

bottom, taking air from the floor, and connecting with the chimney. By means of this pipe the heated chimney carries foul air out of doors. Where heating by hot air was adopted it was necessary that the inlet and delivery of pipes be kept clean, and it would be well to have a fine wire screen over the outer and inner orifices of the inlet pipe. In large buildings heated by steam or hot water the same principle of efficient supply and exhaust must be observed. He explained the old and new methods of ventilation used in the Detroit House of Correction, the latter and preferable being by extending ventilating shafts from behind the several cells to and through the roof in some instances, and in others utilizing old neglected flues or shafts to rarefy the contained air and thus induce an inflow below, and a continuous exhaustion. This supplies the needed exhaustion, while beneath and in front of a large window on either side of said corridor are placed large bores made to fit the windows closely, containing an abundant steam coil, and so arranged that on opening the lower sash of the window fresh air is permitted to flow down behind an intervening screen, and beneath this steam coil and hence up through said coil, to be discharged by a well-regulated opening at the top. After describing a somewhat similar method of ventilation in the Toronto General Hospital in the older portion of the building, he said that a more efficient system of exhaust would be to provide four flues, each containing a coil of steam pipe, for each ward. These flues could be grouped in a central column passing from flat to flat, terminating in screened outlets at the roof. The ventilation of the more modern part of the Toronto hospital is furnished by the Reynold's system. The exhaust is obtained by a central shaft passing from the basement through the roof and terminating in an ornamental chimney. This shaft contained a central iron tube used as a flue for the furnace in the basement, which heated the baths. Each room was connected with this shaft by ventilating tubes opening at the base line of the room. In winter, when the doors and windows were closed, the outside air, collected by a large tube, passes over a dome in the base-

ment heated by a furnace, whence it is distributed to the various rooms by tubes opening in the walls about three or four feet from the ceiling. Provision is made for lowering the temperature. This system is really admirable. Whatever method is adopted all soil pipes, closets, lavatories, drains, &c., should be provided with independent ventilation by pipes extending beyond the roof. Another question of importance was the supply of a sufficient quantity of moisture with heat. Water absorbed impurities, and also rendered the heat more agreeable to the health. It might be evaporated in pans, or placed in a section of pipe which conducted hot air from the cellar to the room above. Care should be taken that the water was fresh and the vessels clean. The proper ventilation of cellars was of the first importance, and the system of ventilation by flues already described, should be applied to them. Carbonic acid was a very hurtful ingredient of impure air, but there were others of a more complex nature escaping from the clothing, the lungs, and the skin. Fortunately carbonic acid gas was endowed with a power of diffusion, which prevented it from exercising its poisonous power. Though much heavier than air it rapidly diffused itself, and was present in the air near the ceiling as abundantly as near the floor.

Dr. Yeomans said 12 per cent. of the deaths in this province were from consumption—an essentially in-door disease, and one which resulted, to a great extent, from impure air, and, therefore, Dr. Cassidy's paper was one of great importance.

Principal Miller, of the St. Thomas Collegiate Institute, said that the foundation of ill-health, produced by breathing impure air, was laid in the Public Schools. The majority of the schools were constructed regardless of the question of ventilation. This was a matter to which public attention should be drawn.

Registrar McLachlan, of St. Thomas, gave one or two instances in which he saw the principles enunciated in Dr. Cassidy's paper practically applied. One was a Church in Georgetown, and it possessed the additional advantage of economizing the fuel.