

initial and the respiratory carbonic acid, rises to the ratio of 6 per 1000 volumes, or '0006 in each cubic foot. Occasionally air may seem pure to the senses when the carbonic acid is '7 or even '8 per 1000 volumes, but the usual rule seems to me that when it exceeds '6, the air commences to become perceptibly impure. When the carbonic acid reaches '9 or 1 per 1000 volumes, the air is what is called close and fusty; above this, it becomes disagreeable. In order to perceive the smell of the organic matter, the room should be entered from the fresh outside air, as after the observer has been a few minutes in the room the odour becomes imperceptible.

"Pettenkofer has now adopted the limit of '7 measures of CO_2 , and Degen '66 measures per 1000 as the amount when the organic matter simultaneously present becomes perceptible. I would propose, then, to adopt the amount of '6 cubic feet per 1000 volumes of total carbonic acid (initial and respiratory) as the limit of impurity. I admit that I am not able to show by direct evidence that impurity indicated by '7 or '8, or even 1 volume of carbonic acid per 1000, and organic impurities in proportion, is injurious to health. We possess no means of testing the effects of such small quantities. Such a standard must be adopted, first, on the general evidence that large aerial impurities are decidedly hurtful, and that smaller amounts may be presumed to be so in proportion, although we cannot measure the action; and secondly, on the fact that we have an obvious and simple measure in the effect produced on the senses, which gives us a practical line of demarcation we could not otherwise obtain.

"Adopting, then, this standard as the measure of the permissible maximum of impurity, the next point is the quantity of pure external air which should pass through the air of a room vitiated by respiration per head per hour, in order to keep the carbonic acid at this ratio."

Dr. Parks then shows that in order that the air in an inhabited apartment shall not contain impurities in excess of this standard, there must be a supply of at least 3,000 cubic feet of fresh air per head per hour, in all cases, in which the diffusion of the contained air is uniform.

"If the standard of practicable purity, viz., '6 of carbonic acid per 1000 volumes (of which '2 is derived from respiration) is considered too high, as involving too great a cost, and if '7, '8, or '9 be taken, the amount of air required per head per hour will be 2000, 1500, and 1200 cubic feet respectively. If the emission of carbonic acid is taken, not at '6 cubic feet per hour, but as something less, as in the case of women and chil-