

accepted merely as a sort of necessary compliment) than so many children. We do not go so far as to say that there are not some exceptions in such cases, but unfortunately upon these exceptional cases fall the heaviest task, when the active members eventually withdraw from it in disgust, and the matter is forgotten, until some pestilence is again bred and fed into fatality by the foul fat vapours that issue from the drains.

If we look to many of our houses of the poorer sort they are damp, stuffy, and fetid, they are overcrowded; while in residences of greater cost, the appliances may be perfect but the construction imperfect, gases leak out in different places and finding their way under the doors, accumulate at night in sealed up bed-rooms, when the system being relaxed in sleep is more easily affected by the poison. The effects of an atmosphere so foul, from the imperfect aeration of the blood and its accumulation on the lungs, soon cuts short the thread of life in the young, and renders the adult more readily susceptible to attack from epidemics or diseases of an inflammatory form. The youngest children fall most readily under its attacks, but its effects may be seen in the pale faces and debilitated constitutions of many who are ever complaining of headaches and want of vital power, without ever dreaming of the source from whence they arise.

If we look to our public buildings there is little less to be condemned; and the drainage in the mercantile part of the city, and the filthy state of the privies in that locality is a disgrace to the merchants, but a greater disgrace to a Corporation who allow such a state of things to exist.

The time has arrived when this state of things must *cease to exist*, and there must be a more general demand for Sanitary Architecture. Houses must not be built merely to *sell* or to *let*, they must be built to live in, and all those arrangements carried out which make life vigorous and healthful. Ask the clergymen of this city, who have had so many opportunities of visiting the poorest classes, what is the proportion of bed-rooms they enter into which have little or no means for changing air, where each inmate has not a hundred feet of space; and what is the consequence? why a degraded condition of health, a kind of half life, no energy, no power, the mind becomes half paralyzed. More than two-thirds of the children born in such places die before they are five years of age, and the death rate in such localities is five times as high as it is amongst people living under more healthy conditions. There is a cry in this city at present, "Let us have light," we echo the sentiment, and let the light purify the air, the want of which, brings debility, fever, *death*; widowhood, orphanage and pauperism. The rich man often after building a splendid villa containing within its walls, all the comforts and conveniences that experience and modern appliances can devise, expecting to spend a few more years of life in quiet enjoyment and the comforts and pleasures of a beautiful home, is suddenly cut off by fever, caused by insidious gases issuing from hidden sources beyond his power to examine, and beyond his comprehension to understand; when everything that money could buy had been obtained to make the drains perfect—except *workmanship and brains*.

It would be well now to enter into some details with respect to Sanitary Architecture. Commencing with the foundation of a house. If the foundation is built

on the original soil, and it is dry, no difficulty exists; but if, as frequently happens in cities, the foundation has to be laid upon a made soil, formed from the rubbish and refuse of yards and streets, too great precaution cannot be taken to prevent foul air continually arising therefrom. Again in swampy localities, or in places where quicksand, resting upon blue clay, under-lies the super-strata, as in the case of that locality immediately above Sherbrooke st., on each side of St. Lawrence street, and where the basements are for ever damp—a good layer of cement concrete should be spread over the whole area, and a "damp-proof course" in the walls just above the ground line. The custom, however, is to lay the flooring over the damp earth without any means of air circulating beneath, and the result is damp musty basements, and in a few years the whole flooring is destroyed by dry rot. The value of concrete as a building agent in certain localities is very great, and is coming much into use in Great Britain.

But it is from the effluvia from the drains of our houses whence the main source of all zymotic diseases arise. These are often ill-formed and of permeable material, frequently laid without proper fall, and often with fall the wrong way, so that the solid matter remains in them. Often the junctions are at right angles to the main drain and upon the same level: but what is worse than this, the joints are so imperfectly cemented, that there is a constant leakage until the whole sub-soil of the house is completely saturated with filthy ooings: the condition of the lower parts of some of our houses, if laid bare, would be perfectly startling. All drain pipes should be so laid that they could be examined at any moment without the necessity of taking up the flooring.

Now as regards the traps that are used, and considered by so many as perfect safety guards against all foul gases, and thereby lulling suspicion, it has been ironically said that they are well named *traps*. "Traps to catch a fever" the connexion of waste-pipes from cisterns, and pipes from sinks with drains, has produced deadly results, it is at the connexion of the drain-pipes with traps that all the foul gases accumulate, and when a rush of water passes through the trap, a vacuum is caused and the gases are forced upwards into the house. The pressure of gases at this point, when the wind is in a certain direction, is so great, that they are forced through the water in the trap. There have been several improvements made recently in traps (including a cowl to aid in ventilating the soil pipe.) It is so formed that the solid matter rapidly passes away, holds sufficiently to seal the end of the soil-pipe, and has attachments to ventilating tubes, this is one of the great improvements which lately has been well laid hold of by the public in England—the necessity of the ventilation of the house drain. On the latter subject, some excellent suggestions have been submitted by R. T. Godfrey, Esq., M.D., Professor of Hygiene, &c., McGill College, Montreal, founded on personal experience, and which, with some modifications to suit localities, will probably be generally adopted for the future in this city. A most useful ventilator for ventilating sewers has been patented by Mr. Stott, England. An air-tight sheet-iron door is fixed to the ash hole of a boiler and connected with the drain by stoneware pipes: the fire is thus fed by the noxious gases, and a continual flow of air drawn from all adjacent sewers, it has been found, however, necessary to trap all the openings within a radius of 300 or 400