

Forty, fifty, even sixty or seventy children assemble, school is called, the day is chilly or cold, and consequently the doors and windows are all closed. How long is the air in that room fit for respiration? About ten minutes. What then? Breathe it over and over again; and so the process of devitalization and poisoning goes on and on. "But they're young; they can stand it." Recess comes and gives temporary relief. Fortunately it is a difficult matter to keep doors shut at recesses and noon-hours.

Analysis of ordinary out-door air shows that it always contains about $4\frac{1}{2}$ parts of carbonic acid in 10,000. The analyses of air made under the direction of the "Health of Towns Commission," appointed by the British Government, showed that the air in the streets of Manchester, perhaps the smokiest city in the world, contained varying proportions from 6 to 15 parts in 10,000. Other analyses furnished the following figures: a stable, 7 parts in 10,000; another stable, 14; a crowded railroad car, 34; a close bed-room in the morning, 48; a crowded lecture-room at the close of a lecture, 67; and, *worst of all, a school-room, 72 parts in 10,000*. Dr. A. Endemann, an analytical chemist of New York, at the direction of the Board of Health made analyses of the air taken from several of the city schools. He certified that an examination of the air in one of the class rooms, while one of the windows was open, gave 17 parts of carbonic acid in 10,000; the window was closed ten minutes, another examination of air taken then yielded 32 parts and he adds "if the accumulation had been allowed to continue we might have reached within an hour the ratio of 110!" Dr. Dalton, the physiologist, says air can no longer sustain life when the proportion of carbonic acid reaches 200 parts in 10,000. Hence it is no hyperbole to say that when the proportion of carbonic acid reaches 100 parts in 10,000; i.e., 1 cubic foot in 100, as probably quite frequently occurs, the children and teacher are *half* dead.

But were our children living in school-rooms and sleeping rooms, the atmosphere of which were vitiated by ten times its normal quantity of carbonic acid only the case would not be so serious as it is. Dr. Carpenter writes that "the true poisonous agent which produced such fatalities as the Black Hole of Calcutta and others of a like kind is the organic matter which is always found in air rendered fœtid by the prolonged respiration and the cutaneous exhalations of a crowd of human beings, and the deficiency of the oxygen and the consequent increase of putrescent matter in the body." Through Mr. Alexander, of Galt, I quote from Dr. Billings, Surgeon-General of the United States Army: "The really dangerous and oppressive impurities are the organic matters thrown off in respiration, and as these increase the carbonic acid increases in like proportion. Now the testing for these organic matters in a quantitative point of view is a very difficult and delicate process, whereas the examination for carbonic acid is comparatively simple; hence the chemical test of the quality of the air is made by the analysis for carbonic acid, which is taken as an index for the really harmful impurities existing." Prof. Leeds says, "the young active, growing brain demands the purest and the best air and is most sensitive to foul air." Another eminent authority writes: "In all climates and under all conditions of life, the purity of the atmosphere habitually respired, is essential to the maintenance of that power of resisting disease, which, even more than the ordinary state of health, is a measure of the real vigor of the system. For owing to the extraordinary capability, which the human body possesses of accommodating itself to circumstances, it not unfrequently happens