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Sensibility and Science

ALEXANDER CALDER JOINED sensibility with science, the empathetic with the engineered. Very few artists had done that before, and no artist since Leonardo da Vinci had so closely studied not only the magic but also the mechanics of forms moving through air. Born in 1898, Calder was in his thirties when he started exhibiting the works his friend Marcel Duchamp named mobiles. Although Calder was not quite the first and certainly not the last artist to set sculpture in motion, he sent volumes moving through space with more conviction and imaginative power—with more eloquence and elegance—than any other artist has. These are the works of a poet, but a poet guided by the steady instincts of a scientist. Calder's mobiles signal a paradigm shift in the history of sculpture—an unprecedented innovation. The integration of the time element into sculpture is an innovation that no artist since Calder has fully assimilated, much less superseded, although Calder certainly had an impact on a generation of kinetic artists, beginning in the 1950s with figures such as the Swiss sculptor Jean Tinguely and the Venezuelan artist Jesús Rafael Soto.

Philadelphia is where Calder's story began. His family had abiding connections with the City of Brotherly Love, which Calder and his family left when he was eight years old, spending formative periods of his childhood and adolescence in Pasadena, New York, and San Francisco. Calder's paternal grandfather, Alexander Milne Calder, had studied sculpture in his native Scotland and immigrated to the United States in the 1860s, eventually devoting much of his life to the creation of hundreds of carvings for the Philadelphia City Hall, as well as the monumental bronze statue of William Penn atop the building's dome. Milne's oldest son, Alexander Stirling Calder, studied sculpture at the Pennsylvania Academy of the Fine Arts in the 1880s, where he met Nanette Lederer, who had come from Milwaukee to become a painter. They were very much part of the excitement of artistic Philadelphia in the 1890s, when it was second to no city in the United States when it came to contemporary painting and sculpture.

Sterling and Nanette married in 1895 and immediately left for Paris, where their daughter, Margaret, was born a year later (the family referred to her as Peggy from Paris). Back in Philadelphia they had a son, who would eventually be known to all the world as Sandy Calder. And Stirling Calder began a career that would soon enough earn him a place among the most admired creators of large public sculpture in the United States. By the time Calder committed himself fully to sculpture—around age thirty—he had witnessed at close range the trials

and triumphs of the creative life. Stirling was a man inclined to deep and sometimes melancholy introspection, and this may well have set off a reaction in his son, who struck many people as taking an almost happy-go-lucky attitude toward his art. Calder, who was utterly serious about everything he was doing, probably associated an excess of introspection with troubling aspects of his father, whose career stalled and then collapsed in the 1930s; he died in 1945, a broken man in many respects.

More than a few major modern artists had fathers who were artists, including Pablo Picasso, Alberto Giacometti, Balthus, and Ben Nicholson, a friend of Calder's in the 1930s. Calder's parents, like Balthus's and Nicholson's, were both artists, and the deep sense of security that grounded Calder's audacious experiments beginning in the late 1920s certainly had its origins in the apprenticeship in modernism he received as a young man. Although Stirling Calder's figurative sculptures look conservative to us today, he and his wife, Nanette, saw themselves as moderns; they were friends from Philadelphia student days with artists such as John Sloan and William Glackens, who became famous in the early 1900s as part

Fig. 1 | The Calder Family, Roxbury, Connecticut, 1947; photograph by Herbert Matter



of the Ashcan school, and they admired the sculpture of Auguste Rodin and the writings of Oscar Wilde. After leaving Philadelphia for the West in 1906, the Calders made a home in Pasadena, California, where they moved in the social circles of the Arts and Crafts movement (fig. 2). It is likely that their exceedingly bright boy, who was always encouraged by his parents to have a workshop, had some contact with craftspeople using sheet metal, a material essential to his mature work. Calder, who as an adolescent was both academically accomplished and unabashedly easygoing, caused some worry to his parents, who feared that for all his gifts he lacked direction and ambition. Without a clear sense of where he was headed, he enrolled at the Stevens Institute of Technology, an engineering college in Hoboken, New Jersey, and graduated in 1919, but the dozens of jobs he found and lost in the next four years suggested that his heart was never in engineering, certainly not in the sort of executive positions for which Stevens was grooming its graduates.

Calder was twenty-five by the time he turned to what he could not help but regard as the family business, returning from Washington State where he had been working in lumber camps and spending time with his sister and her husband, whose family had interests in banking and timber. When Calder began to attend the Art Students League in New York in 1923, it was with the intention of becoming a painter like his mother; his father had taught sculpture at the League and his parents knew many of the teachers from their student days, including Sloan, who remembered Calder as a little boy. Sloan's easygoing graphic gifts certainly affected Calder's first drawings and paintings of New York and may even be echoed in

Fig. 2 | Nanette Lederer Calder, actress Gladys Sills, Margaret "Peggy" Calder, and Alexander Calder, Pasadena, California, 1909

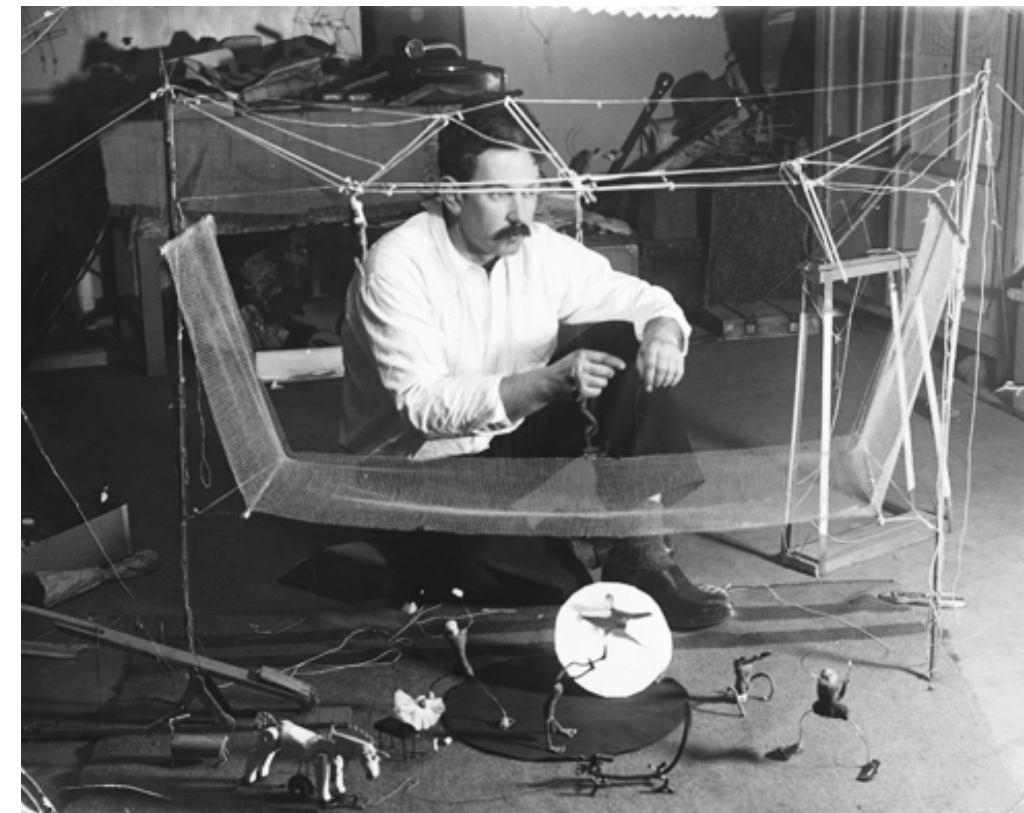


Fig. 3 | Alexander Calder with *Cirque Calder*, 1929

the gestural power of his wire sculptures of the late 1920s. In 1926, with his parents' encouragement and the promise of a small monthly check, Calder headed for Paris, where he would spend much of his time in the next seven years. He lived in Montparnasse and thereabouts, setting up a first home with his wife, Louisa, whom he married in 1931 (fig. 1) and who came from a well-to-do Boston family with artistic and progressive connections; Henry James was her great uncle, and her father, Edward Holton James, took a great interest in the work of the League of Nations.

Calder had completed a small amount of sculpture before leaving New York, but he arrived in Paris still considering himself a painter, although a painter who was unsure of his direction. In Paris, some of his earliest efforts in the third dimension were not created as works of art, pure and simple. He made maquettes for toys that he hoped might be put into mass production, and the first performances of what would come to be known as the *Cirque Calder* (1926–31, fig. 3), in his small studio on the Rue Daguerre, took him into a region of experimental puppet or marionette theater—as the circus was invariably called in early reports—that was quite popular at the time both in Europe and the United States. Significantly, the earliest reviews of his work were written by André Legrand, who went under the pen name Legrand-Chabrier and who was not an art critic but a critic of the popular theatrical arts. *Cirque Calder*, which was only first exhibited in a museum in 1969, more than forty years after Calder began it, cannot be regarded as a work of sculpture in any ordinary sense, but rather as a theatrical performance involving sculptural elements. If the circus had significant implications for Calder's progress as an artist, it was because of the insistent desire to simplify and summarize naturalistic experience that he brought to his figures made of wire, cloth, cork, and other materials. The figures of *Cirque Calder*—some recognizable as



Fig. 4 | Alexander Calder with *Josephine Baker* (c. 1928) during the filming of a Pathé newsreel, 1929



Fig. 5 | Calder working on *Kiki de Montparnasse I* (1929) in *Montparnasse—Where the Muses Hold Sway*, Pathé Cinema, Paris, 1929

performers of the day in America and France—are reduced to skeletal images through a process of abstraction that would fuel Calder's work in the years to come.

It was in the late 1920s that Calder produced his first great body of work, sculptures made of lengths of wire twisted into dazzling curves and angles so as to evoke athletes, popular theatrical performers, friends, and a few personages from Greek and Roman myth. Calder immortalized in wire some of the erotic icons of Paris (*Josephine Baker*, with her banana skirt, and *Kiki*, the legendary artists' model of Montparnasse, figs. 4–5) and highlighted some of the men and women who excelled at the competitive games (including Babe Ruth and the tennis player Helen Wills) that were receiving ever-growing public attention at a time when the Olympic Games were an international sensation. Calder's wire sculptures convey a champagne high, the exhilaration of a moment when Europe had shaken off the nightmare of World War I and not yet been drawn into the cataclysmic events that began with the Depression and ended with World War II and the atom bomb. Projecting a graphic impulse into the third dimension, Calder arrived at forms that, as we move around them, reveal a startling liquidity and variability. The figure of an acrobat or the head of a friend, which may initially appear a closed, completely resolved form, is transformed as we shift our vantage point, until we are seeing near-abstract ribbons and waves of movement. There is something of a juggler's nerve and esprit in these constantly mutating configurations.

Although Calder occasionally turned to representation throughout his career, the wire sculptures of the late 1920s would be his last immersion in the

figure, at least until near the end of his life. In his *Autobiography with Pictures* from 1966 and in many other statements and interviews, he said that it was a visit to Piet Mondrian's studio in 1930 that provoked his dramatic turn to abstraction, rapidly precipitating the ascetic constructions of spheres, arcs, and angles that are his signal achievement of the early 1930s. But if Calder's first abstract sculptures were a response to the revelation of Mondrian's abstraction, I believe there is no question that Calder also recognized, in some deep, instinctive way, that in the wake of the stock-market crash of 1929 and the rapidly darkening European scene, the comic exuberance of his jugglers, acrobats, and athletes could no longer be sustained. Calder knew that his feelings for paradox and play had to be reimagined in a more severe and austere mode, one consonant with a world increasingly overtaken by catastrophe.

Although Calder's achievements were grounded in developments in abstract art nearly a quarter of a century old when he began making his mobiles in the early 1930s, he was always in some deep sense an empiricist. He grasped the inextricable relationship between immediate appearances and the hidden forces that shape our world. The lyricism of the works that one of his earliest supporters, the critic and curator James Johnson Sweeney, referred to as his "wind mobiles," has everything to do with Calder's genius for turning to art's advantage an investigation of the nature of the world generally believed to be the purview of physics, a way of seeing inaugurated not by artists but by the primary texts of Euclid and Isaac Newton.¹ Calder, although not a scientist in any traditional sense, was moved by a desire, common among early twentieth-century thinkers, to see the poetry of everyday life as shaped by heretofore invisible principles and laws.

We sometimes forget that the intimate relationship between science and alchemy and magic of all kinds, taken for granted in early modern times, was still very much a factor around the turn of the century; even Pierre and Marie Curie, scrupulous scientists, took an interest in paranormal experiments. Calder, although far too matter-of-fact and pragmatic a personality to feel the pull of the dark sciences, certainly dedicated his art to the proposition that magic could be engineered. This liberal-spirited man came of age when artists were on easy terms with the mystical and the transcendent, and although he would not have embraced Erik Satie's interest in the Rosicrucian Order or Wassily Kandinsky's and Mondrian's interest in Theosophy, he might well have agreed with Georges Braque, whom he knew, that making a work of art was like reading tea leaves. Writing in his *Occult Diary* around 1900, the Swedish playwright August Strindberg, who took an interest in alchemy, remarked that "if you would know the invisible, look carefully at the visible."² Surely the elusive movements of Calder's greatest mobiles of the 1940s and 50s are echoes or afterimages—if not indeed embodiments—of the invisible. That fascination with the hidden sources of appearances, which animated Albert Einstein's theories about the nature of matter and Sigmund Freud's, Carl Jung's, and Henri Bergson's investigations of the human

Fig. 6 | Gordon Parks, *Alexander Calder, Roxbury, Connecticut, 1952*; Calder pictured with *Snow Flurry, I* (1948)

mind, animated Calder's art as well. No wonder Calder's mobiles inspired an extraordinary essay by Jean-Paul Sartre, composed in the wake of World War II, when the French Existentialist's ideas about the nature of human experience were taking the world by storm.

As widely admired as Calder is more than a generation after his death in 1976 at the age of seventy-eight, the reach of his vision remains to be fully appreciated. Could it be that the immediate pleasure of his work has stood in the way of some more profound comprehension? Confronted with artists of enormous originality, even the most discriminating minds of the past hundred years have sometimes found it difficult to sustain any measured critical response. Many of these critical failures have expressed themselves through outright rejection, most famously the mocking reactions to Henri Matisse's *Woman with a Hat* at the Salon d'Automne in 1905 and Vaslav Nijinsky's choreography for *Le Sacre de printemps* in 1913. There are, however, other responses to extreme originality, one of the oddest being a cheerful acceptance that can itself signal a collapse of critical discrimination. That may be the curious fate not only of Calder's mobiles, but of other beguiling products of the modern imagination, including Maurice Ravel's music and Colette's novels and essays. The ease with which these works are experienced and appreciated leaves the artists in danger of being underestimated. The works are regarded as mostly a matter of amusement or seduction—as entertainments engineered for the pleasure of adults.

Vladimir Jankélévitch, in his brilliant book about Ravel, writes that “technique, in his magic hands, becomes the instrument of an incantatory action—it might be called a spell.”³ And so it is with Calder. His technique, grounded in an instinctive feeling for the fundamentals of physics, becomes the means by which he casts his spell—the spell of movement through space, of matter animated by energy. If the language with which we generally speak about the visual arts is inadequate to discuss Calder, it is because for Calder the fundamentals of aesthetics are so inextricably engaged with the fundamentals of physics. For Calder, physics is not a question of theories in a textbook but of sensations registered through the immediacy of nature. Physics is physicality. It is as simple as that. Such thoughts are by no means alien to the scientific imagination. If you have any doubt, you have only to consult a textbook called *First Principles of Physics*, published in 1912, four years before Calder studied elementary physics at the Stevens Institute. The authors begin by arguing that “countless physical *phenomena* are taking place around us every day,” and that all of them “are examples of matter and associated energy.” They catalogue a number of everyday occurrences: “a girl playing tennis, a boy rowing a boat, the school bell ringing, the sun giving light and heat, the wind flapping a sail, an apple falling from a tree.”⁴ These are of course precisely the varieties of experience that Calder evokes in his art—sometimes literally, as in an early wire sculpture of the tennis player Helen Wills, but more usually metaphorically, for what are the elements in a mobile if not sails flapping in the wind, fruits falling from a tree, one piece of metal clanging against another?



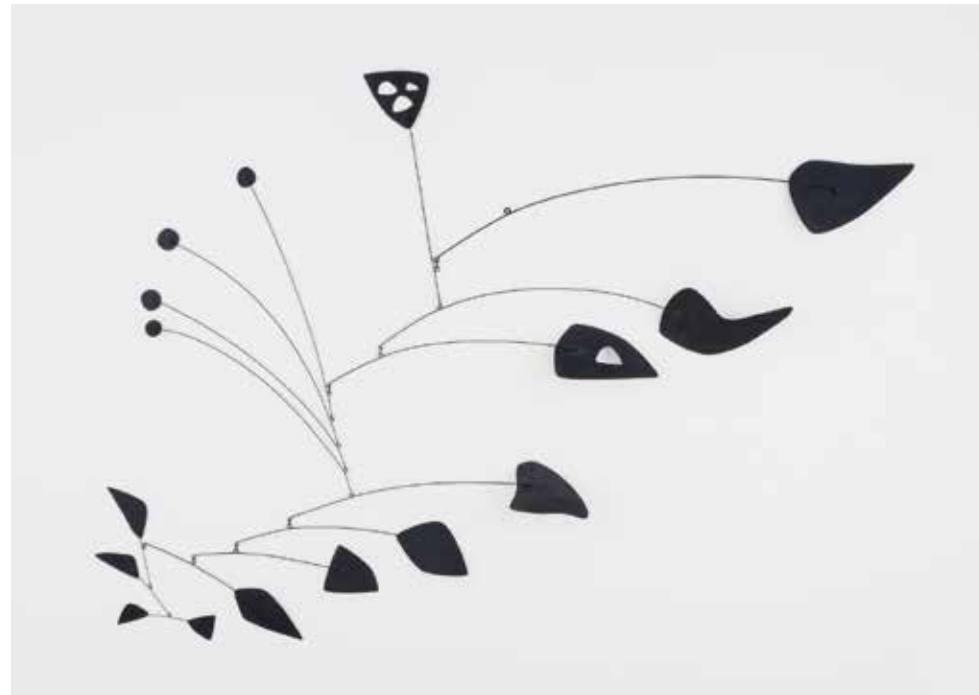


Fig. 7 | Alexander Calder, *Little Face*, 1962,
42 × 56 inches

For all their immediate impact, by turns opulent and ascetic and sometimes both at the same time, Calder's sculptures, and especially his mobiles, make considerable demands on his audience. There is always the physics—and the geometry, of course—that underpins and animates the poetry. Calder's mobiles require particular forms of attention, a sensitivity to kinetic possibilities that is not called for when looking at many other types of abstract art. Captivated at once by the lyric power of Calder's art, we may only with repeated viewings begin to perceive its multi-level power, a heterodox spirit that begins with a play of like and unlike forms and then pushes those forms into a constantly shifting dynamic as air currents reconfigure the composition. To see Calder's mobiles in their full complexity, we must begin by paying the closest attention to the parts that make up the whole. Are the shapes of one color, or two or more colors? Are the shapes similarly formed, as in the panoply of white circles in *Snow Flurry* (1948, fig. 6), or is there a range of shapes, from circles to petals to shapes with cutouts, as in *Little Face* (1962, fig. 7)? Are the metal forms arranged vertically, like sails catching the wind, or horizontally, like islands floating in the heavens? Are there shapes that are rendered singular by virtue of their color or form, or by the cutouts in the form, so that they register as loners or outliers or heroic presences in relation to the groups of shapes that would otherwise dominate the composition?

With a mobile, everything depends on our vantage point and on how the elements are arrayed at a particular moment. To analyze Calder's mobiles in terms of the planar geometry of his forms and in terms of sets of forms hardly takes us to the beginning of their richness, because their richness has everything to do with the extent to which geometry is so often complicated or even trumped by physics. What we are seeing, more often than not, are not shapes or groups of shapes as stable elements, but shapes or groups of shapes as constantly shifting possibilities.

As critical as the shapes themselves are to the mobile's impact, at least equally critical is the way that the elements are attached to one another, ranging from the wooden elements in *Constellation Mobile* (1943), which hang from strings affixed to horizontal wires, to the metal shapes in a work such as *Little Face*, each shape arranged at the end of a wire, the other end of which fastens to yet another wire at the end of which there is yet another shape. How the shapes are connected affects their movements and their relationships. In *Little Face* there is a single shape punctured with three openings, creating the abstracted face of the title. And this is a unique, stand-alone element. But then so is the singular petal-like shape, which looms solitary on one side of the string from which the mobile is suspended, achieving an unexpected importance because it must balance, or at least appear to balance, so many of the elements on the other side of that central axis.

The longer we look at one of Calder's mobiles, the more we become convinced that any impression we have is subject to revision—sometimes radical revision. There are times when all the elements are arrayed so that we experience each one of them as distinct and independent, as if we are regarding a two-dimensional composition suspended in a three-dimensional space. At other times, the elements pile up, creating a sensation of deep perspective, or they overlap and for a time obliterate one another, so that we see far fewer elements than we know are actually present. From certain vantage points, we may not know whether a shape has a cutout or what the cutout looks like, because the shape is overlapped by another, or the shape is seen at an extreme angle, the plane telescoped and becoming little more than a line. Calder builds into his greatest mobiles—and to some degree into all his mobiles—an astonishing sense of variety and variability, of affinities and associations. Surely what really matters is the constant play of symmetry and asymmetry, odd and even, singular and plural, faster and slower, higher and lower, wider and narrower. Surely what was mostly on Calder's mind were matters of difference and distinction, not a certain number of forms versus a certain other number of forms, but form versus space and *versus* as a principle in itself.

From what we know of Calder's process, the creation of works of such intricacy and complexity would have been impossible were the imagining not inextricably linked to the making, were the lyricism not encoded in the engineering. That some might see a paradox here was suggested by the sculptor George Rickey in his 1967 book *Constructivism: Origins and Evolution*, a pioneering attempt to define the modern artist's conquest of form in space. While acknowledging Calder's key role in the integration of movement into sculpture and praising his late stabiles, Rickey could not resist observing that Calder's "mobile constructions ... were too lyrical and subjective to be considered Constructivist."⁵ Whatever such a comment tells us about the limits of Rickey's imagination, his resistance certainly underscores the challenges that Calder's mobiles pose to deep understanding. Apparently it is not easy to see that lyricism is a matter of construction, that a poetic subjectivity can be grounded in the fundamentals of matter and energy. Rickey probably

associated Constructivism with straight lines and the most regular geometric forms, but the truth is that a whole range of curvilinear movements occur far more frequently in nature, as any physicist or biologist knows. And if Constructivism is indeed somehow related to the artist's deepening sense of the structure of the world, how can the irregular curve, which is at the heart of Calder's lyricism, not be an essential factor?

This instinctive fusion of immediate poetic image and underlying scientific thought is evident in an anecdote from Calder's autobiography. In the years after he had finished college, but had not yet committed to a life in art, Calder decided to spend some time in the Pacific Northwest, where his sister was living with her husband. Calder worked his way to California on a ship that went through the Panama Canal, and "early one morning on a calm sea, off Guatemala" he recalled seeing "the beginning of a fiery red sunrise on one side and the moon looking like a silver coin on the other." Forty years later, he remarked that "of the whole trip this impressed me most of all; it left me with a lasting sensation of the solar system."⁶ Of course what Calder was seeing that morning off the coast of Guatemala was not the solar system, but an effect of the workings of the solar system, the movement of the moon in relation to the earth and the sun viewed from his own moving vantage point on a boat on the sea. What is significant here is how Calder drew from that particular morning some larger lesson about the nature of the solar system. For Calder the experience could not be reduced to a science lesson; he recognized something magical in the convergence of the sun and the moon, a union that alchemists had long associated with the compounding of the philosopher's stone, a wedding of sun and moon, sulfur and mercury, Hermes and Aphrodite. At the end of the 1920s, in the Paris where Calder first made a name for himself, the American writer Harry Crosby observed in his diary "that in solar symbolism there are rules which connect the sun with gold, with heliotrope, with the cock which heralds the day, with magnanimous animals such as the lion and the bull, that 92,930,000 miles is the sun's distance from the earth; that no fewer than one half a million of full moons shining all at once would be required to make up a mass of light equal to that of the sun."⁷ Calder would never have succumbed to such a flight of literary fancy, but when he came, in 1968, to mount an abstract ballet in Rome that he described as "my life in nineteen minutes," a radiant sun with a human face dominated the stage.

It may be in the informal back-and-forth of one or two interviews, given when he was already middle-aged, that Calder suggested how deeply encoded the logic of physics was in his most delicious inventions. Speaking to the art critic Katharine Kuh, Calder said, "My whole theory about art is the disparity that exists between form, masses, and movement."⁸ It is immediately evident that "masses and movement" takes us back to the primary factors in physics: matter and energy. It is the mass of three or four larger elements in *Little Face* that balances a relatively large number of elements. And the movement of any individual element in a mobile has everything to do with how its particular mass encounters some amount of energy. This

statement of Calder's also leaves me thinking that "disparity," which is not a word frequently heard among visual artists, is a play on a concept essential to the thinking of physicists and mathematicians, namely parity. In physics, parity refers to the relationship between a phenomenon and its mirror image, most simply described in the equation $P: (a) \rightarrow (-a)$. One need not grasp much about the physics of such an idea—and the idea goes as far back as Newton but also figures in quantum mechanics—to see that Calder was always playing with parity and disparity. A mobile is a matter of disparities that also make parities, its parts achieving parity in the sense that they balance or mirror each other insofar as their



Fig. 8 | Alexander Calder, *Little Blue Under Red*, c. 1950; painted steel; 58 × 82 inches; Harvard Art Museums/Fogg Museum, Louise E. Bettens Fund, 1955.99

mass is concerned, and a scientist may forgive an artist for arguing that even as $P: (a) \rightarrow (-a)$, (a) and $(-a)$ can be composed of rather different elements, although not entirely different.

But perhaps the most striking moment in Calder's conversation with Kuh, at least in terms of the extent to which the artist's imagination was informed by the thinking of an engineer, comes when Kuh asks Calder about which of his works he likes best and he mentions a standing mobile called *Little Blue Under Red* (c. 1950, fig. 8). "That one," he says, "develops hypocycloidal and epicycloidal curves."⁹ In this conversation with an art critic, Calder quite casually mentions what are in fact highly technical terms. Hypocycloidal and epicycloidal curves are curves generated by the path left by a point on a smaller circle that rolls either outside of or inside of a larger circle; the interlocking interactions of gears in watches and many other types of machinery use such curves for the profile of the gear teeth. What Calder is describing here is a form of movement found in a group of standing mobiles from the late 1940s that includes *Little Parasite*, *Parasite*, *Laocoön*, *Bougainvillier*, and *Little Pierced Disc*. The stable element in these works, shaped like the first shoot of a plant emerging from the earth, resolves into a point that functions as a fulcrum. On this is balanced a single serpentine wire with elements hanging from its two ends. At one end there is often a circular plate, pierced in the center, that drops to encircle the fulcrum. At the other end there is usually a more elaborate construction. And these elements at the two ends of the main serpentine wire, which rotate at the ends of the wire even as the serpentine wire rotates, create the hypocycloidal and epicycloidal curves. They are curves outlined in the air that we do not so much see as sense, as energies inscribed in space. They are realizations in time and space of whirling arabesques, not entirely unlike some of the arabesques the eighteenth-century English painter William Hogarth described in the enchanting diagrams in his treatise, *The Analysis of Beauty*.

Calder was not the first modern artist to make things that moved. Naum Gabo had created a *Kinetic Construction* (fig. 9) early in the 1920s; and there were works by the Futurists Giacomo Balla and Fortunato Depero, by László Moholy-Nagy, and by Duchamp. But even Rickey, by no means one of Calder's stronger supporters, did acknowledge in his *Constructivism* that "it was Calder who succeeded in securing a place for Kinetic art."¹⁰ If it remains difficult to fully appreciate the scale of Calder's achievement, it is because Calder's fascination with movement has been insufficiently distinguished from a more general concern with the relationship between time and space in twentieth-century art. The struggle to integrate an experience of movement into the painter's planar geometries was essential to the multiple vantage points of the Cubists, to Paul Klee's fascination with the journey of a line, and to Kandinsky's evolution from point and line to plane. Cinema, jazz, electricity, airplanes, automobiles, the workings of chance: these were all of great interest to artists a decade and more before Calder became an abstract artist.



Fig. 9 | Naum Gabo, *Kinetic Construction (Standing Wave)*, 1919–20 (replica, 1985); metal, wood, and electric motor; 24¼ × 9½ × 7½ inches; Tate Gallery, London, Presented by the artist through the American Federation of Arts, 1966

But whereas Picasso, Braque, Matisse, Kandinsky, Klee, and Mondrian reacted to nature and abstraction in terms of planar geometries, and Constantin Brancusi and Jean Arp considered geometry in three dimensions, Calder alone found a way to project this fascination with the movement of forms through time and space back into the real world as an artistic actuality. This is the miracle of the mobile.

Although Calder was always in some deep sense a classicist, dedicated to the freestanding integrity of the work of art, he approached the process of purification in an audaciously improvisational spirit. When the critic Selden Rodman visited Calder's studio in the 1950s to interview the artist, he imagined he was in the workshop of the Wright brothers. Calder had indeed been enchanted by the heroism of early flight; in his autobiography he recalled that while in Paris in 1927 he went out to Le Bourget with friends to see Charles Lindbergh land. Calder's studio, Rodman wrote, was "a machine shop. The floor was deep in steel shavings, wire, nuts and bolts, punched sheet metal.... The air was busy with dangling 'contraptions,' as the brothers in Dayton used to call their experimental warped airfoils and rudimentary engines."¹¹ Asked by Rodman about his process of composition, Calder responded that he used to "begin with fairly complete drawings, but now



Fig. 10 | Alexander Calder, *The City*, 1960; iron and steel painted in black and white; 93 × 202 ½ × 120 inches; Collection Fundación Museos Nacionales, Museo de Bellas Artes, Caracas

I start by cutting out a lot of shapes.” The process of bringing a mobile into being was a matter of a man taking command of his materials. “Next,” Calder explained, “I file [the shapes] and smooth them off. Some I keep because they’re pleasing or dynamic. Some are bits I just happen to find. Then I arrange them, like *papier collé*, on a table, and ‘paint’ them—that is, arrange them, with wires between the pieces if it’s to be a mobile, for the overall pattern. Finally I cut some more on them with my shears, calculating for balance this time.”¹² So the process is irregular, somewhat unpredictable, the finished work combining elements made especially for the occasion with other elements that may have been found lying around the studio.

Asked by Katharine Kuh about *The City* (1960, fig. 10), a large stabile with triangular forms, Calder explained that he made the “model for it out of scraps that were left over from a big mobile. I just happened to have these bits, so I stood

them up and tried them here and there and then made a strap to hook them together—a little like *objets trouvés*.”¹³ It is interesting to find Calder, in these interviews conducted at midcentury, invoking *papier collé* and *objets trouvés*, those terms of the Cubists and Surrealists that suggest the incorporation of elements from the world beyond the studio—newspaper, wallpaper, postcards, just about anything—into the work of art. The lucidity of Calder’s art was wrested from the multiplicity of life, but only after “calculating for balance,” as Calder put it in his conversation with Rodman.

Calder was never as concerned with some particular type of form as he was with families of forms, with the relationships between forms. While most of the great abstract artists crystallize a moment in the relations of forms, with Calder such relations remain fluid, provisional, never entirely known. Calder could hardly have brought such fluidity to the art of sculpture had it not been for his encounters with the fundamentals of physics at the Stevens Institute of Technology more than a decade before he conceived of the mobile. But these basic laws of mechanics were in turn enlarged through a poetic spirit’s feeling for the ways in which forms act and are acted upon in the workaday world. Some studies of Calder’s work, taking their lead from the artist himself, have emphasized his interest in the solar system as the essential key to his art. Calder apparently told Rodman that “even before he studied engineering, he had been enthralled by eighteenth-century toys demonstrating the planetary system.”¹⁴ And Joan M. Marter, in her monograph on the artist, speculated that Calder might have seen in the Conservatoire des Arts et Métiers in Paris eighteenth-century models of the solar system, which indeed suggest early works such as *Croisière* (1931).¹⁵

But however important this fascination with the movements of the solar system was for Calder, I think there was much that was closer to hand that fueled his feeling for the never-ending collisions and collusions of matter and energy in our lives. All movements mattered to Calder, even and perhaps especially the humblest and the most human, the memories of seeing things move in childhood, or the way somebody he liked or loved happened to move. A book Calder remembered fondly from when he was a boy, Daniel Carter Beard’s *The Outdoor Handy Book*, has an entire chapter on “Malay and Other Tailless Kites,” with detailed instructions for making these fantasy objects that float through the air. Nearly half a century later, on the eve of a trip to India, Calder said that he very much wanted to see a famous kite festival. Although Calder was a worse than indifferent athlete and by all accounts an idiosyncratic dancer, during his college years he was always eager to take his chances on the athletic field and the dance floor. Athletes, acrobats, and dancers were themes in his first mature work, the wire sculptures of the late 1920s, and sometimes they actually moved, not only the figures he created for the *Cirque Calder* that he began performing in 1926, but also some of his studies of the great dancer Josephine Baker, which had moveable joints so that they could be manipulated as if they were

marionettes. A taste for the theater, where movement of all kinds is framed within the proscenium arch, was inculcated in Calder by his father, who closely followed the theatrical arts. Calder worked for a brief time in 1924 as a stage-hand at the Provincetown Players in Greenwich Village; he created sets for the revolutionary modern dancer Martha Graham in the 1930s; and in 1968 he mounted *Work in Progress* (figs. 11–12), a ballet without dancers in which mobiles took their places on the stage, at the Opera House in Rome. Calder and his wife Louisa loved to dance, and were enchanted by samba and other dance music they encountered in Brazil in 1948; the dance parties in their Connecticut farmhouse were famous among their friends.

Calder was a heavy man but light on his feet and extraordinarily agile with his hands, and in some deep sense his art must have grown out of a desire to find his proper balance in the world. Although he jealously guarded his solitude in his studio, he thrived on his close relationships with his family and his friends. His allegiance to his parents, his sister, and his children was thoroughgoing and intense, and although Calder and his wife were bohemians to their fingertips, they were sometimes saddened by and perhaps even somewhat disapproving of the divorces of good friends. As for friendship, it was something Calder quite simply could not do without, and to the end of his life he remained close to many people he had first known in the 1920s and 30s—and not only the famous ones. That Calder saw the constantly shifting interactions of elements in his mobiles as somehow reflecting the experience of a person in a family or a person among friends is not mere speculation, for on at least two occasions Calder created mobiles in which each element stands for a member of the family. The first and most interesting of these was made in the late 1930s for the English artists Ben Nicholson and Barbara Hepworth, who when they were married not only had triplets together but also

Fig. 11 | Alexander Calder, *Work in Progress*, 1968; at the Teatro dell'Opera di Roma, 1968

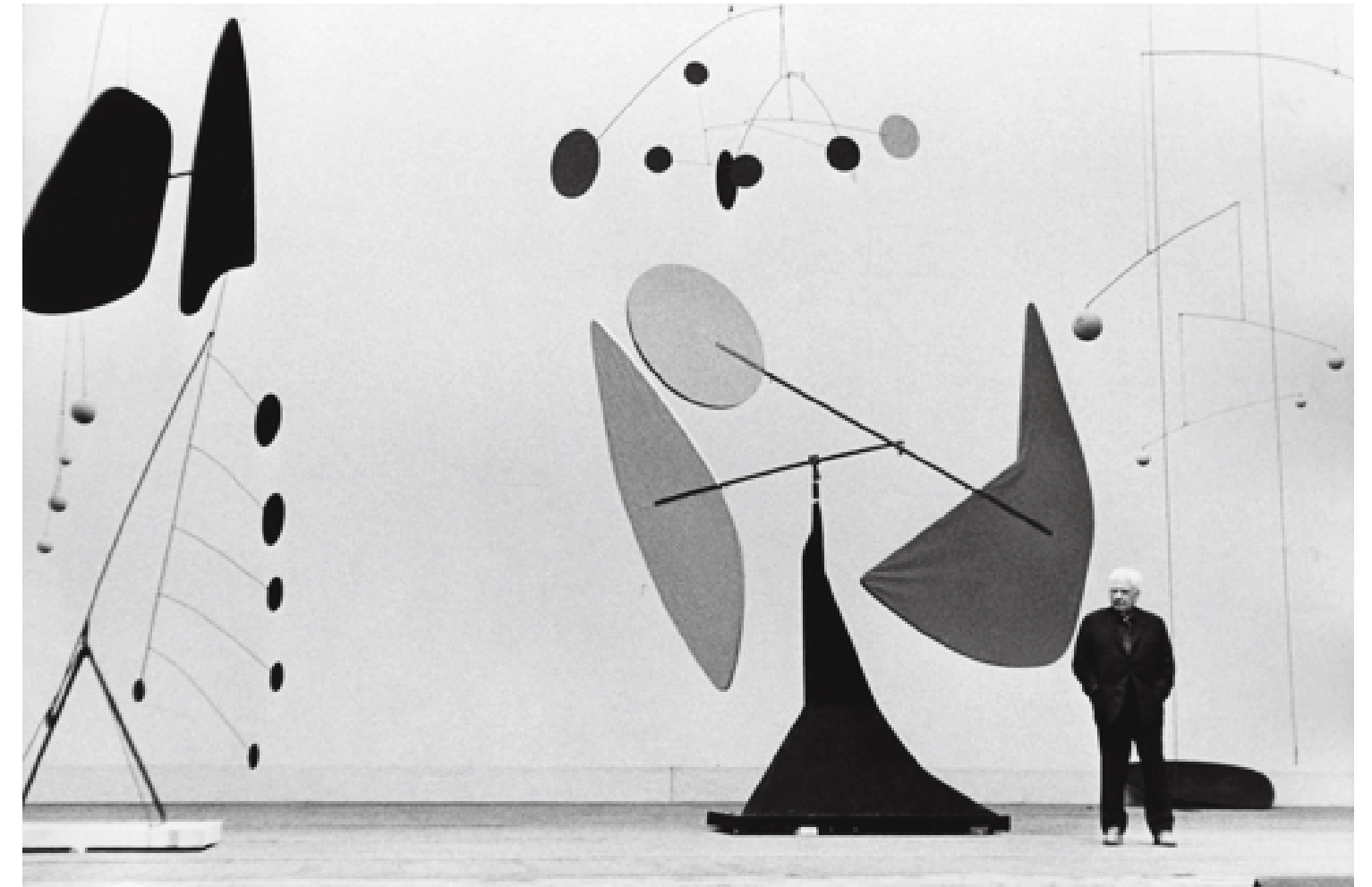
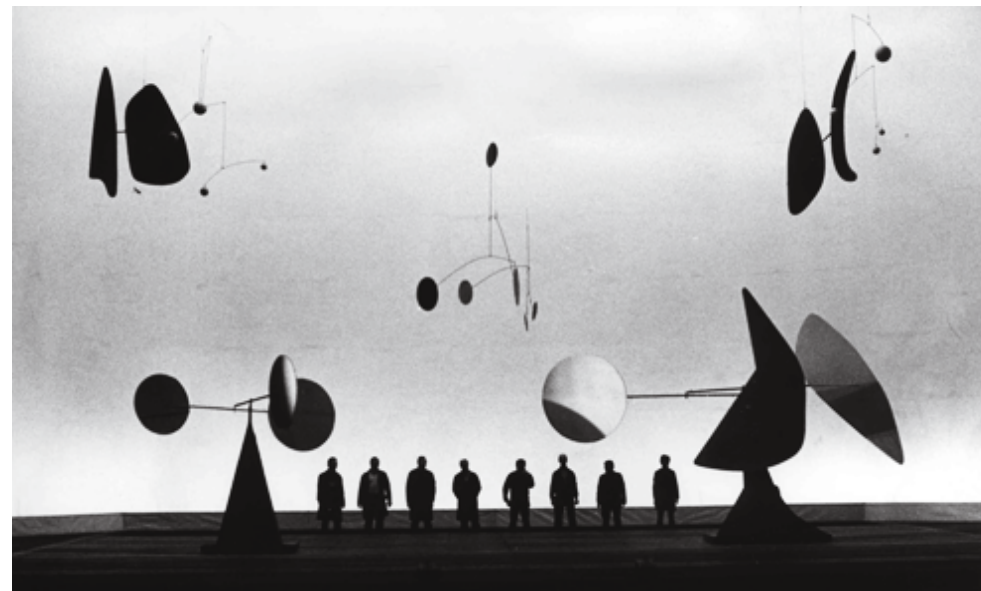


Fig. 12 | Alexander Calder on the set for *Work in Progress* (1968) at the Teatro dell'Opera di Roma, 1968

had children from Nicholson's previous marriage. That Calder thought to turn the essentially abstract nature of the mobile to the representation of a family and its dynamics is extraordinarily telling, underscoring as it does the extent to which any mobile is a kind of family, a family of forms.

And here, at least so I believe, we come to the crux of the matter. A mobile is a genealogy of forms, a family tree, a gathering of a particular tribe. Sometimes a mobile contains two families; sometimes a mobile contains three. There are mobiles that gather together many similar elements. And there are mobiles in which a single element (the face of a clown, an exotic flower) stands out from all the rest. Sometimes Calder's mobiles suggest utopian families, sometimes dysfunctional ones. Sometimes Calder's families are vegetal, sometimes mineral, sometimes astral. Whatever the temperament in a particular mobile, and it can range from disquietude to ebullience, there is always the possibility that the temperature will rise or fall, the relationships and the situations change yet again. Always, with Calder, there is this deep, abiding optimism, this sense that when matter and energy meet, miracles can happen. Always, a mobile is a dance to the music of time.

NOTES

1. James Johnson Sweeney, *Alexander Calder* (New York: Museum of Modern Art, 1943), 38.
2. Quoted in Sue Prideaux, *Strindberg: A Life* (New Haven, CT: Yale University Press, 2012), 11.
3. Vladimir Jankélévitch, *Ravel*, trans. Margaret Crosland (New York: Grove Press, 1959), 85.
4. Henry S. Carhart and Horatio N. Chute, *First Principles of Physics* (Boston, New York, and Chicago: Allyn and Bacon, 1912), 1.
5. George Rickey, *Constructivism: Origins and Evolution* (New York: George Braziller, 1967), 65.
6. Alexander Calder, *Calder, An Autobiography with Pictures* (London: Allen Lane, The Penguin Press, 1967), 54–55. Originally published 1966.
7. Harry Crosby, *Shadows of the Sun: The Diaries of Harry Crosby*, ed. Edward Germain (Santa Barbara, CA: Black Sparrow Press, 1977), 197.
8. Katharine Kuh, “Alexander Calder,” in *The Artist’s Voice: Talks with Seventeen Artists* (New York: Harper and Row, 1962), 39.
9. *Ibid.*, 44.
10. Rickey, *Constructivism: Origins and Evolution*, 195.
11. Selden Rodman, *Conversations with Artists* (New York: Devin-Adair Co., 1957), 137.
12. *Ibid.*, 140.
13. Kuh, “Alexander Calder,” 50.
14. Rodman, *Conversations with Artists*, 139.
15. Joan M. Marter, *Alexander Calder* (New York: Cambridge University Press, 1991), 106.