SCHOOL ROOM HYGIENE.

SUBSTANCE OF AN ADDRESS AT THE NORTH YORK TEACHERS' ASSOCIATION, BY D. FOTHERINGHAM, P.S.I.

I begin by asking what *ends* should be kept in view in the erection of a school room. The first, and often the only end aimed at, is the *Intellectual Education* of our youth. That is a truly worthy aim, for we want, in the future, men and women, shrewd, clear headed, incisive, who shall be able to take in any situation at a glance, and decide the right course of action on short notice. But any trustee or community that shall stop here, and fail to recognize need for *education* other than *intellectual*, fails sadly in understanding the true necessities of the case. For a vigorous and successful career through life, our coming men and women must possess strong and healthy frames—their *Physical Education* should receive consideration scarcely secondary to Intellectual. The practical value of Intellectual Power is closely and inseparably dependent on Physical Power, and any provision for promoting the one without full attention to the other, is short-sighted and unwise. To be useful, to be successful in life, we must see that our young people shall possess a sound body as well as a sound mind. In the majority of cases, Physical Education is not once thought of, and no adequate provision is made for it in the construction and arrangements of our school rooms. Till this is done, justice is not done to the wonderful powers and possibilities of our compound being. Nay, more, the seeds of deformity and disease, are, too often, sown through the oversight and neglect of reasonable provision for the comfort and health of the body in the school room. See how careful a horse fancier is of the physical condition of his roadster, and how he seeks by every means to keep it in the best possible condition for use. Contrast with this our neglect of the physical training of children.

I venture to say further, that the *Social Education* of young people receives *no sufficient* consideration in the construction of school rooms. What enlightened and liberal provision is made, in the space and rooms of a School House, for natural movements and intercourse among the young people—for observing the proprieties, civilities and amenities of life—for developing and perfecting the knowledge and practice of true politeness and unselfish consideration of others?

But, above and beyond the Intellectual, Physical, and Social, we should make provision for the *Moral Education* of youth. And any provision for the future well-being and well-doing of our children should see to it that all strength shall be developed in *moral* principles. The school room should be arranged and its work conducted with direct and deliberate purpose to develop the virtues of truth, honesty, purity, justice, self-sacrifice, and the fear of God; and no one will deny that the child's surroundings do help or hinder in the formation of habits and character.

I claim, therefore, that in the construction of School houses regard should be had to:

1.—Intellectual Education.
2.—Physical "
3.—Social "
4.—Moral "

These departments of training are so closely allied and interlaced that the neglect of one must unfavorably influence all the others; and so I introduce my remarks on School Room Hygiene by calling attention to them. I now proceed to my subject proper:

The Hygiene of the School room is in no way so often and so seriously influenced unfavorably as by the state of

I. THE ATMOSPHERE.

1. *Its Quality* should be *good*. It will not do to have it good and bad alternately. To insure health and normal condition of mind and body, we must see that we have a normal condition of the air we breathe. One of the most frequent and most inexcusable mistakes of the school room is to allow 40, 50, even 80, or 90 pairs of lungs, to use up the vitalizing oxygen, and load the atmosphere with the poisonous exhalations of the body for half an hour, or an hour, without any intelligent effort to preserve the purity or remove the impurities of the air. Too often, even now, after ten years of earnest effort to secure pure air and clear minds in schools, do I enter rooms almost hermetically sealed, with fifty or sixty precious lives languishing in what might soon become another Black Hole—without arrangement of any kind for the regular and rapid escape of the fetid and used up, or admission of the pure and bracing. "What would I do if Trustees would not make arrangements for ventilation?" I would take a hammer and nails and suitable pieces of wood, and tear out and down and re-arrange till windows could be easily opened at top and bottom. I would, at any cost, make it possible for myself and my children to breathe pure air at every inspiration, though this would give neither the best nor safest possible ventilation. Talk of cramming! talk of over home study! I dare assert that for *one* child that is injured by these, *one hundred* are enfeebled for life by the insane indifference of the general public, of school authorities, and even of some teachers, to the state of the school room air. Pure air has far more to do with good discipline, good progress and good health, than is generally realized.

Before leaving this point, I would call attention to the importance of selecting school sites in localities free from malarial influences, where good drainage can be secured. Too often these points are sacrificed to meet a desire to have a school in the territorial centre.

2. *Its Quantity.*—You cannot have too much good air. The only limit I would set to the space allowed in the school-room would be ability properly to regulate the temperature. The legal requirement, 120 cubic feet for each of two-thirds of the school population, is a niggardly pittance of the great ocean with which we are surrounded so bountifully, so mercifully. Think of the rapidity with which fifty persons, breathing fifteen times a minute, and two pints at one breath, will destroy the purity and vitiate the atmosphere of an ordinary school-room. For it is not the whole air that vitalizes. The oxygen constitutes but one-fifth of the whole volume of air, and that alone gives support to life. While this is consumed so rapidly it is replaced as fast by gases and vapors from the system, which, if breathed again, speedily stupefy and poison. In ordinary circumstances, the higher ceilings are the better, as most of the gases and vapors, on escaping from the body, ascend, though one of the most poisonous—carbonic acid gas—sinks; and this leads me to speak of

3. *Its Circulation.—Still air* soon becomes *bad*. Nature seldom allows the air to rest. Breezes, winds, gales, give constant change and purity to the atmosphere outside, while with our ceiled houses and closed windows and doors, the bracing purity and rapid change are excluded, and the inside becomes a stagnant pool of fetid air. Let a room without occupants be closed for a short time, and we cannot breathe the air it contains with comfort; but shut in it fifty people, and set a fire going to consume *its* quota, too, of the oxygen, and a few minutes are sufficient to destroy its life-sustaining properties. It is thus evident that the air of a school-room should be kept in constant circulation. Bad air should be driven out by the inflow of good air moment by moment. It is not sufficient to make periodic changes. Teachers and scholars often forget to do that. Arrangement should be made for a supply equal to the demand, which has been shown to be constant and great. How to do so is a difficult problem. Draughts must be avoided. Violent changes of temperature must not be permitted. To secure good air without these frequent attendants, requires both great skill and considerable expense. In my opinion, furnaces with sufficient capacity, supplied with outside, fresh air, throwing in a constant supply of this heated (not scorched) air, with proper ventilation at the ceiling and floor for the escape of impure air, is within the reach of all School Sections. And then the pernicious method of heating the already impure air by stoves would be done away. Ventilation by the tops and bottoms of windows is much better than none; but there is this serious objection to it in severe weather, those seated near such openings are subjected to draughts and chills, while those in other parts of the room do not get much benefit from the change. There is this objection also, the heated air escapes too readily by the open windows, while the cold air falling, as it always does, to the floor, keeps the feet in too low a temperature. However, till you are provided with better means of ventilation, keep rousing fires and open windows, so as to insure rapid change of air. When I have advised Trustees to construct furnaces while erecting houses, so that the pure air could be heated and thrown steadily into the school-room, the matter of health was not for a moment considered. The question was, Would it cost more? and, as undoubtedly it would,