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OUR INLAND WATERS, PATHOGENIC, ORGANISMS, SEWAGE, AND THE SPREAD OF INFECTIOUS DISEASES.

READ AT THE MEETING OF THE AMERICAN HEALTH ASSOCIATION, IN TORONTO,
OCTOBER 5, 1886, BY EDWARD FLAYTER, M. D.

A LARGE proportion of the disease to which the highly organized yet frail unites of humanity are almost universally subject, is caused by the waste products of human life, frequently associated with specific organic substances, which are thrown off from the body by the excretory organs, finding their way back into the body again, and most commonly along with the air and the water consumed. As a common example I may mention the effects of re-breathing again and again the over-breathed air of unventilated rooms, and of breathing air and drinking water contaminated by sewage, or what is the same thing, the contents of out-closets. A more notable example is found in the spread of infectious disease. For whatever the nature of the specific infections—and few, probably, if any, in this assembly doubt that these are microscopic organisms of the lowest type—particulate, living and reproductive—they are for the most part, as it were from the beginning, intimately associated with, and are practically inseparable from, the excreta of the human body, either of the lungs, or of the skin, or of the bowels or, it may be, of the kidneys; while they are also disseminated and communicated apparently in close connection with these waste products of life, and the vehicle for conveying the waste products with the infections from one to another—from the sick to the well—is most commonly either air or water. Indeed, so intimately associated are these specific infections with the excreta that it appears probable it may yet be demonstrated that this entire class of organisms, either within the human

body or outside of it, live, grow and multiply in their highest degree of development, in, or in connection with, perhaps feeding upon, these used up, dead decomposing waste substances.

It is probable that in no other field can this Association, collectively or individually, accomplish more in the way of preventive medicine than in that of efforts in preventing outbreaks and the spread of infectious epidemic diseases.

Pure air and pure water being, too, the first essentials of health, one of the most important questions which concerns this Association and the public is that of the proper disposal of all the waste products of life—the cast off excrete substances of the human body in particular—in order that they shall not contaminate the air and the water which mankind are to breathe and to drink.

In the less dense medium, air, with its abundance of free oxygen—which in one form or another, perhaps as ozone, is probably the best of all disinfectants or destructors of diffused disease germs—waste organic substances of all sorts are soon transformed into simple compounds and their products rendered comparatively harmless by rapid dilution and diffusion; and even when these are associated with living specific infections these too are doubtless for the most part rapidly diffused, oxidised and destroyed. In the heavier medium, water, however, these excrete substances are much less readily diffused, oxidised and rendered innocuous; and it is probable that the infective organisms find water a more favourable medium than air for development and multiplication. We are all