

Me, Myself, and Mushi: Reframing the Human and the Natural in Urushibara Yuki's *Mushishi*

John Branscum

The Post-Human Era

The last few decades of global culture has seen seismic shifts in the distinctions we make between humans and the rest of the natural world. This is perhaps most notable in the attribution of consciousness to nonhuman aspects of nature. In 1999, for example, New Zealand shocked the world by extending personhood rights to great apes and then, demonstrating that this wasn't just an anomalous piece of legislation, Spain did the same in 2008 (*"Should Apes Have Legal Rights?"*). Four years later, in July of 2012, a gathering of international scientists at the first annual Francis Crick Memorial Conference passed the Cambridge Declaration on Consciousness. It concluded, "[T]he weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness" (Bekoff). During this same decade, other more radical research emerged as well that posited that plants, if not exactly possessing consciousness, are at the very least sentient to an extent hitherto unsuspected. The controversial and landmark 2006 "Trends in Plant Science," for instance, argued that "the sophisticated behaviors observed in plants, ranging from their ability to sense and respond to environmental variables, including light, nutrients, toxins, microbes, herbivores, and chemical signals/messages from other plants, indicate a brain



Fig. 1: Representation of a Koshi-no-mushi

like information-processing system that integrates data and coordinates a plant's behavioral responses." Other research revealed plants possessed many of the same neurotransmitters found in humans, such as dopamine (Pollan, "The Intelligent Plant"). Perhaps most disconcerting of all, substantial research also emerged attributing language-use and sentience to microbiota, including those that inhabit and comprise human bodies, thus overturning key ontological distinctions between self and other and individual entities and ecological collectives ("Bacterial Intelligence").

If the 19th century marked a global interrogation of presumptions about gender and race, and the 20th century continued this work, as well as interrogating the Orientalizing lines drawn between cultures, it is no exaggeration to claim that the 21st century is shaping up to be perhaps the most radical century of all—a post-Darwinian, post-quantum, and post-humanist era marked by a radical erasure of not only the lines drawn between human beings and other animals but also those drawn between all five biological kingdoms (animalia, plantae, fungi, protista, and monera), between individual bodies and swarm collectives, and between mind and body.

Comics and the Work of the Fantastic

A number of popular culture artifacts have engaged with this set of interrelated issues, ranging from M. Night Shyamalan's 2008 filmic yarn of plant revenge, *The Happening*, to the ubiquitous science-fiction television programs about intelligent, scheming viruses and bacteria that hijack their human hosts, such as Syfy Channel's 2014 *Helix*. But, out of the various genres, comic books are an especially valuable medium for challenging default notions of the human, the nonhuman, and the natural world. This is partially because comics typically depart from mimetic, neo-photographic realism and are, thus, able to offer an illustrative space for pictorial imagination and the presentation of alternative realities—especially those that extend beyond the everyday human perceptual field. In this way, comics are innately examples of the "fantastic," a genre that the literary theorists Rosemary Jackson and Kathryn Hume argue is constituted by any departure from "consensus reality" (Jackson 1; Hume xii). As specimens of fantastic art, comics routinely challenge the prevailing consensus and show a unique ability to interrogate normalized notions of the real and advance alternative models of reality.

In *The Secret Life of Puppets*, the American literary critic Victoria Nelson expands on this point to explore the roles played by two very different models of reality in Western culture. On the surface, she argues, we contemporary Westerners seem to see ourselves as inhabiting an atomistic, Newtonian space—our perception of which is informed by a materialist philosophy that privileges empirical rationalism and holds that all of reality, including consciousness, is the result of material properties and their interactions. Nelson dubs this model "Neo-Aristotelian." But, at the same time, she argues, as reflected in our art, especially those works deemed "fantastic," we maintain a vibrant but veiled allegiance to mystical and holistic Neo-Platonic understandings of reality. This paradigm is marked by a be-

lief in panpsychism, a school of thought that adheres to a transmission model of mind in which the mind is mediated (rather than created) by the physical brain and is itself a general property of the universe. The paradigm further holds that our material reality is but one plane of existence among many and espouses the belief that we reside in “a living cosmos in which all things in the world exist in a hierarchy of interconnections with one another and with a timeless, invisible world” (29). It bears emphasizing here that despite Nelson’s focus on Western culture and her use of terminology drawn from Western philosophy, her observations are equally useful for examining non-Western cultures, which too have long been the staging ground for debates about variants of atomistic materialisms and panpsychic idealisms (as seen, for example, in the materialist realism of the Confucian Xunzi versus the panpsychic idealism of Chuang-Tzu’s Taoism). The global applicability of these models is an important point to make given the two models’ dramatic consequences for how we approach the natural world and conceive of our place in it. On one hand, we have the natural world envisioned as a mechanistic realm of separate and distinct species, each neatly taxonomized, and which, while they interact, are ultimately independent in any deep ontological sense. On the other hand, we have a picture of nature in which the dividing line between matter and mind, as well as between individual bodies and species, becomes hazy. Such a view sees consciousness as an ecological property belonging equally to human and non-human bodies, in addition to nature as a whole.

A number of comics explore the dynamics and implications of these two models, thus instantiating the important cultural work of which the fantastic is capable—such as Vertigo Comics’ *Swamp Thing*, which explores the idea of distributed plant consciousness and treats ecosystems as conscious entities. In this article, however, I focus on Yuki Urushibara’s critically-acclaimed, episodic Japanese manga *Mushishi* (1999-2008). Out of the recent comics that reframe nature, it is one of the richest. What makes it so is that it approaches the human/nonhuman conversation from the perspective of human relationships with the microbiological world—via the adventures of Ginko, an itinerant doctor/shaman (a “mushishi”) who is mystically drawn to people plagued by mushi, polymorphous and often parasitic creatures that constitute an ontological category between spirit and microorganism. Moreover, *Mushishi* introduces a number of radically fresh perspectives on these relationships by virtue of its grounding in East Asian philosophy, particularly Japanese Shintoism, which blends elements of the materialist and idealist worldviews that Nelson refers to as Neo-Aristotelian and Neo-Platonic, thus providing a possible way out of the exclusivist either/or approach to these models that is more prevalent in the Western tradition—as evident, for example, in the most recent round of religion versus science debates. Further, as this paper shows, these reframings are surprisingly and significantly consonant with recent scientific findings that dramatically revolutionize our concepts of the human, the nonhuman, and the natural.

The Philosophical Foundations of *Mushishi*

Philosophically, *Mushishi* leans heavily on Shinto's animistic approach to nature. Founded in 660 BCE, Shinto is Japan's native religion in Asia, it consists of a heterogeneous range of beliefs, stories, histories, and myths, which have strong roots in Buddhism, Taoism, and Confucianism" (Bernard). While Shinto does not have official scriptures or a monovocal foundation, it does have a number of unique views. Particularly significant to our discussion is its belief in "kami," on which *mushi* are largely based. Kami are mostly defined, counter to a materialist, taxonomic impulse, not physically but rather relationally and animistically—in terms of their profound impact on nearly every aspect of human life, from health and the exercise of imagination to the state of the natural environment and the spiritual experience of awe and sublimity. As such, kami are considered spiritual essences or principles that inhabit and affect everything that exists, from waterfalls to automobiles, and which manifest themselves in forms ranging from ghost-like beings to demigods, microorganisms, and abstract, demiurgic creative forces (Blacker 1).

Because of their category-crossing and heterogeneity, kami effectively collapse the distinctions generally made between the physical and the supernatural, mind and matter, individuals and ecological systems, as well as those made between abstract creationary forces and concrete instantiations thereof. Consequently, Shinto productively nods toward *both* Neo-Aristotelian and Neo-Platonic models of nature. This plays out lexically in that the closest approximation to the meaning of the Western word "nature" in Japanese, is "Daishizen," or "Great Nature," which envisions nature in a comprehensive cosmological manner that stresses relationships and includes a consideration of astrological and terrestrial influences, as well as the influence of kami and large-scale natural patterns and principles on human cognition and bodily health (Picken 68). Ultimately, the concept of Great Nature posits nature as the "combined forces both physical and mystical that make up the world in which we live in all its dimensions and complexity [...], and as something that guides us from within as we are in harmony with it" (Yamamoto). Inside/outside, human/natural, spiritual/physical, civilized/wild—all of these terms are collapsed into one dynamic cosmological process that is as much Neo-Platonic as it is Neo-Aristotelian.

In the Shinto context, the key to inhabiting such a realm is learning to live in harmony with it and, by extension, other beings and facets of nature (Yamamoto). It is no surprise then, given *Mushishi's* reliance on a Shinto cosmological worldview, that the re-establishment of harmony, which is to say a state of ecological balance, provides the basic reoccurring plot throughout the episodes. To be more precise, in each story a disruption in human life occurs, instigated by *mushi* and human ignorance of them. In order to take the appropriate actions to move from a state of disharmony to harmony and from disease to health, the human beings affected must reconceptualize nature, as well as their own bodies and their roles in the context of Great Nature.

To appreciate how this dynamic plays out in *Mushishi*, we must first further consider the nature of mushi. This is tricky because, as with kami proper, it's paradoxically their partial inability to be exhaustively defined that defines them. As the critics Mio Bryce and Amy Plumb explain in "Mushishi: Post Modern Representation of Otherness in and outside Human Bodies," "[M]ushi are "shapeless or shapeshifting, primordial, and amoebic [...]. Although [they] can take the form of humans, animals, or other objects, they are predominantly personified as primeval organisms emitting luminosity in their transparent forms" (113).

Despite this diversity of form, however, and their native mutability, all mushi Neo-Platonically emanate from the same mystical river of light, the "kôki," or "river of life"—which is also the principle of vitality that animates the rest of nature, including human beings. The kôki is alternatively found in *Mushishi* in both the physical world and in human psychic space, its dual nature responsible for mushi possessing a "vague existence" and being "very close to the original forms of life" (*Mushishi* 1:20), characteristics which in turn lead to mushi appearing in both physical and spiritual forms in the series and operating in mutualistic and parasitic relationships with both the human body and the human mind.

There are a few particularly important implications here. One is the fact that mushi bear much resemblance to a whole spectrum of microorganisms, in that both phenomena are primordial, largely invisible to the naked human eye, mutable, colonial, parasitic, and mutualistic, and as well disrupt human attempts to easily categorize them because they predate the broad categories of plant, animal, human, etc. and thus point to an underlying unity of categories we habitually treat as strictly distinct. Two, mushi are both Neo-Aristotelian and Neo-Platonic. This is to say that, while they seem to be physical microorganisms in many ways, at the same time their partial invisibility, their persistent violation of the mind/body divide, their simultaneous occupation of several dimensions of reality, and their function as animistic signifiers mark them as Neo-Platonic.

In this vein, Bryce and Plumb further add the significant fact that "the logographic character for "mushi" translates as insect or bug, yet, as opposed to comparable logographs for insect, additionally has the connotation of "the grotesque, supernatural, or parasitical in nature" (112). In this way, the word "mushi" merges the physical and the supernatural realms, while the phenomena of mushi expand the already generous domain of "kami" by emphasizing kami active on the microbiological plane, thus adding a contemporary materialist nuance to Shinto animism.

So, it is that the main character of *Mushishi*, Ginko, needs to suit up as both scientist and shaman, figures who respectively navigate the terrains of the Neo-Aristotelian and the Neo-Platonic. Ginko's materialist, scientific status is indicated by his anachronistic Western clothing in an otherwise historical setting, and his frequent compounding and prescription of medication, as well as each story beginning with the trope of medical diagnosis through Ginko's investigation and identification of the name and nature of each mushi. Yet Ginko's psychic connections with mushi, which draw him

to mushi/human disruptions, and use of metaphysical folk principles, such as acupuncture and sympathetic magic, mark him as a shaman as well.

Those two roles have very different attendant models of knowledge. In the first model, the Neo-Aristotelian, knowledge can only be legitimated by scientifically experimenting, in a controlled setting, on variables under human control—as Kary Mullis, a biochemist who won the Nobel Prize for his work on the polymerase chain reaction, explains in an essay detailing his experience with anomalous phenomena (78). Factors beyond human control, or forces larger than the human in other words, are outside the category of legitimate knowledge. Paradoxically, we can only definitively know what we can control. In the second model, the Neo-Platonic, knowledge arises from our interconnection with the world, rather than our control of it. Such knowledge tends to be anecdotal, communal, and grounded in our lived relationships and connection-making.

Urushibara consistently underscores the equal importance of Neo-Platonic, relational knowledge via her alteration of the main mushi stories with interpolated autobiographical authorial asides that detail the experiences of her ancestors with various kami. For example, following the story “The Pillow Path,” Urushibara introduces a two-page vignette in which her grandmother, as a young woman, encounters floating white circular objects like the moon while walking in the rural countryside (1:145). The day following the grandmother’s encounter, she’s told by a hermit that she must have strayed near a fox spirit’s travel path, thus prompting the fox spirit to create the illusion of lights so that she would not see him. In a move that argues for communally mediated knowledge, rooted in our experiences in the larger world outside human control, including our mystical and supernatural experiences, Urushibara directly addresses the reader: “I’ll bet you’ve all been somewhat afraid of the fox spirits, haven’t you” (1:146)? Thus, she invites the reader to take part in the construction of this knowledge, as well as testify through their individual experiences to the existence of Neo-Platonic reality.

This model of knowledge makes room for what would be considered simply anecdotal in a scientific paradigm, particularly those insights that come about through collective experiences and pooled knowledge in the larger environment over time. As well, it proves to be more comfortable with uncertainty, which marks not human imperfection or failure but rather indicates a stance of humility before a universe that is larger than the human attempts to control it. So, it is that in the *Mushishi* story “The Soft Horns,” when Ginko is asked if he knows how to get rid of the mushi “Ah,” he replies, “I’m not sure. These remedies for mushi are the result of happy accidents gathered up by our predecessors over a long, long period of time [...]. The thing about mushi is that we’re more ignorant than we are knowledgeable” (1:73).

The vignettes and main mushi narratives of *Mushishi* are obviously in part homages to folkloric traditions, which one might conceive as gap-filling communal narratives with no real ontological implications. Thus Ginko could be seen as a liminal figure marking Japan’s transition from a pre-scientific age to the more progressive and en-

lightened modern era. However, while indeed Bryce and Plumb see Ginko's Janus-faced role as a straddling of the modern Western world and the historical world of Japanese folk medicine (112), it seems to me that this duality is equally reflective of the fact that Japanese medicine is inflected by a more syncretic cosmology than that which holds sway, until recently, in a Western context, specifically in the degree of its recognition of both Neo-Platonic and Neo-Aristotelian models of nature and the cosmos.

Heavily influenced by Traditional Chinese Medicine (TCM), which shares with Shinto many of the same philosophical roots, Japanese medicine is based on ideational cosmological notions like yin-yang, which represent two abstract and opposing yet complementary forces that are operative in everything in the cosmos; five phases, the similar belief that all phenomena in nature and the universe are made of five elemental qualities represented by wood, fire, earth, metal, and water in both their metaphysical and physical forms; and a belief in qi—the vital life-force energy said to animate all things (“Traditional Chinese Medicine”).

TCM and Japanese medicine in short see the human body as a miniature version of the larger, surrounding universe and as a simulacrum of functions that mirror and are affected by other functional formations. As such, it conceives of health as the harmonious actions between the parts of the human body, the principles of yin/yang, the five phases, and the larger outside world, while disease stems from disharmony in these interactions. To restore health isn't, then, just a matter of treating the isolated individual's body but recognizing and restoring the body's myriad relationships with, and contextualization in, Great Nature, an enterprise that simultaneously recognizes the Neo-Aristotelian and Neo-Platonic models of the world.

There are numerous examples of such implied paradigm merger in traditional Japanese medical writing. Even before the invention of the microscope, illness was commonly attributed to tiny creatures in the body, which are described in such a way as to resemble both microorganisms and malevolent spirits. The *Harikikigaki*, a medical manual written in 1568, and key to spreading traditional Chinese medicine to Japan, details sixty-three of these creatures. These include the “Kanshaku,” an angry-faced and leaf-shaped bug which resides in rivers and which, once in the human body, causes hosts to rage, engage in wild activities to blow off steam, and crave acidic food, and the “Gyochu,” responsible for leprosy, as well as an agent for the underworld which it visits every sixty days to inform the Lord of the Underworld of a host's misdeeds (“The *Harikikigaki* Manuscript”).

This simultaneously spiritual and materialist view of disease might strike the contemporary reader as evidence of an attempt by our forebears to do rudimentary science, rather than evidence of a worldview that blends what are typically exclusivist models in contemporary Western thought, and there could likewise be a tendency to read the double nature of such creatures as evidence of the struggle to evolve from a primitive Neo-Platonic understanding of nature to a Neo-Aristotelian one. However, such a simplistic narrative of progress would do a disservice to the deeper implications

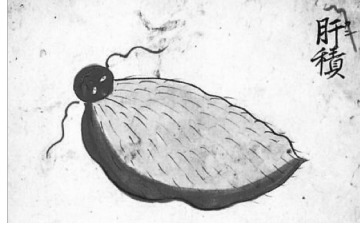


Fig. 2: Representation of a Kansakaku

here.

Even in the contemporary Western mainstream, where the language of genetic determinism has held sway for several decades, such language is still rife with hidden Neo-Platonic takes on human health and disease. Take the biologist Richard Dawkins' *The Selfish Gene*, in which it's argued that memes,

circulated ideas, styles, or usages, are "living structures, not just metaphorically but technically" (207). The concept of the meme is of course an idea borrowed from the writer William S. Burroughs' earlier idea that language is a virus, which in turn is beholden to a belief in word-magic, the tangible effect of language and thoughts on physical matter, seen in such phenomena as the placebo effect. That this is so is especially evident when it's further argued in *The Selfish Gene* that, "When you plant a fertile meme in my mind, you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the way that a virus may parasitize the genetic mechanism of a host cell. And it isn't just a way of talking—the meme is actually realized physically, millions of times over, as a structure in the nervous systems of individual men" (207). The very act of human thought, in other words, depends on and is affected by language conceived as a type of virus, which in turn is seen as a kind of organism that manifests itself both physically and metaphysically, ideationally and materially, and one can't help but wonder heretically if the idea of possession by memes differs in kind or degree by possession by mushi.

The Human Body as Fractal of Larger Ecosystems

Ultimately, the brunt of the many epistemological and ontological issues that arise in *Mushishi* leads back to how the bodies, of both the individual and nature, are conceived. And the hybrid Neo-Platonic and Neo-Aristotelian nature of mushi, expressed in the manga in terms of both text and image, challenges the default conceptual body of the contemporary Western mainstream as individual, materialist artifact, throughout its run with significant implications for our relationships with, and actions toward, the larger environment.

First off, *Mushishi* reimagines the body as a fractal of larger ecosystems and the cosmos. Such a Neo-Platonic idea echoes the medieval concept of the Great Chain of Being and the Hermetic principle of "As above, so below" in Western history, and in East Asian culture perfectly captures the centrality of recognizing correspondences between the body and the larger universe, as visible in TCM and traditional Japanese medicine and the philosophies informing them. For instance, in TCM, we have the principle of the "Great Numbers," recurring numerals essential to ordering the human body and the rest of the universe (which function similarly to Fibonacci sequences or sacred geometry in the West). Thus the number of acu-points on

the human body, 365, has been posited to reflect the number of days in a year (Matuk 1), and the number of main meridians on the human



Fig. 3: Representation of Gyochu

body, twelve, has likewise been seen to correspond to the number of rivers flowing through the ancient Chinese empire (Liu and Hua 40). Both of these examples convey the importance, within this philosophical system, of acknowledging Neo-Platonic correspondence when treating disease/disharmony.

Indeed, such correspondence is invoked in the very first story of *Mushishi*, "The Green Seat," when mushi are introduced and defined. The tale opens with a large panel showing human limbs intertwined with snake-like roots, flowers and leaves, as if part of a singular root system. This idea is echoed in a different way on the subsequent page, which shows a barefoot Ginko standing, rooted as it were, amidst a forest at the end of a body of water. Around him, fanning out, are panels that alternate between glimpses of mountains, fog, and human figures (1:3), an arrangement that effectively argues a similarity in kind and value and which positions each of these phenomena as equivalent fractal slices of an ecosystem. To reinforce this point, the dialogue amidst these images does not seem to emanate from a single figure but rather floats amidst the images and could equally be seen as arising from the land as from Ginko or the authorial-narrator. The textual content of this "disembodied" voice-over fits the visual implication of its placement perfectly, for it is an articulation of correspondence-based unity: "Nature, greenery, and water. You could call them the things that make up life" (1:3).

This technique of disembodied dialogue recurs throughout *Mushishi*, alternated with dialogue that is clearly matched with individuals through its adoption of classical speech bubbles. As well, it complements a similar, innovative use of panels by Urushibara. She will begin one segment of dialogue with the human speaker clearly marked in the panel, such as a young apprentice mushishi in the story "The Sleeping Mountain," in volume 2, and then in the next

panel continue what is obviously part of the same dialogue segment but swap out the human speaker for some aspect of nature. One instance of this occurs at the top of page 44 when she swaps out the young apprentice mushishi with a tree while his dialogue continues—as if it is being spoken by the tree as well as the apprentice. This is indicative of the text's embrace of the concept of the human as both Neo-Aristotelian individual and as part of a greater Neo-Platonic unity.

That this unity is conceived at least partially in fractal terms is made explicit when at the outset of the series Ginko explains mushi (to the implied reader) through using his own body, spelling out a fractal connection between the large and the small, the human and the non-human, while also effectively integrating the material and ideal worlds through the act of using his body as language:

To put it roughly, if the four fingers on my hand represent all the animals and my thumb represents present-day plants then people would be here. On the very tip of the middle finger and the farthest place from the heart. The inside of your hand represents all the other levels of living things below us. As you follow the veins downward, it all winds back into one large artery. About there are the fungi and the microorganisms. As you go further down it becomes harder to tell the differences between animals and plants. But there are things that are even earlier than that. You can trace all the way down the arm and past the shoulder. And if you get to just about this area [says Ginko, pointing at his heart,], there's life there. Mushi[...] It was after them that life we see began to branch out. (18-20)

The phrase “branching out” invokes the branches that Ginko traces on his body, effectively conceptually uniting the individual and the larger cosmos, and the ideational and the material, and the invoked fractal correspondence plays a central role in both the art and the content of the stories that follow. Often recognition of the fractal correspondence between human beings and the larger natural world, particularly via the form and behavior of mushi, is key to the practice of medicine. “The Soft Horns” is one such story that illustrates this. In this tale, we encounter a village plagued by an ear sickness. Ginko, investigating the illness, discovers slime in the ears of those afflicted, leading him to realize the mushi known as “Un” are responsible. “Inside the ear,” explains Ginko to Maho, a young boy who's become affected, “there's a structure for hearing that looks just like a snail shell. The starving Un abandon their own shells [and assume the place of this structure in the ear] to become parasites that eat all of the sounds the animal would have heard” (1:67).

Because of his recognition of the resemblance between the Un and actual snails, Ginko pours hot salt water into a patient's ear and then his mouth, which cures him (1:68). Ginko in effect uses a form of sympathetic magic for, as every cruel child knows, salt melts snails. This fractal correspondence is reinforced visually throughout the story, in the presentation of an illustrated physical reality riddled with the quasi-ideational forms of mushi. For example, Maho's room

is overwritten with floating spiral shapes of all sizes (1:69), expressionistically rendering the emotional significance of the mushi in the physical world, while also nodding to the law of fractal correspondence embedded in reality.

The centrality of such fractal correspondence, especially as a symbol of Neo-Platonic interconnection, however, is most evident toward the end of the story. Throughout “The Soft Horns,” Maho struggles with a final memory of his mother who died from the same illness and also with ridding himself of the salt-resistant Ah, who live in a mutualistic relationship with the Un (they eat silence while the Un eat sound). There’s a mystery to solve. Maho’s mother would routinely cover her own ears and Maho’s with her hands, as if to protect them from the Ah. It did not have this effect though. Instead, they both sprouted horns (1:78-79). Additionally, before she died, Maho’s mother whispered something to him that he’s forgotten—something essential to his cure. Near the story’s end, Maho finally remembers what she said. His mother explained to him that she covered their ears so that they could hear the contraction of the muscles in their bodies, and it’s revealed that this is the way to stop the mushi (1:94-98). She told him:

Long ago I saw a volcanic eruption with your father. This sound is just like the sound of that lava. And so when I feel so bad I could disappear, I listen to this sound. It dissolves anything, just like lava. I feel like it can get rid of everything – even pain and suffering. Here you try it. Listen to the sound of the lava inside of you. (1:97)

“Bright red lava,” Maho thinks to himself. “It flows through me.” And, as he thinks this, the mushi ooze from his ears at the same time his horns break off (1:98), symbolically returning his humanity.

This move is doubly interesting. The first part involves one overcoming disease/imbalance/disharmony by becoming more aware of one’s own body as a distinct and separate Neo-Aristotelian object, via listening to the sounds of the muscles contracting. But, in order to do this, to be in accord with one’s own body, one also needs to realize its Neo-Platonic and ecological correspondence within the larger cosmological framework so that listening to one’s own body is only effective because of the connection one makes between its sounds and the larger-scale phenomenon of lava. A person finds one’s humanity and one’s self, in other words, both in and through the other.

The Human Body as Ecosystem and Microbiome

Thus far, the stated correspondence between the human body and the rest of the natural world likely strikes the reader as an interesting enough connection in terms of how it might provide a different lens through which to examine *Mushishi*, but not in any way impinging on real-world relationships with nature or our bodies. But, I’d now like to introduce some more specific ways this mirroring correspondence plays out which do have dramatic consequences for the real world. Most significantly, I contend that not only does the human

body fractally mirror larger ecosystems, but also that it is itself consistently reimagined throughout the series as an ecosystem. I mean much more here than the widely acknowledged understanding that the body is a cooperating system of cells and organs. I claim something far more radical—that our body, as both represented in *Mushishi* and how it exists in reality, is as much other as self conventionally conceived, and is a configuration as fantastical and, in fact, quite similar to the sentient bogs, forests, and mountains that occur in *Mushishi*. Moreover, this depiction of the body is consonant with current scientific findings that too recast the body as an ecosystem—specifically, a microbiome comprised of rivers of blood and plasma and mountains and valleys of tissue, and populated by intelligent microfauna and microflora—in the same way that jungles host their numerous species. The representations in *Mushishi* in this sense prove to be tropes for dramatically new conceptualizations of the human, the nonhuman, and nature writ large, as well as a fresh and decidedly biological take on Neo-Platonism.

An Aug 12, 2012 article in *The Economist*, “The Human Microbiome: Me, Myself, Us,” details how in the previous five years a growing number of biologists see the definition of human beings as individuals incomplete.

They see people not just as individuals, but also as ecosystems[...]. A healthy adult human harbors some 100 trillion bacteria in his gut alone. That is ten times as many bacterial cells as he has cells descended from the sperm and egg of his parents[...]. Egg and sperm provide about 23,000 different genes. The microbiome, as the body's commensal bacteria are collectively known, is reckoned to have around 3 million[...]. And it really is a system, for evolution has aligned the interests of host and bugs.

The implications of this reframing are huge. Michael Pollan, a prominent science writer and a professor of journalism at the UC Berkeley, writes in another recent article, “Some of My Best Friends are Germs,” that this new understanding, and the research behind it, brought him to start thinking of himself no longer as an individual but rather in the first-person plural, “as a superorganism,” and that, moreover, “[T]his second genome, as it is sometimes called, exerts an influence on our health as great and possibly even greater than the genes we inherit from our parents. But while your inherited genes are more or less fixed, it may be possible to reshape, even cultivate, your second genome.” Indeed, many studies have found an impoverished microbiome, and an imbalance in internal microorganisms, to be behind conditions ranging from schizophrenia, malnourishment, heart disease, and type-2 diabetes to the host of autoimmune diseases that have statistically skyrocketed in the last several decades.

To begin to embrace our microbiome's function as a second genome, however, necessitates a new relationship with the microbial world. Overwhelmingly, microbes have been treated, especially in the West, simply as signifiers of filth and carriers of disease, as evident from the whole-sale antibiotic and antiviral ethnic cleansing that has been a mainstay of contemporary medical interventions, in-

terventions that have, observing the law of natural balance, ironically resulted in hardier and more pernicious bacteria, as well as killing off bacteria necessary for our health in the process. By contrast, *Mushishi* invites us to recognize that the organisms that inhabit our bodies and our world can be good or bad, and are essential to our existence. We see this articulated, for example, in “The Pillow Path.” Ginko explains to the guilt-ridden protagonist, whose village has been decimated by the mushi inhabiting his dreams and making them come true, “You never did anything wrong. The mushi isn’t to blame either. You both were just going through your lives” (1:127).

Ginko’s explanation in the example above equates the value and validity of human and nonhuman life. But *Mushishi* goes beyond simply adopting a neutral “survival-of-the-fittest” approach to nature and illustrates this dynamic through mushi proving beneficial as well. In “The Green Seat,” we’re given a scene that serves as a resonant metaphor for beneficial, probiotic bacterial inoculation when Ginko discovers that the boy Shinra, unknown to him, is being watched over by his grandmother, Renzu, who is trapped in a ghost-like form that is half-mushi and half-human—in this way perfectly representing our bacterial otherness. Once upon a time, Renzu was human of course. But, echoing Western fairy stories, as a young woman, she attends a “mushi banquet,” a circular formation of humanoid, hive-minded mushi and human attendees in the forest. At this ceremony, a saki bowl, filled with kôki, is passed around. Ordinarily, if one drinks the full bowl of liquid, one turns mushi. However, Renzu’s bowl breaks before her transformation completes. Thankfully, Shinra has the mushi-derived power to make his drawings come to life and, at Ginko’s behest, draws the broken bowl. In a scene of textbook bacterial inoculation, Renzu drinks the mushi liquid and turns fully mushi, albeit one in human form. As she does, the mushi speak to her as a single voice, their colonial identity apparent in their group vocalization: “Does it please you?” (1:46).

This could, of course, be read as an allegory for infestation. However, the text indicates otherwise. The group mushi announce, in a way that avers the grandmother is in fact fulfilling her nature, that the kôki she is drinking “was made especially for you” (1:45). Moreover, they signal that it is the root of all life that exists: “It has flowed ever since life was first born on this world. When the flow comes close to the earth, [...] life buds forth. And the farther away it gets, life withers [...] Indeed this is the water of life” (1:46-8). Just as human beings sprang from more primitive life forms, and all life ultimately derives from microbiota according to evolutionary accounts, so does this primal source of mushi, which is simultaneously Neo-Aristotelian primordial ooze and Neo-Platonic mystical light, underlie and nourish all life, including the grandmother’s. And, once she drinks fully of it, she is freed from her existence of being merely a ghostly trace of the human to become fully human through paradoxically becoming fully mushi—real enough in fact for her grandson to both see and interact with her. Moreover, highlighting the implications here, Shinra is proclaimed to be a “special child” who will reunite the world of mushi and man, and so is also invited to drink the kôki. After he does, his senses merge in sympathy with his grand-

mother's feelings and memories, the walls between their individual minds dissolving as do, simultaneously, the lines between mushi and human beings and, by extension, between human beings and microbiota (1:40-53).

Similarly, in "The Light in the Eyelids," mushi infest the eye of the girl Sui, eventually causing blindness, but they also prove essential to restoring her sight. A key concept in the story is that every person has two sets of eyelids, evident through the fact that when one closes one's eyes one still sees tiny sparks of floating light. One must close a second set of inner eyelids in order to achieve true darkness. Ginko lures the mushi inhabiting Sui's dead eyes out by having her open them beneath a moon while keeping the eyelids "behind her eyelids" closed. In a bizarre sequence that bespeaks ecological and colonial identity, he then removes his own false eye from its orbit, injects it with the liquid mushi, and presses the now living eye into one of Sui's sockets so that she regains her sight (1:168-74). Again, multiple readings are possible here. For example, one could read this scene as implying no real advantage to be had from mushi inhabitation since the wrong of the original blindness is simply being righted, and through an artificial body part at that. But, the vision that returns is not the same vision Sui started with. For in being blind, she also, in a way similar to Greek mythological figures whose blindness is associated with wisdom, both beholds the "true darkness," and the Neo-Platonic dimension of reality at the bottom of this darkness—the *kôki* at the heart of all things, and so comes closer to apprehending an essential facet of her being in a similar manner to Renzu in "The Green Seat." Consequently, she has too come to a new understanding of her body and her mind, in which she is aware of the mushi part of herself and the life-giving role of mushi in her body as ecosystem.

Ecological Systems as Organisms

Mushishi goes further though than just reimagining human bodies as ecosystems. It also, more dramatically and counter-intuitively, puts forth the fantastic idea of ecosystems functioning as individual organisms. In "The Travelling Bog," for instance, we encounter a sentient swamp, a type of colonial, liquid mushi known as "suiko" (1:189), which migrates, as if a single organism, through drying up in one place and then appearing in another—intent on reaching the larger fractal of the sea into which it will then allow itself to dissolve and die. From the start of the story, Urushibara's art too conveys the idea of ecosystems as holistic entities. Most of the one-panel cover that launches this tale is taken up by the image of a young woman and a tree reflected in water. As for the world outside of the water, we see only the young woman's feet and the trunk of the tree. Girl, tree, literal reality, and reflected reality all merge here, an effect even more pronounced because of the uniform sketching techniques of the black and white drawings – so that the drawn lines creating the girl's hair are nearly indistinguishable from the drawn lines representing tree bark and foliage, features which in turn also shade and shadow into one another.

This resemblance is no accidental occurrence. Ginko makes this evident when he remarks on the color of the girl's hair: "For a moment I doubted my own eyes. Her hair was an odd shade of blue-green. As if her hair had been dyed to the roots with swamp water" (1:189). As it turns out, the girl has become in a very real way part of the swamp thanks to the nature of the suiko, which like microorganisms can invade the human body through the drinking of contaminated water. Ginko explains, "If you drink suiko by mistake along with water, usually you stop being able to breathe without contact with water. Then your body starts to become translucent. And if you don't treat it, you turn to liquid and float away" (1:190). Affirming the truth of this, the young woman confesses to Ginko that she's unable to leave the swamp without also losing her life and has become inseparable from it. Where it goes so does she (1:195), as if she is no more than salt in the water. The individual identity of the young woman here then is treated as inextricable from the larger structure of the swamp. Moreover, both swamp and girl are portrayed to have volition and sentience on par with one another, putting the fractal whole and the fractal part on equal ontological footing.

Treating an ecosystem as an individual entity?! Such an idea runs the risk of seeming like nothing more than whimsical anthropomorphism. Again, though, this is a view that uses the key of the comic fantastic to articulate an alternative vision of reality that also has at least a partial, contemporary scientific foundation, in addition to its traditional East Asian philosophical roots. For example, a recent study in *The Journal of Theoretical Biology* concludes on the basis of empirical data and mathematical modeling that species are to ecosystems as cells are to the human body. According to Drs. José Cuesta and José Capitán, professors of mathematics and the authors of the study, "[The ecosystem] forms a permanent entity, although the entities that form it are constantly being substituted," and "reaches a state in which it remains more or less unchanged, in spite of the fact that the species that make it up are continuously substituted by others [...]. In short: the species change, but the structure does not" ("Featured Research"). This finding in turn validates an earlier controversial idea from the 1970s, the infamous "Gaia hypothesis," which due to research like Cuesta's and Capitán's, is seeing a resurgence of popularity. Formulated by the then maverick scientists James Lovelock and Lynn Margulis, on the basis of findings from atmospheric sciences, geology, and microbiology, and making use of nonlinear mathematics, the hypothesis proposes that the Earth's biosphere is a living superorganism that's capable of self-regulation and that organisms interact with their inorganic surroundings to form a self-regulating, complex system that contributes to maintaining the conditions for life on the planet (Lovelock, 579-80)—the biosphere's intelligence, therefore, being of the type attributed to plants which was discussed at the beginning of this article. Indeed, such observations have even been translated into legislation, as with the case of personhood rights for great apes. Take Bolivia's Plurinational Legislative Assembly's passage of "The Law of Rights of Mother Earth" in 2010. This bill declares the earth to be a "dynamic living system formed by the indivisible community of all life systems and living

beings whom are interrelated, interdependent, and complementary, [and] which share a common destiny" (Vidal) and, on the basis of this, extends the ecosystem legal rights similar to those of individual human beings.

Several stories in *Mushishi* explore variations of this concept of ecosystem as entity. "The Sleeping Mountain," in the second volume, opens with Ginko gazing up at a cave-like hole in a mountain while eating noodles at a village restaurant. He comments to himself, using a turn of phrase that subtly creates equivalence between the mountain and an individual human being: "Ahh! That's the sacred mountain for you. It's presenting a fine face today!" (2:3). This phrasing, at first glance mere figurative flourish, assumes more weight when subsequently the mountain shows agency through the hole suddenly disappearing. The villagers then explain to Ginko, as if the mountain is a person, that it has been acting strangely lately (2:4).

As the story proceeds, we learn that Mujika, the mountain's "master," is missing. This is a huge problem since Mujika, as a sort of living, metaphysical farmer's almanac, mediates human/nature interaction through conveying such information as when to hunt, cut down trees, or venture onto the mountain (2:8-9). His domain of knowledge, in other words, is not so much of individual species but rather of the mountain as an ecological unity. Consequently, his disappearance has resulted in the breaking of taboos, which has led to both the mountain's strange behavior and the deaths of villagers.

While searching for Mujika, Ginko makes two discoveries. The first is occasioned by his observation of an otherworldly degree of fertile greenery on the mountainside, which leads him to realize that the *kôki* flows there in the form of a physical river (2:10). Counter to the idea that growth is unilaterally good, Ginko exhibits a more ecologically aware perspective through his pronouncement that a master is needed to control the verdancy so that it doesn't choke off other life. The implication here is that the individual growth of individual plants or species isn't the most important thing but rather the balance between them. This is resonant with Cuesta's and Capitán's research, which similarly, according to the authors, implies that we should be less concerned with the preservation of individual species than with the preservation of ecosystems as a whole – in the same way we would be less concerned with the destruction of one of our cells than we would be with our body as a whole. According to Cuesta and Capitán: "We are obsessed with the preservation of species, but it is much more important to preserve ecosystems [...] Seen this way, for example, at times it could be beneficial to substitute an endangered species with another one – with similar interactions with the other species in the ecosystems – so that the ecosystem will not be threatened, because then we would lose one species, but we would save the ecosystem."

A concern for ecosystems above a concern for the individuals comprising them, and the entailed sometimes necessary sacrifice of individuals, is affirmed in "The Sleeping Mountain" via Ginko's second discovery, a young boy named Kodama, who he finds sleeping on the mountainside. Kodama is revealed to be both Mujika's disciple and the sole survivor of a group of children who were abandoned

on the mountain as infants because their numbers were too great (thanks to the unrestrained, life-giving properties of the *kôki*) for the village to support. In this way, Kodama himself is a signifier for the valuation of ecosystems above individual human beings. Indeed, it is by virtue of his being a product of this system of valuation that he is eligible to act as the mountain's master after Mujika, and look after the interests of the ecosystem as a whole.

However, even with Kodama's help, Ginko still is unable to locate Mujika. At this point, he sets out lures to attract the vine-like *mushi* called "mugura," which function as the nervous system of the mountain. The lures prove fantastically successful and, in short order, mugura riddle Ginko's body as if it has been overlaid with a diagram of the circulatory system. The several illustrated pages following this inhabitation are a mad rush of vine-like panels, as if the mugura are metafictionally infesting the text of *Mushishi* itself. Each panel on these pages is imprinted with either macro or micro life-forms, like slides of a microscope. They represent Ginko's altered perception and consciousness interacting with reality at numerous intersecting dimensions, from the microscopic to the everyday, and from the neo-Aristotelian physical to the Neo-Platonic metaphysical. Thus, freed of the confines of his individual body and individual mind to see all of the mountain at one time, becoming in effect part of the mountain's consciousness, Ginko observes of this state: "[T]he condition of everything around you flows right inside" (2:27-8). In this manner, Ginko quickly locates Mujika. However, the mountain master refuses to return to the village. While Ginko leaves him where he is, suspicious he returns a little later that night to spy on him and, thus, discovers that Mujika is secretly performing the necessary rituals to summon a replacement mountain master, a *mushi* called "Kuchinawa." When confronted, Mujika admits to Ginko that he is convinced the Kuchinawa will be better able to control the mountain. Perhaps so. But, this substitution entails the sacrifice of Mujika's life since the new master always devours the old. Unwilling to accept this, Ginko attempts to thwart the sacrifice by again joining his consciousness with that of the mountain through mugura lures. This gambit fails, but while joined with consciousness of the mountain, Ginko comes to a deeper, even if not wholly accepting, understanding of the context of Mujika's sacrifice, particularly in regard to its connection to larger patterns (2:33-35).

This change of heart occurs amidst another psychedelic, nonlinear splash of pages and panels. They visually and textually represent the ecological merger of Ginko's mind with not only the larger natural world but also with the other main characters' psyches and memories for they are too, in a Shinto context, part of the natural world. In this way, Ginko comes to know that Mujika acquired his present position by himself killing and eating the former master of the mountain, a boar-like *mushi* (2:38-9). Thus, Mujika's sacrifice is reframed for Ginko. It is not simply a matter of the death of an individual but rather part of the unfolding of a larger natural cycle. And once Ginko becomes aware of this larger context, he allows Mujika to do as he wishes and be devoured by the Kuchinawa. This shift in attitude again illustrates the implications of Cuesta's and Capitán's findings,

which argue for valuing ecosystems above individuals or individual species. This revaluation is further underscored by the next narrative beat in which we see Ginko returning to the village to discover only he and Kodama remember that Mujika even existed, a plot point that implies both the replaceability of parts of the ecosystem in the interests of the preservation of the ecosystem as a whole and the deeper reality of the holistic collective when compared to the reality of the individual.

Finding a Balance

The end of “The Sleeping Mountain” is intellectually troubling if one reads it as a merciless and radical equivalence between individual human lives and ecosystems. Such arguments are not new and offer us little in terms of expanding our understanding of the world and our place in it. More significantly, in the context of ecocriticism and environmental activism, part of our motivation for “saving the earth” is to save ourselves. Thus, any model of human/nature relations that requires the sacrifice of individual human beings (especially if we are the individuals in question) isn’t very compelling. *Mushishi* proves itself well aware of this. For example, at the end of the “The Sleeping Mountain,” after Mujika’s disappearance, Ginko goes for a walk and calls up to the new mountain master: “You’re an amazing sight. But you don’t know understand how people feel. Do you, Kuchinawa” (2:47)? By calling out Kuchinawa for not taking into account “how people feel,” Ginko indicates that we must take more into consideration than the larger eco-cycles and patterns in which human beings are embedded. This “more” is the domain of the individual human being, as Neo-Aristotelian artifact, specifically the reality of human grief, suffering, and mortality. What are we to make of the narratives of *Mushishi* then, and the attendant embedded philosophy, if we can’t solely chalk it up as an argument for ecological holism? Perhaps the most productive reading we can walk away with is simply one that calls upon us to resist exclusivist paradigms which champion either Neo-Platonic or Neo-Aristotelian worldviews and to instead steadfastly recognize and grapple with the multiple dimensions of our experience and being. All too often, Western conversations and rhetoric treat the human and the natural as binaries. And, just as frequently, they become mired in binary models of the self as either real or illusory, as either single or multiple, and as cultural product or biological object. *Mushishi* by contrast mirrors the Shinto sensibility that largely informs it, a sensibility that allows Shinto, for example, to incorporate the insights of other religions by reframing their various gods as kami. Like Shinto, *Mushishi* too is syncretic and inclusive. It asks that we give equal weight to both the material and metaphysical realms and to conceptions of the human being as individual, as multiple, as microbiome, as fractal, as cultural product, as biological organism, and, ultimately, as an entity as mutable and polymorphous as mushi.

Works Cited

- "Bacterial Intelligence: An Interview with Lynn Margulis." *Astrobiology Magazine*. Mary Ann Liebert Inc., 10 Dec. 2006. Web. 01 Mar. 2014.
- Bekoff, Marc. "Animals Are Conscious and Should Be Treated as Such." *New Scientist*. Reed Business Information Ltd., 26 Sept. 2012. Web. 13 Apr. 2014.
- Bernard, Rosemarie. "Shinto and Ecology: Practice and Orientations to Nature." *The Forum on Religion and Ecology*. Yale University. 1998. Web. 3 Mar. 2014.
- Blacker, Carmen. *The Catalpa Bow: A Study of Shamanistic Practices in Japan*. London: Allen & Unwin, 1975. Print.
- Bryce, Mio and Amy Plumb. "Mushishi: Post Modern Representation of Otherness in and outside Human Bodies." *International Journal of the Humanities* 9.11 (1945): 111-19. Print.
- Burroughs, William S. *The Ticket That Exploded*. New York: Grove, 1967. Print.
- Dawkins, Richard. *The Selfish Gene*. Oxford: Oxford UP, 1989. Print.
- "Featured Research." *ScienceDaily*. Daily Science, 16 May 2011. Web. 14 Nov. 2013.
- "The Harikikigaki Manuscript: 1568." Kyoshu National Museum. Fukuoka, Japan, 2008. Manuscript.
- "The Human Microbiome: Me, Myself, Us." *The Economist*. The Economist Newspaper Group, Inc., 18 Aug. 2012. Web. 4 Feb. 2014.
- Hume, Kathryn. *Fantasy and Mimesis*. London and New York: Methuen, 1984. Print.
- Jackson, Rosemary. *Fantasy: the Literature of Subversion*. London and New York: Methuen, 1981. Print.
- Liu, Cheng-tsai and Ka Hua. *A Study of Daoist Acupuncture & Moxibustion*. Boulder, CO: Blue Poppy, 1999. Print.
- Lovelock, James. "Gaia as Seen through the Atmosphere." *Atmospheric Environment* (6.8 (1972): 579-80. Print.
- Matuk, Camillia. "Seeing the Body: The Divergence of Ancient Chinese and Western Medical Illustration." *Journal of Biocommunication* 32.1: (2006): 1-8. Print.
- Mullis, Kary B. *Dancing Naked in the Mind Field*. New York: Pantheon, 1998. Print.
- Nelson, Victoria. *The Secret Life of Puppets*. Boston: Harvard UP, 2003. Print.
- Picken, Stuart. *Historical Dictionary of Shinto*. Lanham, MD: Scarecrow, 2002. Print.
- Pollan, Michael. "The Intelligent Plant." *The New Yorker*. Conde Nast Publications, 23 Dec. 2013. Web. 13 Apr. 2014.
- . "Some of My Best Friends Are Germs." *The New Yorker*. Conde Nast Publications, 15 Mar. 2013. Web. 12 Nov. 2013.
- "Should Apes Have Legal Rights?" *The Week*. Week Publications, Inc., 3 Aug. 2013. Web. 13 Apr. 2014.
- "Traditional Chinese Medicine: An Introduction." U.S. Department of Health & Human Services. National Center for Complementary and Alternative Medicine, n.d. Web. 15 Mar 2014.

- Urushibara, Yuki. Trans. William Flanagan. *Mushishi*. 10 vols. New York: Del Rey Ballantine, 2007. Print.
- Vidal, John. "Bolivia Enshrines Natural World's Rights with Equal Status for Mother Earth." *The Guardian*. Guardian News Media, 10 Apr. 2011. Web. 10 Apr. 2014.
- Yamamoto, Yunitaka. "Nature in the Shinto Tradition." *Speaking Peace to the Nations*. Stockton, CA: Tsubaki America, 1988. Web. 15 Jan. 2014.