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## A treatise on water

Leonardo da Vinci, the 17th-century artist and visionary, devoted his life to depicting and attempting to understand the elements and forces he observed around him. Physicians who know da Vinci best for the contributions he made to anatomy may be surprised to learn that the phenomenon that held the greatest fascination for him was water, the “vital humour of the terrestrial machine.” Hoping to solve the mysteries of creation by studying the laws of water’s movement through earth and air, da Vinci aspired to write a “treatise” on “what water is.”<sup>1</sup> In his notebooks he wrote:

It is the increase and humour of all vital bodies. Without it nothing retains its first form. It unites and augments bodies by its increase. Nothing lighter than itself can penetrate it without violence. It readily raises itself by heat in thin vapour through the air. Cold causes it to freeze. Stagnation make[s] it foul. That is, heat sets it in movement, cold causes it to freeze, immobility corrupts it. It assumes every odour, colour and flavour and of itself it has nothing. It percolates through all porous bodies. Against its fury no human defence avails, or if it should avail it is not for long.

As from the said pool of blood proceed the veins which spread their branches through the human body in just the same manner the ocean fills the body of the earth with an infinite number of veins of water.<sup>1</sup>

Da Vinci understood water’s essential mobility and earthly connection. Although the analogy between the body and the earth may seem hackneyed, most of us would agree that we have lost sight of the force and fury that so impressed da Vinci and have become

possessive and complacent about what we now see, so uninspiringly, as a public utility.

Canada has about 9% of the world’s renewable fresh water supply.<sup>2</sup> On the surface we have an abundance of water; in the ground, we are contaminating runoff with pesticides and toxic landfill; underground, we are depleting aquifers at rates 3 times greater than the rate of recharge.<sup>3</sup> Each Canadian consumes an average of 326 litres of water a day,<sup>4</sup> most of which is flushed down the toilet. The waste water of 74% of Americans, 86.5% of Germans and 99% of Swedes is treated; in Canada, we treat the waste water of only 57% of the population.<sup>5</sup> After using water upstream as a coolant, solvent, agent of transport and source of energy, we drink from the tap without a second thought and elect provincial governments with agendas that reduce water quality to the limits of municipal budgets and the communités of private laboratories.

In the wake of Walkerton, the Ontario community where, at the time of writing, at least 14 people have died after drinking municipal water contaminated with *Escherichia coli* O157:H7, Canadians are having to re-examine their relationship with this essential element. Action is required; immobility corrupts. — *CMAJ*

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