

Dormant Tectonics: Architectural Principles from a Metate

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A metate isn't made once. It's made across time and on tables and floors. Its infinite pores, vestiges of magma's dissolved gasses escaping and cooling rapidly, suggest the metate's ontology but veil its truths. It is simultaneously rugged and soft, dense and elegant, impenetrable and exposed. Its scale immediately indicates human use and provokes a resolute sense of comfort in its minimalism. By staring at it one can hear it being used. The dark curves surrounding its rounded legs rest delicately on the surface below, careful not to bear its entire weight upon it. The metate is a movable ruin of the earth, and when you touch it your skin acknowledges its origins – born out of friction, pressure, and a bubbling geology whose cadence matches that of the universe's own beginnings. Its uncomplaining nimbleness offers users a stoic model when our limbs weaken in its use. Wordlessly, it connects its handlers to the earth, to meals and conversations, to culture and motion, to tectonic plates and the big bang. It's not hyperbolic to say that one can find the tracings of the origins of the universe in grinding corn on a piece of volcanic stone.

Slightly hollowed, oblong stones on which foods such as corn and cacao are ground using a smaller stone called a mano, metates have been fundamental tools to various peoples throughout the Americas since before European settlement in the 15th century¹. They are often carved out of a soft stone such as basaltic scoria (volcanic stone), and are known for their durability despite constant use— thousands of centuries and even millennia-old metates have been found throughout the Valley of Mexico, a testament to their longevity. While the size of a metate can vary slightly, they are often a foot and half or so long, raised atop three short, extruded legs, with the tallest in the back and two in the front for stability in the downward grinding motion that it requires.²



The construction of the object suggests its use, and its use implores effectiveness across time, a concept I believe ought to be more readily utilized in the realm of architecture. As I've explored these objects, and in particular one metate that I inherited from my great-great grandmother, I've come to understand some of the invaluable lessons that they can teach architecture. Reflecting on an object, a tool, and contemplating and studying its properties in and of

themselves, as separate from our uses, forces a consideration of ontologies that are not human focused. This consideration immediately brings to mind popular concepts such as sustainability and the Anthropocene in architectural discourses. Initial questions that these areas of study ask is: how can architecture improve and improve upon societal conditions

¹ Michael T Searcy, *The Life Giving Stone* (Tucson: University of Arizona Press, 2011), 1-3.

² Searcy, *The Life Giving Stone*, 12-13.

by considering non-architectural beings in the design field? This question, while relatively novel in the profession, addresses non-human ontologies from a limited perspective. The questions ought to consider not the tool-aspect of objects and materials in buildings, but their existences beyond their relationships to us and our designs. Scales of time, histories, environment, and divergent timelines ought to be considered when reflecting on architecture and its objects.

In this paper, I will propose that beyond the wear of a material and its resultant efficacy, employing notions of time that are embedded in the cosmic scale of a metate can provide valuable and, perhaps, novel insight into the way we design and construct buildings.

Metate: Familial history

This summer I worked up the courage to ask my grandmother for the metate that has belonged in our family for generations. It sat in a Bud Light labeled cardboard box and was grayer and smoother because of the dust it had collected in the garage. I felt silly for worrying so much when she said “of course, let me clean it for you. I need more room in the garage anyways.”

I had only recently learned of its existence. Or, rather, I’m sure I knew that there was some stone, grinding object in the garage before, but its existence in my mind only appeared when I learned of its significance. I knew what a molcajete was, something like a younger sibling to the larger metate, rounded and more useful in grinding spices and famous for what guacamole and salsa is prepared and served in. There was always a molcajete on my grandmother’s kitchen counter, and for me the object became a symbol of my residual Mexican heritage and my love for the complexities of its cuisine. But this was different. When I was younger and my grandmother would mention the metate in the garage, sometimes just referring to its presence, possibly just a reminder to herself, I would not think about it. I would even forget the word *metate*, as it is not commonly used these days and I am not a fluent Spanish speaker, so it takes some work for a new word to become a part of my reality. Solipsism at its best.

As I got older and became infatuated with Mexican history and studied Mesoamerican art and architecture in college the word began to stick with me. It was hard to ignore the object’s proliferation and importance to Mexican history. Suddenly *metate* was a part of my reality, and I was fascinated by the fact that we had our very own.

In my mind it became a relic of my history. After asking her if I could have it (I find myself asking what it even means to “have” it. I see it more as holding it and tending to its longevity), I pestered my grandmother for stories “Did you use it? Did your mom use it? How old is it? When’s the last time somebody used it?” I couldn’t get much out of her. She is not one to reminisce aloud, and often moderates her stories very carefully. I

sometimes wonder if there is hidden pain that some stories can reveal. We're alike in that we too easily make our emotions visible to others when we're worked up, and maybe she doesn't want to expose any vulnerabilities.

Needless to say, I couldn't get much out of her regarding the metate. I asked another family member, my mom's cousin, who I knew to also be very interested in our family's history. He asked his mother, my grandmother's sister, for pictures and stories, and he eventually sent me her findings. Finally I was able to piece some things together about this object.

May 30, 1985
Died 1991
98 yrs.

Alice man was unwilling soldier

First wife followed husband in battles against Pancho Villa

By Armando P. Ibanez
STAFF WRITER

ALICE — Jesus Godines was chatting with his wife one cool evening 73 years ago as he prepared to go to his evening job as a baker. Suddenly, he was seized, hogtied and marched off to war. That was the day Godines, now 92, became a soldier for the Republic of Mexico, whether he liked it or not.

Godines was conscripted as Mexico was becoming embroiled in the Revolution of 1910. "Los federales," the troops loyal to the government, were fighting revolutionaries like Pancho Villa and Venustiano Carranza.

At the time of his forced entry to service, Godines was 20 and had recently married his first wife, Concepcion. Godines and 20 other men and boys were rounded up from Papolotla's town square that night. Their hands were tied behind their backs, and they were huddled together amid pleading calls from women and children.

Papolotla, where Godines was born on July 4, 1892, was a small village located near Mexico City. Godines was raised in Texcoco, another village near Mexico City.

The night of his capture, although no explanation was given by the federales, Godines and his companions understood what their seizure meant.

"We knew that we were to become soldiers," he said, as he peered through his thick glasses during a recent interview.

That evening there were reports that the federales were somewhere in town and were taking conscripts. Yet, Godines and his wife took a

chance that evening. They had wanted to enjoy a cool, quiet night before he went to work. Godines, who worked the evening shift, was to report to work that night at a bakery a few blocks away from the plaza.

As usual, his wife accompanied him on his walk to work. When they arrived they chatted with friends and neighbors. People milled about the plaza, while others visited by park benches. The evening was quiet and seemed like it was going to be like most other

uneventful nights when a band of armed men appeared out of the darkness.

The federales tore the men from their wives or friends. They herded the conscripts together like cattle and tied their hands behind their backs.

The march began.

Concepcion, along with other women, followed the group.

For hours the band continued its march. Godines, along with his fellow townsfolk, walked with their hands still tied behind their backs.

They went from village to village rounding up more men. In the meantime, the group of follow-up women grew in size.

During this march, Godines decided to escape. The first chance he could get he was going to make his getaway, he recalled.

His chance came when they arrived in a town where the leader of the band decided to unite the conscripts.

He was going to make his getaway when Concepcion pleaded, "Please, don't do that."

Please see Soldier



Godines, now 92, sits beside his current wife, Martina

TEXAS, May 30, 1985

Soldier

FROM PAGE 1

with him not to run. She begged him not to try it, he recalled. Finally, she convinced him that staying in the army would be safer than deserting. Godines was taken to Monterrey for six months of training. He and his companions became part of "El Primer Batallon de Infanteria" (First Infantry Battalion).

His mother, the late Rosa Mendoza de Godines, didn't find out that her son had been forced to join the Mexican army until a year later when Concepcion told her about the fact.

Godines and his wife were able to keep it from her because his mother lived in another village near Mexico City. They led her to believe that Godines was still making a living as a baker.

"I didn't want her to worry," he said, adding that his mother was a widow. His father, Caletano, had died when Godines was 11.

As an infantryman, Godines fought in the civil war for more than two years. His battalion fought against the forces of well-known revolutionaries Villa and Carranza.

"Our officers forced us to fight," Godines said. "And you couldn't even make a half-turn back because you'd be shot by these officers."

He fought in so many battles and skirmishes that he does not recall all of them. He does remember, however, having taken part in at least two battles against Villa's forces. One was the Battle of Pardon.

In these battles, he saw fellow soldiers, some of whom were his townsmen, fall dead on either side of him.

"Nothing ever happened to me," he said. "Maybe it was my mother's prayers that helped me."

His wife was not far behind. Although she never took part in the actual fighting, like many other women did, she was close behind Godines.

"It was rare for a soldier's wife not to follow him. Some of them even fought as soldiers," he said.

"Las Guerrilleras" (female fighters) were not uncommon in the revolution. Two of the better known were Adelita and Juanita Quiros.

Godines' first child, who was born in a train during his campaigns, was named Juanita. Although the child was not named after the guerrillera, his fellow soldiers affectionately teased him by calling his daughter Juanita Quiros.

The guerrilleras were just as tough as their male counterparts. They would raise their own bands of rebels and lead them in battles against los federales, Godines said.

For a time, Adelita was believed to have been Villa's girlfriend, he said.

Godines said he looked up to Villa although he was the enemy.

"I had a lot of respect for Villa. I wasn't the only one. The entire battalion respected him," Godines said.

Villa was highly regarded, including by his enemies, because he was brave and honorable and always treated captured federal infantrymen with respect.

He knew that men were forced to serve in the federal military, Godines said, and many times he would release captured infantrymen because of this fact.

Godines recalled that he once was assigned to guard Villa after he had been captured, and also selected as one of the soldiers to escort Villa to a prison located in a town near Mexico City.

"None of us spoke to him," Godines said.

Villa just sat there, surrounded by guards, as he was being transported by train to the prison.

"He was imprisoned for just a few months. He managed to escape and again Villa raised another army," Godines recalled. This time, Villa and his fellow revolutionaries were successful in bringing down the federal government. Godines, however, was not there when the government fell.

After serving two years in the military, which was his required time, he and Concepcion moved to Laredo.

"I left because the revolution was at its peak. I came to wait out the fighting," he said.

But, as it turned out, Godines never returned to his homeland. He decided to stay in this country and make it his home.

After living in Laredo for more than five years, he and Concepcion moved to Alice, where Godines continues to reside.

He and Concepcion, who died in 1965 of cancer, had 23 more children. Juanita died at the age of 15 from an unknown illness. Godines' and Concepcion's children are: Eusebio, Epifanio and Jesus Jr., all of Alice; Ignacio of McAllen; Jose Luis, auro of Michigan and Mrs. Herminia Trevino of El Paso.

In the late '60s Godines married his current wife, Martina, now 42. They reside at 909 St. Mary's with their children. They are Jose Anfonio, 17, and Maria Luisa, 15.

Godines was asked what was his secret for longevity.

"My secret has always been to work. I've always worked hard," he said. He was a construction laborer until he retired when he turned 68. He has never smoked.

Occasionally, he'd have a drink, he said, but never to the point of getting drunk. Usually, he'd drink once or twice a year.

"Or once or twice a month," he said and laughed.

Volunteer training

SAN DIEGO — La Hacienda Nursing Home in San Diego recently held a training session for volunteers. Virginia Jacobson, with the Area Agency on Aging headquartered in Corpus Christi, was the guest speaker. Volunteers taking part in the event were: Bonnie Upton, Katherine Lee and Lucille Crocker, all of Freer; Anita Elzalde, San Juanita Martinez, Meme Barrera, Ninfa Gomez, Elida Diaz, Lorenza Cantu, Maria Gallegos, Herlinda Canales, Margarita Garcia, Victor Garza, Elia Garcia and Lydia Trevino, all of San Diego.

The newspaper article³ he sent me was a story from May 30, 1985 when my great-great-grandfather was 92 years old. The local newspaper from Alice, Texas did a story about how he ended up in Texas in 1912. In 1910, working as a baker in a small village near Mexico City called Texcoco, he was forced to join the Mexican army, “Los Federales”, during the Mexican Revolution. He fought against infamous revolutionary, Pancho Villa and his army. It was customary during the war for soldiers’ wives to accompany their husbands on trains while they crossed the country to fight and recruit more soldiers. Sometimes they even accompanied them to the battlefield. His wife, Concepcion, is who the metate belonged to – my grandmother’s grandmother. They traveled together through the war until 1912 when they decided to stay north and move to Laredo, Texas to avoid the ongoing turmoil that Mexico was going through. They would eventually move back to Mexico at some point after my great grandmother was born, to Monterrey, Nuevo Leon, and then permanently settled in Alice, Texas in the 1940s after WWII.

It is impossible at this point to pinpoint the moment that Concepcion, or Mama Concha (shell in Spanish) as she was called by everyone, got the metate. I find it hard to believe that she would’ve brought it with her from Texcoco and throughout Mexico. What is more likely is that she purchased or inherited it, as was most common⁴, near or in Texas.

Throughout the process of writing this I’ve been insistent enough with my grandmother to have her realize my obsessive interest. She sometimes revealed tidbits. Here are a few things she told me: She remembers seeing it at her grandmother’s house, across the street from their own house on Monterrey Street in Alice. It wasn’t used so much at that time, though. There wasn’t a need anymore because the town had a *molino*, a place where you could take your corn to get it ground via a machine. There were a few times a year that it would be used, most commonly during holidays to grind chiles for mole, a delightful and complex Mexican sauce that goes on turkey or chicken and requires hours of work. She had to go to Laredo, Texas to get all of the chiles and grind all of the ingredients herself. She says she remembers when she was nine or ten years old traveling to Monterrey, Mexico and seeing it used every day. In those days in Mexico there wasn’t a *molino* to do the job for you, so they would go out in the morning and get the *nixtamal* (the name of corn once it has been cooked in an alkaline solution, typically limewater. More on this later) from the corner store, bring it home, and get to work. Every day she would grind corn for meals. It was the “daily tortilla”.

The process, she said, was all continuous. Mama Concha would be at the table grinding, taking the *masa* (ground corn dough) putting it on the *comal* (iron skillet) above the firewood stove to make tortillas, and continue grinding. There was a bowl of water on the side of the metate to sprinkle on the corn to get the right consistency for the *masa*, and she would rotate between grinding on the metate and flipping tortillas on the stove until there were enough to satisfy everyone’s hunger.

³ Armando Ibanez, “Alice Man was Unwilling Soldier” *Alice Echo News Journal*, 1.

⁴ Searcy, *The Life Giving Stone*, 65.

This object helped feed mouths and supported important life celebrations until at least the 1960s. Its presence has not always been immediate, but it has always been *there*, keeping residues of its own story and the stories that took place around it – corn and chile particles, rock fragments, births, deaths, laughter, anger, family gossip. They are forever a part of it.



Mayan and Mesoamerican Origins

The Maya in Mesoamerica tell stories of their universe coming into being on a 3-stone hearth on the back of a turtle, centering their livelihood and being atop 3 stones and a three-legged metate⁵. The importance of that triad, in fact, came to denote 'place', generally, in their written language – the very foundation to the way they spatialized and organized cities rested on three stones, as both the production of place and of sustenance.

Symbolic of home and residence, hearthstones in Late Classic royal iconography of the Maya became a metaphor of significant importance. The iconic, jungle-cladded

⁵ Stephen D. Houston, ed. *Function and Meaning in Classic Maya Architecture*. (Washington D.C.: Dumbarton Oaks, 1998), 432.

temples they built were models of houses (God houses) as well as models of the cosmos. In the ch'a ch'aac ceremonies of contemporary Yucatan, for example, which are rituals dedicated to the bringing of rain, the four-legged wooden altar represents the world, with the altar surface being the earth and the crossed saplings representing the heavens. According to one modern Maya in Belize the universe is "like a house, like a table"⁶. In the cosmic house model, the four corner posts represent directional trees supporting the heavens.



From Codex Mendoza, Aztec use of metate

Traditional Maya houses, however, lack a central post, a kind of axis mundi that is of prime importance in Mesoamerican cultures, from which the directions radiate. Instead, the center is represented by the three-stone hearth. As the first central place, the simple three-stone hearth constitutes the original construction of creation, coming before even the four corner posts. The domestic hearth, therefore, represents the world center. In comparison to the four-cornered house modality, the hearth more closely reflects a circular plan and thus serves as a more

appropriate model for concepts of concentricity and centrality. With this much importance given to the hearth it is no wonder, then, that fire was the chosen medium by which individuals conjured gods through the offering of blood, copal, and other precious substances. Fire was involved in a ritual process that could be described as *focusing*, a term derived from the Latin *focus*, meaning "hearth."⁷ During these ceremonies there was a focusing of scale and attention from the temple to the place of fire itself and the hearth which became the specific point of communication with the divine.

As the axis mundi, the hearth is also a conduit between the levels of earth, sky, and underworld. In Maya inscriptions, the glyph for altar frequently accompanies the logographic sign for temple pyramid.⁸ A triadic representation of hearth, therefore, is a central motif of temple architecture, ritual, and iconography. Furthermore, censers were important placeholders for the importance that is the three-stone hearth for Maya Civilizations. As the vitalizing centers of temples, censers symbolized the basic three-stone hearth of the maya household, and through the fire-involved ritual process of focusing, censers constituted the house and seat of conjured gods. In addition to actual censers, three-legged altars also evoked the three-stone hearth, one example being the metate. As localized embodiments of the sacred world axis, both rulers and temples are frequently

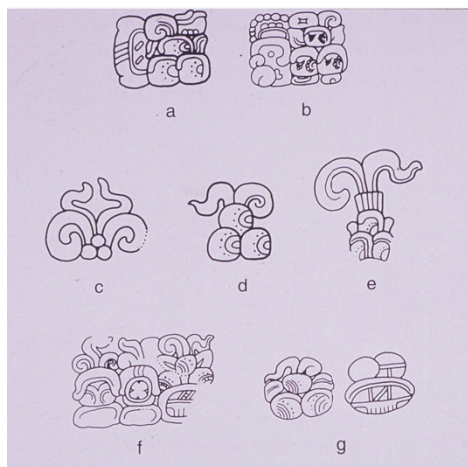
⁶ Houston, ed., *Function and Meaning in Classic Maya Architectue*, 428.

⁷ Houston, ed., *Function and Meaning in Classic Maya Architectue*, 434.

⁸ Houston, ed., *Function and Meaning in Classic Maya Architectue*, 430.

portrayed with similar accoutrements and iconography, with three stones or three legs of the metate being present in much of the cultures' visual languages.

The importance placed upon the hearth and the always present metate, each present at both the conception of the universe and at the center of every household, is understandable. Without metates it would have been impossible to process and give these peoples access to the nutrients necessary in the grains around them. In and of itself, maize (corn) is a poor food source as unprocessed grains are deficient in free niacin (vitamin B3), an essential nutrient for health. Eating a diet primarily made of ground, raw maize, therefore, leads to a number of complications, including pellagra, a condition leading to diarrhea, dermatitis, dementia and ultimately death.⁹ The native peoples of North America discovered that these problems could be alleviated through a process called 'nixtamalization'. The process, developed at least 3500 years ago, begins with maize kernels being soaked in hot, alkaline water, usually from either the calcium hydroxide (via picking/slaked lime) or the potassium hydroxide (via wood ash)¹⁰. During cooking and soaking the maize hulls are partially dissolved and loosen, with calcium and potassium being absorbed into the grain. The maize's proteins are also altered, allowing them to be made more accessible to the human body. The chemical changes not only greatly improve the flavor of the kernels but also allow the ground grains to form a plastic moldable dough. Without nixtamalization, many foods like tortillas and tamales would not exist, and Mesoamerican people's would not have been able to survive.



Triad Glyphs¹²

The hearth, which includes the tri-legged metate, was of immense importance to the peoples of Mesoamerica. Enough so that for the Maya, the concept of the hearth was not a single or unitary thing. Maya designers, builders, and sculptors made rich and imaginative linkages of the general to the particular, or the mythological to the tangible, and back again: a grouping of smooth cobbles and rugged volcanic rock is at once a heap of worn stones and the origin of creation.¹¹ Familiar forms, whether of the house or the human body, provide an immediate basis for organizing the world, and it became the foundation for inscribing places across time through their complex iconography.

⁹ Jeffrey C Nekol, "Nixtamal". *Kitchen of Diversity*
<http://biology.unm.edu/jnekola/kitchen/bakercreekatoz/corn/nixtamal.html> (Accessed November 2018).

¹⁰ Jeffrey C Nekol, "Nixtamal". *Kitchen of Diversity*
<http://biology.unm.edu/jnekola/kitchen/bakercreekatoz/corn/nixtamal.html> (Accessed November 2018).

¹¹ Houston, ed., *Function and Meaning in Classic Maya Architecture*, 520.

¹² Houston, ed., *Function and Meaning in Classic Maya Architecture*, 435.

Volcanic Science:

Scientists believe that the crust of the Earth consists of rigid interconnecting plates (6 major plates and a few smaller ones). These plates are thought to float on the partially molten mantle, moving away from oceanic ridges where new plate material is produced and moving past each other or colliding along plate boundaries.¹³ Earthquakes and volcanoes are related to this movement – where plates come into contact with one another energy is released because of the massive amounts of friction and heat that is present, often being expressed in harsh geological events on the surface of the earth. Because this activity takes place where two plates meet it is focused along the edge of the plate boundaries, forming regions such as the Pacific Ring of Fire – a chain of earthquake and volcanic activity around the edge of the Pacific Ocean – which generates 75% of the world's volcanoes and 80% of the world's earthquakes.¹⁴

A volcano on is a vent or fissure in the planet's crust through which lava, ash, rock and gases erupt, as well as a mountain formed by the accumulation of these eruptive products across time. Magma, which is lighter than the surrounding solid rock, is often able to force its way up through cracks and fissures at the earth's plate boundaries. It can explode violently from the vent or spill out of the volcano like an overflowing cup.

Scoria forms when magma containing abundant dissolved gas flows from a volcano or is blown out during an eruption. As the molten rock emerges from the Earth, the pressure upon it is reduced and the dissolved gas starts to escape in the form of bubbles. In Central Mexico, where there exist (X) volcanoes with the valley, there are large deposits of basaltic scoria from both recent and ancient eruptions. Deposits of these catastrophic events across time are scattered in all directions and sometimes end up great distances away from their origins depending on the force of the eruption. From these deposits artisans sculpt metates for their use as grinding tools.

The process of the formation of lava rock is similar to that of the production of architecture – it is a rapid, cooled distillation of millennia of forces and processes that have led to its apparent stillness. Architecture appears frozen in time, and often attempts to fight against it. But it is never still nor finished.

Teaching Architecture

In *Weathering*, David Leatherbarrow and Mohsen Mostafavi ask “is it possible that [architecture] weathering is not [just] a problem to be solved, or a fact to be neglected, but is an inevitable occurrence to the recognized and made use of in the uncertainties of its

¹³ Mary Bagley, “Volcano Facts and Types of Volcanoes” [livescience.com](https://www.livescience.com/27295-volcanoes.html)
<https://www.livescience.com/27295-volcanoes.html>

¹⁴ Bagley, “Volcano Facts and Types of Volcanoes”.

manifestation?”, attempting to see weathering and “the continuous metamorphosis of the building itself as part of its beginning(s) and its ever changing ‘finish.’”¹⁵

To argue for this, Leatherbarrow contrasts this notion with the ideologies of Modernism. In the early 20th century there was an attempt to universalize and make a unitary visual and programmatic expression of architecture. Le Corbusier and Walter Gropius of the Bauhaus movement were leading proponents of this attempt to distill architectural discourse to a unified, single language. A sort of architectural “kit of parts” was established, and Leatherbarrow cites numerous examples of early modernist buildings experiencing material failure in their efforts to be universal and timeless. “The frequency of material failure due to weathering in early modern buildings has led, in more recent times to the construction of buildings that are more efficient and more resistant to deterioration through weathering.”¹⁶ The result, therefore, has been a false extrapolation of the shortcomings of modernist notions – rather than locating buildings in time and space, the ongoing efforts have been to “improve” architecture’s resistance to time.

Modern architecture’s goal is the avoidance of events, of dealing with time. It is perfect when it is built, as if weather, occupants, program are non-existent, or at least cumbersome. It fights time, but it is clear who the winner often is. While Leatherbarrow’s primary goal is extrapolate the issue that arose with Modernism, it does not go far enough. Architecture fails when it tries to be prescriptive, either for its inhabitants or against nature. What is now understood is that they hindered the very thing they sought, livability and universal habitation, because their ideals failed to understand that living and habitation is a continual process of growth and adaptation. Leatherbarrow extended this notion to maintain that buildings themselves are continual processes of growth and adaptation, and that the “final” construction of an edifice doesn’t imply its completion.

While thoughtful and poetic in the value placed in a building’s acumen to stain and be altered across time, I see shortcomings in the argument that Leatherbarrow employs. Claiming that “the value, then, of works that suffer stains and abrasions is the revelation of the eventuality of [its] final justice”¹⁷ undermines the individual existences of buildings, walls, and the materials used to construct them. His argument favors a “natural” teleology with which, he claims, we should find solace in objects going “back into [their] location, the place *from which* [they were] first taken”.¹⁸ This only reverses an anthropocentric hierarchy to favor a human-made *idea* of nature.

More can be gleaned from Modernism’s failures than this, though. A building, like the metate, is created from and exists within a collection of events that extend infinitely in both temporal directions. But they’re not only a concentration of a series of events. They exist independently, too.

¹⁵ David Leatherbarrow and Mohsen Mostafavi, *Weathering* (Cambridge, MIT: 1993) 16.

¹⁶ Leatherbarrow and Mohsen Mostafavi, *Weathering*, 23.

¹⁷ Leatherbarrow and Mohsen Mostafavi, *Weathering*, 69.

¹⁸ Leatherbarrow and Mohsen Mostafavi, *Weathering*, 69.

Object Oriented Ontology:

My purpose for this was to explore the potential of a singular object, a metate, to be located across different strata of time, and show tracings of its endurance as such. A relatively new field of philosophy within Speculative Realism called Object Oriented Ontology (OOO) focuses on these dealings, attempting to define the ways in which objects (anything from a star to a starburst candy) exist simultaneously as discrete, separate members of the universe as well as in relations with other things, without being exhausted by those relationships. A leading proponent of OOO, Graham Harman likens objects to volcanoes: there is always a reality of an object that remains *withdrawn* from its relationships with other entities, like volcanic cores bubbling beneath the surface that we are never completely able to master or control.¹⁹

The core of this volcano metaphor is derived from Martin Heidegger's broken tool concept, which states that tools are considered *ready-to-hand*. His most famous example is that of a hammer: When we utilize it as a tool for hammering a nail into another object the hammer is *ready-to-hand*. We are removed from an understanding of it outside of the task that we are undertaking. Only when it breaks or something goes wrong might we see the hammer as *present-at-hand*, just lying there as something that we now have to evaluate and consider based on its own merit. Even then however, it may be not fully *present-at-hand*, as it is now showing itself as something to be repaired or disposed, and therefore a part of the totality of our involvements relating to our original tasks. His point is that there are hidden qualities to things that are only exposed when we are forced to consider them in different contexts.

Harman expanded on this notion and explained that everything is like this hammer, like the volcano. Even if we are confronted with a broken hammer or a catastrophic volcanic eruption we are never capable of knowing these objects' entire being. They offer qualities, often only in relation to other objects, but some parts always remain withdrawn from us. The importance of the broken tool concept is that it forcibly directs us to the things we are using. It insists that we look at the objects themselves, not their relationship to us nor to the task we are trying to accomplish. "The object is a surplus or depth beyond any concept or any visibility. We encounter it primarily through taking it for granted, and this is why the experience of the broken or missing tool is so important, since it alerts us for the first time to the things we are using."²⁰

Can this notion of the broken tool concept be understood in terms of architecture? What is broken now that requires our understanding of what buildings do? For the Maya and other Mesoamerican societies the possibility of nourishment required efficiency in grinding corn. Their ability to adapt and survive healthily was broken. They were forced to confront this reality with the metate and realize and respect the inherent properties of blocks of scoria.

¹⁹ Graham Harman, "The Volcanic Structure of Objects". *Sofia Philosophical Review* 2, no. 1 (2007): 64.

²⁰ Harman, "The Volcanic Structure of Objects, 65.

It is almost in direct opposition to the kind of methods that have been applied to most theoretical architectural practices following an increased popularity in Gilles Deleuze. Rather than connections and nebulous spaces that take primacy in the architectural design over the components that are utilized to create those spaces, OOO asks us to consider the hidden ducts, the drywall, the zoning ordinances, and the fire escapes as much as the desired effect of the concepts associated with a building.

In more pedantic terms, there is no longer an ontological hierarchy of objects, but a plurality and opacity of objects withholding themselves to some extent from every relation. How, then, can this be applied to architectural concepts which often times are conceptual and the objects that make up the building are ancillary to a desired outcome and a “finished” building? Ian Bogost, another proponent of OOO likes think architecturally about these concepts by saying that buildings are “things wrapped inside of other things”.²¹ The HVAC system and the door jamb deserve recognition and consideration as things just as much as the things that they are wrapped into – ceilings, rooms, and the entire edifice. To repeat, the object is both concealed and revealed, and exists as one and as something in particular.

And thus we have the image of a volcanic structure of objects. From the outside, objects are ominous and cone-shape, menacing and serene — untouched, unseen by any of the relations in which it becomes involved, sublime. On the interior, however, it is a swirling turmoil of molten lava and half-smelted boulders and ore.²²

JULIAAN LAMPENS

This past summer I spent my time in Mexico City working for an architect for two months. During my time there he would introduce me to architectural projects that were influential in his design decisions for each building we were working on. I was fascinated by the fact that he had a whole other set of architectural references that I hadn’t been introduced to in my American education. One such reference that we kept returning to in our design process was Juliaan Lampens’ work. A Belgian architect whose career spans nearly seven decades, Lampens is noteworthy for his brutalist structures in harsh environments – in northern Belgium and near bodies of water where tough seasons proliferate.

²¹ Ian Bogost, “Discrete Ontologies” *Trace*, November 2018, 15.

²² Harman, “The Volcanic Structure of Objects, 72.



House Lampens, Vanhove, 1960 (https://issuu.com/toomas/docs/juliaan_lampens)



His buildings both symbolize and play out OOO's ontological presumptions. They are introverted and withdrawn, sometimes scaling its opacity to reveal itself to inhabitants and its surroundings. Lampens worked almost exclusively with concrete, wood and glass. Formally, his homes were designed to showcase an interior and exterior harmony with their surrounding environment and nature. Boundaries, directional orientation, and lines of sight were all central to the placement and construction of his homes.²³ Typically, Lampens' houses are closed to the public on one side but are otherwise completely open to nature, with the result that there is always a formal exchange between transparency and closure.

When I first encountered his structures I was struck by their apparently blemished exteriors. Mossy growths, many gradients of worn, grey concrete, and the crowding of leafless trees that interrupted the horizontal cadence of his board formed concrete create images that are counter to the kinds of architectural images that we're trained to admire. It is seen immediately that they belong in time and opt into its endless trudge forward, growing alongside it as opposed to fighting against it.

Apparent in his architecture, and especially his *House Vandenhaute-Kiebooms*, is a conglomeration of forces, scales, materials, and concepts that become solidified in brutalist buildings that evolve outwardly across time. Frozen in each wall are moments of their inception in the horizontal lines that trace the lasting relationship between pieces of wood and poured concrete. In a place such as Zingem, Belgium where seasons are severe, it would make sense for a family to want to live in a bunker-like dwelling that demarcates a clear separation between nature and home. The inside of the house is serene, shiny, and warm. Its bunker-ness, though, is strengthened by moments of visibility towards the outside. From one living area a seemingly continuous wall that continues from inside to out reflects the harshness of the environment it's in, showing growing green moss and retaining the seasons it has been through. It can be argued, then, that the building improves across time, as the bunker typology reflects itself in opposition to that which it resists. The fact that families for whom his work was designed continue to live in their homes, stating how "Lampens' architecture has the unique sense of space where you live together both with nature and as a family community".²⁴

His volcanic buildings alternate between states of silent dormancy, assuredly themselves, and outwards episodes of molten pops, where nature is imprinted upon its own boarded-imprints. They're both withdrawn and revealed, dormant and erupted.

²³ Angelique Campens. "Juliaan Lampens" Domusweb.com: <https://www.domusweb.it/en/architecture/2010/06/15/juliaan-lampens.html> (Accessed December 2018).

²⁴ Jo van Den Berghe. "Lampens" Transfer.com: <http://www.transfer-arch.com/materiality/lampens-by-jo-van-den-berghe/> (Accessed December 2018).



Objects and Bodies

Objects are also bodily, and their exterior relationships to other objects such as ourselves can reveal new characteristics that simply cannot be understood by mere contemplation. To investigate it more fully I used the metate to grind corn. It was not simple. For about 15 minutes, using nixtamal I had prepared the night before, I ground a few handfuls to create masa. It was enough for maybe one and half small tortillas. Here, three days after trying it, my forearms and fingers are still weak from the pressure of the work.

Rachel Laudan, an historian at the University of Texas at Austin, was interested in measuring the time spent cultivating maize to feed a family of six and the process of turning the cultivated grain into tortillas:

Assume that you needed 1 kg of maize per adult per day when it was providing 65% of the calories, allowing for seed corn and wastage in storage. Assume a family of two adults and four others, say three children and an old person (probably low), with the four others needing 1/2 kg of maize a day. Multiplying 4 kg by 365 days and dividing by 1,194 you find that a plot of 1.2 hectares was needed. And that means 1,368 man hours to grow maize for the family.²⁵

For that same family, though, to turn all that maize into “something you could put in your mouth” she estimated that it took about 5 hours of grinding a day to make tortillas for everyone. That is 1,825 hours that the woman of the house would spend grinding corn a year. I can’t imagine how strong Mama Concha’s arms were.

Using it taught me that time and work and history, therefore, become bodily. In a continuation of pressure and friction from its origins as matter in space, to flowing magma, to eruption, to an artisan’s carving of the stone to shape the metate, to my great-great grandmother turning nixtamal into masa, my own hands using the metate to grind maize just this week became an embodiment of a process. I became a part of the timeline of its history.

Dormant Tectonics

This collection of events within its timeline have shaped the metate, it’s true. But it is also itself. It is introverted and singular. It takes part in collaborations, never subordinated to other objects, but also never separate. The corn, the chiles, the mano,

²⁵ Laudan, Rachel. “Men’s Labor (Farming) vs Women’s Labor (Cooking): Tortillas” Rachel Laudan.com: <http://www.rachellaudan.com/2011/12/mens-labor-farming-vs-womens-labor-cooking-the-case-of-mexico.html> (Accessed September 2018).

water, my great-great grandmother's hands, my hands, all participate in its existence. The sheen that it has developed over the course of nearly 100 years reflects us in itself and back towards its users, but its pores suggest hidden magma-filled depths. Across time they are gradually revealed, but never entirely. New tiny holes are revealed as it is used.

We must ask, then: What's present in the making of a tortilla that isn't present for buildings? What can we learn from a metate? If we were to listen we would hear its stories. We could look and see its history and its use. Using it, we would feel both its solidity and understand it as a continuation of a process of forces. Is it hyperbolic to say that buildings, too, ought to be vestiges of eons of history, and reveal their latent characteristics across time, and improve through their use, and be themselves while also allowing objects within it to thrive individually? Buildings must revel in their dormancy and erupt across time.



Annotated Bibliography

1. Bagley, Mary. "Volcano Facts and Types of Volcanoes" *livescience.com*
<https://www.livescience.com/27295-volcanoes.html>

This is a concisely written article on general facts about volcanoes, to be utilized primarily to show that there is a continuation of forces present in using the metate that has origins in a volcano.

2. Bogost, Ian. "Discrete Ontologies." Interview by Julian Maltby. *Trace*, November, 2018.

There are few texts as of now that directly address architecture in the realm of Object Oriented Ontology. In an interview I conducted earlier this year with philosopher Ian Bogost I asked him questions about this relationship. The interview will prove useful in joining the philosophical theory with architecture.

3. Campens, Angelique. "Juliaan Lampens" *Domusweb.com*:
<https://www.domusweb.it/en/architecture/2010/06/15/juliaan-lampens.html>
(Accessed December 2018).

This short article details some of the design methods that Juliaan Lampens used in his architecture. It concentrates primarily on his Vandenhaute-Kiebooms house.

4. Den Berghe, Jo van. "Lampens" *Transfer.com*: <http://www.transfer-arch.com/materiality/lampens-by-jo-van-den-berghe/> (Accessed December 2018).

Another article that shows Juliaan Lampens' work, this is useful in its imagery and thoughtful descriptions of his House Vandenhaute-Kiebooms.

5. Harman, Graham. "The Volcanic Structure of Objects". *Sofia Philosophical Review* 2, no. 1 (2007): 63-86.

In an early piece of writing on Object Oriented Ontology (OOO), Harman likens objects to the structure of volcanoes. The metaphor as well as the succinct manner in which he describes his philosophical viewpoint are useful in this paper. The metate will be treated as an object of OOO, and thus a background on the primary points of the theory are necessary.

6. Houston, Stephen D., ed. *Function and Meaning in Classic Maya Architecture*. Washington D.C.: Dumbarton Oaks, 1998.

The collection of essays unpacks the layers of complexity that encompasses thousands of years of Maya architecture. In particular, Karl Taube's "The Jade Hearth: Centrality,

Rulership, and the Classic Maya Temple will be utilized heavily to show the importance that the hearth and metate had for Maya iconography and architecture.

7. Ibanez, Armando P. "Alice Man was Unwilling Soldier: First Wife Followed Husband in Battle Against Pancho Villa" *Alice Echo News Journal*. May 30, 1985.

The newspaper article describes the life of my great-great grandfather, originally married to the first owner of the metate. Details of their journey to Texas from Mexico can allow assumptions to be made about uses of the metate.

8. Laudan, Rachel. "How to Grind Maize for Tortillas on a Metate (Simple Grindstone)" Rachel Laudan.com: <http://www.rachellaudan.com/2008/11/how-to-grind-maize-for-tortillas-on-a-metate-simple-grindstone.html> (Accessed September 2018).

I used this article to learn about grinding corn. It outlines the process of nixtamalization and best practices for grinding.

9. Laudan, Rachel. "Men's Labor (Farming) vs Women's Labor (Cooking): Tortillas" Rachel Laudan.com: <http://www.rachellaudan.com/2011/12/mens-labor-farming-vs-womens-labor-cooking-the-case-of-mexico.html> (Accessed September 2018).

I read this article in order to gain a better understanding of the amount of time that would have been spent by my great-great grandmother to grind corn. She uses estimation primarily in this text rather than data or numerical research, so it will only be used as an ancillary reference.

10. Leatherbarrow, David and Mohsen Mostafavi. *On Weathering: The Life of Buildings in Time*. Cambridge: Massachusetts of Institute of Technology, 1993.

Weathering offers David Leatherbarrow and Mohsen Mostafavi's views on the way buildings have been designed and constructed since Modernism in the early 20th century. Their argument, that buildings ought to embrace the wear of time and embrace their weathering provides a way for me to begin to investigate how buildings, similar to metates, progress and possibly improve over time. The link between materials in time and the more abstract concept of architecture is crucial in this text.

11. Nekola, C. Jeffrey. "Nixtamal". Kitchen of Diversity. <http://biology.unm.edu/jnekola/kitchen/bakercreekatoz/corn/nixtamal.html> (Accessed November 2018).

This short article describes the importance that the process of nixtamalization had for Mesoamerican peoples prior to European settlement. This will combine with points on the importance of the hearth and metate for the Maya.

12. Searcy, Michael T., *The Life Giving Stone: Ethnoarchaeology of Maya Metates*. Tucson: University of Arizona Press, 2011.

A detailed look at the production, history, and customs of metates is offered in this text. Facts about purchasing tendencies, shaping of the tools, and common practices will be used to glean information on the way my great-great grandmother acquired and used it.