



The Jade Casket between the Heavens and Earth

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ABSTRACT

To outside eyes, there is something strange at the heart of Daoist approaches to nature. At once there is reverence for nature and its spontaneous transformations—to the degree that humans are advised to do nothing but follow its way—yet we are also to cultivate and in some cases even improve upon nature. The current climate crisis has made clear the disastrous imposition of human practices on the earth, yet what remedy aside from human extinction does not require human technology and intervention? In this paper, I explore the Daoist approach to nature via the boundary of humanity and nature portrayed in the imagery and practices bridging the heavens (*tian* 天) and earth (*di* 地), and naturalness (*ziran* 自然) and artifice (*wei* 為), found in early Daoist philosophy (*Laozi* 老子 and *Zhuangzi* 莊子) and Daoist Alchemy (*neidan* 內丹). I look at the role and place of fungi as a gate between plant and animal, and the heavens and earth, as well as their use in the practice of “reversal” (*dian dao* 顛倒) in which we turn back from death towards birth and renewal. In this movement, we do not seek eternal life after death, but rather the healing ever present in the spontaneous rhythms of *dao* and in the reversal that springs forth from the cusp of ruin. As a form of life that thrives at many borders, these “marvelous” fungi teach that cultivation is a more than human capacity, and in this regard, we are but perpetual apprentices to nature even as we transform and perhaps even improve upon it.

KEYWORDS

Reversal,
cultivation,
Daoism, alchemy,
fungi, ecological
crisis, nature

*'Going back to the beginning
and pursuing the end'
is the thread to understand existence
and extinction.¹*

There is something strange at the heart of Daoist approaches to nature. We are advised to follow nature and its spontaneous transformations without interference while also being advised to cultivate—and even improve upon—nature. Such advice and what it implies about the boundaries of humanity and nature speaks to our current situation on earth: reversing the mass ecological crises caused by disastrous human practices requires human intervention . . . or our extinction. There is no “Daoist” environmental solution to be found by listening into the traditions of those who have followed *dao*, but there is much we could learn about reversal and cultivation as human and more-than-human capacities that function across the borders of nature, culture, artifice, technology, or in the language of Daoism, across the heavens and earth. In the reflections here, I bring this question to the boundary of another subject, one which was once an ally of philosophy and science but has been abandoned: *alchemy*.

Reversal

I read the last sentence of a book first, regardless of genre or content. While appalling to many fellow readers, I find it is a useful hermeneutic method that enlivens rather than dims the end. Knowing what is inevitably ahead does not foretell its meaning.

Moving from end to beginning in order to “pursue” the end also happens to be an alchemical procedure attested to in the opening lines here from the *Cantong qi*. This coincidence in no way implies that my odd reading habit is an alchemical procedure threading “existence and extinction,” but because the topic at hand is reversal in many different senses of the word, I will begin with the last sentence here, taken from Chapter 40 of the *Laozi* 老子: “Reversal is the movement of *dao* 道.”¹ What does “reversal” mean? The Chinese word is *fan* 反, which is also translated as “returning,” “turning back,” and “inversion.” How does *dao* “reverse,” “return,” “turn back” or “invert”? If *dao* is both the creative source and patterns of becoming, there is something peculiar about describing its movements as “reversal.” Doesn’t *dao* move forwards rather than backwards? Other descriptions of *dao* often employ images of birth, growth, and natality. Are these compatible with reversing or turning back?

One immediately available way to explain these tensions is correlatively. Forward and reverse, leaving and returning, birthing and dying, are all correlative, co-constitutive, resonant pairs that complement rather than oppose one another. But in the *Laozi* this response is only a starting point and operates as more of an observation than explanation or practical advice. Correlative pairings alone do not explain why the text emphasizes and singles out the reversing, returning, and turning back movements of *dao*. However, there is a tradition in Chinese history, inspired in part by the *Laozi*, of powerful and complex practices centered on the idea of “reversal”: *neidan* 內丹 or “internal

¹ *Can tong qi* 參同契 [The Seal of the Unity of Three]. Line 1, Chapter 40, *Laozi. Fan zhe dao zhi dong* 反者道之動.

alchemy.” But because the relationship between philosophy and alchemy has been severed by philosophers, the explanatory—and practical—resources of *neidan* remain dormant. While it is generally accepted that the *Laozi* and *Zhuangzi* 莊子 provided many of the concepts and vocabulary for later Daoist alchemy, most of the scholarship on philosophical Daoism ignores this influence (notably, scholars and practitioners of Daoist alchemy embrace these origins). In the interest of producing texts acceptable and comprehensible to contemporary audiences, philosophers leave aside the arcane.

As a result, philosophers are much more likely today to engage in debates over whether the philosophy of the *Zhuangzi* can be categorized as relativism, skepticism, nihilism, fictionalism, or naturalized epistemology, than discussions about the textual role of *xian* 仙 (“celestial beings” or “immortals”) who “breathed through their heels” and “drank the dew.” Such tales are waved away as either metaphorical, irrelevant to the properly philosophical lessons of the text, or worse yet, magical. The *Laozi* is read in a similar manner by philosophers who wish to rescue the text from “spiritual” readings. Guarding the texts against new age misappropriation, however, doesn’t require drawing a sharp boundary with the alchemical practices that came afterwards. Opening that boundary in order to gain a deeper understanding of how *dao* reverses or turns back does not mean equating the use of reversal in *neidan* with that of the *Laozi*; rather, doing so engages in productive, responsible, and practical hermeneutics. It’s worth asking, in fact, whether we can read the *Zhuangzi* and *Laozi* as alchemical texts prior to their later adoption by practitioners of *neidan*. To take the *Zhuangzi* as an example, passages that describe inverting the self out of its fixed habits of perception, judgment, knowing, and

acting into our lineage in what the text calls the *da xu* 大虛 or “great emptiness” and the *tai chu* 泰初 or “great beginning” can be read in ways that intimate their alchemical potential. The habits described in the *Zhuangzi* are barriers to illumination and living well, bringing destruction and disharmony to the world through coercion, dogma, and violence. The later alchemists took seriously the warning that these habits eventually bring ill-health and an unnatural end to life, including our own, and saw the alchemical potential for reversing these habits in the text’s description of the “great emptiness” and “great beginning.” What wealth can be gained now by reading the text as the alchemists once did?

Neidan or “internal alchemy” centers around intertwined and mutually reinforcing practices of awakening or enlightenment and health and longevity. Whereas external alchemists worked in laboratories to turn base metals into gold or silver, and manufactured medicines aimed at curing diseases and lengthening one’s lifespan, internal alchemists used the body as the laboratory to generate the internal “golden elixir” *jin dan* 金丹. The body—as a “cauldron” (*ding* 鼎)—was believed to contain the alchemical elements needed to become a celestial master (*tianxian*) or one who reaches the highest degree of realization. Becoming *xian* is possible because the same processes and elements guiding the heavenly and earthly dynamics also exist in the body. In particular, the dynamics of *yin* and *yang* guide the basic principles of internal alchemy just as they guide the broader workings of the cosmos. According to Isabelle Robinet, internal alchemists are especially concerned with “True Yin, which is the Yin enclosed within Yang, and with True Yang, which is

the Yang enclosed within Yin.”² These are the “hidden internal truth” of things and the ingredients of alchemical processes in which the internal and the hidden are realized as external and visible.

The aim is not to lay bare the secrets of nature in a calculative manner, but rather to learn how the processes that transform the heavens and the earth exist within us as well, and to utilize these in service of cultivation. As Robinet explains, *neidan* practitioners saw the world as systematically ordered by means of complex multiplicities, multi-layered structures, and shifting reference points that emerge from fundamental patterns. Alchemical transformation relies on providing order and intelligibility while also engaging in practices that counter its own system. Robinet describes these subversive practices as:

. . . the reminder that silence is the foundation of the word; the continuous evocation of Unity, which merges and abolishes all reference points; the adoption of a fundamentally metaphoric language that must be surpassed; the recurrent disruptions in the continuity of discourse . . . the reciprocal encasing of all images, so that “the child generates the mother” and the contained is the container; the multiplicity of facets, times, and reference points superimposed above one another, which counteracts the fragmentation wrought by rational analysis.³

Practices that breach the systematic order of alchemy are also oriented to “the world upside down”—an idea illustrated by Robinet

with a poem from the *Wuzhen pian* 悟真篇 [Awakening to Reality]:

Look at the gate of death as the gate of life,
Do not take the gate of life to be the gate of death.
The one who knows the mechanism of death and sees the reversal
Begins to understand that the good is born within the evil.⁴

In turn, the disruption of ordinary boundaries in the “world upside down” serves a larger practice called *dian dao* 顛倒 (“reversal” or “tracing to the source”). Reversal is enacted in many ways, all of which aim at generating the internal elixir. In a commentary on the *Wuzhen pian*, reversal is explained in terms of cultivating *yin* and *yang*:

Reversal does not consist in thinking that the Yin is Yang, but in taking the Yang from the Yin. It does not consist in thinking that the Yang is Yin, but in taking the Yin from the Yang. When the Yin is the Yin and the Yang is the Yang, this is the forward course, the ordinary way of the world. Taking the Yin within the Yang and the Yang within the Yin is the mechanism of life stolen by the immortals.⁵

Daoist internal alchemy thus involves practices that subvert the fixed and dogmatic boundaries of systems, including its own polarities, as well as practices for cultivating transformation from within correlates, oppositions, and multiplicities.

² Isabelle Robinet, *The World Upside Down*, 103.

³ *Ibid.*, 54.

⁴ *Ibid.*, 67. The 11th century *Wuzhen pian* is one of the most important Daoist alchemical texts. Written by Zhang Boudan, it is a poetic exposition of *Neidan*

that draws upon the *Laozi* and *Zhuangzi* as well as Buddhist vocabulary.

⁵ From the *Ziyang zhenren wuzhen pian zhushu* 紫陽真人悟真篇註疏. Quoted and translated by Robinet in *The World Upside Down*, 115.

Li Daochun 李道純, a Daoist internal alchemy master at the turn of the Southern Song (1127-1279) and Yuan (1271-1368) dynasties, further explains reversal in terms of “directions” one can cultivate. If one moves toward a presumed end, this is the ordinary course or the so-called “operation” or “use” (*yong* 用). In the other direction, one moves backwards toward the source or “body” (*ti* 體) of all things.⁶ Of the many words in Chinese for the body, the *ti* body referenced here is the most corporeal of all the bodies. When referencing an individual, this is the body that that senses and eats. This is noteworthy because the *ti* body might seem to be the least likely body to “reverse”; our flesh and bones do not, after all, age backwards. And yet, the *ti* body is the most transformable of all the types of bodies identified in early China. *Ti* bodies have malleable and multivalent boundaries; they can even extend into other *ti* bodies to form one body.⁷ *Ti* bodies are perhaps best understood in organic and ecological terms. As Deborah Sommer elaborates in her study of *ti*, one of its earliest meanings was not the human body but rather “plant vegetation,” as testified to in the variant for *ti* (體) meaning “root.”⁸ This early association with plants and plant reproduction is present in the way the *ti* body multiplies and grows. Vegetative propagation occurs through productive division into new plants that retain a consubstantial relationship with the parent plant, in contrast to the death of the organism that occurs when an animal is divided or

dismembered. *Ti* bodies, like plants, can be divided from within while retaining their wholeness.

The continuity and mutual patterning between inner and outer, part and whole, which characterizes *ti* bodies supports the meaning of *ti* as “embody.” Nathan Sivin explains that this sense of *ti* also refers to an individual’s personification of something, for instance to an immortal’s embodiment of *dao* (*ti dao* 體道).⁹ As Sommer points out, immortals embody *dao* via the *ti* body because it provides the greatest erasure of boundaries between individual entities and thus allows for the possibility of cultivating a common body (*tong ti* 同體)—whether one person, one family, or one body politic—as well as embodying *dao*, *de* 德 (virtuosic power), or even the cosmos.¹⁰

Ti as embodiment also draws on the idea of organic systems, as Cheng Chung-ying observes, for to embody something is to form an ecological system with what is embodied:

To embody something is to form a system with the thing, so that the thing can be said to be a part of the whole reality resulting from the embodiment, or a person’s self becomes part of the resulting system . . . When we speak of the ecological system in nature today, we have reached the meaning of embodiment of the system of interdependence as

⁶ See Robinet, 74.

⁷ Deborah Sommer offers a vivid description of the *ti* body: “a polysemous corpus of indeterminate extent that can be partitioned into subtler units, each of which is often analogous to the whole and shares a fundamental consubstantiality and common identity with that whole. *Ti* bodies can potentially extend in all directions and can exist in multiple, overlapping layers or valences. Boundaries between valences are often unmarked or are obscure. When a *ti* body is fragmented into parts (literally or conceptually), each

part retains, in certain aspects, a kind of wholeness or becomes a simulacra of the larger entity of which it is a constituent.” In “The Boundaries of the *Ti* Body,” *Asia Major*, THIRD SERIES, 21, no. 1 (2008): 294.

⁸ Sommer sources the *Book of Odes* as an example of *ti* as plant vegetation and notes that plant forms in the *Odes* are signs for human emotion. *Ibid.*, 297.

⁹ Nathan Sivin, “State, Cosmos, and Body in the Last Three Centuries B.C.” *Harvard Journal of Asiatic Studies*, Vol. 55, No. 1 (June 1995), 14.

¹⁰ Sommer, “Boundaries of the *Ti* Body,” 324.

conveyed by the notion of *ti* as embodiment.¹¹

To embody the heavens and earth, then, means that one is also embodied within it. As Cheng further explains, embodiment is linked to another meaning of *ti*: “to practice” or “implement.” A person becomes one *ti* with everything through embodied practices; for example, a sagely person cultivates virtuous practices and actions that are themselves bodily and therefore both rely on and influence the *ti* body. Given its complex capacity for transformation, how does the *ti* body turn back or reverse through alchemical practices?

At least one way is through the reversal of time and space internally. Whereas ordinary people generate other humans, seekers of the internal elixir are said to generate an “embryo of immortality” within themselves. This is achieved through meditative practices and *inner arts* that trace time, space, and transformation in backwards sequences. The ordinary course leads to death, whereas the reverse course moves towards birth—not as re-birth or eternal life after death—but backwards through youth towards birth. Reading Daoism in exclusively philosophical terms will likely leave us puzzled by the suggestion that this is a practice of “immortality.” Doesn’t the *Zhuangzi* tell us to be “one” with change (*hua* 化), even the great change of death? It would seem that seeking immortality is one of the most unnatural and, as such, un-Daoist human

pursuits. And yet, consider the following passage from the *Zhuangzi*:

In the great beginning, there is nothing: without something and without name. Out from where one emerges, there is one not yet formed. When things grasp it as the means by which they are generated, this is called virtuosic power (*de*). In what is not yet formed, there is a division; as it moves it is boundless. This is called destiny. Out of stillness and movement, things are generated; when they are completed patterns are generated; this is called form. The embodied form shelters spirit, each with its own conditions and principles; this is called natural endowment. In cultivating our natural endowment we return to our virtuosic power. When this power is at its utmost, we accord with the great beginning. Being in accord with the great beginning, we are emptied. Emptied, we become great. United with the opening and closing of beaks, the opening and closing of beaks are united. Together with the heavens and earth this is unity. This unity is mindless, as if foolish, as if muddled. This is called hidden virtuosity and harmonizes with the great accord.¹²

When we harness the rhythms that give rise to the generative patterns of things, we become like the “great beginning.” And in according with this origin, we are like the opening and closing of singing birds’ beaks (*he hui ming hui ming he* 合喙鳴, 喙鳴合).

¹¹ Cheng Chung-ying, “On the Metaphysical Significance of *Ti* (Body-Embodiment) in Chinese Philosophy: *Benti* (Origin-Substance) and *Ti-Yong* (Substance and Function),” in *Journal of Chinese Philosophy*, 29:2 (June 2002), 146.

¹² 泰初有無，無有無名，一之所起，有一而未形。物得以生，謂之德；未形者有分，且然無間，謂之命；留動而生物，物成生理，謂之形；形體保神，各有儀則，謂之性。性修反德，德至同於初。

同乃虛，虛乃大。合喙鳴，喙鳴合，與天地為合。其合縉縉，若愚若昏，是謂玄德，同乎大順。
Zhuangzi Yinde [A Concordance to *Chuang Tzu*], Harvard-Yenching Institute Sinological Index Series, Supplement no. 20. (Cambridge: Harvard University Press, 1956), 37.14.13-30. *Xuan de* 玄德 also occurs in the *Laozi* (Chapters 10, 51, 65). The term defies easy translation. Alternate translations could include “arcane or dark virtuosity” or “profound potency or power.”

This process cultivates our deep, enigmatic, and natural virtuosity. In this, we do what nature does in according with the great beginning. In later Chinese alchemy, the lineage described here facilitates the process of reversal in which the internal or golden elixir is cultivated. *We* become the elixir ourselves through regeneration and self-healing, or to use the imagistic language of *neidan*, through generating an internal embryo of “immortality.” The process of reversal is possible because nature is also self-cultivating and the great beginning is not a metaphysical origin, but rather the phenomenological and ecological source of transformation arising in every moment. This reading reframes “immortal” as the temporal correlate to spatial boundlessness—both of which can be understood phenomenologically rather than metaphysically. Being beyond the habituated boundaries of time can occur whenever everyday chronological time is transcended; it does not require the corporeal body live forever.

Reduction

If the great beginning can be understood phenomenologically, one might wonder if the *neidan* practice of reversal could operate as a kind of phenomenological reduction? I would not suggest the inner arts described in the *Zhuangzi* or practiced by the internal alchemists involve the reduction as it developed later in European history (this would be a reversal of time and space beyond even the capabilities of the immortal dew drinkers!). However, there is no single meaning of the phenomenological reduction even if we limit it to a circumscribed historical movement in philosophy. Even

within Husserl’s own work, there are multiple meanings and methods of reduction. Moreover, what might we gain by freeing phenomenological practices from the barriers between historical time periods, geographical locations, and cultural traditions?¹³ Along with the “Great Beginning” passage from the *Zhuangzi*, the following description by Robinet of Daoist alchemical reversal invites comparison with phenomenological reduction:

The reversal concerns the perspective of departure. At first there is the appearance, the immediate intuition of the visible things, the self-identity of beings: pure Yin and pure Yang . . . Then a shift occurs that reverses the first intuitive, naïve apprehension, and deconstructs the principle of self-identity: the object is no more identical to itself . . . With a displacement of identities, things are dislodged from their immediate definition, from their identity to themselves, in favor of a displacement to the other, its opposite, through a structure of multiple and multidimensional perspectives . . . Returning to oneself from the other, returning to the world after leaving it . . .¹⁴

The change described here lays the groundwork for further reversals that fully upend the relation of self and other, subject and object. As intuitions about identities and their others or opposites are displaced, obstacles to perceiving how the myriad things in existence give themselves as *ziran* 自然—as “spontaneously-so” of themselves—are also dissolved. To borrow some of the earliest language of

¹³ On this matter, I agree with Merleau-Ponty’s point that “phenomenology can be practiced and identified as a manner or style of thinking, that exists as a movement before arriving at complete awareness of

itself as a philosophy.” Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge, 1960), viii.

¹⁴ *The World Upside Down*.

phenomenology, things are freed to give themselves as themselves.

In the *Zhuangzi* and the *Laozi*, phenomena arise and give themselves beyond any aspect that can be fixed, whether by naming, logical oppositions, or any other limit of human intentionality. On this point, I am reminded of Jean-Luc Marion's claims that phenomenological reduction and givenness are correlated—more reduction means more givenness—and that reduction leads us to the “saturated” nature of phenomena exceeding any intentional horizon.¹⁵ These paradoxical phenomena are encountered in what Marion names “counter-experience.” In the *Zhuangzi*, what might be called counter-experience also involves paradox and requires the release of logical oppositions and habitual perceptual practices in a reversal back, not toward God, but rather toward the great beginning which is a great emptiness. In a related passage of the *Zhuangzi*, our search for a single, unchanging origin is criticized; things are said to emerge like “music out of emptiness” and “mushrooms produced by vapors.”¹⁶ No one knows their ultimate source, but more importantly, attending to the ongoing transformations of things rather than searching for an unknowable origin is a practice that can cultivate our own natural, yet often hidden powers of self-transformation. Tracing the regenerative phenomenological origins of each moment presents us with possibilities for reversing habitual patterns of illness, decay, and suffering. While reversal is an inner art practiced by individual *neidan* adepts, by virtue of the continuity and mutual patterning between inner and outer aspects of *ti* bodies,

reversal should also be possible in the broader, external *ti* body of the world. Given this, can we learn anything from the inner alchemists about reversing the ruin and death humans have wrought on earth? Could following “music out of emptiness” and “mushrooms produced by vapors” be part of such a practice?



Illustration of mushroom and ghost pipe plant (*monotropa uniflora*) by Adelaide Tyrol.

Cryptogams

In the prologue to *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, Anna Lowenhaupt Tsing notes, “When Hiroshima was destroyed by an atomic bomb in 1945, it is said, the first living thing to emerge from the blasted landscape was a matsutake mushroom.”¹⁷ In the

¹⁵ For example: the event (saturation of quantity); the idol (saturation of quality); the flesh (saturation of relation); and the icon (saturation of modality). See Jean-Luc Marion, *Reduction and Givenness*, trans. Thomas A. Carlson (Evanston: Northwestern University Press, 1998).

¹⁶ 樂出虛，蒸成菌。 *Zhuangzi Yinde*, 4.2.13.

¹⁷ Anna Lowenhaupt Tsing, *The Mushroom at the End of the World* (Princeton: Princeton University Press, 2015), 2.

ethnography and natural history that follows, she traces the “assemblages” that emerge around the growth, harvest, and trade of the matsutake mushroom in order to show how “entangled ways of life” emerge from the relationships between capitalist destruction and “collaborative survival” within multispecies landscapes. She proposes nature be thought of in three ways: “first nature” as ecological relations (including humans), “second nature” as “capitalist transformations of the environment,” and “third nature” as “what manages to live despite capitalism.”¹⁸ Tsing argues we are unable to notice third nature if we assume the future lies ahead in a singular direction because third nature emerges within “temporal polyphony” and “disturbed beginnings.” For example, wild matsutake mushrooms grow in human-disturbed forests where they nurture trees and assist the growth of the forest. They are also an expensive, coveted food in Japan and a global commodity foraged by displaced cultural minorities in the forests of the Pacific Northwest, where Laotian and Cambodian refugee communities do much of the matsutake hunting. Diverse temporal rhythms, disturbances, and precarious existences of many sorts—human, animal, economic, cultural, and natural—form what Tsing calls “open-ended assemblages of entangled life” around the matsutake mushroom. These assemblages demonstrate possibilities of collaborative survival while also challenging the historical boundaries of the existences, timelines, and influences that generate it.

In a section of the book with great relevance to Daoist approaches to nature, Tsing

describes her shock at the work of *satoyama* woodland managers in Japan who restore forests by deliberately disturbing them. American wilderness sensibilities, she observes, led her to believe that forests restore themselves best; yet the Japanese cultivators of *satoyama* woodlands embrace surprising degrees of intervention.¹⁹ Even erosion is a welcome method because it encourages the pines necessary to the growth of matsutake. We should not presume these human activities run contrary to nature. As a Japanese scientist explains to Tsing, matsutake are the result of “unintentional cultivation”: human disturbance greatly increases the chances that matsutake will grow, even though humans are incapable of directly cultivating the mushroom. Tsing comments, “one could say that the pines, matsutake, and humans all cultivate each other unintentionally. They make each other’s world-making projects possible.”²⁰ Landscapes, she proposes, are products of “unintentional design” in the entangled world-making activities of many agents. Although a landscape’s ecosystem has an observable design, no one intentionally planned it. It is *ziran*—naturally and spontaneously so of itself—emerging from the great beginning and great emptiness through the collaborative, mutual cultivation of all involved and accessible through counter-experience. Accepting this means cultivation is not an activity limited to humans. Instead, cultivation is a phenomenon that escapes systems of thought organized around a boundary between nature on one side and culture and artifice on the other. The Daoist practice of reversal transcends this boundary too.

¹⁸ Ibid, viii.

¹⁹ She writes, “Ecological restoration programs around the world use human action to rearrange natural landscapes. What distinguishes *satoyama* revitalization, for me, is the idea that human activities

should be part of the forest in the same way as nonhuman activities. Humans, pines, matsutake, and other species should all make the landscape together, in this project” (Ibid., 151).

²⁰ Ibid., 152.

One of the many remarkable ways to observe more-than-human cultivation is in the collaboration between fungi and plants. Most relationships between plants and fungi are symbiotic, for example in forests where mycorrhizal fungi feed trees nutrients and water from the soil and trees feed fungi nutrition generated by photosynthesis. But cultivation is not always straightforwardly reciprocal, at least not within a frame of reference that tallies exchange. To borrow an earlier term from Chinese philosophy and alchemy—cultivation is *xuan* 玄 (“mysterious,” “hidden,” “dark,” “arcane”). A dramatic example can be found in the relationship between fungi and plants that have lost the ability to photosynthesize, such as the *monotropa uniflora* (“ghost pipe” or “corpse plant”). Because *Monotropa* lacks chlorophyll, it cannot feed itself through photosynthesis as most plants do. It relies instead on nutrients from mycorrhizal fungi in the soil. It is not clear to ordinary human perception what, if anything, *monotropa* gives back to the fungi, although it is known to benefit us.

Interestingly, a cousin of *monotropa* called “candy canes” (*Allotropa virgate*) relies on the matsutake mushroom for its existence. As biologist Merlin Sheldrake explains, this enables matsutake hunters to use the presence of candy canes as a sign that underground networks of matsutake fungi are nearby. If candy canes are physical clues to hidden matsutake, he says, ghost pipes are “conceptual clues” to biologists that shared mycorrhizal networks support “a way of

life.”²¹ Sheldrake tries out several explanations to account for the seemingly “altruistic” activities of mycorrhizal fungi that help cultivate plants from which they appear to gain no direct, immediate material gain. He settles on the idea that these fungi nonetheless benefit because “a diverse portfolio of plant partners insures it against the death of one of them” and thus, fungi are “brokers of entanglement able to mediate the interactions between plants according to their own fungal needs.”²² Putting economic metaphors and evolutionary explanations aside for a moment, the movement of alchemical reversal toward the *ti* body is observable in the ways mycorrhizal fungi move energy through dispersed and decentralized networks to the collective *ti* body of the forest formed from many overlapping and entangled *ti* bodies. The operations of these fungi accord with the *neidan* view of the world as structured by “multiplicities, multi-layered structures, and shifting reference points.” In the case of the ghost pipe or corpse plant specifically, mycorrhizal fungi cultivate from the “gate of death” toward life. They indicate that reversal, like cultivation, is not limited to human activities.

An obscure Daoist alchemical text titled “Method on Growing Mushrooms from Laozi’s Jade Casket: The Secret of Numinous Immortals” (*Laozi yuxia zhong zhongzhi jing shenxian bishi* 老子玉匣中種芝經神仙祕事) provides a further link between cultivation as a human and more-than-human activity.²³ The text offers ritual instructions for growing

²¹ Merlin Sheldrake, *Entangled Life: How Fungi Make Our World, Change Our Minds, and Shape Our Futures* (New York: Penguin Random House, 2020), 160.

²² *Ibid.*, 163. Sheldrake notes here, “Evolutionary theory doesn’t cope well with altruism because altruistic behavior benefits the receiver at the cost of the donor.” One might wonder whether describing the activities of fungi in capitalist terms is, or should

be, compatible with evolutionary theory either. Sheldrake does recognize this and questions the use of human economic models to explain fungal life. See 321.

²³ The text is part of the *Shangqing mingjian yaojing* 上清明鑒要經 (“Classic of the Bright Mirror Method of the Highest Clarity”) in the Daoist Canon (*Dao Zang* 1206). I have relied on the text provided at <https://ctext.org/wiki.pl?if=gb&chapter=185834&re>

mushrooms that grant “immortality.” The reader is informed that certain plant medicines can be used to nourish and extend one’s life, but will not make one immortal. The seeker of immortality has two options: they can ingest “numinous mushrooms” (*lingzhi* 靈芝) growing in the wild over many years or they can eat mushrooms that have been cultivated atop four alchemical materials (cinnabar, gold, laminar malachite, and realgar) associated with the Five Phases or Elements (*wu xing* 五行). These alchemically grown mushrooms grant immortality because they transmit the “harmonious *qi*” (*he qi* 和氣) of the heavens and earth as well as *yin* and *yang* when consumed.

In the descriptions of the effects of numinous mushrooms, immortality is not presented as eternal life but as the transcendence of ordinary time and space. For example, after cultivating and eating a mushroom grown from laminar malachite, one will “float about, be welcomed by spirits, ascend to the heavens in broad daylight and become as boundless as the heavens and earth.”²⁴ After eating cinnabar grown mushrooms, one will be able to walk on water and be unburned by fire.²⁵ This extraordinary and puzzling description parallels a passage in the *Zhuangzi* in which Liezi 列子 describes the fully realized person (*zhen ren* 真人) as one who can walk under water without drowning and tread on fire without being burned. The explanation for these wonders is that the realized person is aligned with the formless source of all things. Such a person’s wholeness cannot be harmed nor do they harm others. While the explanation given for

these feats in the *Zhuangzi* is not a numinous mushroom, the language of spontaneity and realization of formless origins here is shared with discussions of fungi in Daoist alchemical texts as well as the language and imagery of cultivating the internal elixir. In “The Marvelous Fungus and *The Secret of the Divine Immortals*,” Dominic Steavu observes that the methods for growing and eating mushrooms in *Laozi’s Jade Casket* and the visualizations used for self-cultivation in internal alchemy are “strikingly identical” and offer evidence that the former may have been as much a meditation manual as mycological guide: “By consuming the numinous mushrooms, adepts absorb the myco-mineral essence and use it to invert the cosmogonic process.”²⁶ Through processes of increasing refinement and what we might think of as reverse reproduction, one moves via the corporeal, transformative forms of the *ti* body toward *dao* and the great formless beginning.

Fungi reproduce in other strange ways. Some scholars have suggested translating *zhi* as “cryptogram,” which means “hidden reproduction,” instead of “mushroom.” In discussing the possible merits of this translation, Steavu notes that Medieval Chinese observers were “fully cognizant of the fact that mushrooms reproduced differently from other plants” and “described this process as spontaneous manifestation (*zisheng* 子生), which can also be rendered ‘self-generating.’”²⁷ Whether humans can self-generate as proficiently is questionable; we may be more like the ghost pipe plants rooted into the borderlands of mycelium and roots, living off the symbiosis between fungi and tree. It seems the ghost pipe tricks the

[map=gb](#) as well as Dominic Steavu’s excellent overview in: “The Marvelous Fungus and *The Secret of the Divine Immortals*,” *Micrologus* 26 (2018).

²⁴ 芝盡，即能輕舉，當有神來迎之，白日升天，與天地無窮矣。

²⁵ 即能步行水上，焰火不灼。

²⁶ Steavu, “The Marvelous Fungus and *The Secret of the Divine Immortals*,” 380.

²⁷ *Ibid.*, 358.

fungi into a false mycorrhizal relationship by chemically mimicking a tree—a beautiful and spooky parasite masquerading as a conduit between sun and soil, the heavens and earth. But we do not really know how and what the ghost pipe cultivates from its oddly asymmetrical place in the forest. We do know that although that humans cannot intentionally cultivate the ghost pipe plant, its ingestion reverses human pain on many registers by changing our relationship to suffering. It is not a straightforward analgesic; it facilitates self-healing rather than killing pain, and in this regard utilizes reversal to bring us closer to regeneration.

The Way Back

Like cultivation and regeneration, disturbance and interference are also not limited to human activity. Fungi thrive on disturbance and even generate it. Sheldrake puts this well: “fungi make worlds; they also unmake them.”²⁸ Humans as well as much life on earth rely on the world-making and unmaking activities of fungi. Perhaps this two-way capacity makes fungi well-suited to what Tsing calls “third nature” or what grows from “temporal polyphony” and survives in the midst of capitalist ruins. But this point alone does not resolve the tension between disturbance and cultivation when it comes to the worst kinds of destruction humans inflict. And we should not overlook the ways that disturbance has been naturalized by those who deny the climate crisis. We cannot simply equivocate the way humans behave with the ways cultivation and disturbance operate in the more than human parts of nature. We clearly have much to learn about such practices.

If we are lucky enough to still be invited as apprentices to nature, how might we learn the arts of cultivation? For one, we must relinquish the savior complex that closely accompanies our destructive tendencies. “You break it; you fix it” is an ethical injunction with a very human problem at the center. Should we look to those who bring great destruction and illness for healing and repair? Perhaps those who break it are the last who should fix it. Cultivation that follows the alchemical model always requires first emptying the self and its vain presumptions, one of which is the fantasy that the fate of the Earth rests with us. As Jason Wirth writes, “Of course, we should not flatter ourselves that the survival of the Earth depends on our actions.”²⁹ Earth will survive, he reminds, and in the fullness of time biodiversity will likely benefit from catastrophic ruin just as it has before. This is not an excuse for inaction though. Wirth tells us, “Nonetheless, our unhinged relationship to the earth is a question of etiquette, of ethics, of finding a more sacred manner of wayfaring, of clear-eyed compassion for who and where we are.”³⁰ One response to this call might be found in the Daoist approaches explored here—especially in the aesthetic nature of the practices which unite etiquette (*li* 禮), ethics (*de*), wayfaring and waymaking (*dao*), and cultivated care. These can be observed, for example, in the detailed ritual instructions found in Daoist alchemy for cultivating and embodying numinous mushrooms as well as generating the internal elixir.

In fact, the *ti* body—the source or origin we move toward in alchemical reversal—is closely associated with ritual and etiquette (*li*), and thus with music (*yue* 樂). One considerable reason is that in addition to sharing organic and ecological characteristics,

²⁸ *Ibid.*, 224.

²⁹ Jason Wirth, *Mountains, Rivers, and the Great Earth: Reading Gary Snyder and Dōgen in an Age of*

Ecological Crisis (Albany: State University of New York Press, 2017), xvii.

³⁰ *Ibid.*, xvii.

ritual activities and *ti* bodies are emeshed through sense—as both perceiving and meaning. In ritual activity, the aesthetic engagement of the body heightens and alters sense perception while deepening the intimacy of sensing and meaningfulness. As well, both *ti* bodies and rituals are characterized by part-whole organization, and multivalent, liminal activities which contribute to the powerful effects of ritual upon sensing. Together these factors facilitate the embodiment of ritual meaning and indicate why the corporeal body that eats, decomposes, and reproduces serves as the “great body” of ritual.³¹ In the “Tianxia” 天下 (“Under the Heavens”) chapter of the *Zhuangzi*, Hui Shi says, “In caring for all things, the heavens and earth are one body (*ti*).”³² This does not have to mean attaining a quiescent mystical oneness with nature; deeply practiced and cultivated ritual activity also generates one body with the heavens and earth. Like all practices of awakening, alchemy is hard and sincere work.

Finally, a last thought on the golden elixir of immortality. I should amend my earlier suggestion that philosophers have excised the arcane and alchemical; it still enters the gates of philosophy through art and wonder. This too has a long history, east and west, north and south. Merleau-Ponty once suggested that art enacts a phenomenological reduction when it returns us to our being in the world

and makes our ties to it “fly up like sparks” and even claimed that the best formulation of the reduction was “wonder in the face of the world.”³³ The heavy reliance on aesthetic imagery and practices in Daoist internal alchemy also attests to the power of art and aesthetics to cultivate (as well as intervene and disturb). And art, like cultivation, is both a human and more-than-human gift. Finding our way back to merge with the heavens and earth, through what the *Zhuangzi* calls hidden or dark virtuosity that accords with the great beginning, might not be as esoteric as it sounds—at least tastes of it might not be.



It may be as easy as laughing with friends in the golden afternoon light of an autumnal meadow in Yosemite, or hearing an owl hooting in time with the machine sounds of the subway in Oakland, or finding green saplings tenderly growing from black scorched trees in the Sonoran mountains. When the *Zhuangzi* compares the turnings of the human heartmind to music coming out of emptiness and mushrooms sprouting forth, the human and more-than-human arts of reversal are paired to spark awe at the transformative source of each moment. Cultivation and its associated arts of disturbance and regeneration spring from this same source which is not separate from

³¹ *Li* and *ti* are cognates and the potency of this relationship is apparent in the *Liji* or Book of Rituals 禮記 where ritual is compared to a “great body.” Sommer cites the following passage: “The great body (*da ti* 大體) of ritual is embodied (*ti*) in heaven and earth, is modeled on the four seasons, is gauged in the yin and yang, and accords with the human condition.” Sommer, “Boundaries of the *Ti* Body,” 299.

³² 汜愛萬物，天地一體也。 *Zhuangzi Yinde*, 33.73-74.

³³ Merleau-Ponty writes, “The best formulation of the reduction is probably that given by Eugen Fink, Husserl’s assistant, when he spoke of ‘wonder’ in the face of the world. Reflection does not withdraw from the world towards the unity of consciousness as the world’s basis: instead it steps back to watch the forms of transcendence fly up like sparks from a fire; it slackens the intentional threads which attach us to the world, and thus brings them to our notice. It, alone, is consciousness of the world, because it reveals the world as strange and paradoxical.” Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge, 2002), xv.

things themselves. In our wonder at the great rocks, the termite trails, the birds, the earth and sky, the mushrooms sprouting from Laozi's jade casket, or the first moment of a piece of music, we can experience the reversal of the space and time marking the sickly dynamics laying ruin to earthly life. This is but a jumpstart on the way back to the fathomless (*xuan*) and polyphonic great beginning heard in the words of the *Laozi*: "reversal is the movement of *dao*."



Picture taken by author at "Sky Slope" in the Sonoran mountains (fall 2020).

Acknowledgements

I am grateful to my fellow collaborators on this special issue for the *Journal of the Pacific and Continental Tradition* for their insightful feedback and inspiring work, and am especially thankful to Jennifer Liu for her helpful comments, sage translation advice, and extraordinary patience and support throughout this project. Parts of this paper were presented at the 2018 PACT conference in Yosemite and my ideas greatly benefitted from the generous and rich conversations there. I also thank Adelaide Tyrol for allowing me to use her wonderful illustration of the ghost pipe plant and mushroom. It speaks more clearly to what I hoped to say here than my words do. She says of her art: "Upon close inspection, the natural world reveals truths other than analytical ones. A random moment, fully recognized can embrace the spirit and lead us to a deeper understanding of life. For me, the source is contained in the natural world; the process of painting is an attempt to communicate with and understand its well-spring." (adelaidetyrol.com)

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