

# THE HILLS ARE ALIVE: IN SEARCH OF A MYSTICAL MATERIALISM

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*"Stones possess a kind of gravitas, something ultimate and unchanging, something that will never perish or else has already done so. They act through an intrinsic, infallible, immediate beauty, answerable to no one, necessarily perfect yet excluding the idea of perfection in order to exclude approximation, error, and excess."*

French stone collector ROGER CAILLOIS,  
*The Writing of Stones*, 1969

*"Stone is not dead matter but an active, living substance with its own stories and histories ready to be activated."*

ILS HUYGENS and KAREN VERSCHOOREN,  
*This Rare Earth: Stories from Below*, 2018

*"I don't know if rocks are alive, but they change!"*

Belgian artist KAREN VERMEREN, 2019

## EARTH: SCIENTISTS' NOTORIOUS "IT GIRL"

One unintended consequence of "climate chaos" is the fact that scientists across the globe are reassessing Earth's status as a living being. Recall that scientists already caught the world off guard when they demoted Pluto's planetary status in 2015. Today's reassessment requires scientists to rethink rocks, since Earth's mantle, which occupies 84 percent by volume, is "all" rock. Water may cover 70 percent of Earth's surface, but the crust, or thin outer layer, is mostly rock, which adds another percent. We humans have managed to hitch a ride on a massive magnetic rock, only to be molded by our environment, as we daily handle stones and ores like turquoise, silver, copper, aluminum, and iron, while global industries mine and employ coal, oil shale, gemstones, limestone, chalk, rock salt, potash, gravel, and clay. Moreover, our bodies contain phosphorous, calcium, manganese, sulfur, potassium, sodium, chlorine, and silicon, all elements that primarily originate as rocks. To maintain our vitality, human beings must ingest sufficient amounts of iron, calcium, magnesium, chromium, selenium, zinc, and vitamins that are also found in rocks.

Industrial agriculture not only detests rocks, which destroy farm equipment, but most farming practices are so disconnected from nutrient-rich soil that the vitality of all organisms is at risk. As a result, crops may be genetically equivalent to their ancestors, yet their

nutritional values have become distant clones (Halwell 2007). Studies indicate that one must eat 8 oranges to get the same amount of vitamin A available in oranges from the 1950s, because heavy watering dilutes the nutrient levels of today's densely-planted crops. Apparently, today's meat provides only half as much iron, apples 1 percent of the vitamin C, and broccoli 25 percent of the calcium of yore (Davis et. al. 2004). My concern here is not that today's crops are less nutritious, but that even farmers seem to have forgotten that crumbling rocks enrich the soils that feed their crops. Moreover, it seems odd that something so obviously life-enhancing is considered inert. And food is just the most basic way that rocks sustain organisms. There seems to be an obvious contradiction afoot. If an organism's survival depends on rocks availing it minerals and nutrients, then perhaps rocks, and thus Earth, should be framed as living, though perhaps not in the same way as that which reproduces, occupies space, or consumes nutrients. Everybody admits that rocks break down into smaller bits and most acknowledge that rocks grow larger, so it's particularly relevant that scientists are revisiting the 1970s theory that postulates that Earth is alive, a theory that originated as the roundly-mocked "Gaia hypothesis." First mentioned in 1972 by British Chemist James Lovelock, it was further developed by American biologist Lynn Margulis, who modeled Earth biologically, like "a body sustained by complex physiological processes" (Jabr 2019). Those who view Earth as a single self-regulating system recognize that "there is a feedback between the living and nonliving parts of the planet that make the planet very different from what it would otherwise be," as noted by astrobiologist David Grinspoon. Adopting this approach reconnects rocks and soil to nutrients, crops, and species' well-being, plus it frames Earth as alive, and thus warrants greater planetary respect. The main reason scientists are revisiting the Gaia hypothesis is that it emphasizes the responsibility of human beings.

Even so, most people fail to notice Earth's "aliveness." Science writer Ferris Jabr remarks, "If Earth breathes, sweats and quakes—if it births zillions of organisms that ceaselessly devour, transfigure, and replenish its air, water, and rock—and if those creatures and their physical environments evolve in tandem, then why shouldn't we think of our planet as alive?" (Jabr 2019). As Lovelock understood, "We are a part of this Earth and we cannot therefore consider our affairs in isolation. We are so tied to the Earth that its chills or fevers are our chills and fevers also" (Jabr 2019). One problem is that science has yet to

precisely define "life," though it lists its qualities. As Marguiles realized ages ago, "Earth has a highly organized structure, it consumes, stores, and transforms energy and might even be a contender for procreation, though more as a host." Grinspoon adds, "Life is not something that happened on Earth, but something that happened to Earth (Jabr 2019).

I had hoped that a *New York Times* article entitled "The Earth is Just as Alive as You Are" would put to rest Earth's remaining "rocks-alive" skeptics, but it seems to have had the opposite effect. It probably doesn't help that Marguiles is quoted as describing Earth's living and nonliving elements as "parts and partners of a cast who in her entirety has the power to maintain our planet as a fit and comfortable habitat for life." Any reference to Earth as "her" gives scientists a valid reason to reject the Gaia hypothesis, since framing nature as feminine has already engendered dire environmental consequences. Imagine tourist advertisements. Characterizing Earth as a "procreative she" not only encourages the objectifying human gaze, but it unwittingly casts nature as exotic, passive, submissive, and readily available for human consumption, as if "she" is regenerative like starfish and spiders. Lovelock rather aimed to say that "life transforms and in many cases regulates the planet." To lure more scientists into their orbit, Gaia scientists must recast yesteryear's attractive "it girl" as today's active, fit "it."

## ART ROCKS!

Arp "*wanted a direct form of production, one that exactly conformed to the way a stone breaks off a mountain, a flower blossoms; or an animal perpetuates itself.*"

ALEXANDER PARTENS, 1920

*My "stone book is about change, because a stone is alive, a deeply ingrained witness to time, a focus of energy for its surroundings..."*

ANDY GOLDSWORTHY

In 2007, I started researching "art farms" for the book to accompany *Green Acres: Artists Farming Fields, Greenhouses, and Abandoned Lots* (2012). Over the next five years, I learned that most artist-farmers treat rocks as living beings. That rocks are special is hardly surprising, since people routinely collect beach pebbles. At some point, even bath shops and garden stores started selling stones

for display in homes, which offers further proof of people's disconnect from nature. Ever since, I've casually surveyed friends and artists to discover whether they think rocks are alive. As it turns out, the responses break down quite easily...most sculptors and gardeners say yes, while most everybody else appears nonplussed. Swedish land artist Marie Gayatri, who often situates installations amidst rocks, imagines rocks as having a kind of slow-moving consciousness akin to deliberation.

At this paper's onset, I juxtaposed collector Roger Cailliois's notion of stones as *unchanging* with that of two curators and the Belgian painter Karen Vermeren, who like sculptors Jean Arp and Andy Goldsworthy (quoted above), consider them *constantly* changing. Vermeren's artistic PhD reflects upon her "experience" in a 245-million-year-old limestone quarry east of Berlin that is slated for depletion and closure by 2062 after 750 years of use. Being first and foremost a stone collector, it's hardly surprising that Cailliois considers his prize possessions static (Harris et. al. 2018), while sculptors focused on process recognize stones as alive, changing beings that prove susceptible to external elements such as water, acids/bases, and forceful objects. John Dewey, who likely viewed rocks as inanimate, roots nature's eventual order to a series of changes.

*There is in nature, even below the level of life, something more than mere flux and change. Form is arrived at whenever a stable, even though moving, equilibrium is reached. Changes interlock and sustain one another. Wherever there is this coherence there is endurance. Order is not imposed from without but it's made out of the relations of harmonious interactions that energies bear to one another. Because it is active (not anything static because foreign to what goes on) order itself develops. It comes to include within its balanced movement a greater variety of changes (Dewey 2005, 13).*

Just as microscopic fertilized eggs propagate organisms, cliffs fracture into boulders, and with the added push of plant roots, splinter into pebbles. And with the help of plant acids, pebbles crumble into particles that dissolve in water so that organisms, whether plants or animals, can easily ingest their mineral content.

To give Ulrika Sparre's artistic practice an art historical context, I next summarize several decades of artists' appreciating stones as *is*. Recognizing rocks as already precious, freed artists from the need to carve stone into art, as sculptors have done for several millennia.

## SIXTIES

In 1966, Donald Burgy presented his analysis of a stone's optical, geological, and mathematical properties in *Konzeption* (1969). Between 1968 and 1971, Robert Smithson presented numerous *nonsites*, boxes of rocks and mirror/stone installations meant to refer to actual sites. During

this period, Roger Cailliois published *The Writing of Stones* and Mona-ha co-founder Lee Ufan started exhibiting stones as part of his ongoing *Relatum* series. Another Mona-ha co-founder Nobuo Sekine exhibited *Phases of Nothingness* (1969-1970), a giant boulder balanced atop an aluminum column at the 1970 Venice Biennale, which the Louisiana Museum Sculpture Garden owns. He remade this sculpture six times in Japan, Italy, and the United States.

## SEVENTIES

Smithson created *Broken Circle/Spiral Hill* (1971), whose half-circles circumscribe an ice-age era megalith. That same year, Gina Pane depicted the words *Terre Protegee III* in pebbles arranged on sand. In 1972, Richard Long generated his first stone circle in the Andes Mountains. For *Stones Sinking in Sand* (1976), Andy Goldsworthy sited a stone circle between tides near a stone line extending into the water at Morecambe Bay in Lancashire, UK.

## EIGHTIES

Aware of basalt's capacity to nourish oak trees, Joseph Beuys purposely buried basalt steles adjacent each of 7000 *Eichen* (1982-1987) in Kassel, Germany. Using stones gathered from Austria's der Inn (river), Lois Weinberger's *River* (1986) presents them bundled as one. For *Triadensystem* (1989), George Steinmann employed a pendulum to locate watercourses and energies permeating Kunsthalle Bern.

## NINETIES

To create *Das Gleichgewicht der Dinge* (The Balance of Things) (1992), a rock garden whose proportions resemble those of the Ryōan-ji Temple in Kyoto, Japan, George Steinmann exchanged Swiss rocks with those from 45 sites on five continents whose place names reference Switzerland. Celebrating ten centuries of scholar's rocks, Harvard University Art Museums organized the touring exhibition *Worlds Within Worlds: The Rosenblum Collection of Chinese Scholar's Rocks* (1997-1998). For *SIK (Stones I've Known) Circle!* (1999), Austin Thomas exhibited hand-drawn stone portraits adjacent each owner's stone's story. That same year, Gauri Gill began *Traces* (1999-ongoing), her photographs of handmade stone gravesites.

## AUGHTIES

In 2000, Lara Almarcegui started displaying the exact proportion of buildings' construction materials, including quarried rocks, gravel, and cobblestones. In 2001, Alan Sonfist piles 100,000 tonnes of boulders to protect boreal seeds growing in his chemical-free *Secret Garden* at Walker Botanical Gardens in St. Catharines, Ontario, Canada. From 2000 to 2003, Ray Mortenson photographed bedrock outcroppings near Jamestown, Rhode Island, US.

## TEENS

In 2010, Lara Almarcegui started displaying demolition debris, which is roughly the same material, only now it is considered rubble. Otobong Nkanga has five-times exhibited

*Taste of a Stone. Iko* (2010, 2013, 2015, 2016, 2018), an indoor rock garden featuring locally-sourced boulders; while Ulrika Sparre and Steingrímur Eyfjörð researched the impact of ley lines crisscrossing Iceland. Michael Heizer suspended *Levitated Mass* (2012), a 340-ton granite megalith adjacent Los Angeles County Museum of Art. Soon after, Wilfredo Prieto created *Two Stones and a Mirror* (2012), Roger Cailliois's stone collection was featured in *The Encyclopedic Palace* (2013) at the Venice Biennale. For 99 *Stones* (2014), Anita Dube invited people to record week-long experiences living with particular stones selected from her set of 99.

Since 2015, Ecole Mondiale have charged quartz crystals with intentions, before burying them 100 meters apart along "locality grids" in Warsaw, Poland (2015); Brussels, Belgian (2016); Sittard, the Netherlands; and Port-au-Prince, Haiti (2017). Richard Turner curated *Petraphilia: the Love of Stones* (2015), which paired "viewing stones" from three collectors with stone-inspired artworks by eight artists. After intervening with text art (2015) on a black dolerite quarry in Svarta Bergen, Sweden, Ulrika Sparre started making field recordings of stones and rocks found in South Africa's landscape, which led her to present 21 red rocks atop wooden columns, effectively honoring the past lives of slaughtered South African cows. In 2017, Karen Vermeren started using imagery culled from Rüdersdorf, a limestone quarry 25 kilometers east of Berlin, as source material, while Sparre made field recordings of land in and around Darmstadt, Germany. Laura Ögel's installation *houses were rooms, i had forgotten (variation II)* (2017) featured shiny, hard surfaces (ceramics, gemstones, and river-polished rocks) embedded in soil and grass. Alicja Kwade presented *WeltenLinie* (2017), a sprawling installation comprising stones, petrified wood, and mirrors at the Venice Biennale.

Curated by Ils Huygens and Karen Verschooren for Stuk in Leuven, Belgium, *This Rare Earth: Stories from Below* (2018) featured artworks by 18 artists/teams indicative of "geological thinking." For *Untitled (Water Erosion)* (2018), Gala Porras-Kim drips water on a giant hunk of alabaster, set to disappear over her lifespan. Sparre sited *Female Energy Point* (2018), a boulder whose carved symbol refers to the energy emanating from its hilly locale at Artipelag, a museum and cultural center built atop a massive, two-billion-year-old glacial rock, east of Stockholm, Sweden. After burning 50 kilograms of various invasive species, Jean-François Paquay and Rebecca Chesney produced six distinct ash glazes, whose surprisingly colorful outcomes reflect their mineral contents. Present in *Coexistence* (2019) at Kiasma in Helsinki, Finland, Sari Palosaar's *Time is Out of Joint 1* (2018) juxtaposes a cracked boulder with an imploding one. "Art rocks" are *de rigueur*!

## ROCKS' ANIMATE FEATURES

British author/neuroscientist Oliver Sacks recalls a lady from Guam with Parkinson's Disease, who was unable to



initiate movement, yet when she entered a garden with plants and rocks, "she was galvanized by this, and could rapidly, unaided, climb up the rocks and down again" (Sacks 2019). Something jogged her memory and/or motorized her legs. Could it have been the rocks? Perhaps energies emanating from nearby rocks sparked an otherwise infirm person, much like electricity propelling trains, sparks igniting car engines, or quartz vibrations' regulating watches. Philosopher Susanne Langer lists several bioelectric mechanisms that regulate human organisms, though she calls them metabolic patterns: "[s]ystole, diastole; making, unmaking; crescendo, diminuendo. Sustaining, sometimes; but never for indefinite lengths; life, death" (Langer 1953, 99). Human memory is also regulated by bioelectric mechanisms, complex feedback loops run by electro-chemical reactions involving minerals.

According to the American Institute of Physics, "the vibrational motion of an atom in a crystal propagates to neighboring atoms, which leads to wavelike propagation of the vibrations throughout the crystal. The ways in which these natural vibrations travel through the crystalline structure determine [the] fundamental properties of the material" (American Institute of Physics 2018). As Pythagoras discovered, each stone's pitch reflects its vibrational frequency (Langer 1953, 104), engendering material properties, such as thickness, form, and color, and healing attributes, such as sleep aids, stress relief, memory recall, etc. Absent such vibrations, matter remains inanimate. Those who associate crystals with particular healing properties believe that wave propagation continues across distances like WiFi, which is why they hold, sleep, or wear particular stones.

It thus seems that rocks not only nourish plants and animals, but they *charge* their environments, which explains their prevalence in gardens; significance as *gardens*, as in Zen rock gardens; and effectiveness as Chinese scholar's stones. Even the Linnaeus Garden's plant beds in Uppsala, Sweden are replete with small rocks, so Linnaeus likely recognized rocks' charging properties. In addition to recording rock sounds, Sparre has researched energy fields known as ley lines, whose convergences reflect "high points of energy or high concentrations of electrical charge," typically marked by rock monuments or rock buildings. Is it coincidental that the most famous ley line, the Saint Michael & Mary originating in Cornwall, supposedly extends through southern Sweden, while local ley lines are said to intersect Uppsala's old town?

Having described the symbiotic relationship between rocks and organisms, plus the recent spurt in "art rocks," I now attempt to philosophically frame "art rocks" as *animate*. As already described, rocks exhibit pulses, vibrations, oscillations, and frequencies; otherwise *inaudible* features that Sparre's invaluable sound recordings register for posterity. Foreshadowing the Gaia hypothesis by 35 years,

John Dewey wrote, "The career and destiny of a living being are bound up with its interchanges with its environment, not externally but in the most intimate way....Here in germ are balance and harmony attained through rhythm" (2005, 12-13). But what on Earth is *rhythm*? Rhythm reflects the relations between the "doing and undergoing of organism and environment whose product is an experience" (Dewey 2005, 166). Dewey defines rhythm as an "ordered variation of changes. When there is a uniformly even flow, with no variations of intensity or speed, there is no rhythm....[C]hange not only comes but it belongs: it has its definite place in a larger whole....There is no rhythm of any kind,...where variation of pulse and rest do not occur" (2005, 160-161). And energy exchange is paramount.

*A gas that evenly saturates a container, a torrential flood sweeping away all resistance, a stagnant pond, an unbroken waste of sand, and a monotonous roar are wholes without rhythm. A pond moving in ripples, forked lightning, the waving of branches in the wind, the beating of a bird's wing, the whorl of sepals and petals, changing shadows of clouds on a meadow are simple natural rhythms. There must be energies resisting each other. Each gains energy for a certain period, but thereby compresses some opposed energy until the latter can overcome the other which has been relaxing itself as it extends....There is, at the moment of reversal, an interval, a pause, a rest, by which the interaction of opposed energies is defined and rendered perceptible (Dewey 2005, 161).*

Not surprisingly, Dewey discusses neither nutritious minerals, nor cliffs offering rocky habitats.

Echoing Dewey's idea of rhythm, Langer continues, "The most characteristic principle of vital activity is rhythm. All life is rhythmic; under difficult circumstances, its rhythms may become very complex, but when they are really lost life cannot long endure" (Langer 1955, 126). She continues, "The essence of rhythm is the preparation of a new event by the ending of a previous one (Langer 1955, 126). She defines rhythm as "the setting-up of new tensions by the resolution of former ones. They need not be of equal duration at all; but the situation that begets the new crisis must be inherent in the denouement of its forerunner" (Langer 1955, 127). She offers breathing as exemplary of physiological rhythm. Although Langer never mentions Dewey, she considers the "principle of *rhythmic continuity* the basis of that organic unity which gives permanence to living bodies—a permanence that...is really a pattern of changes" (1955, 127). Like Dewey, Langer recognizes rhythm in inorganic things, yet she considers it merely a *symbol* of living forms.

*[S]uch genuine rhythms [are] in inorganic nature, too; rhythm is the basis of life, but not limited to life. The swing of a pendulum is rhythmic, without our organizing interpretation...The kinetic force that drives the pendulum to the height of its swing builds up the potential that will*

*bring it down again; the spending of kinetic energy prepares the turning point and the fall....But the most impressive example of rhythm known to most people is the breaking of waves in a steady surf....Such phenomena in the inanimate world are powerful symbols of living form, just because they are not life processes themselves. The contrast between the apparently vital behavior and the obviously inorganic structure of ocean waves, for instance, emphasizes the purse semblance of life, and make the first abstractions of its rhythms for our intellectual intuition (Langer 1955, 128).*

If one accepts the Gaia hypothesis's main point that organisms impact their environments, just as environments impact organisms, then waves transferring energy are hardly symbols of living forms, but are real forms. Interestingly enough, Dewey and Langer both discuss this, though only as it applies to artworks, yet they draw opposite conclusions. In characterizing the rhythm of art, Dewey writes, "Underneath the rhythm of every art and of every work of art there lies as a substratum in the depths of the subconscious, the basic pattern of the relations of the live creature to his environment" (2005, 156). Dewey explicitly connects each artwork's rhythm to its creator, the artist/dancer who produced something indicative of his/her rhythm. This notion easily applies to rocks, whose vibrations charge adjacent organisms, and especially those that move artists to present them as art. For philosopher Carlos Vara Sánchez, rhythm is not a signal but an "affordance for movement," which "art rocks" inevitably manifest.

Alternatively, Langer claims that art only "seems essentially organic; for all vital tension patterns are organic patterns" (1955, 373). She continues:

*It must be remembered, of course, that a work of art is not an actual organism, but presents only the appearance of life, growth, and functional unity. Its material constitution is either inorganic, like stone, dead organic matter like wood or paper, or not a "thing" at all. Music is a disturbance of the air. Poetry is the same, unless it is a trail of ink? But just because the created appearance is all that has organic structure, a work of art shows us the appearance of life....And because art is a symbolic representation and not a copy of feeling, there can be much knowledge projected into the timeless articulated form of [an artwork] (Langer 1955, 373).*

Being real things, "art rocks" must be more than symbols, contra Langer's claim. To my lights, Dewey's approach makes more sense, since for him artworks have a rhythm that ties to their producers, which means that their *animate* features are real, not mere "appearances of life."