

# SCIENCE

FRIDAY, APRIL 30, 1915

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## THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE<sup>1</sup>

### STANDARDS OF VENTILATION IN THE LIGHT OF RECENT RESEARCH

THE fact that the stagnant air of an occupied room becomes uncomfortable and makes those who are exposed to it listless and inert is a matter of common experience. When overcrowding in a close unventilated space reaches a certain point the results may even be fatal within a few hours, as in the Black Hole of Calcutta, the underground prison at Austerlitz and the hold of the ship Londonderry. Conversely the value of fresh air in the treatment of tuberculosis and other diseases is one of the fundamentals of medical and hygienic practise.

For the sanitarian it is necessary, however, to know something more than this general fact that bad air is bad. He must not only have some workable conception as to its operation, but also a more or less definite standard of permissible deviation from absolute purity.

In the earlier days of ventilation this was an easy task. It was natural to assume that the evil effects of the air of occupied rooms was due, either to lack of oxygen or excess of carbon dioxide, or to the presence of some specific organic poison of human origin—morbific matter or anthroptoxin, as this hypothetical substance was called. Of either of these changes the amount of carbon dioxide should serve as a fair measure, and a carbon dioxide standard was therefore confidently advanced by the older sanitarians as a practically all-suffi-

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<sup>1</sup> Papers presented at a Symposium on Ventilation at the Philadelphia meeting.