

# **A salute to Alexander Calder sculpture, watercolors and drawings, prints, illustrated books, and jewelry in the collection of the Museum of Modern Art.**

**Introductory essay by Bernice Rose**

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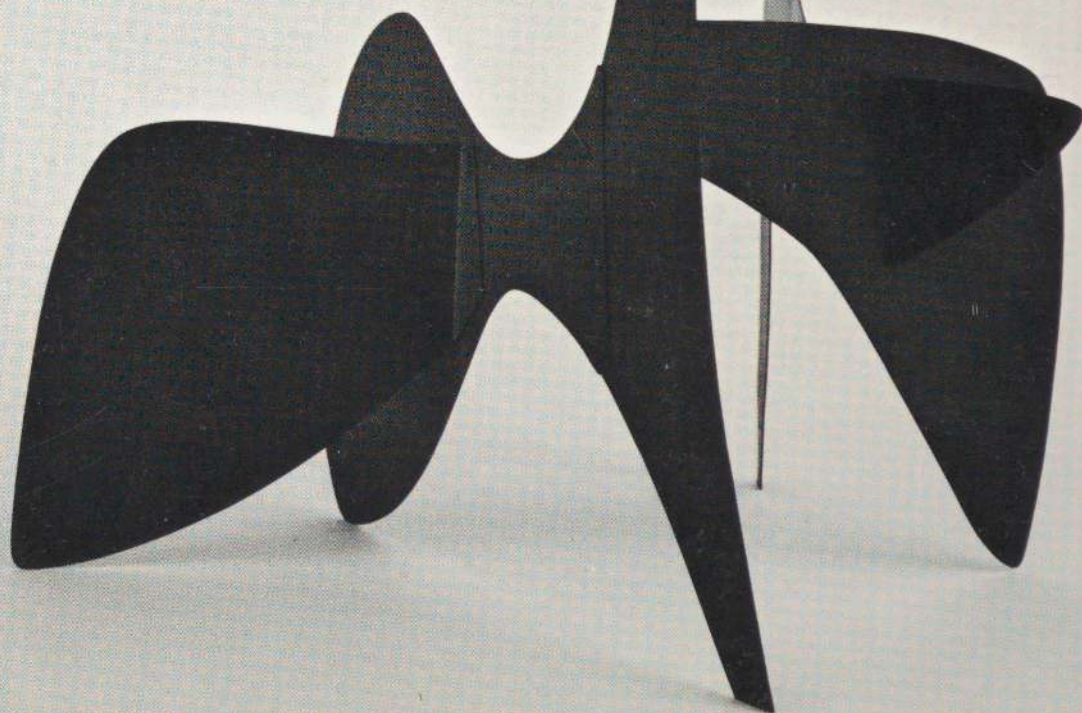
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A  
SALUTE  
TO  
ALEXANDER  
CALDER



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# A SALUTE TO ALEXANDER CALDER

SCULPTURE

WATERCOLORS AND DRAWINGS

PRINTS

ILLUSTRATED BOOKS

AND JEWELRY

IN THE COLLECTION OF

THE MUSEUM OF MODERN ART

INTRODUCTORY ESSAY BY

BERNICE ROSE

THE MUSEUM OF MODERN ART, NEW YORK



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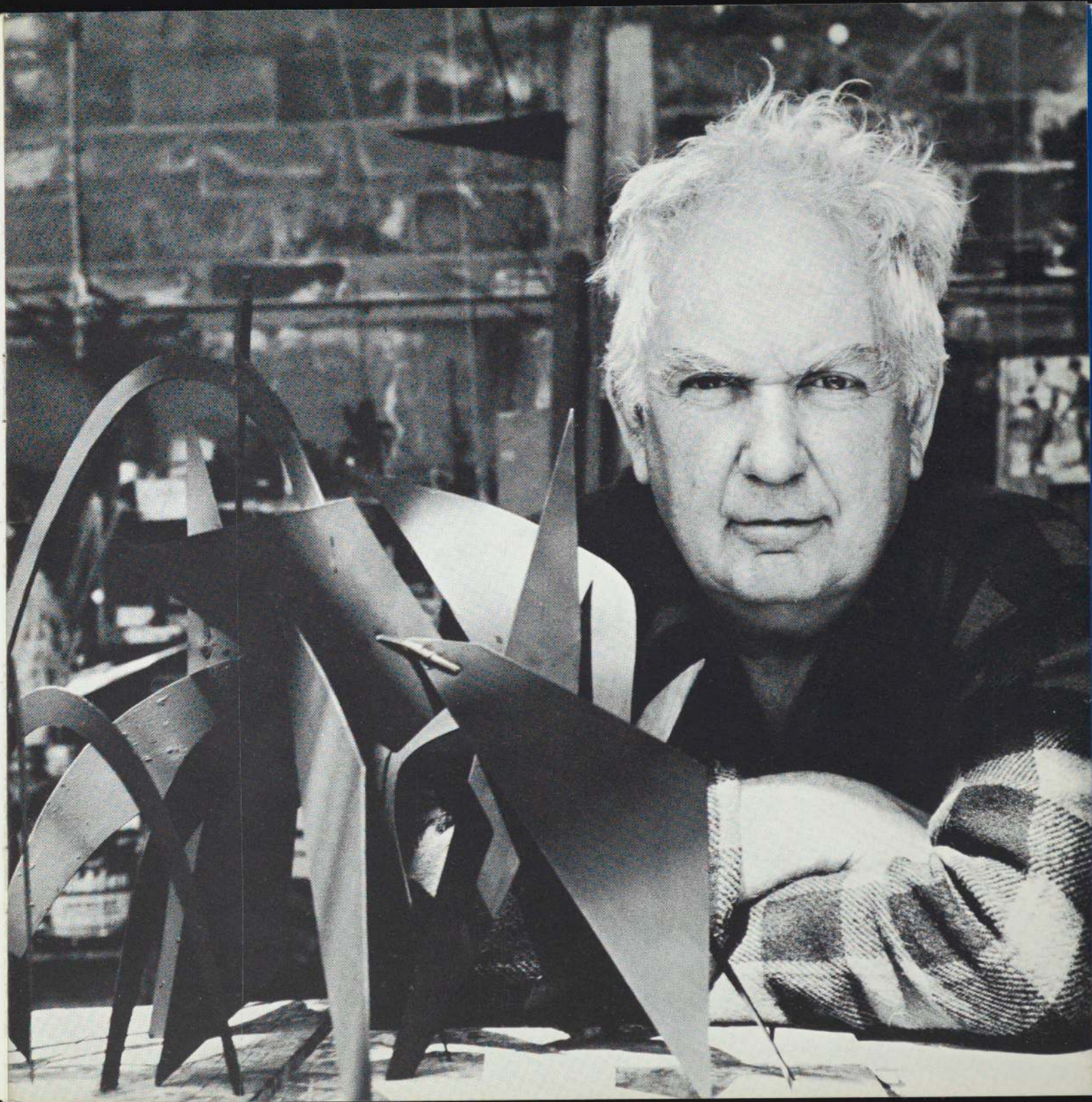
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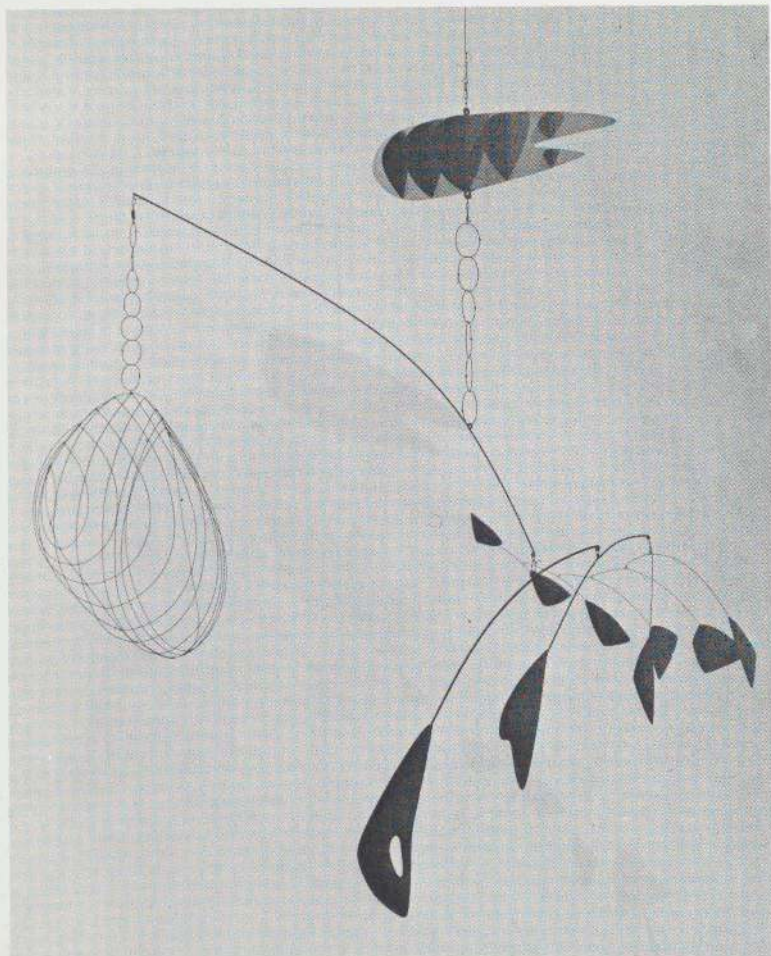


on the cover  
MODEL FOR "TEODELAPIO." (1962)  
opposite  
Alexander Calder, Roxbury, Conn., 1959  
(photo Alexander Liberman)









above LOBSTER TRAP AND FISH TAIL. (1939)

opposite WHALE II. (1964)

## A SALUTE TO ALEXANDER CALDER

Throughout his long career as one of the pioneering sculptors of the twentieth century, Alexander Calder has been unusually reticent, making very few statements about his work and theorizing as little as possible when he could be persuaded to speak. "When an artist explains what he is doing," he wrote in 1937, "he usually has to do one of two things: either scrap what he has explained, or make subsequent work fit in with the explanation. Theories may be all very well for the artist himself, but they shouldn't be broadcast to other people."

Calder remains reticent to this day. But, while he has left to others to theorize about his sculpture, the sculpture itself has generated its own definitions. In the Addenda Section of the Second Edition of Webster's New International Dictionary published in 1954 there are two definitions that had not appeared in earlier editions:

**mobile** *n.* Art. A delicately balanced construction or sculpture of a type developed by Alexander Calder since 1930, usually with movable parts, which can be set in motion by currents of air or mechanically propelled.

**stable** *n.* Art. An abstract sculpture or construction typically made of sheet metal, wire, and wood. Cf. MOBILE

In subsequent editions the definitions no longer make direct reference to Calder, indicating that his work had generated a whole new genre of objects, so integrated that they were classified as part of the general vocabulary. These are definitions that can be applied only to sculpture made in the twentieth century and only to sculpture set within a fairly specific context, and with certain definite roots. The roots most meaningful here are Constructivism, an art movement based on the analytic structure of Picasso's Cubist collages; Futurist ideas that demanded that art portray space through dynamic movement and use industrial materials appropriate to an age of speed; and Malevich's rejection of the portrayal of objects as necessary to art.

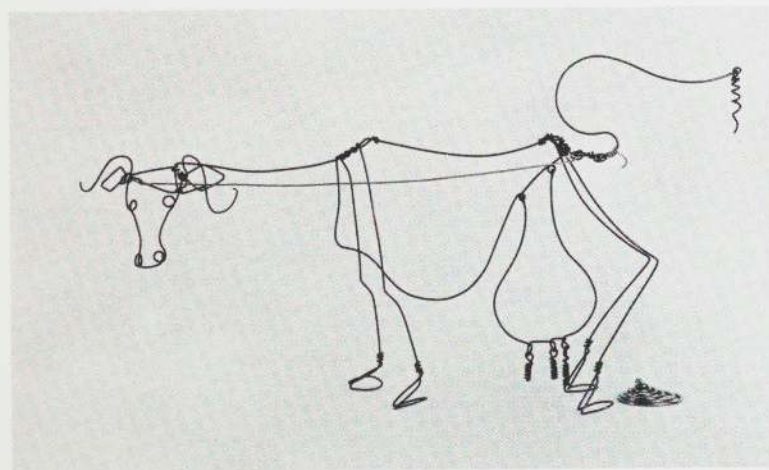
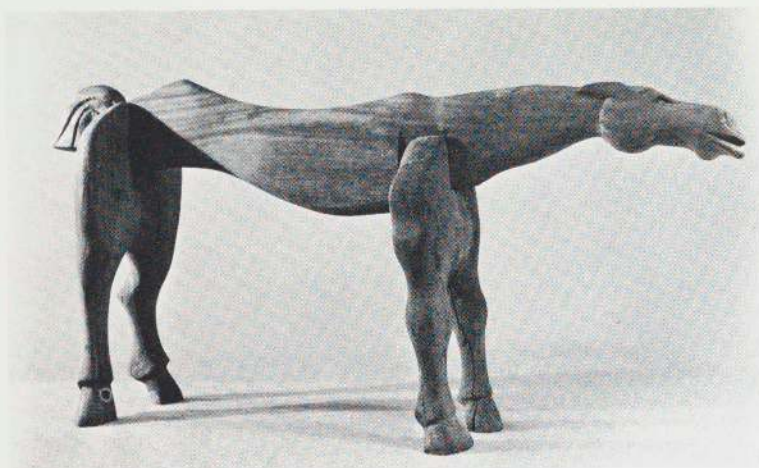
Calder was, perhaps, peculiarly qualified to realize the ideas of the Constructivists and at the same time synthesize them with Surrealism. Son and grandson of sculptors, he himself had been trained as a mechanical engineer. He was thus familiar with both technology and art when he arrived in Paris in the late twenties, and was on the scene during a major revival of interest in non-objective art, Constructivism, and Dada.

Calder's first fame came from his performance of his miniature circus before the avant-garde. The impact the circus had on these intellectual and social circles is per-









above THE HORSE. (1928)

The Horse is an early combination carved-and-constructed piece: it prefigures the structure of the later metal stabiles.

"Metal is more flexible for shapes, shapes in wood are limited by the grain." (Conversation)

below COW. (1929)

"The form isn't very elegant." (Conversation)

haps best indicated by the circumstance that years later Thomas Wolfe, in his novel *You Can't Go Home Again*, would use a performance of the circus as a focus for his stinging comment on a social milieu that used art and artists as a diversion.

"Yes, Mr. Piggy Logan was the rage that year. He was the creator of a puppet circus of wire dolls, and the applause with which this curious entertainment had been greeted was astonishing. Not to be able to discuss him and his little dolls intelligently was, in smart circles, akin to never having heard of Jean Cocteau or Surrealism; it was like being completely at a loss when such names as Picasso and Brancusi and Utrillo and Gertrude Stein were mentioned. Mr. Piggy Logan and his art were spoken of with the same animated reverence that the knowing used when they spoke of one of these....

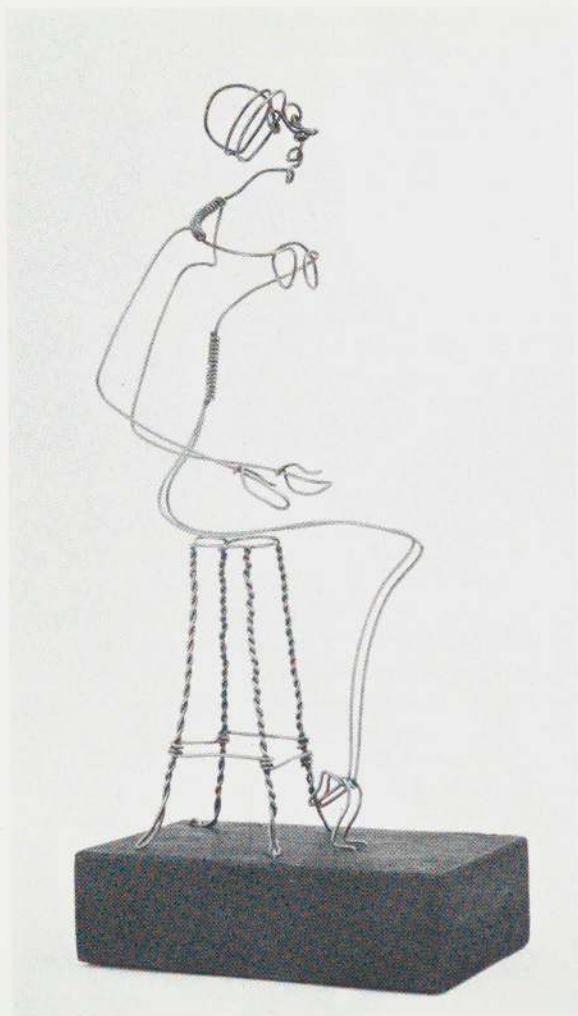
"The highest intelligences of the time—the very subtilest of the chosen few—were bored by many things.... They were bored with living, they were bored with dying, but—they were not bored that year with Mr. Piggy Logan and his circus of wire dolls....

"...There were miniature circus rings made of rounded strips of tin or copper which fitted neatly together. There were trapezes and flying swings. And there was an astonishing variety of figures made of wire to represent all the animals and performers. There were clowns and trapeze artists, acrobats and tumblers, horses and bareback lady riders. There was almost everything that one could think of to make a circus complete, and all of it was constructed of wire....

"It started, as all circuses should, with a grand procession of the performers and the animals in the menagerie. Mr. Logan accomplished this by taking each wire figure in his thick hand and walking it around the ring and then solemnly out again....

"Then came an exhibition of bareback riders. Mr. Logan galloped his wire horses into the ring and round and round with movements of his hand. Then he put the riders on top of the wire horses, and, holding them firmly in place, he galloped these around too. Then there was an interlude of clowns, and he made the wire figures tumble about by manipulating them with his hands. After this came a procession of wire elephants...."

These performances provided Calder not only with money to eat but with introductions to the most advanced artists of the time. In Paris he met Miró (although he did not immediately assimilate the significance of Miró's work), and ultimately Arp, Léger, and other members of Abstraction-Création, the exhibiting group of the Neo-Plasticists and Constructivists in Paris. Gradually he turned the emphasis away from the circus and began

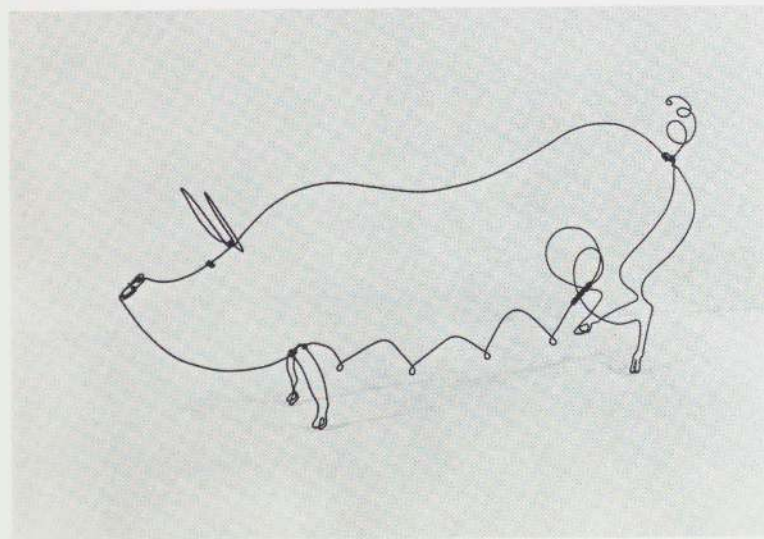
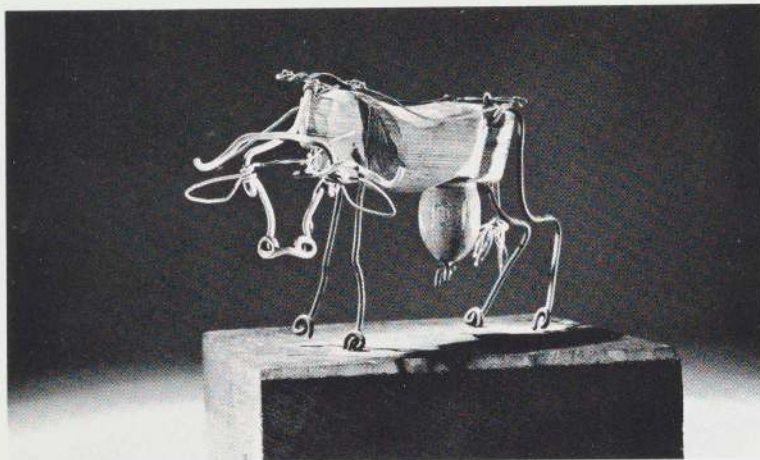


SODA FOUNTAIN. (1928)



THE HOSTESS. (1928)





above COW. (1929)

below SOW. (1928)

to construct and exhibit large wire figures. Josephine Baker was the first subject to be treated in this large format. Though many of the wire sculptures are caricatures, they are—the portraits in particular—the first sculptures in which Calder makes use of multiple views, constructs a sculpture in which all sides can be seen at once, and modulates space as if it were a palpable volume.

It cannot be claimed that Calder was pursuing any radically new, original course in sculpture at this time. Open-form sculpture was under constant discussion during these years; with the collaboration of Gonzalez, Picasso was also working with wire. But, whereas he was soldering and using wire as a stiff, sticklike element, Calder, who has always preferred mechanical constructions, was creating in the manner that has remained characteristic for him. He has always found it easier to think with his hands, to think in terms of specific materials. He bends and twists wire to outline planes and volume and follow features as if wire were a fluid line drawn in space. The flexibility of these wire figures shows that from the first Calder displayed a propensity for moving form. He had become so facile with wire representations that he could make a piece like *Sow* on demand in fifteen minutes. But, by 1930, he was ready for new challenges. An earlier piece of 1928, *Elephant Chair with Lamp*, already shows elements of much later standing mobiles: a fixed organic form for a base, a wire arm extended from the apex, with mobile elements suspended from it. Calder quickly began to move into new areas.

It is at this time that Constructivist ideas seem to have provided him with a new context for open-form sculpture. Constructivism had originated in Russia during the Revolution with the brothers Naum Gabo and Antoine Pevsner, who spread its ideas first to Germany and then to Paris during the twenties. In both countries it had significant effects, becoming a focus for plastic innovations. In 1920 Gabo had written the *Realistic Manifesto* in which he announced the Constructivist break with the plastic tradition that had dominated Western art for "1000 years." Among his pronouncements are several that seem appropriate to Calder:

"The realization of our perceptions of the world in the forms of space and time is the only aim of our pictorial and plastic art....we construct our work as the universe constructs its own, as the engineer constructs his bridges, as the mathematician his formula of the orbits....everything has its own essential image....all [are] entire worlds with their own rhythms, their own

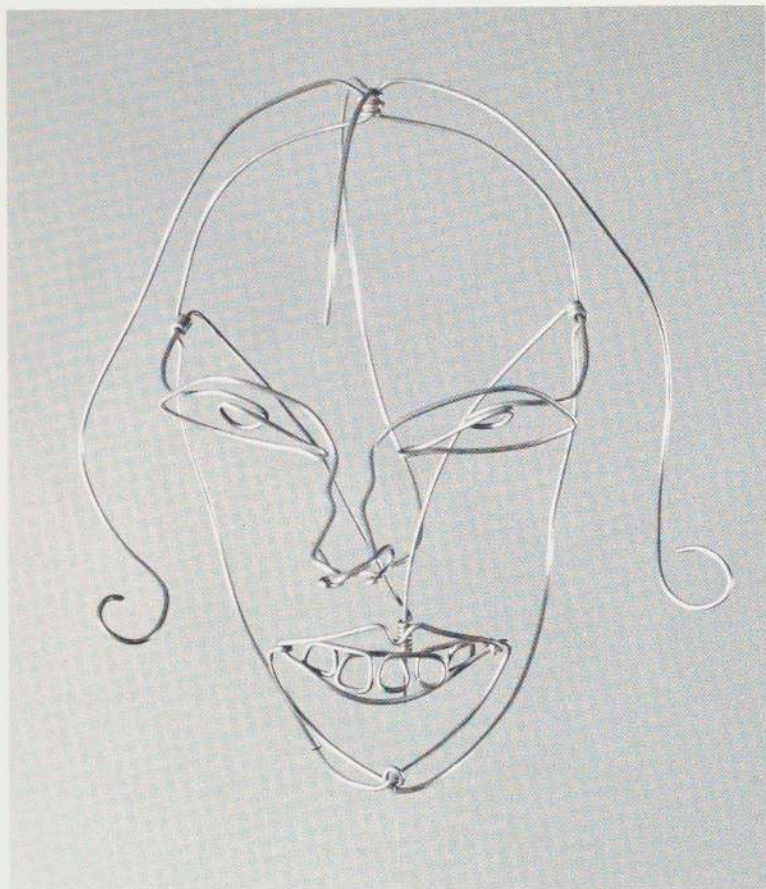




JOSEPHINE BAKER. (1927-29)

"I never met Josephine Baker, but I had a friend, a Texas musician, Renick Smith, and I did some drawings for music covers. Smith took them around Paris to the greatest American singers and the only one who would do anything was Josephine Baker....She had a beautiful body...when I showed her to someone one time, he said, 'That's her beautiful body?'"  
(Conversation)





MARION GREENWOOD. (1929–30)

*"Where you have features you draw them, where there aren't any, you let go." (Conversation)*

orbits." Denouncing descriptive line and volume, Gabo continued: "...we bring back to sculpture the line as a direction and in it we affirm depth as the one form of space. We renounce the thousand-year-old delusion in art that held the static rhythms as the only elements of the plastic and pictorial arts. We affirm in these arts a new element of the kinetic rhythms as the basic forms of our perception of real time." Later he expanded his ideas to deal directly with the materials of sculpture: "In sculpture, as well as in technics, every material is good and worthy and useful, because every material has its own aesthetical value. In sculpture, as well as in technics, the method of working is set by the material itself."

In 1930 Calder was invited to join the Abstraction-Création group. In the same year, Mondrian came to see his circus; Calder returned the visit, precipitating the first major change in his style.

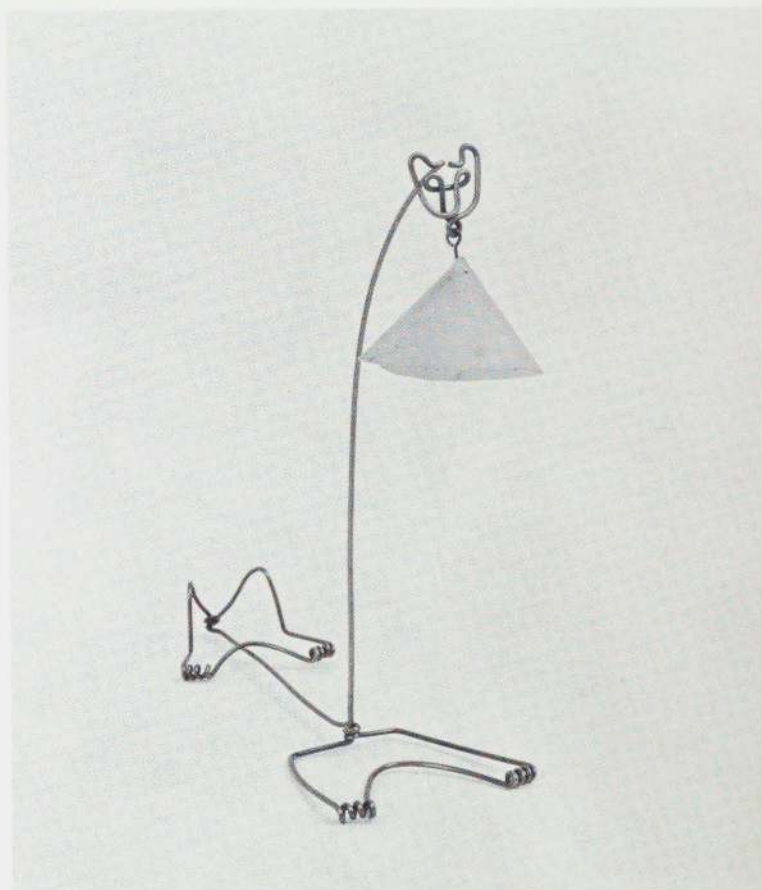
"I was very much moved by Mondrian's studio," he wrote, "large, beautiful and irregular in shape as it was, with the walls painted white and divided by black lines and rectangles of bright color like his paintings. It was very lovely, with a cross-light (there were windows on both sides), and I thought at the time how fine it would be if everything there *moved*; though Mondrian himself did not approve of this idea at all. I went home and tried to paint. But wire, or something to twist, or fear, or bend, is an easier medium for me to think in." He went back to wood and wire because he "liked manipulating pieces."

Calder is that rare individual who is able intuitively to integrate theory and concept with manual dexterity to create a "mechanical" representation of a visual idea. From Mondrian he learned the essentials of Neo-Plasticism, excerpting what he found useful: flat planes; the use of primary colors in opposition to black and white; equilibrium of space and surface through proportion of line, plane, and color; and, non-symmetrical balance: "the balanced relation is the purest representation of universality."

Calder immediately translated this experience into a series of wood-and-wire constructions, which were exhibited at the Galerie Percier in 1931. One of these constructions was the prototype for the motorized mobile *A Universe*. Calder was now making a sharp distinction between these wire-and-wood non-objective constructions of 1931 and the earlier wire portraits, which the gallery owner insisted he show along with them. Calder's recent remark that he didn't consider the Cow a very elegant form is revealing: he had begun to think

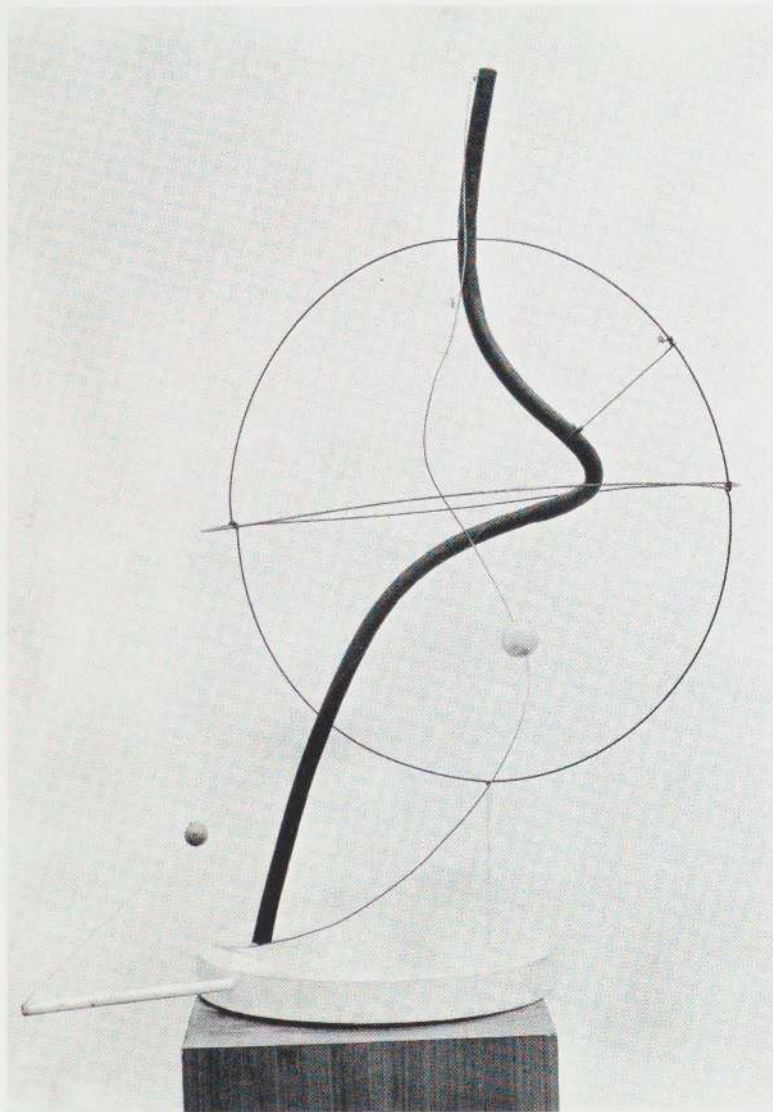


ELEPHANT CHAIR WITH LAMP. (1928)



CAT LAMP. (1928)





A UNIVERSE. (1934)

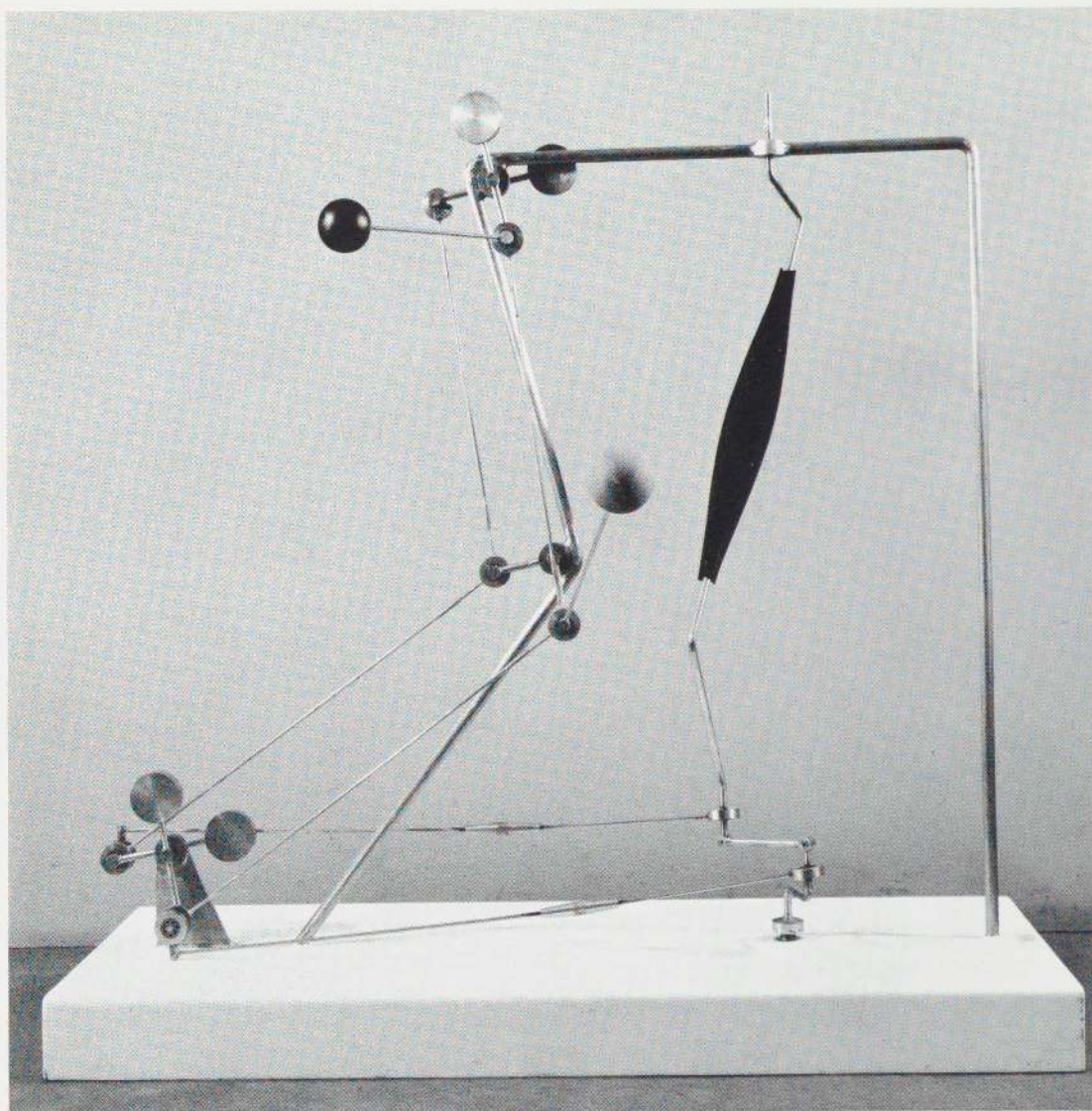
*"The orbits are all circular arcs or circles. The supports have been painted to disappear against a white background to leave nothing but the moving elements, their forms and colors, and their orbits, speeds and accelerations. The aesthetic value of these objects cannot be arrived at by reasoning. Familiarization is necessary."* (Statement, 1934)

primarily in terms of forms rather than representations, hence the distinction.

The Mondrians that had initiated the change in Calder's formal approach were rectangular, but as soon as Calder turned to three dimensions he thought in terms of round shapes. "Two hoops of wire intersecting form a sphere...a sphere is one of the most elementary shapes ...like drops of water." Calder has connected the idea of spheres and elementary shapes with the idea of the universality of form and the universe itself in a very pragmatic interpretation of Gabo's statements. Plastic art was universal art, and the idea of the universe, itself a moving system, led him into movement. In a statement of 1951 he wrote: "...the underlying sense of form in my work has been the system of the Universe, or part thereof. For that is a rather large model to work from. What I mean is the idea of detached bodies floating in space, or different sizes and densities, perhaps of different colors and temperatures, surrounded and interlarded with wisps of gaseous condition, and some at rest, while others move in peculiar manners, seems to me the ideal source of form."

Calder's transition into mechanical movement in the series of manual and motorized mobiles shown in Paris at the Galerie Vignon in 1933 should be seen in terms of his multi-faceted background. Perhaps first is his training as a mechanical engineer, which has grown rather than diminished in importance. "I was studying a lot of theory and didn't see what use it would be," he has remarked, "but it comes out." The mechanical engineering is not just practically important, for building motors, for example; it is conceptually important. A mechanical engineer studies machines from the point of view of efficient motion; he is technically concerned with kinetic theories, including the movement of liquids and gases. Perhaps as important were Gabo's ideas about a kinetic art. Although Calder did not meet Gabo during the Abstraction-Création years, there can be no doubt that his ideas for the creation of a kinetic art in four dimensions—the fourth dimension being the time interval inherent in any movement sequence—were a major factor in Calder's work, even at second hand. He may even have heard about Gabo's one kinetic construction of 1920. Although Calder did not meet Duchamp until after he made his first mechanized constructions, he knew Picabia, and through Picabia he may have heard of Duchamp's earlier mechanized constructions. While Picabia's own Dada machine portraits are collages, not kinetic constructions, it is also probable that their Dada irony (and



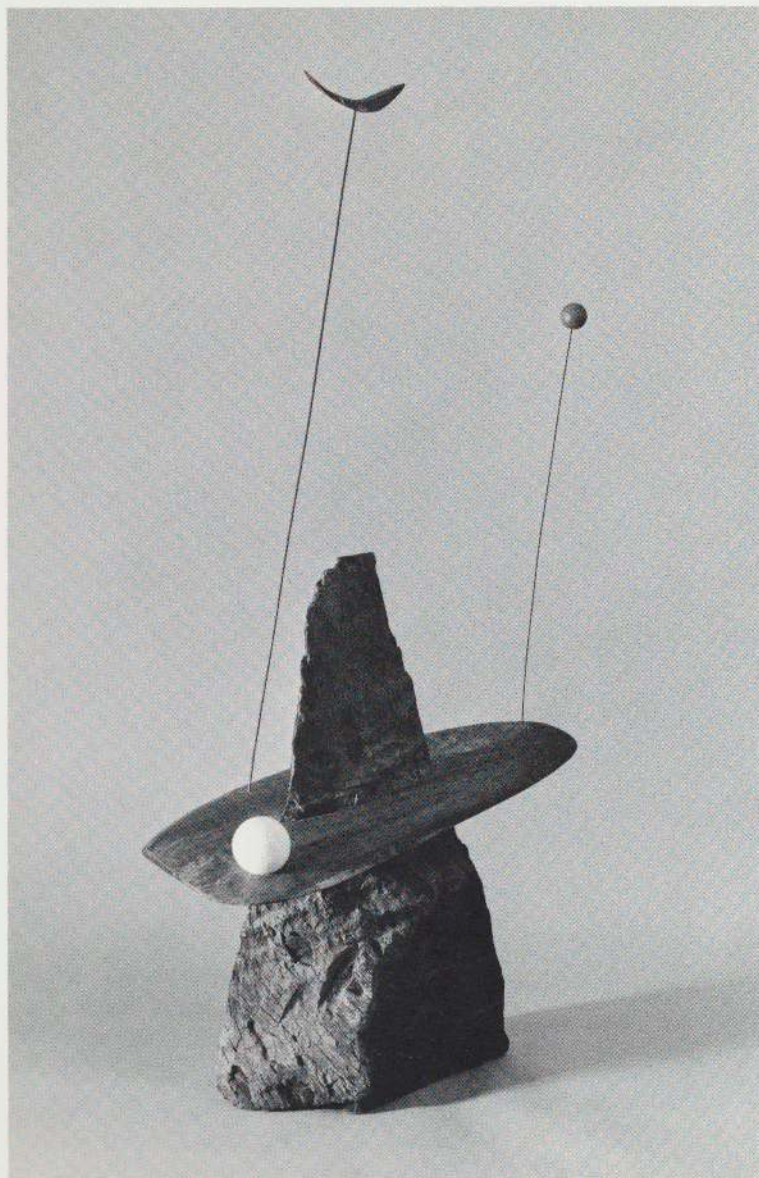


THE BICYCLE. (1968. Free reconstruction of "THE MOTORIZED MOBILE THAT DUCHAMP LIKED" of ca. 1932)

*"Disparity in form, color, size, weight, motion is what makes a composition. ...It is the apparent accident to regularity which the artist actually controls by which he makes or mars a work."* (Autobiography)

*"I call it Bicycle because the movement of that bottom part—reminds me of a bicycle."* (Conversation)





GIBRALTAR. (1936)

opposite MORNING STAR. (1943)

"Names are tags—my things are named later. Before the 1943 MOMA show, when Sweeney insisted things should have names, I used to make a little drawing when talking about a thing instead of using a name.... A Morning Star—it's not a star—is a medieval weapon thrown from a horse—sort of a lance with a round head and little spikes." (Conversation)

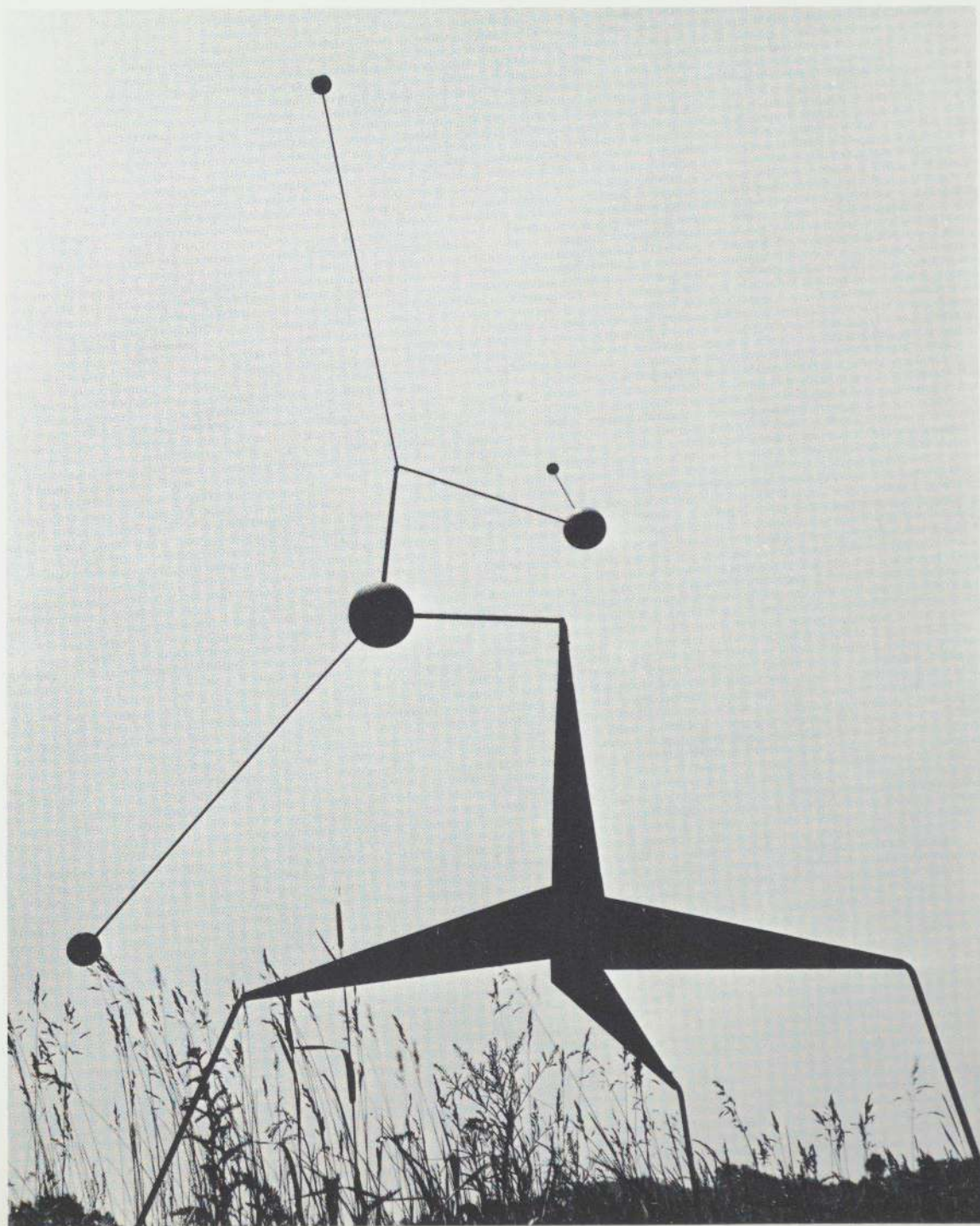
even the collage technique) had a strong effect on such pieces as *The motorized mobile that Duchamp liked* and the other motorized pieces of the next few years which move in somehow playful, apparently accidental or irrational patterns.

One catalyst that may have helped to integrate these experiences was Calder's fortuitous viewing in 1928 of an exhibition of automata taking place in the same building where an exhibition of his own was being held, although he probably knew automata before this time. The circus, while not mechanized, is mechanical and, in one sense, a collection of automata. It was a re-creation of a whole world; although, as has been pointed out, its awkwardness, lack of verisimilitude, and the occasional failure of a piece to perform permits it to be art, thus taking it out of the range of automata which aim at verisimilitude and perfect mechanical performance. The circus is in fact a parody of mechanical toys, a combination of "natural" and mechanical movement.

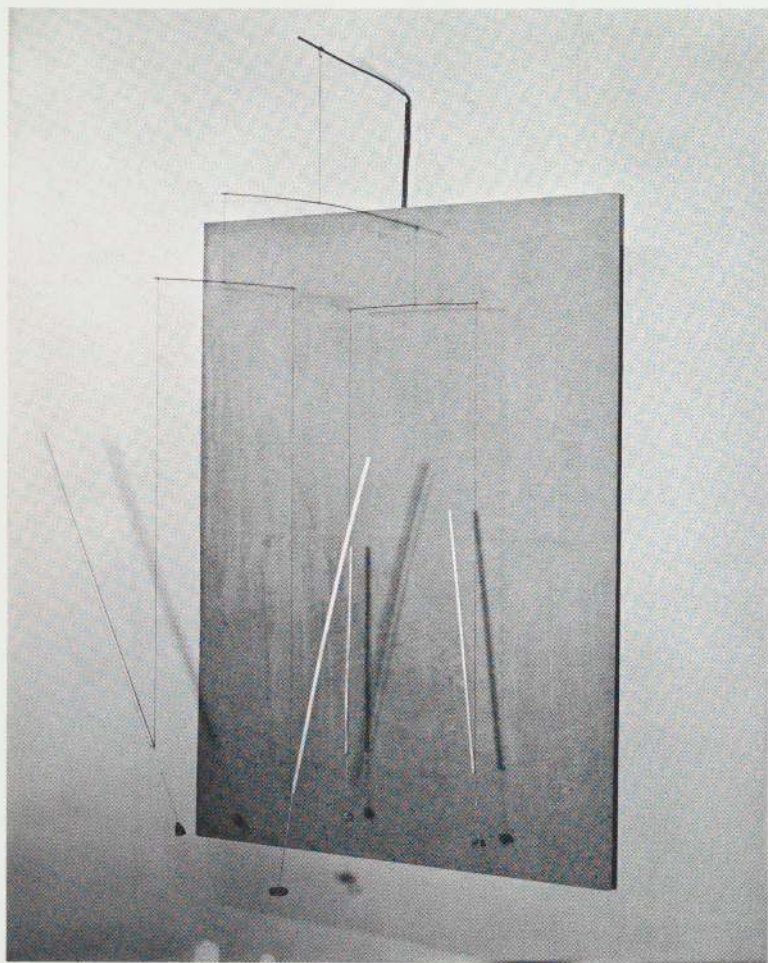
It is, then, not illogical that at the same time that Calder explored mechanized movement he began to make air-driven mobiles. Within the next few years the general cult of faith in the machine as a panacea was to break down under the assaults of Dada and the Surrealists. As the machine cult broke down, Calder became more and more sympathetic to Arp, whom he knew from Abstraction-Création, and Miró, and gradually introduced biomorphic forms, which he added to his geometric shapes. These Surrealist affinities are evident in the work of the late thirties and early forties and account for his inclusion in the *Exposition Internationale du Surréalisme* held in Paris in the summer of 1947. At one point Calder even used found objects for his mobiles but abandoned that because it "was a concession to other people's ideas." Pieces like *Gibraltar*, *Morning Star*, and the series of *Constellations* are among his most overtly Surrealist constructions.

The mobile, Calder's first major mode, represents a major breakthrough for modern sculpture. While the Futurists theorized, and Gabo, after one attempt, abandoned kinetic, motor driven sculptures as too primitive, Calder began seriously to explore the possibilities of kinetic sculpture. Between 1931 and 1938, as Jack Burnham, citing George Rickey, in his *Beyond Modern Sculpture* writes: "Calder in all seriousness explored a considerable area of present Kinetic activity before settling on the hanging mobiles.... It may be helpful to name... the devices... Calder used in principle: in Kinetics some of these are sticklike and unstable objects hung in front of









above SWIZZLE STICKS. (1936)

opposite SNOW FLURRY I. (1948)

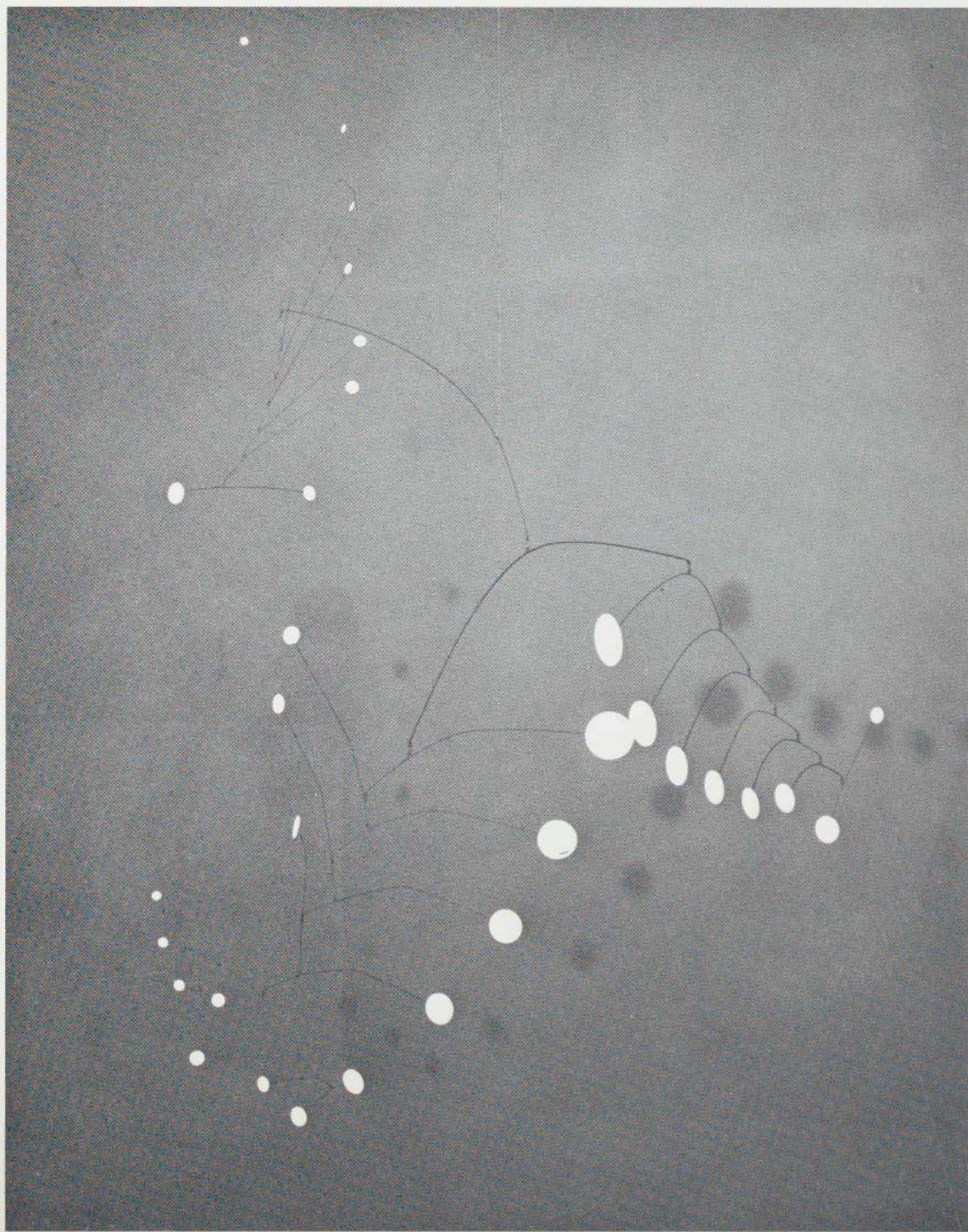
a panel producing random shadow effects [*Swizzle Sticks*], sculptures propelled by pumped liquids, belt and wheel systems as an integral part of a sculpture, constructions in which elements are interchangeable by hand, the use of hand-driven cams and crank trains plus motorized animation of coiled springs."

While Calder has continued to make motor-driven sculpture occasionally since his major machine period of the thirties, it is the air-driven mobile that has dominated his kinetic work. One reason he concentrated on natural movement was that he found motors "too much bother—they always needed fixing," but now he feels that he might have continued if he hadn't had to make his own gear-reduction mechanisms, a process that was too boring and time-consuming. He does not feel, as do some other kinetic sculptors, that motors do not permit varied enough movements; he still believes, as he did in 1937, that with a motor one can produce a "positive instead of a fitful movement," and that the combination of different elements and movements, although simple, if varied enough in period, can give enough variety so as to be quite interesting.

With the air mobiles he found metal a more flexible material for shapes than wood; but more obviously, if air currents are to produce movement, the resistance of a flat surface is more efficient than that of a sphere. The pieces are arranged so that they operate on the same principle as sails: when pushed by the air a vertical piece moves horizontally, a horizontal piece rises. The opposition of horizontal and vertical pieces will produce varying movements, and a series of either, or both kinds, will increase the complexity and duration of the movement. However, a vertical and horizontal cannot be combined on the same arm because they would work too much against each other: each works best with one kind of wind. Yet the manner in which they are hung, and the combinations, make them capable of more complex movement. As Rickey points out, these can be: linear movement, up, down, and across (horizontal), and rotations around these three centers; Calder's mobiles do not move around centers lying outside of themselves. (Color is an integral part of Calder's plastic images and, far from being incidental, adds still another variable to the motion sequence.)

Another example of Calder's engineering training is his use of torsion: a slight twist to the opposite direction in a piece of wire interrupts the equilibrium of a straight piece and makes it more susceptible to movement. Calder uses this principle in wire bases and also in the reverse









above SPIDER. (1939)

opposite MAN-EATER WITH PENNANTS. (1945)

twist that forms the loop in the wire arms on which groups of elements are suspended. His pieces are constructed on the principle of non-symmetrical equilibrium, depending on the wind to disrupt balance and overcome inertia. At that point the elements of the mobile will follow a chain of cause and effect in a series of connected trajectories until they have completed the series and come to rest. For Calder the balancing process has become largely intuitive, but is quite exact: his monumental mobiles are made by mathematical enlargement from the model and usually work right the first time. It is in his use of the principle of equilibrium (as stated by Mondrian) that Calder holds to his idea of the universal model.

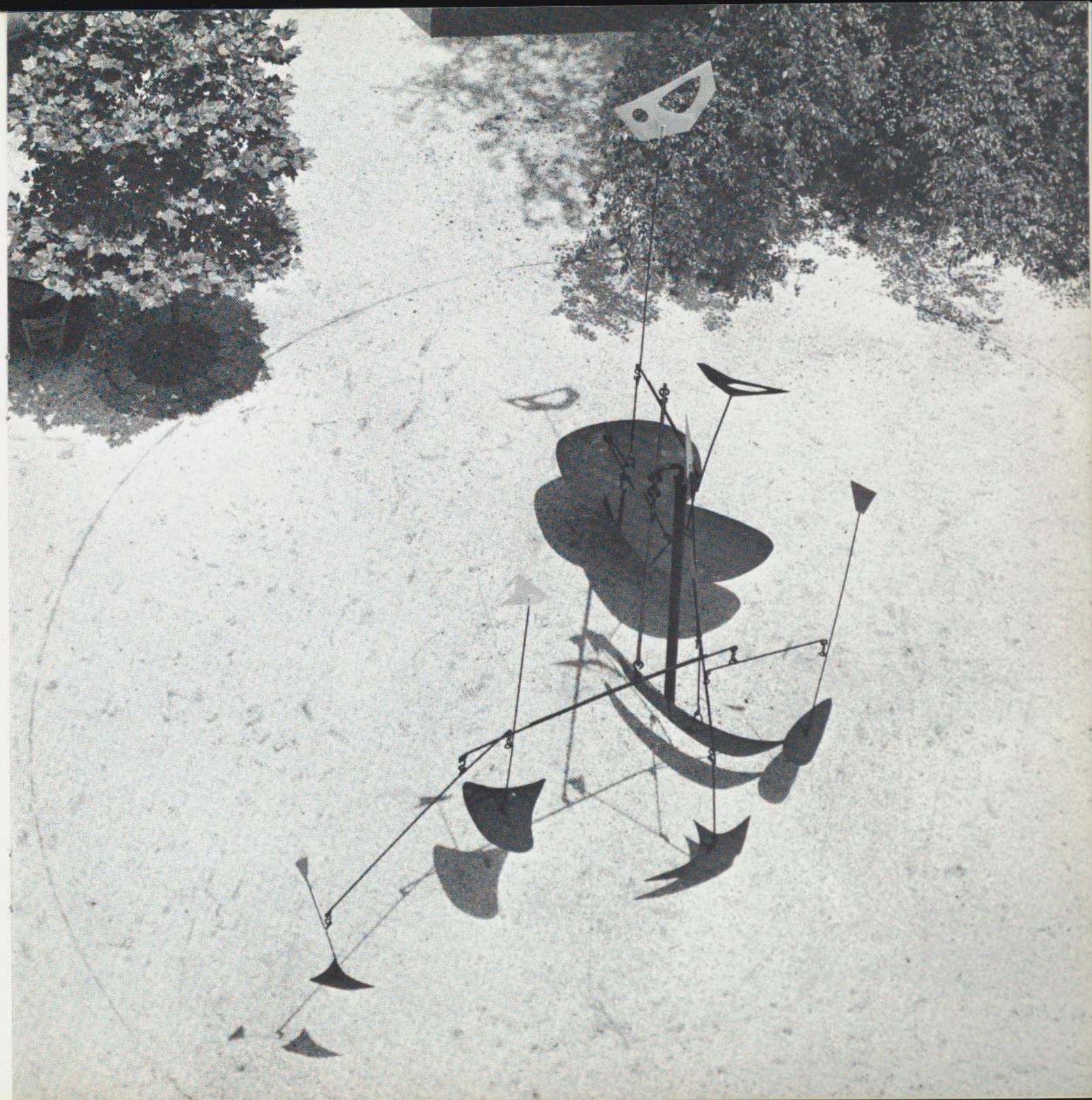
The first air mobiles were hung from the ceiling, but Calder quickly invented several standing varieties. One of these types, *Sandy's Butterfly*, has been called a mobile-stabile. Calder objects strongly to this term because he feels that "anything that moves is a mobile. There are two ways to make something move—suspend it from the ceiling or balance it on a point." Again, "...there is the idea of an object floating unsupported—the use of a very long thread—or a long arm in cantilever as a means of support seems to best approximate this freedom from the earth."

It is interesting to note that at rest many of the hanging mobiles, the early ones, in particular, can be lined up in one plane. Constructivists projected depth by arrangements of planes, but Calder relies on controlled chance to arrange his planes in space. Many of the standing pieces are constructed more deliberately in three dimensions (and this has been carried into the later mobiles) but always of elements hung either vertically or horizontally.

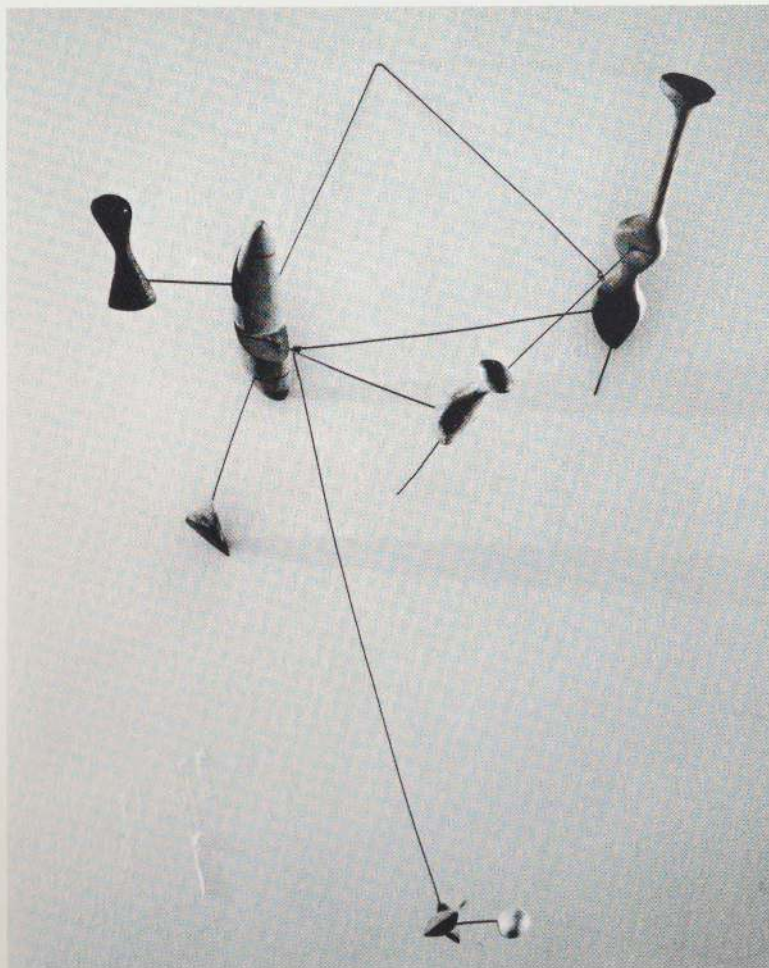
It is clear that the problem of support for moving sculpture led Calder into a direct attack on the formal base which had always supported sculpture and which had proved a problem for the Constructivists. Gabo had rejected ceiling-hung sculpture; Calder accepts it without reservation, and he has even suspended mobiles from the wall. In the large standing mobiles Calder has integrated the base with the sculpture; the base takes on the attributes of sculpture but remains, at the same time, a base. The earliest versions of the standing base are in wire, or pipe, with the mobile elements cantilevered from a central spoke. Pole-supported mobiles such as *Man-Eater* are perhaps the closest Calder has come to a virtually base-less standing mobile.

A later, more monumental version of the standing-mobile base is a sheet steel pyramid of either open or









above CONSTELLATION WITH RED OBJECT. (1943)

"In 1943, aluminum was being all used up in airplanes and becoming scarce. I cut up my aluminum boat... and used it for several objects. I also devised a new form of art consisting of small bits of hardwood carved into shapes and sometimes painted, between which a definite relation was established and maintained by fixing them on the ends of steel wires. After some consultation with Sweeney and Duchamp, who were living in New York, I decided these objects were to be called 'constellations.'" (Autobiography)

opposite SANDY'S BUTTERFLY. (1964)

closed construction with the mobile arms cantilevered from the apex (*Sandy's Butterfly*). The base works not just as support but as foil to the moving elements, not competing with them but providing a dynamic tension between stability and mobility, massive form and open form, lightness and weightiness. This type of base is very clearly distinguishable from a stabile. While the stabile establishes as few contact points with the ground as possible, the base of the standing mobile rests flat to the ground plane; the suggestion of freedom from the earth is concentrated up toward the apex where the mass diminishes abruptly and the movement takes place. In another direction, Calder seems to have used certain formal elements of the stables as bases for standing mobiles. It is in these mobiles that base and sculpture are most completely integrated and that the standing mobiles look most like organisms. In fact, the names are frequently animal or, like *Myxomatosis*, are connected with animals.

The stabile—as dictionaries now define it—is the second major mode of Calder's oeuvre. It is difficult to determine the origins of the stabile. Although Calder has adopted the term for all his stable sculpture, the open-form wire constructions shown at the Galerie Percier, to which Arp later gave the name "stables"—in contrast to Duchamp's name "mobiles" for the motorized constructions—are quite different; but the stabile appears to have its genesis in certain elements of the hanging mobile.

In 1934 Calder had moved away from strictly geometric shapes and was using "quasi-organic" forms in three dimensions, hanging them from mobiles. The elements themselves seem logical extensions of some of Arp's Surrealist constructions, or three-dimensional renderings of some of Miró's forms. No doubt, floor-standing metal sculpture of Picasso and Gonzalez lurks somewhere in the background. The organic character of these forms seems to have dictated that they be constructed in three dimensions. The *Whale* of 1937, the first of the large stables, seems to have come from the idea of placing one of these organic elements on the ground. It is as if the organic quality of the object was so suggestive of an object in nature that it had to find a resting place: the ground plane. However, *Whale* balances rather precariously on two points; Calder wants the sculpture to appear to rest as lightly as possible on the ground, to appear to rise from the ground or to be capable of instantaneous motion. *Whale* seems to undulate as it rises. In *Whale*, Calder had not yet quite achieved a perfect balance of heavy mass on the ground plane with the fewest possible contact points as support, and the log







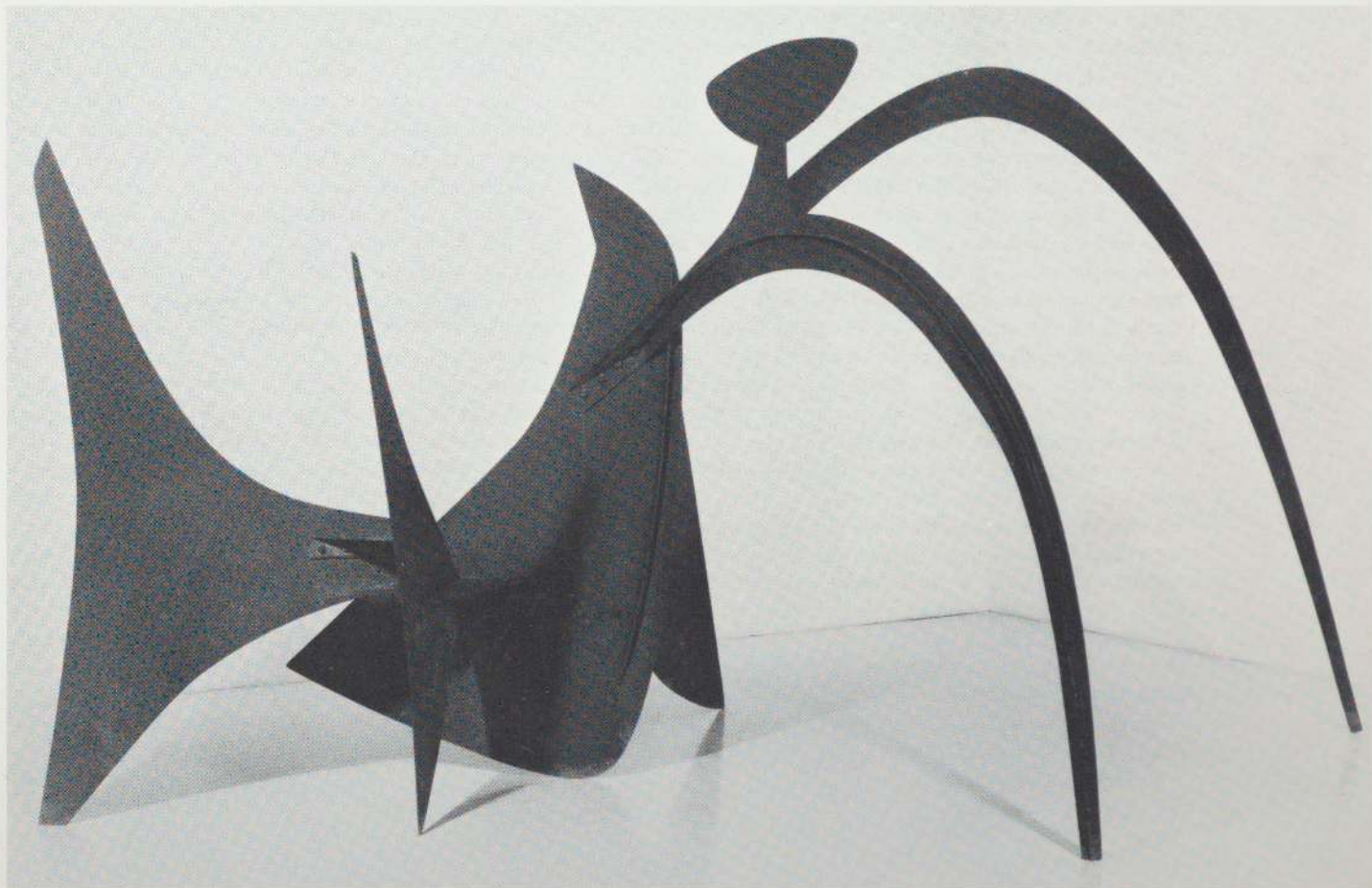


SPINY. (1942)

takes the place of traditional base supplying additional support. The large stables, then, provide other kinds of experience in movement and space: arrested movement, different kinds of space as the spectator moves around the object, sudden angles and planes that cut and divide the space which create differently shaped forms.

Calder had been experimenting with ideas for environmental and over life-scale sculpture for several years before he made the first large-scale outdoor stables, *Whale*, and *Black Beast* of 1940. His first experience with large- or over life-scale had been in 1935 when he designed theater decor for Eric Satie's *Socrate* and Martha Graham's dance company. He recalls being interested in a mechanical ballet, without dancers, full-scale, using moving objects, for which he built a small model in Paris in 1936. Thus, the earliest models for large-scale sculpture, which date 1936–38, are motorized constructions, and somewhat theatrical. Each element stands separately, like an actor or dancer, somehow recalling Oskar Schlemmer's *Triadic Ballet*. The only one of these early works to be realized at the time was a "ballet" for the 1939 New York World's Fair which used programmed jets of water. (In 1962 one of the motor-driven pieces, *Four Elements*, was built in Stockholm.) The difficulty of realizing these works at the time was both technical and financial.

The same is true of the first large stables. The original versions of *Whale* and *Black Beast* were in light-gauge metal (*Whale* was aluminum; *Beast*, steel), bolted so that they could be taken apart easily and moved for exhibition. It is possible to cut lightweight material directly, manually or with a hand-held power tool, then bend and bolt it or make manual staples to hold the pieces together. Calder does not solder and does not approve of soldering. Possibly he considers it a non-mechanical technique; in any case, he has, by preference, always constructed mechanically. However, in a large-scale work the result is structural instability; there is a tendency toward buckling and spreading at the seams and joints which distorts the appearance and offends the good workman in Calder. Calder wants the stables to be "as massive as possible," which would seem to make their appearance of resting lightly on the earth a contradiction—a triumph of art over matter. His first opportunity to make a large-scale work in heavy material came in 1957 when the architect Eliot Noyes commissioned a copy of *Black Beast*: "Noyes's interest encouraged me to have it done in heavy material, that is, one-quarter-inch iron plate. This, furthermore, encouraged me to do other



BLACK WIDOW. (1959)

"...when I use two or more sheets of metal cut into shapes and mounted at angles to each other, I feel that there is a solid form, perhaps concave, perhaps convex, filling in the dihedral angles between them. I do not have a definite idea of what this would be like, I merely sense it and occupy myself with the shapes one actually sees." (Statement, 1951)



things as well in heavy material and also supplied some funds with which to do so." Calder went to a foundry and, using the original *Black Beast* as a model, had a new one fabricated by skilled workmen under his supervision and with his participation.

This has been his working method ever since, and while parts of the structure of the monumental stables are still bolted, they are partially welded for greater stability. This method of working from a "matrix" may in some ways be compared to bronze-casting from a matrix in a foundry under the sculptor's supervision and with his ultimate finish. An important difference in Calder's work, however, is that he makes only one piece from any given model, not a series. Another difference is scale (and here Calder relates himself to stone-carving techniques): Calder's stables, and the large mobiles, are mathematically enlarged from the model. Possibly memories of his father, a somewhat academic sculptor of stone, enlarging with a pointing machine from a smaller model, first suggested that this might be a practical technique. The question of whether a work fabricated from a model by a technician is truly an original does not bother Calder. He feels that skilled workmen should do jobs requiring technical proficiency or involving mechanical means beyond those ordinarily available to the artist. In any case, Duchamp's challenge to what constitutes an original work of art (his *Bicycle Wheel*) and Arp's working method (he made a plaster model from which a marble was made by a skilled stonecutter) were part of history by the time Calder began to work in this way. The question simply has no validity for him; but he does point out that he likes to keep his hand in by supervising.

The first large stables were made at foundries near his home in Connecticut. At that time he first made a small model and then cut full-scale paper patterns. Today Calder works in Etablissement Biémont, a steel fabricator in Tours, close to his home in France, where several skilled workmen and technicians customarily work with him and have become accustomed to his needs. At Biémont there is a mechanical department, and the men are now trained to the point where they can mathematically enlarge from the model to make a template themselves.

*Teodelapio*, which straddles the crossroad entrance to Spoleto, was the first of the series of truly monumental stables. Built by an Italian ship builder, it is an adaptation of an earlier model. The unprecedented scale created some unexpected problems, requiring additional bracing at the last moment. Ever since, there has usually been an intermediate step—a scale model to check stability.

Since 1962 a good part of the large stables and mobiles which have increasingly occupied Calder's time have been made in Biémont. Sometimes Calder draws directly on metal and the men machine-cut initial pieces for him to bend, fold, and alter. There are machines for crimping and grinding and large machines with rollers for curving heavy sheets of steel. The men are now experienced enough to be able to gauge by themselves not just the technical aspect of how many pieces each part will need on enlargement but even where the bracing—which is important aesthetically—should go. The working relationship between Calder and the four or five men who usually work with him is close enough now to make it unnecessary for Calder to be present at all times, but he comes in to check and see how things are progressing, bringing back part of a model he has taken home to think about, or to decide on color. Calder respects and admires the men for their skill and they return his respect. They have accepted the man and his work.

Calder's work has been widely accepted—particularly his kinetic constructions—despite a general resistance to non-objective art. Calder has said, "When you see a thing move you know what it will do," which possibly accounts for the popularity of his mobiles. But it is also possible that since the movement gives the sculpture a life of its own, one responds to it as one responds to another living thing—directly, bypassing the difficulties of its content as a highly sophisticated work of art, taking delight in its humor. The stables have also been accepted, although with difficulty at times, perhaps because the spirit of play is very strong in everything that Calder does, but more probably because their strongly organic presence creates yet another direct, physical experience and response.

Fernand Léger once called Calder a realist; Calder's reply is: "If you can't imagine things, you can't make them, and anything you imagine is real."

opposite  
View of TEODELAPIO in Spoleto  
(photo Pedro E. Guerrero)

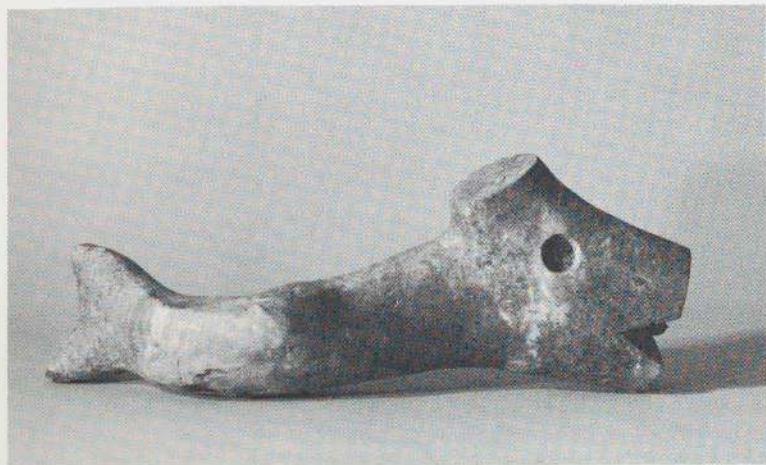






## CATALOGUE OF THE EXHIBITION

December 22, 1969—February 15, 1970



SHARK SUCKER. (1930)

Over the years there have been generous gifts of Calder's work to The Museum of Modern Art, which have given the Museum the most representative Calder collection in the world. Several collectors have taken the occasion of this exhibition to contribute additional works: Mr. and Mrs. Sylvan Cole, Mr. and Mrs. Klaus Perls, Governor Nelson A. Rockefeller, Dr. and Mrs. Scott B. Severns, and James Thrall Soby. Mr. Daniel Lelong of the Galerie Maeght, Paris, has been of great assistance. I should like to thank in particular Mr. and Mrs. Klaus G. Perls who have, in addition, been extremely helpful in all phases of the preparation of this exhibition. Finally, I want to thank the artist himself, and his wife Louisa James Calder. Alexander Calder has not only been extremely generous on this and other occasions in contributing to the collection of the Museum, but has given me much of his time and kind assistance in the preparation of this catalogue.

Bernice Rose, Director of the Exhibition

Dimensions are given in feet and inches, height preceding width. A date is enclosed in parentheses when it does not appear on the work of art. The city that accompanies the date indicates the place where the work was made.

### SCULPTURE

#### WIRE CONSTRUCTIONS, RELATED SMALL OBJECTS, AND PORTRAITS

*Josephine Baker.* (Paris, 1927–29). Iron wire, 39 x 22 $\frac{3}{8}$  x 9 $\frac{3}{4}$ ". Gift of the artist, 1966

*The Hostess.* (New York, 1928). Wire, h. 11 $\frac{1}{2}$ ". Gift of Edward M.M. Warburg, 1941

*Sow.* (New York, 1928). Wire, 7 $\frac{1}{2}$  x 17". Gift of the artist, 1944

*Soda Fountain.* (New York, 1928). Iron wire, h. 10 $\frac{3}{4}$ "; wood base 1 $\frac{5}{8}$  x 5 $\frac{1}{2}$  x 3 $\frac{1}{2}$ ". Gift of the artist, 1966

*Elephant Chair with Lamp.* (New York, 1928). Sheet metal, iron wire, cloth, paper, painted, 7 $\frac{7}{8}$  x 3 $\frac{1}{2}$  x 4". Gift of the artist, 1966

*Cat Lamp.* (New York, 1928). Iron wire and paper, 8 $\frac{3}{4}$  x 10 $\frac{1}{8}$  x 3 $\frac{1}{8}$ ". Gift of the artist, 1966

*Cow.* (New York, 1929). Wire and wood, 3 $\frac{1}{2}$  x 8". Gift of Edward M.M. Warburg, 1941.

*Cow.* (New York, 1929). Wire, 6 $\frac{1}{2}$  x 16". Gift of Edward M.M. Warburg, 1941

*Marion Greenwood.* (New York, 1929–30). Brass wire, 12 $\frac{3}{8}$  x 11 $\frac{1}{8}$  x 11 $\frac{3}{8}$ ". Gift of the artist, 1966

*Portrait of a Man.* (New York, 1929–30). Brass wire, 12 $\frac{7}{8}$  x 8 $\frac{3}{4}$  x 13 $\frac{1}{2}$ ". Gift of the artist, 1966



## WOOD

*The Horse*. (Peekskill, N.Y., 1928). Walnut,  $15\frac{1}{2} \times 34\frac{3}{4}$ ". Acquired through the Lillie P. Bliss Bequest, 1943

*Shark Sucker*. (New York, 1930). Wood,  $10\frac{3}{4} \times 30\frac{7}{8} \times 10\frac{1}{4}$ ". Gift of the artist, 1966

## MOBILES

### Mechanized Mobiles

*The Bicycle*. (Tours, 1968. Free reconstruction after "The motorized mobile that Duchamp liked" of ca. 1932). Wood, wire, pipe, metal, h. ca. 52". Gift of the artist, 1969

*A Universe*. (Paris, 1934). Iron pipe, wire, wood, string, h.  $40\frac{1}{2}$ ". Gift of Abby Aldrich Rockefeller, 1934

### Hanging Mobiles

Untitled. (New York, 1935–36). Cloth on wire frame,  $15\frac{1}{4} \times 10\frac{1}{4} \times 7\frac{1}{2}$ ". Sign commissioned by The Museum of Modern Art for the exhibition *Cubism and Abstract Art*, 1936

*Swizzle Sticks*. (1936). Wire, wood, and lead against a plywood panel,  $48 \times 33$ ". Promised gift of James Thrall Soby

*Lobster Trap and Fish Tail*. (Roxbury, Conn., 1939). Steel wire and sheet aluminum, painted, ca.  $8\frac{1}{2} \times 9\frac{1}{2}$ ". Commissioned by the Advisory Committee for the stairwell of The Museum of Modern Art, 1939

*Snow Flurry I*. (Roxbury, Conn., 1948). Sheet metal and steel wire, painted, h. 94", diameter  $70\frac{1}{4}$ ". Gift of the artist, 1966

### Standing Mobiles

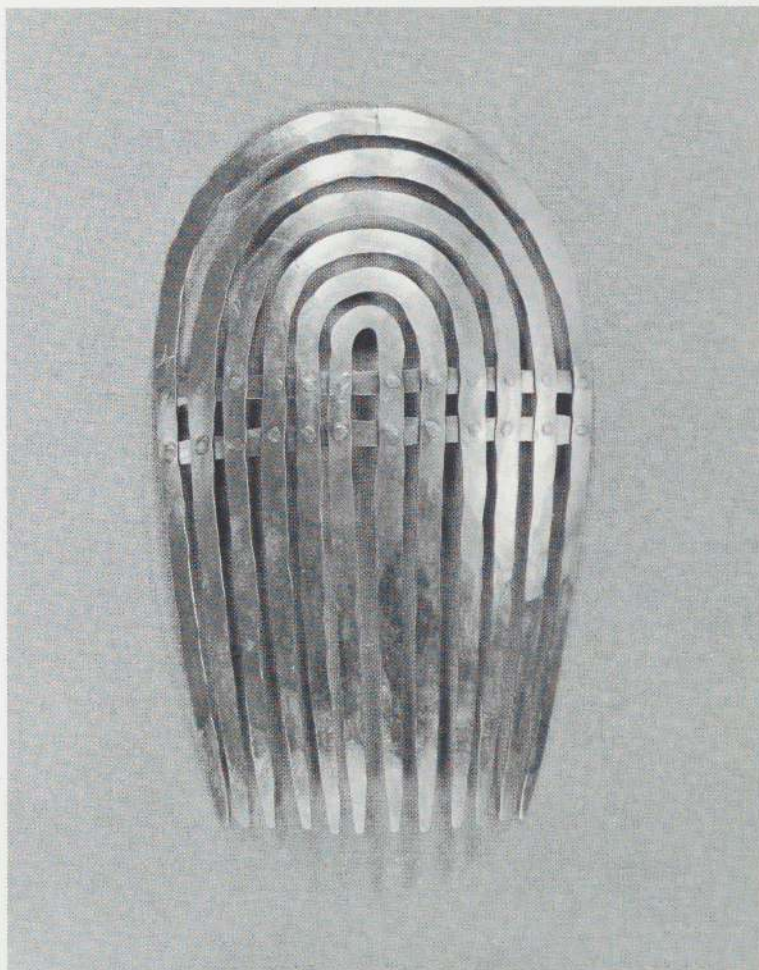
*Spider*. (Roxbury, Conn., 1939). Sheet aluminum, steel wire, painted,  $6\frac{1}{2} \times 7\frac{1}{2} \times 36\frac{1}{2}$ ". Gift of the artist, 1966

Untitled. (Roxbury, Conn., early 1940s). Aluminum and steel wire, painted,  $14\frac{5}{8} \times 9 \times 10\frac{7}{8}$ ". Kay Sage Tanguy Bequest, 1964

*Man-Eater with Pennants*. (Roxbury, Conn., 1945). Sheet iron and steel rods, painted, h. 14', diameter ca. 30'. Commissioned for the garden, 1945

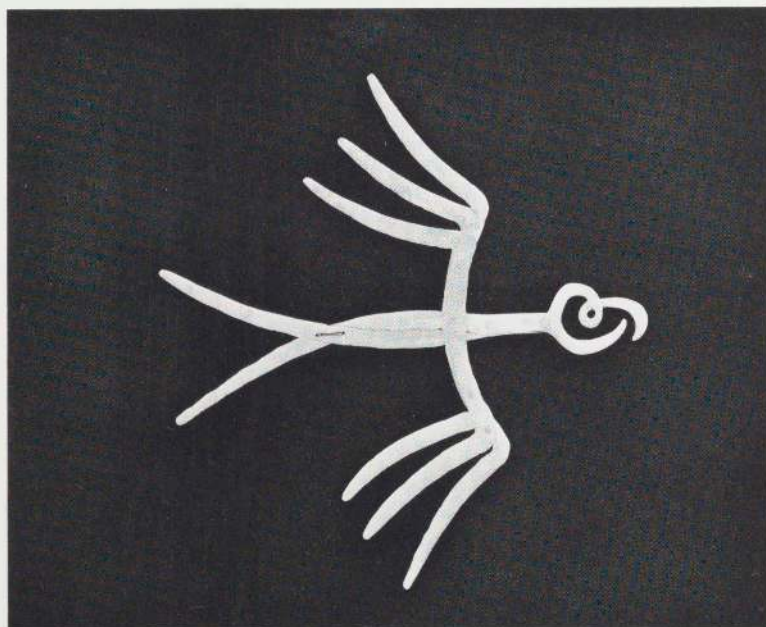
*Myxomatosis*. 1954. Sheet steel and iron rods, painted,  $10\frac{1}{2} \times 13\frac{1}{2}$ ". Special loan of the artist

*Sandy's Butterfly*. (Waterbury, Conn., 1964). Sheet steel and iron rods, painted,  $12\frac{1}{2} \times 9\frac{1}{2} \times 8\frac{1}{2}$ "; dimensions at base  $7\frac{1}{2} \times 7\frac{1}{2}$ "; base  $9\frac{1}{2} \times 7\frac{1}{4} \times 7\frac{1}{8}$ "; maximum h.  $13\frac{1}{2} \times 9\frac{1}{4}$ ". Gift of the artist, 1966

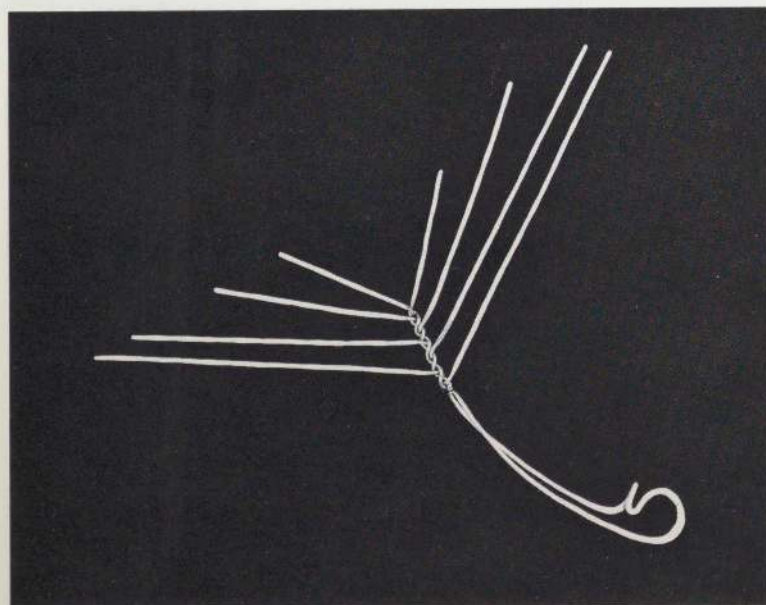


Comb. (Before 1943)





Brooch. (1930s or '40s)



Brooch. (1930s or '40s)

## STABLES

### Surrealist Constructions and Constellations

*Gibraltar*. (Roxbury, Conn., 1936). Lignum vitae, walnut, steel rods, painted; lignum vitae  $28\frac{1}{2} \times 15\frac{1}{8} \times 7''$ , walnut  $37 \times 24\frac{3}{8} \times 12\frac{1}{8}''$ , steel rods  $51\frac{7}{8} \times 24\frac{1}{4} \times 11\frac{3}{8}''$ . Gift of the artist, 1966

*Constellation*. (Roxbury, Conn., ca. 1941). Wood and steel wire, painted,  $51 \times 46\frac{1}{2} \times 8''$ . Promised gift of Dr. and Mrs. Scott B. Severns

*Constellation with Red Object*. (Roxbury, Conn., 1943). Wood and steel wire, painted,  $25\frac{1}{2} \times 12\frac{1}{2}''$ . James Thrall Soby Fund, 1943

*Morning Star*. (Roxbury, Conn., 1943). Sheet steel, steel wire, wood, painted,  $76\frac{3}{4} \times 48\frac{3}{8} \times 45\frac{3}{4}''$ . Gift of the artist, 1966

### Standing Stables

*Whale II*. (Waterbury, Conn., 1964. After the original of 1937). Sheet steel, painted,  $68 \times 69\frac{1}{2} \times 45\frac{3}{8}''$ . Gift of the artist, 1965

*Spiny*. (Roxbury, Conn., 1942). Sheet aluminum, painted,  $26 \times 30''$ . Promised gift of Nelson A. Rockefeller

*Black Widow*. (Waterbury, Conn.), 1959. Sheet steel, painted,  $7'8'' \times 14'3'' \times 7'5''$ . Mrs. Simon Guggenheim Fund, 1963

*Model for "Teodelapio."* (Roxbury, Conn., 1962). Sheet aluminum, painted,  $23\frac{3}{4} \times 15\frac{1}{4} \times 15\frac{3}{4}''$ . Gift of the artist, 1966

## WATERCOLORS AND DRAWINGS

*Many*. (1931). Brush and ink,  $19\frac{5}{8} \times 25\frac{1}{2}''$ . Gift of Mr. and Mrs. Klaus G. Perls, 1968

*The Catch II*. (1932). Pen and ink,  $19\frac{1}{8} \times 14\frac{1}{8}''$ . Gift of Mr. and Mrs. Peter A. Rübel, 1965

*Circus Interior*. (1932). Pen and ink,  $19 \times 14''$ . Gift of Mr. and Mrs. Peter A. Rübel, 1965

*Cowboy and Rope Ladder*. (1932). Pen and ink,  $19 \times 14\frac{1}{8}''$ . Gift of Mr. and Mrs. Peter A. Rübel, 1965

*Untitled*. (1941). Brush and gouache,  $22 \times 30\frac{5}{8}''$ . Promised gift of James Thrall Soby

*Nails*. 1965. Brush, gouache, and ink,  $29\frac{1}{2} \times 43\frac{1}{4}''$ . Promised gift of Dr. and Mrs. Scott B. Severns

*Menacing Petals*. 1967. Brush and colored inks,  $29\frac{1}{2} \times 43\frac{1}{8}''$ . Gift of Mr. and Mrs. Klaus G. Perls, 1969

*Slanting Red Nose*. 1969. Brush and colored inks,  $29\frac{1}{2} \times 43\frac{1}{8}''$ . Gift of Mr. and Mrs. Klaus G. Perls, 1969

*Untitled*. 1969. Brush, gouache, and ink,  $29\frac{1}{2} \times 43\frac{1}{8}''$ . Gift of the artist, 1969



Untitled. 1969. Brush, gouache, and ink,  $29\frac{1}{2} \times 43\frac{1}{8}$ ".  
Gift of the artist, 1969

Untitled. 1969. Brush, gouache, and ink,  $29\frac{1}{2} \times 43\frac{1}{8}$ ".  
Gift of the artist, 1969

Untitled. 1969. Brush, gouache, and ink,  $29\frac{1}{2} \times 43\frac{1}{8}$ ".  
Gift of the artist, 1969

Untitled. 1969. Brush, gouache, and ink,  $29\frac{1}{2} \times 43\frac{1}{8}$ ".  
Gift of the artist, 1969

Untitled. 1969. Brush, gouache, and ink,  $29\frac{1}{2} \times 43\frac{1}{8}$ ".  
Gift of the artist, 1969

Untitled. 1969. Brush, gouache, and ink,  $43\frac{1}{8} \times 29\frac{1}{2}$ ".  
Gift of the artist, 1969

Untitled. 1969. Brush, gouache, and ink,  $43\frac{1}{8} \times 29\frac{1}{2}$ ".  
Gift of the artist, 1969

## PRINTS, ILLUSTRATED BOOKS, AND ALBUMS

### PRINTS

Plate 2 from *23 Gravures de Arp, Calder, etc.* With introductory text by Anatole Jakovski. (Paris, 1935). Drypoint,  $10\frac{7}{8} \times 7\frac{3}{8}$ ". Purchase, 1945

*Score for Ballet 0-100*. 1942. Etching,  $11\frac{3}{8} \times 14\frac{7}{8}$ ". Gift of the artist, 1969

*The Big I*. (ca. 1944). Hard and soft ground etching,  $6\frac{7}{8} \times 8\frac{7}{8}$ ". Gift of Wittenborn and Company, 1955

*Smoke Rings*. 1960. Color lithograph,  $21\frac{1}{2} \times 29$ ". John B. Turner Fund, 1969

*The Harvest*. 1961. Aquatint,  $15\frac{1}{4} \times 25\frac{1}{2}$ ". John B. Turner Fund, 1969

*The Skull in the Nest*. 1961. Aquatint,  $11 \times 14\frac{7}{8}$ ". John B. Turner Fund, 1969

*Lunar View*. 1961. Aquatint,  $13\frac{3}{4} \times 18\frac{3}{4}$ ". John B. Turner Fund, 1969

*Red Sun*. 1965. Color lithograph,  $20\frac{3}{4} \times 27\frac{1}{4}$ ". John B. Turner Fund, 1969

*Egg Yolk*. 1969. Color lithograph,  $21\frac{3}{4} \times 29\frac{1}{4}$ ". John B. Turner Fund, 1969

*Red Nose*. 1969. Color lithograph,  $29\frac{1}{2} \times 43\frac{1}{4}$ ". John B. Turner Fund, 1969

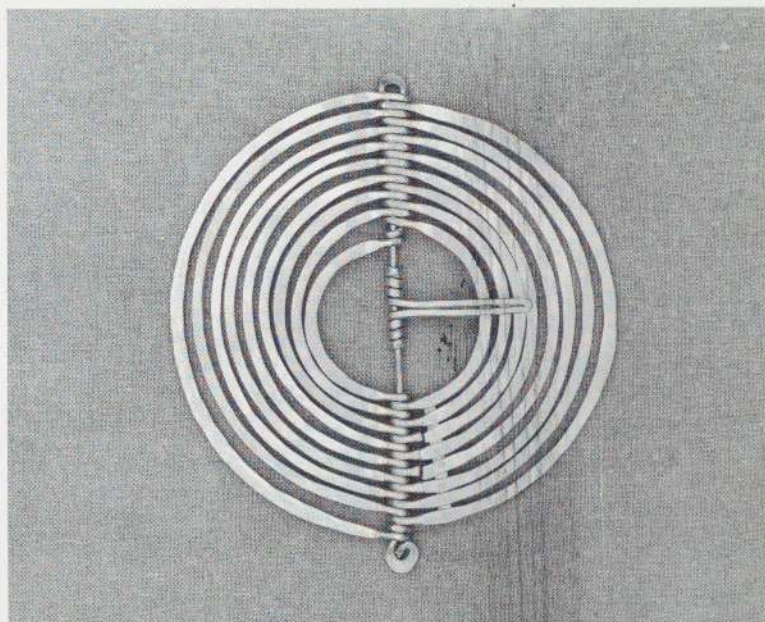
*Phrygian Hat and Iron Bar*. 1969. Color lithograph,  $28\frac{1}{4} \times 43\frac{3}{8}$ ". John B. Turner Fund, 1969

*Black Man*. 1969. Color lithograph,  $29\frac{3}{8} \times 41\frac{1}{2}$ ". John B. Turner Fund, 1969

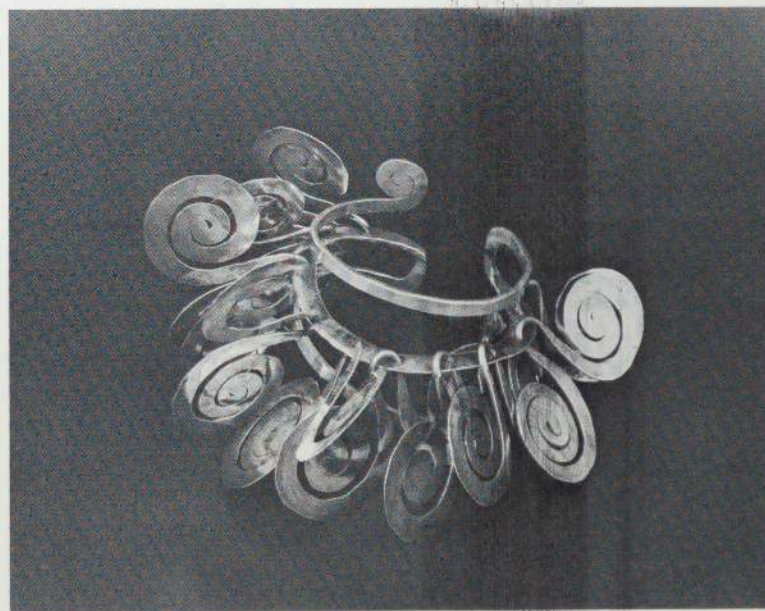
*Variable Target*. 1969. Color lithograph,  $26\frac{1}{4} \times 36\frac{5}{8}$ ". John B. Turner Fund, 1969

*Flying Saucers*. 1969. Lithograph,  $42\frac{3}{8} \times 28\frac{1}{8}$ ". John B. Turner Fund, 1969

*Black Drip on a Red Disk*. 1969. Color lithograph,  $43\frac{1}{4} \times 29\frac{1}{4}$ ". John B. Turner Fund, 1969

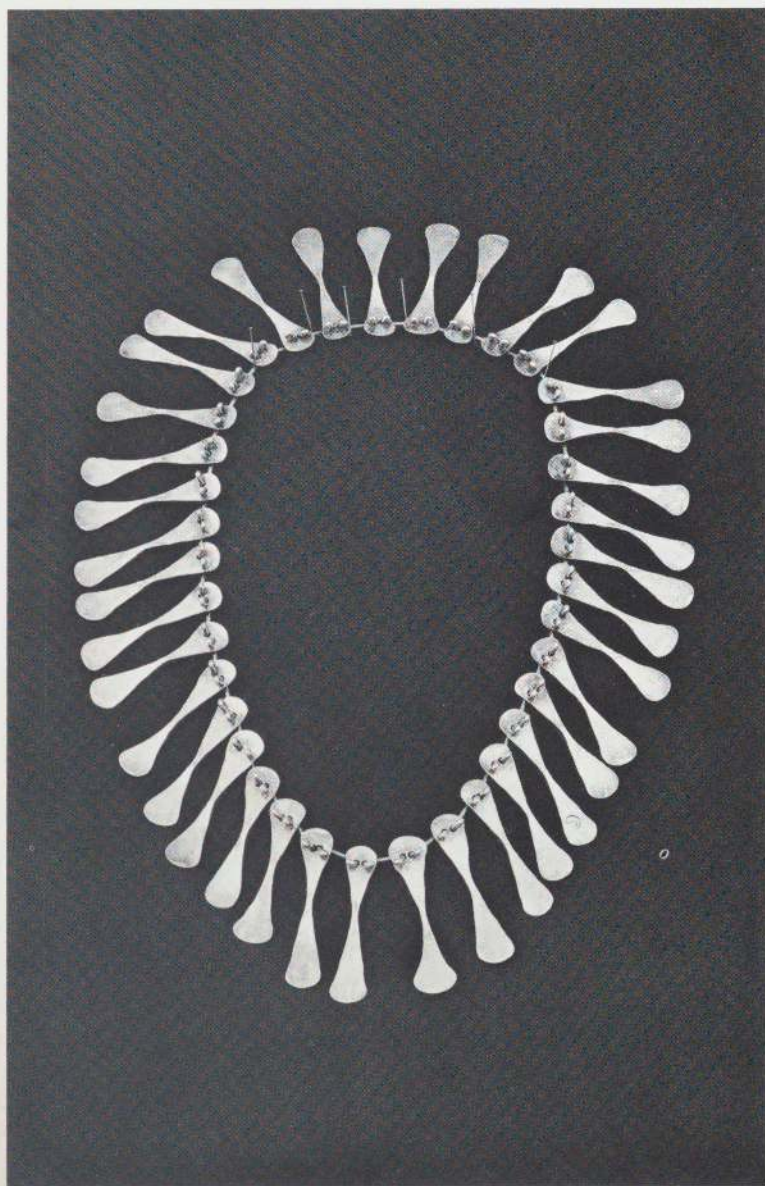


Buckle. (Before 1943)



Bracelet. (1930s or '40s)





Necklace. (1941)

## ILLUSTRATED BOOKS

*Fables of Æsop According to Sir Roger L'Estrange*. Paris: Harrison of Paris; New York: Minton, Balch and Co. (1931). 50 illustrations,  $10 \times 7\frac{3}{4}$ ", and 1 drawing for "A Gnat Challenges a Lyon," pen and ink,  $9\frac{7}{8} \times 7\frac{5}{8}$ ". Gift of Monroe Wheeler, 1966

*Three Young Rats and Other Rhymes*. Edited with Introduction by James Johnson Sweeney. New York: Curt Valentin, 1944. 83 illustrations,  $12\frac{1}{2} \times 9\frac{5}{8}$ ", and 1 drawing for plate 3, "God made the bees . . .," pen and ink  $11\frac{1}{2} \times 10$ ". Louis E. Stern Collection, 1964

*Le Surréalisme en 1947: Exposition Internationale du Surréalisme, Présentée par André Breton et Marcel Duchamp*. Paris: Pierre à Feu, Maeght Editeur (1947). 1 lithograph,  $9\frac{1}{2} \times 8$ ". Henry Church Fund, 1947

*A Bestiary*. Compiled by Richard Wilbur. New York: Printed at The Spiral Press for Pantheon Books (1955). 56 illustrations,  $9 \times 12\frac{1}{2}$ ". Louis E. Stern Collection, 1964. And 1 drawing for "The Sheep," pen and ink,  $14\frac{1}{2} \times 11\frac{1}{2}$ ". Gift of Mr. and Mrs. Walter Bareiss, 1957

## ALBUM

*La Proue de la table*. Paris: Le Soleil Noir, 1967. Magazine edited by Yves Ellébouët, with 7 illustrations reproducing an accompanying suite of 7 etchings, sheet size  $14\frac{15}{16} \times 11\frac{1}{4}$ ". Gift of Mr. and Mrs. Sylvan Cole, 1969.

## JEWELRY

Brooch. (Early 1930s). Brass,  $3\frac{5}{8} \times 4\frac{3}{4}$ ". Gift of Mrs. Katharine Kuh, 1955

Buckle. (1930s or '40s). Hammered brass,  $3\frac{1}{8} \times 4\frac{7}{16} \times \frac{3}{8}$ ". Gift of the artist, 1966

Brooch. (1930s or '40s). Hammered silver,  $12\frac{3}{8} \times 9\frac{1}{2}$ ". Gift of the artist, 1966

Brooch. (1930s or '40s). Hammered silver,  $12\frac{1}{4} \times 11\frac{7}{8}$ ". Gift of the artist, 1966

Necklace. (1930s or '40s). Hammered brass, inner circumference 32", outer circumference  $56\frac{3}{8}$ ". Purchase, 1967

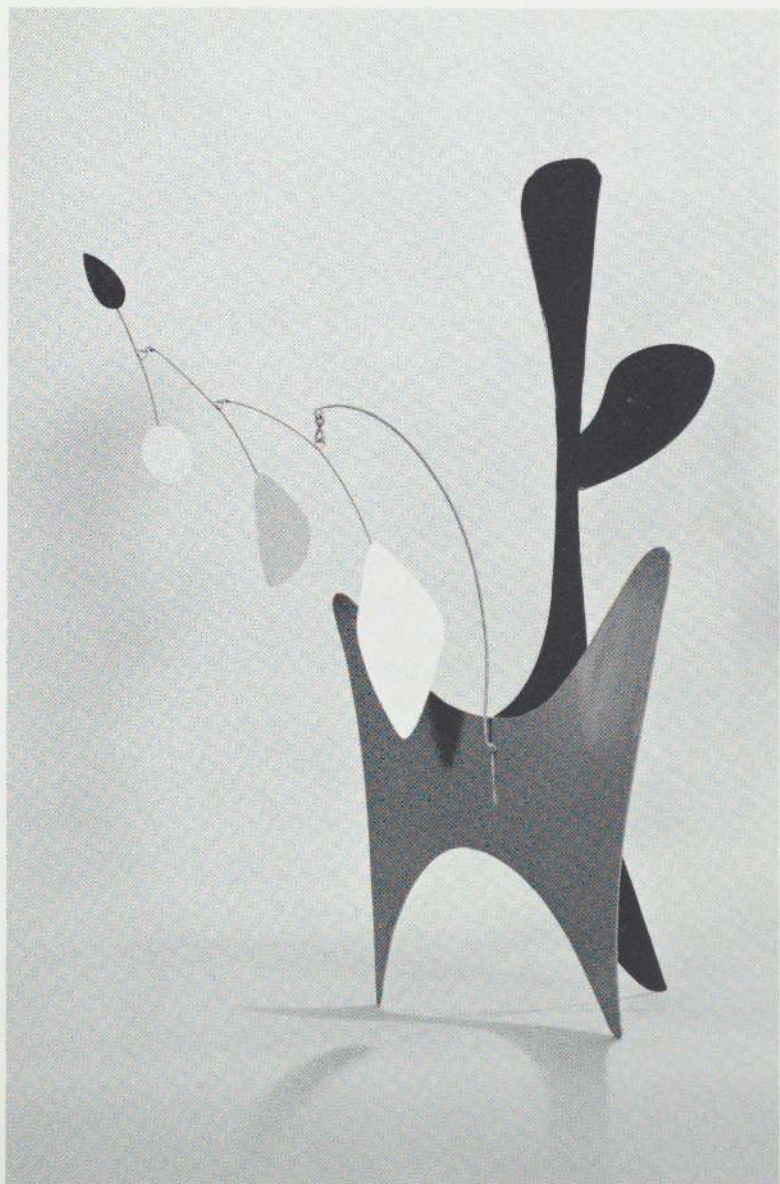
Bracelet. (1930s or '40s). Hammered silver,  $4\frac{3}{4} \times 4 \times 2$ ". Purchase, 1967

Necklace. (1941). Hammered silver, inner circumference 26", outer circumference 34". James Thrall Soby Fund, 1943

Buckle. (Before 1943). Hammered brass,  $5\frac{3}{8} \times 4\frac{7}{8}$ ". Gift of the artist, 1966

Comb. (Before 1943). Hammered brass,  $6\frac{1}{2} \times 3\frac{7}{8}$ ". Gift of the artist, 1966





Untitled. (Early 1940s)

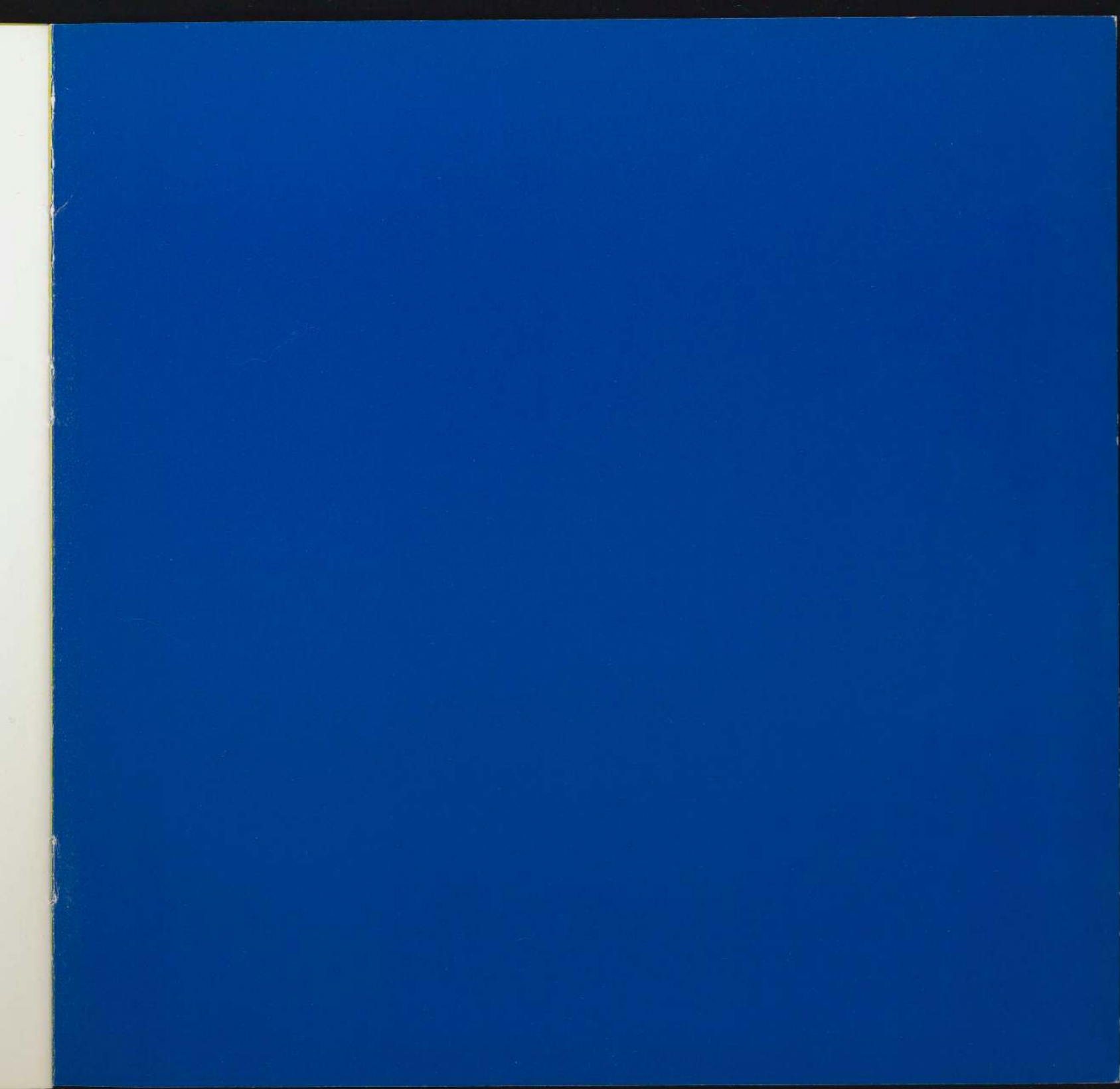


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