

Cover Essay

Giardia, HIV, and Nature's Horrifying Beauty

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The image on the cover of this issue of *EcoHealth* is, to put it simply, unnatural. It has no context, no substrate, no place. It appears to be biological, but its metallic exterior shines starkly in a way that disregards our presence. It's ominous form is at once beautiful, but unlike most previous covers of *EcoHealth*, apparently bereft of spirit or meaning. But, for those of us acquainted with infectious disease ecology, or who have had the misfortune to personally meet this organism, its strange shape is known. It is, of course, *Giardia intestinalis*, the flagellated protozoan responsible for giardiasis and its horrific symptoms: bloody diarrhea, sulfurous belching, and a tenacious hold as our bodies weaken. Strictly speaking, this isn't just *Giardia*, it's a celebration of *Giardia's* beauty—a pin made of pure rose gold in the form of this fantastic creature, and part of a series of “Infectious Art” designed by M.C. Ginsberg, with input from the University of Iowa's College of Public Health (<http://mcginsberg.com/product-category/m-c-ginsberg-infectious-art/>). Here we have an encephalitis cufflink, an HIV necklace, and a Lyme disease ring all waiting to adorn our wrists, necks, and fingers as post-modern talking points with a twist.

Seeing beauty in a parasite is nothing new to those of us who work at a microscopic scale with these organisms. Their morphology is beautiful—evolved to intricately loop around our cell surface receptors, lock on, and kill us, or in this case, to nestle within our ciliated cells, and suck away our life blood—a stark, cold beauty indeed. But, to celebrate this is surely odd? And doesn't this show disrespect for the pathogen's victims? What about the 40 million who have died of HIV/AIDS—what flippant arrogance it is to

use that virus' image in anything but a negative light, let alone a necklace?

But let us think a bit deeper. Many of us are profoundly in awe of the beauty of the natural world. We stand in wonder on a solid sheet of ice frozen on the side of a mountain, last year's cranberry encapsulated like living ruby. We marvel at the power of a white shark, a gazelle's balletic leap, the perfection of a swift's wing. Our spirits are lifted by bronze beech leaves, smooth gray bark, the outrageous pale white of a ghost orchid standing proud in the dark. These are the stock-in-trade of leading photographers, painters, and poets across the world—the beauty of nature. But where does beauty end, and horror begin? If we find a lioness's musculature, or the stoop of a peregrine beautiful, why don't we likewise do a parasite devouring its host? And what if that host is us? This is the dilemma that M.C. Ginsberg sets out for us in his pathogen art.

The answer, perhaps, (to quote Hannibal Lecter) lies within yourself. Our perception of beauty can be considered a simple side-effect of the evolutionary arms race—quite sordid actually. Like just about every other human emotion, it's a trick to make us feel like we belong. We see beauty in a pouncing lion because we feel the excitement of escaping its pounce. We feel the thrill of the chase as we watch, transfixed, when a peregrine blasts through its prey. I'm reminded of the ultimate arbiter of Nature's “blind, pitiless indifference” (Dawkins 1995)—Richard Dawkins who in 1991 had the honor of giving the *Royal Institution Christmas Lectures* (being ironical itself, in its religious underpinnings). As I remember it, to an audience of children, Dawkins described a child who stood in a meadow,

seeing the beautiful flowers, marveling at the sunshine and the joy to be alive, and wondering how such a beautiful world could come to exist, and what purpose there must be to life. A mere trick, of course. We fit into this world because we've evolved to fit: "we're here, because we're here, because we're here..." (Dawkins 2007).

But the final irony belongs to our *Giardia* image. It is neither real biologically, nor mechanically. It is neither painting, nor photograph. In fact, it's a computer-generated rendering of the design for a rose gold *Giardia* pin. Here, Dawkins meets Neo, and our real-world horror meets *The Matrix*—a computer-generated world designed to fool ourselves into seeing, feeling, and believing the beauty and reality of the world around us. Is life imitating art, or is art imitating life? We look into it further, and realize our folly... it simply doesn't matter!

"INFECTIOUS ART" BY M.C. GINSBERG

Mark Ginsberg's 3D team of sculptors, ceramic artists, bench jewelers, mechanics, machinists, and 3D modelers combined their art "to present the dichotomy between the aesthetic beauty of pathogens and the havoc they wreak on humanity." The works depict viruses, bacteria, and protozoa at many times their actual size and brings the structural

beauty of pathogen form and its function into our lives as art. Mark Ginsberg consulted with the University of Iowa's College of Public Health to ensure the accuracy of each design and assembled a team of highly specialized artists to bring this vision to fruition. A limited edition of each microbe is produced, with each individual made to order and all profits donated back to the University of Iowa's College of Public Health. As Mark states "This is a limited edition of each pathogen...unfortunately, their potentially lethal counterparts aren't nearly so rare..."(<http://mcginsberg.com/project/infectious-art/>).

On the Cover

Giardia (2014) by M.C. Ginsberg. Computer rendering, 5 in. × 4.5 in.

REFERENCES

- Dawkins R (1995) *River out of Eden: A Darwinian View of Life*, New York: Basic Books, pp 133
 Dawkins, R (2007) "Growing Up in the Universe" The Royal Institution Christmas Lectures. Dir. David Coleman. BBC, DVD