day and country.

The ascent of heated air and smoke is governed by certain known laws; but when the intolerable nuisance of a smoky chimney occurs, instead of seeking to discover which of those laws has been infringed, instead of listening to what the fire itself would tell us on the subject—and in most cases it speaks eloquently its own wants, and points out to us the illtreatment to which it is subjected—we go to our tinman; in our misery we are willing to try anything he recommends; in a day or two a hand truck arrives at our door with a great zinc tube, all knees and elbows, which in due course is elevated to take its place among many similar "lovely companions." If success

attends the operation we are content with the result without asking the reason why ; if failure, we go to another doctor and put up, on his recommendation some other equally hideous erection. And so we go on at a great waste of money, temper, furniture, carpets, and curtains.

The ascent of heated air and smoke is governed by certain known laws, and the object of the following pages is to explain those laws as concisely as possible, and to point out the causes which most commonly modify or interfere with their action, and produce results apparently contradicting our scientific theory.

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# SMOKING FIRES: THEIR CAUSE AND CURE.

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## CHAPTER I

### THEORETICAL CONSIDERATIONS.

1. *Atmospheric air is an elastic fluid, and its density at any given temperature is dependent upon the compression to which it is subjected.*

If the air in a vessel whose capacity is one cubic foot, be compressed into the space of half a cubic foot, its density will be doubled.

2. *The elastic force of air varies directly as its density.*

In proportion as it is compressed, in the same proportion does it exert an outward pressure upon the surfaces compressing it.

3. *Air has weight.*

This is capable of proof by actual experiment; a vessel containing air being weighed, and the same vessel, exhausted of air by means of an air pump, being again weighed, a perceptible difference in weight is discerned.

4. *Air in motion has momentum.*

This follows from its weight. We are sensible of the force of wind, a force varying with the speed with which the air travels, and momentum is represented in mechanics by "weight multiplied by velocity."

5. *The momentum of air in motion exercises a force upon everything opposed to it.*

Hence the action of wind upon the sails of a ship, upon the surface water of the sea. Hence also it will be seen that a current of air in rapid motion striking upon a mass of air at rest, will either set it in motion, if it be free to move, or will exercise a pressure upon it if it be partially confined, which will increase its density and elastic force. The density and pressure of the air on that side of a wall which is turned towards the wind, is greater than that on the side turned from the wind.

6. *The pressure of the air on every point at the earth's surface is due to the weight of the superincumbent atmosphere.*

We may conceive the atmosphere to be made up of a vast number of vertical columns of air, whose base is, say, one square inch, and height equal to that of the atmosphere, whatever that may be. By experiments with the barometer it is found that the weight of every such column