

## The Cosmic Mathematics of Alexander Calder Andrew Berardini

*The thing that makes Calder unique as a sculptor is his sense of a cosmic mathematic. He is willing to believe equally in a nonspace as well as in space. Because of this, his stabiles (and his mobiles as well) are able to fill a given space without occupying it.*

—James Jones, "Letter Home" (1964)

They were always there. Creaking in the wind and as steady as stones. Surging shapely color, always on the move even when standing stock still. Like the crash and spit of waves or the locked twinkle of starlight, something in perpetual movement but so present as to never be questioned. The thinnest sheaths of metal that could fill a room with just a gust of shimmering movement, stuffing the emptiness with its energy. Transforming the space of vacant plazas and blank rooms into something else: nonspace.

A bend of poetry composed by the novelist James Jones on a visit with Alexander Calder to his studio in the French countryside, nonspace is a notion that I understood immediately and struggled, hard, to find words to describe its force. A word beyond stasis and though dependent on space to exist, nonspace feels almost ethereal, the suggestion of volume that exists through suggestion. A geometry of aura that makes you feel the incredible weight and power of that which is invisible.

After "a fine dinner, with lots of red wine," Jones spends time in Calder's workshop, looking at the raw materials, maquettes, finished sculptures, and pictures of public works, including the piece for a piazza in the Italian town of Spoleto known as *Teodelapio* (1962). Considered one of Calder's finest public sculptures, it was included in an open-air exhibition curated by Italian art critic Giovanni Carandente. Over eighteen meters high, they had to have the shipyards of Genoa physically build the final work, the only place in Italy with the capacity to manufacture at that scale. *Teodelapio* sits directly on the ground in a small roundabout in front of the train station in Spoleto and has become with its dark

charm, strident upward arrow (something between a crown point and a devil's tail), and arching legs a symbol of the town. And hidden within its spacious turns, something powerful, transportative, a passageway to someplace beyond.

"I had the nervous feeling that if I walked in under one of the larger ones, I might not be there," wrote Jones, "that if I pushed my hand between elements or through a hole of the smaller ones, the hand would disappear. I wouldn't drive a car under the Spoleto stabile



Calder with *Teodelapio* (1962) and *Teodelapio* (maquette, 1956), Spoleto, Italy, 1962, photographed by Ugo Mulas

for anything, because I could never be sure I would always come out on the other side!”

This nonspace isn't just a geometry of aura, but a cosmic portal. A gap between worlds. When a physicist splits an atom, the chink where the nuclear knife catches and cuts is nonspace. A truth as old as the universe but one that humans only just figured out. And though artists have circled and fingered this nonspace for a long time, it was Calder who stuck in his knife, bent the wire and steel to reveal what was always there. Scientists are always talking about the mysterious “dark matter,” a yet-to-be-observed substance that must exist mathematically for the universe to hold together and which makes up two-thirds the weight of everything. A thing we can measure mathematically but not see and that makes it all possible. But go and stand under a Calder sculpture if you dare, and you'll feel the invisible strength that anchors the universe. Calder's not a scientist, but an artist. His task is not to illustrate or explain, to outline with algorithms the essential nature of time-space but to reveal it through aesthetics; one that you can see and feel, an epiphany of the soul. An artistic innovation that however familiar we may become with it grows no less magical with time. And one that has for me, always been there.

Alexander Calder whispered to me from cribs and beckoned under baking suns from the smeary car windows and television screens of childhood. The first were knockoffs to be sure (the great artist declared simply of imitators, “They nauseate me”), but the latter were true and real. The woozy curve and sturdy steel arcing and angling with the same scale and confidence as the buildings and bridges and highways of the cities hemmed around their steady twirls, but they were doing something else, much more interesting than the office towers coughing over them. In the few art books I pawed for answers and the museums I slunk away to, I found Calder as one of those artists that shaped the reality of what art could be so completely, it wasn't until I was grown that I felt the need to trace the exact energy in the tidal curl of his revolution. His work was something that I understood as art before I ever understood what art was. These elegant automata sculptures, delightful and playful and serious were ever present. Monuments that tasted like the future but from the past.

I understood Calder's artworks as much as Stonehenge: mysteriously majestic, cosmically aligned, and shrouded in mystery. I

understood them at the scale of the giant dinosaur skeletons menacing natural history halls, clattering with fierce and fearsome power from another epoch. Though anthropologists argue over the lost purpose of Olmec heads or crumbling ziggurats and paleontologists endlessly re-puzzle their fragmentary fossils and even more fragmentary theories, I never felt a need to understand (until much later) why or how Calder's sculpture were made but simply that they were made. That these grand things, made out of the materials of an enduring industry, came into being with artful spins and energetic stillness, and that they remained, long after their maker returned to the earth. I could feel them without explanation, their surreal atmospheres and pure movement. I could feel the space they carved and how the space carved them.

*Space is not a discursive or so-called general concept of the relations of things, but a pure intuition. . . .*

—Immanuel Kant, *Critique of Pure Reason* (1781)

I didn't need to know that Calder's family were artists or that he went to engineering school but chucked it for art and France. I didn't need to know that Calder was basically friends with all of the best and weirdest artists of his time (mostly because he was also one of the best and weirdest artists of his time). I didn't need to know that Marcel Duchamp named some of his sculptures “mobiles” and Jean Arp named others “stables.” I didn't need to know about his toy designs or his jewelry or the hilarious verve of his circus. I was born after he died an old-timer, and mine is the first generation for which this is true. He began perhaps as an upstart revolutionary saint, but by the time I first spotted his works, his cathedrals already filled my world. His work was just there, present and essential, and I didn't feel the urge to question its monumental play until love beckoned me to plumb the sublime depth they had so easily granted to me.

Perhaps their perfect balance and overall elegance are part of what makes them so essential, and most of us take such essential things for granted. Such soaring grace and spatial acrobatics were never *really* made before Calder. Back in the eighteenth century, Gian Lorenzo Bernini cut lively action into static stone but his bodies never left the earth, and even as Calder cited a visit to artist Piet Mondrian's studio as *the* catalyst for his own allegiance to the abstract, the Dutchman's zippy colors and boogie-woogie angles were still just a bit too slow for that American in Paris. Calder

1 *Collection of the Société Anonyme: Museum of Modern Art 1920* (New Haven: Yale University Art Gallery, 1950), 52.

made his work so incredibly well, became so foundational to our understanding of modernity, that he passes into history without the radical nature of his accomplishments being truly appreciated. One of the more insidious side effects of force-feeding art to the young (as many so easily do with Calder) is that all the danger and bravery and excitement and ethereal gravitas and time-bending madness of his work gets zapped away, even more so when so many plasticky knockoffs dawdle over infants from the go. A part of me wants to yank Calder's work out of the auction houses and education departments, bonfire all the nauseating pretenders, remove all the obfuscating mediation, and ride his work like a wild pony until one of us (most likely me) breaks. His stuff has that spirit, if you've the guts to take it for a ride. Remember Jones afraid to stick out his hand when you see a Calder sculpture for what it is—you'd be fearful too.

If Calder's sculptures are like Stonehenge, it's with the druids still spellcasting and stargazing on its hewn altars. Even if they hulk as powerfully as dinosaur fossils in the halls of natural history museums, they are more a living and snarling T. Rex than those naked remnants delicately strung together. Calder's curvaceous amoebas and fluttering petals and radiant discs, his flat metals blooming into lively four-dimensional abstractions are as lively and lovely and sinister and joyful as the day he made them. They eat void and breathe volumes. Peeking through the gaps and spaces, I feel the weight of what was cut away, the suggestion of sculptural form that ain't there. They were the relic crafts of space aliens who had landed among us wearing their millions of time-traveled miles with voluminous ease, left totally inscrutable to the confused but delighted terrestrial humans of this primitive planet. An enigma absorbed, the secret of their advanced technologies always arcane, but perceptible and present. Even if Calder only discovered his own way of capturing the cosmos as he did in the twentieth century, it was always waiting for him to find its form.

Alexander Calder didn't have to travel to space to find portals beyond the stars. They hide in every sculpture, defying the pull of the earth and the trapped stasis of objects, shaping the intangible with feathery steel. The curve and carousel of his sculptures soar and fly. And though animals were long a preoccupation, Calder's sculptures are not a menagerie; they are an artist's contemplation of the physics that hold together the universe, make it move and spin, the matter and gravitational forces and quantum witchery that fills

and completes the space between everything. Animals and dancers move with the grace that makes movement enrapturing, and for the right mind, a medium than can be shaped. His are not the shimmer and bend of Constantin Brâncuși's *Bird in Space* (1928); Calder's is the mathematics of motion in the flapping wing, the spin of celestial bodies, the wet swirl of milk in the Milky Way. He manages to reveal the scales and harmonies of unknown movement so simply that we can't help but laugh at the unlikely grace of the celestial. Sinuous wires and dangling shapes, churning spirals and shivering limbs, each and every reaches into a space it creates through the power of its presence. With its angles and shimmies, they unveil unseen forces. As friend and fellow artist Marcel Duchamp said in the *Collection of the Société Anonyme* in 1950, "The art of Calder is the sublimation of a tree in the wind."<sup>1</sup>



Alexander Calder *A Universe*, 1934

*You need me like the wind needs the trees to blow in  
Like the moon needs poetry, you need me*

—The Magnetic Fields, “Come Back from San Francisco”

A nocturne of black moons. Like a dome makes one feel the weight of the heavens, Calder’s sculptures conjure atmospheres like the air that hugs a planet, the heat around the stars, the cosmic force fingered with sculptural poetry and not equations. There’s a story the Museum of Modern Art tells that when Einstein caught Calder’s show at the museum in 1943, the physicist stared raptly at the artist’s mechanical *A Universe* (1934) scratching his wild white hair and watching the slow-moving spheres do their entire forty-minute slow dance with wire and string around a squiggle of painted iron pipe.

*It may be that when the astronauts and cosmonauts,  
with their crude instruments, get far enough out into  
space to discover nonspace, shove off for another solar  
system only to meet themselves coming back, they will  
find that Calder, with his peculiar cosmic, or Universal,  
or Einsteinian view, call it what you will, working quietly  
and alone in Saché and in Roxbury, will already have  
anticipated them, and stated their experiences.*

—James Jones

At first I wanted to write about Calder’s sculptures like spaceships. James Jones teases it in his essay, and it felt like an invitation to go beyond the stars, to hop into Calder’s work and zoom off to different galaxies, letting them bend time and space into vortices of pure energy. I wanted to write about Calder’s sculptures as if they were futuristic, monochrome dream machines that would take me to infinity and beyond if only I could figure where the ignition was and what key I could stick into it to get it roaring. Like most humans, I got stuck unfortunately in its thingness, its tangibility, another sucker to the tyranny of objects. *Black Petals* (1939) would surely make one bitching spaceship: the wedge stand wiring to an upward curve of those titular petals, each a little bit smaller than the last. I wanted to imagine my body folding into its metal and letting whatever masterful high-tech magic rocket me away. But its power isn’t this object, but its curling swish into space, not five petals but one blown with a hot breath or a cool, twisty wind. It of course isn’t even a petal at all but the motion and a motion with motions of its own as these hanging shapes shiver in whatever breath of wind blows their way. (“Abstractions that are like noth-

ing in life except in their manner of reacting” wrote Calder back in 1932.)<sup>2</sup> A multidimensional movement. And maybe this is truly what spaceships actually are: freed of mass, we travel as pure motion at one with the space between.

But truly, they are the reverse of spaceships. They don’t bring you to the stars, they bring the stars to you.

These words are only things too. Sculptures I pile on the page into figures and forms, a story of some kind to describe the intricate meanings they encounter. The truly modernist writers like Samuel Beckett or James Joyce bent the meaning of words as less extractions from some piddling notion of the real but as shapes and sounds, wet splats and throbbing gongs that disappeared that superficial idea of figures and got beneath and behind, capturing in their words a truer experience of existence than the old conventions might allow. In writing a defense of Joyce’s *Finnegans Wake* in 1929, Beckett wrote that “Here form is content, content is form. You complain that this stuff is not written in English. It is not written at all. It is not to be read—or rather it is not only to be read. It is to be looked at and listened to. His writing is not *about* something; it is *that something itself* . . . . When the sense is sleep, the words go to sleep . . . . When the sense is dancing, the words dance.”<sup>3</sup>

Calder’s works are not about anything, they are the thing itself. Spending years looking at them, I try to bend them into metaphors of language. I want them to be palm fronds caught enthralled in a hurricane that break apart into a flock of blackbirds. I want them

<sup>2</sup> Alexander Calder, “Comment réaliser l’art?,” *Abstraction-création: Art non-figuratif 1* (1932): 6.

<sup>3</sup> Samuel Beckett, “Dante . . . Bruno. Vico . . . Joyce,” in *Our Exagmination Round His Factification for Incarnation of Work in Progress* (London: Faber and Faber, 1929).



Alexander Calder *Franji Pani*, 1955 (detail)

4 Jean-Paul Sartre, "Les Mobiles des Calder," in *Alexander Calder: Mobiles, Stables, Constellations*, exh. cat. (Paris: Galerie Louis Carré, 1946), 9–19; English translation published in Jean-Paul Sartre, *Aftermath of War*, trans. Chris Turner (Calcutta: Seagull, 2008).

to be ancient sea creatures crawling through primordial ooze with a hundred arms, much the ooze as the arms. I want them to be stress toys for gods and architecture for lost spirits. I want them to be the souls of swans passing into the ether with steely resolve. I want them to be a hundred hungry spiders in a crystal cavern. I imagine *Franji Pani* (1955) to be the scent molecule made manifest and writ large of sweet, delicate fragrance of that enrapturing Hawaiian plumeria and the action of delight that passes through a body when first nosed. I want them to be pieces for byzantine games played by giants, where nobody loses and the game is only won when the players agree that the beauty of their union outstrips the tension of their competition. I want them to be monsters from fifth-dimensional Boschean horrorscapes, as if numbers alone could take form and menace the countryside.

I want Calder's sculptures to be the often simple names that he gave to them; I dream of the body that wears *Shoe with Split Heel* (1946) with the poise and majesty that such funky footwear might demand, a strut that could out-vogue the gods. The *7 Legged Beast* (maquette, ca. 1956) is a chimera that crawls and splutters through pure ideas. *Les Arêtes de poisson* (maquette, 1965) is the sharp bones of some fish that swims beneath the ice of Titan or splashes in the dense gases of Jupiter, that rides solar winds between galaxies and will survive to the sunset of time. *Morning Cobweb* (intermediate maquette, 1967) holds all the lethal and dewy beauty of its namesake, its bodily space and nonspace dancing together in a harmony of form.

But they are none of these things. As Jean-Paul Sartre wrote in a catalogue essay for Calder at Galerie Louis Carré, in 1946, "Calder suggests nothing. He captures true, living movements and crafts them into something. His mobiles signify nothing, refer to nothing other than themselves. They simply *are*: they are absolutes."<sup>4</sup>

They are the movement within and without them. They are atmospheres and air that coalesce around and move them. They may be drawn from creatures and plants but they are purely the compositions of their maker, how time and space can hold art through tensile geometry and sincere play, how hard formalism and a tinkerer's bliss born in a soup of Surrealism can take time as a medium. Though so often wire and metal were the official material check-listed, Calder was truly a sculptor of time and space. He bends his metal around space and nonspace, and through time.

Maybe this is why I wish to think of Calder as the relics of space aliens, like the bones of dinosaurs, the magic beyond human understanding that binds a world into form, that interconnectedness that gives electricity to life. I wish I could nail them down with metaphors and make them less ineffable, less mysterious, and even if we can lend these artworks emotions, whether it be playful or tragic, heartbroken or joyful, welcoming or menacing, is just our human frailty to lend meaning to universal forces. The universal law of attraction as somehow sexy, that a quark can be charmed. Perhaps this sublime potential is what makes so many among us want them to be toys or animals, though they are neither. They are their own weird creation, born from a universe of Calder's own attempts to put these forces into some shape we might grasp.

*The universe is real but you can't see it. You have to imagine it. Once you imagine it, you can be realistic about reproducing it.*

—Alexander Calder in *The Artist's Voice: Talks with Seventeen Artists* (1962)

The reason that children obsess over magic, dinosaurs, and space is that their minds can conscience possibilities beyond the quotidian struggles of their parents. They can dream beyond. Perhaps that is why children also delight in the sculptures of Alexander Calder. We have buried within us, often forgotten, an imagination that can see beyond. Calder speaks in the language of the eternal mysteries at the heart of all things. The universal energies. Few adults have the capacity for such grandeur, even as it surrounds and enfolds. Even if it takes a lifetime of expertise to touch that space beyond, it's born within each and all. And still the most hardened and literal among us can be awed by the world making burn of volcanoes, the clattering beauty of celestial bodies, the awesome size of creatures lost to time but remnant in their fossils craning their necks in museums. Calder has touched the untouchable music of the stars and the infinitesimal quantum mechanics that animate them, making them manifest into perceptual notions of presence, absence, and immateriality. Calder's spaceships are always there, ready to bring the stars and their machinations a little bit closer whenever we need them. And I can easily imagine the faces of Jones's astronauts and cosmonauts meeting themselves coming as they go on the edge of space into nonspace. I can imagine it because I've seen the sculptures of Alexander Calder.