

gained by compression). Out of which end of the drain, (supposing that it has no ventilator), this air shall pass will be determined by circumstances; it passes most readily where it meets with least resistance, always giving preference to an upward direction owing to the greater gravity of the water. Hence, if the upper end be untrapped and the drain not running (which it seldom will) full bore the greater portion of sewer air will escape into the house. If it be trapped and the lower end open the air will be forced out at the lower end. But suppose that the water in the main sewer is above the level of the mouth of the house drain, and a considerable body of water be poured in, it must displace the air in an upward direction, and force the trap unless there be some other vent. This condition often exists; and I will show hereafter why it is desirable that house drains should not open at the highest portion of the arch of the sewer. This ebb and flow acts like a double acting piston or syringe.

5. It also causes an increased generation of gas by the constant *evaporation* arising from the alternate wetting and drying of sewage on the sides of the drain.

6. Direct *afflation* through the sewer system is another operating force; the wind blowing up through the mouths of the main sewers, unless they are secured by flap valves at their mouths. A Southerly wind will have this effect in Toronto.

(To be continued.)

ON THE DISPOSAL OF EXCREMENT AND SEWAGE AS AFFECTING THE WATER SUPPLY.

"It is highly probable," says Dr. Parkes, "that to barbarous and inefficient modes of removing the excreta of men and animals we must partly trace the great prevalence of disease in the middle ages, and there is no doubt that many of the diseases now prevailing in our large towns are due to the same cause. There is no want of evidence to prove the last clause of the above quotation. And that many of the diseases prevailing in the present age in our large town, and in our small towns too, are caused by the barbarous and inefficient modes of disposing of excreta, chiefly human excreta, or in many instances of not disposing of it at all, is a disgrace to our civili-