Microbarriers

Inside the human organism live up to five thousand species of microorganisms. Different strains of each species multiply. A human, standing on a scale, weighs as much in micro as she does in macro, if you count the weight of the dust mite and the weight of the digestive enzyme. But these gut microorganisms represent the diversity and colonizing power of the human-bacteria relationship. The small intestine, unrolled and split open like an earthworm under the microscope, spans the area of a flayed blue whale—the largest organism on the planet. Inside the flayed whale they would find as many species of microorganisms in the whale’s intestine as inside the human’s. Flayed, both whale and human intestine span an area large enough to park seven school buses. Inside the seven school buses are 47 children, each with his or her own histrionic number of microorganisms, which, in the mind of a first grader, look like little earthworms. If you want to get someone to eat an earthworm, try first graders, who will eat anything baked in brown sugar that reminds them of a gummy worm. Earthworms carry their own microorganisms like Dionysus carried his bota bag filled with wine, but gummy bears not so much. You can tell a baked-in-brown-sugar earthworm from a gummy worm by the way, when you flay them, a million microorganisms spill out.

Where the human starts and the world begins is determined inside the gut. The microorganisms perform a border. Although they are
the world inside you, they also protect you from the world, and, truly, from themselves. The gut microbes make a barrier between you and the outside world, although they, outers, are also inners. They are a paradox, these microbes. The microorganism can try to kill you if his name is *Clostridium botulinum*, but your friend, *bifidobacterium*, can keep him from completing his mission. *Lactobacillus* fights *E Coli* every day. Imagine a million Greek soldiers in the horse that is your gut. You are together in this fight, *Bifido* and horse, whale and *lactobacillus*.

When the world was not of you, you were not of this world. Not until you journeyed through your mother’s birth canal did the previously non-organismed inside of your body become colonized with bacteria. The vaginal canal and its microorganisms infected you. And now you are safely infected with the world. Inside out, you thank the barrier for keeping in check the salmonella. You thank the bacteria for possibly holding back the proliferation of viruses, microorganisms even smaller than bacteria that are just using you like the bad boyfriend you had in ninth grade for your willingness to replicate and host another species in your body. At least bacteria have mutual respect for one another. Viruses bring nothing to the table. They don’t even open the car door for you. They just line the passenger seat with condoms they pretend to wear.

The gut barrier, like a good condom, keeps bad bacteria out. The good bacteria neutralize the bad if they get in. I read today about a shooting inside the parliament building in Canada, a two-year-old dying
from the Ebola virus outside a hospital, a soldier joining the Kurdish Army inside Iraq, a Voter ID law approved in Texas, a shelf sloughing ice into a cold but warming sea, a deer, foot caught in a fence, dying trying to get it out. I do not want these words inside me, but my ears do not serve as a barrier device. My eyes do not act as a barrier device. My forehead does not act as a barrier device. My skull does not act as a barrier device. My brain, perhaps if had been raised on yogurt’s probiotic features, could act as a barrier device, but alas, alack, this brain has no way to keep the outside out.