

with which school authorities have to deal. In a school favourably situated and equipped from a sanitary point of view, the pupils—educated by the ideal teacher, intellectually, morally, aesthetically and physically—ought to grow wiser, better, happier and stronger every day. Ordinarily, the most of them do grow wiser; but do they grow stronger and healthier? In Dr. Oldright's paper, already referred to, he answers the question by simply pointing to the contrast between the appearance of the children at the close of the school-term and at the re-opening after the vacation. The same answer is given by contrasting the school at the beginning and close of winter. By parity of reasoning, you would expect to find the appearance and condition of the children more favourable in March than in June, but anyone acquainted with rural schools at least, knows that the contrary is the case. The open window suspends the rule. Why is it that in the winter season, when other people are gaining weight and vigour, school children and teachers are losing energy and appetite? The trustees and children are proud of their substantial, air-tight, comfortable brick school-house. 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 at 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 analysis 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 always found in air rendered foetid by prolonged respiration, the cutaneous exhalations of a crowd