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# The Subversion of Gravity in Jackson Pollock's Abstractions

*Claude Cernuschi and Andrzej Herczynski*

While implementing the Surrealist directive of eliciting the unconscious, and intent on generating an extensive vocabulary of unbroken, free-flowing lines, Jackson Pollock felt his ambitions frustrated by two constraints endemic to conventional easel painting: the interruption of the creative act caused by the inconvenient need to reload the brush and the drag on his hand as he spread pigment along the canvas surface. Initially, Pollock tried to circumvent these impediments by squeezing paint directly from the tube. This adjustment allowed him to dispense larger amounts of pigment than could otherwise be held on—and eliminated the necessity to reload—the brush. But forcing paint out of the tube while simultaneously ensuring that it is applied with *élan* is a tricky proposition; so is avoiding the increased friction caused by the tube's rubbing against the canvas. To extend the duration of his gestures and enhance the fluidity of his strokes, Pollock needed a practical way of carrying more pigment *and* dispensing it without touching the image. When Paul Brach asked him why he started pouring, Pollock replied, "Someone tried to talk me into using a dagger striper but the sucker didn't hold the paint long enough. I just wanted a longer line. . . . I wanted to keep it going."<sup>1</sup> As is well known, he achieved both objectives by laying the canvas on the floor (Fig. 1). Retaining more paint on sticks and trowels, he worked with fewer interruptions, and pouring pigment in the air—effectively enlisting gravity as a participant in the process—he eliminated the deleterious effects of friction altogether. Not surprisingly, critics have counted the implementation of the poured technique and the reorientation of artistic activity from the wall to the floor as Pollock's most original and influential contributions to the history of art.

## The Question of Orientation

Informed by the ideas of Sigmund Freud and Georges Bataille, Rosalind Krauss struck a different chord. In her view, Pollock's deployment of "horizontal as a medium" represented a radical regression from the intellectual, disembodied, optical way of perceiving the world that stems from humanity's erect (vertical) posture. By stressing the horizontal as opposed to the vertical, Pollock, she argued, foregrounded the corporeal, even abject, characteristics of urination and defecation, an implication of the poured technique maintained in, say, Andy Warhol's later Oxidation Paintings and Linda Benglis's sculptures.<sup>2</sup>

By itself, though, "horizontal" does not capture the crux of Pollock's contribution. The artist conceded as much himself. When asked about painting on the floor, he replied, "That's not unusual. The Orientals did that."<sup>3</sup> This remark is perfectly apposite; laying the canvas horizontally, after all, hardly precludes dispensing pigment in a traditional manner.<sup>4</sup> No doubt, the horizontal orientation of the canvas

proved ideal for Pollock's deployment of the poured technique—allowing for maximum control and making the paint accelerate directly toward the canvas in the shortest possible time.<sup>5</sup> Nonetheless, it will be proposed here that the effects of rhythmic energy for which the artist is best known are, perforce, contingent on the vertical reorientation of the canvas on the wall for contemplation.

On its face, this claim should hardly be controversial. As Leo Steinberg already stressed, Pollock intended all of his abstractions to be exhibited vertically.<sup>6</sup> As early as 1962, he reasoned that Pollock

indeed poured and dripped his pigment upon canvas laid on the ground, but this was an expedient. After the first color skeins had gone down, he would tack the canvas on to a wall—to get acquainted with it, he used to say, to see where it wanted to go. He lived with the painting in its upright state, as with a world confronting its human posture.<sup>7</sup>

More recently, T. J. Clark observed that although the "picture was put on the floor to be worked on . . . it was always being read on the floor as if it were upright, or in the knowledge that it would be. To pretend otherwise would have been naive, and Pollock was never naive about painting."<sup>8</sup>

These observations touch on a key feature of the poured technique; even so, critical aspects of the artist's dyadic process have remained unexplored. If Krauss focused almost exclusively on Pollock's point of departure—as if painting horizontally were an end in itself—Steinberg and Clark stopped short of elucidating how central Pollock's reorientation of the canvas proved to his mode of operation. To be sure, their description of the artist's method as unitary and cohesive is apt, if only because there is nothing to suggest that Pollock even considered exhibiting his works on the floor—at an angle whereby paintings (especially those at the upper end of his dimensional range) are particularly awkward to observe. But although laying the canvas horizontally was maximally convenient for pouring, the artist, as Steinberg indicated, often interrupted creative activity in order to reposition his work for study—and ultimately display—on the wall. These two integral, yet separate actions each played their own indispensable role. Even if physically produced in the first state, the work was only recognized as "complete" after the second, a process comparable to constructing a sailboat or aircraft: though assembled in one environment, it serves its purpose only in another. Pollock's shift in orientation constituted no less of a *sine qua non*. And it is by recognizing the essential contributions of both steps that some of the subtle intricacies, and broader implications, of Pollock's procedure may emerge in sharper relief.



1 Hans Namuth, *Pollock Painting*, 1950  
(artwork © Hans Namuth Estate;  
photograph provided by the Center  
for Creative Photography, University  
of Arizona)

### Two or Three Dimensions?

Appreciating the full ramifications of Pollock's manipulation of the canvas's orientation requires, from the outset, a closer investigation of his creative process and, more to the point, its reliance on gravity. Pouring, after all, is impossible without gravitational force. Had Pollock lived in an environment where the effects of the Earth's gravitational field were neutralized—on the international space station, for example<sup>9</sup>—he could probably have painted but not poured. Choosing pouring as the principal means of dispensing pigment, in turn, had a major consequence for his *modus operandi*, namely, transforming it from a two- to a three-dimensional affair. Pollock's abstractions, of course, are no less "conventionally" two dimensional than easel paintings, and, no matter their practice, painters obviously work by moving in three-dimensional space. Yet, whereas previous artists had no choice but to touch their piece, Pollock was free to paint in the air, allowing his gestures to range in three dimensions, to rise and fall, as well as span from side to side, all without making direct physical contact with the canvas. In traditional easel or mural painting, no sooner is the brush lifted from the cloth or wall—discounting, for the sake of argument, the exception of an artist flinging or spraying paint at an upright surface<sup>10</sup>—than the creative act is (provisionally perhaps, but indisputably) suspended. No matter what artists do or how they contemplate their next course of action, if their brush

does not make contact with the support, nothing comes to pass. To have any consequences, therefore, the act of painting is dependent on what transpires on the two-dimensional surface of the picture plane. Though most painters may not have felt constrained by this exigency, Pollock sought and devised an alternative through which he severed his dependence on that physical connection and, as a result, transformed painting into a truly three-dimensional process.<sup>11</sup>

These technical innovations, however, came at a price. Expanding his activity into three-dimensional space, Pollock forfeited the luxury of being able to suspend his process at will. Actively working in the air, he could no longer interrupt his movements, especially as a gesture, once initiated, would keep releasing pigment on the canvas as long as any remained on the implement he was wielding.<sup>12</sup> The streams of paint already in flight, furthermore, would instantly lie beyond the bounds of the artist's control—save for measures outlandish (such as yanking the canvas out from under the pigment already airborne). Yet the artist managed to turn this situation to his advantage. Since his gestures were performed in the air, the painting underneath him simultaneously recorded both *where* and with *what velocity* he moved his implement, including the most subtle inflections and tremors of his hand and wrist. Consequently, the poured trajectories qualify as doubly indexical and, as such, provide the spectator with nearly unprecedented access into the art-





2 Jackson Pollock, *Number 23*, 1948, enamel on cardboard, 22% × 30% in. (57.5 × 78.5 cm). Tate Gallery, London (artwork © Pollock-Krasner Foundation / Artists Rights Society; photograph © Tate Gallery London, provided by Art Resource, NY)

ist's working methods (Fig. 2). Indeed, by choosing a technique in which the canvas registers the slightest change of his motion in space, Pollock encourages the viewer to construe his paintings as effects, the causes of which the audience is meant to infer. As Frank O'Hara incisively noted, whenever Pollockian lines thin or thicken, we automatically assume that the artist accelerated or decelerated, respectively.<sup>13</sup> As a result, we tend instinctively to re-create the very act of painting in our imagination and experience sensations of kinetic energy akin to watching a dancer in motion or a conductor leading an orchestra.

That Pollock hoped his audience would construe *his* art in this manner can be deduced from his own proclivity to construe *all* works of art in this manner. B. H. Friedman, Pollock's first biographer, recalled the artist's somewhat unorthodox responses to paintings in the writer's possession: Pollock "stood in front of the Mondrian with hands out as if he was about to seize and fight it. His hands twitched in the air, seeming to want to touch or feel or somehow reproduce, remake, each element of the work before him."<sup>14</sup> Coming across a piece by Arshile Gorky, Pollock "Again . . . assumed something like a fighting stance, his hands moving in the air, tracing the configuration of the painting."<sup>15</sup> It is, of course,

very likely that Pollock appropriated this inclination to analyze formal relations empathetically from his teacher, Thomas Hart Benton. Despite endorsing a representational idiom, Benton made rhythmic energy and bodily dynamics a hallmark of both his own compositional style and teaching agenda. The effectiveness of a work of art, he maintained, depended on the kinds of physical responses the formal patterns in a painting would elicit from the audience. "Forms in plastic construction," Benton wrote,

. . . are taken from common experience, re-combined and re-oriented. This re-orientation follows lines of preference also having definite biological origin. Stability, equilibrium, connection, sequence movement, rhythm symbolizing the flux and flow of energy are [the] main factors. . . . In the "feel" of our own bodies, in the sight of bodies of others, in the bodies of animals, in the shape of growing and moving things, in the forces of nature and in the engines of man the rhythmic principle of movement and counter-movement is made manifest. . . . This mechanical principle which we share with all life can be abstracted and used in constructing and analyzing things which also in their way have life and reality.<sup>16</sup>



Benton's aesthetics, in turn, were strongly inflected by those of John Dewey, a philosopher who argued that, in order to appreciate a work of art,

a beholder must *create* his own experience. And his creation must include relations comparable to those which the original producer underwent. They are not the same in any literal sense. But with the perceiver, as with the artist, there must be an ordering of the elements of the whole that is in form, although not in details, the same as the process of organization the creator of the work consciously experienced. Without an act of recreation the object is not perceived as a work of art.<sup>17</sup>

Pollock's kinesthetic reactions to the paintings in Friedman's collection yield compelling evidence of his thinking along similar lines. Amplifying the very physicality of his process, the indexical character of his technique is ideally suited to trigger the spectator's empathetic response, a response that may involve an intuitive retracing of the artist's gestures based on the marks left on the canvas. But because the skeins of paint constitute only two-dimensional representations of three-dimensional trajectories, Pollock's vertical movements are harder to decipher from the appearance of his work than his horizontal (side-to-side) movements—which, as a result, are more consequential and most readily reenacted.<sup>18</sup> Indeed, if Pollock's hands moved predominantly “up and down,” the pigment would “pile up” or “cluster,” impeding the spectator's ability to infer the gestures that caused them. Although stains or puddles are frequently visible, it is the linear tracks that most effectively evoke sympathetic responses from the viewer, the more so because they were poured freely in the air.<sup>19</sup> It is by working in the fullness of three-dimensional space, therefore, rather than within the confines of a two-dimensional surface, that Pollock invested, as much as his painter's medium allowed, in what E. H. Gombrich astutely termed “the beholder's share.”<sup>20</sup>

### Deformability and Motion

Pollock's mode of execution, however, was contingent on using materials sufficiently malleable and pliable to be deployed in space. To pour effectively and enlist gravity as an “accomplice,” Pollock must have adjusted the material properties of his pigment to obtain suitable density (thickness) and viscosity (self-adhesiveness). If the paint ran like water (a liquid of comparatively low viscosity), it would be difficult to control with the kinds of implements Pollock employed, producing excessive splashing and puddling rather than the distinctive linear effects for which Pollock is best known. Conversely, if the paint behaved like putty (a liquid of unusually high viscosity), it would lack the necessary malleability, dropping in lumps rather than pouring smoothly on the unprimed cloth.<sup>21</sup> By fashioning paint viscous enough to control, yet deformable enough to dispense easily, Pollock sought a median between these two extremes. “Most of the paint I use,” he said, “is a liquid, flowing kind of paint.”<sup>22</sup> He primarily chose enamel, “thinned,” as Lee Krasner, the artist's wife, recalled, “to the point he wanted it.”<sup>23</sup> Yet this “compromise” did not curtail Pollock's creativity in the least. Even within the parameters dictated by his practical needs, he

managed to generate a remarkably wide range of viscosities and densities and exploit as much of that range as necessary to obtain the effects desired.

All the while, Pollock's process included *dripping* as well as *pouring*. Though both terms are used, often interchangeably, to refer to his technique, it should be emphasized that the dominant effect throughout his mature production is the sweep of continuous lines, not the pointillism of individual droplets. Since the former is the result of pouring and the latter of dripping, the distinction differentiates two physical aspects of Pollock's practice; whereas to drip means “to let fall in drops,” an intermittent process, to pour means “to cause to flow in a stream,”<sup>24</sup> a continuous process (hardly an insignificant distinction, if one thinks of a leaky versus an open faucet). To keep all options open, Pollock purposely adjusted the physical properties of his paint, making it adequately viscous and transportable in sufficient quantities on his implement. Once his paint fell within the workable range, pouring or dripping ensued, depending on the amount Pollock carried on his stick or trowel and on the velocity with which he released it. To pour, he would increase the amount or move at a slower pace; to drip, he would decrease the amount or move at a faster pace.<sup>25</sup> Occasionally, the two processes followed one another or even alternated, obscuring the distinction between them. All the same, although discrete droplets routinely appear in the majority of Pollock's abstractions from 1947 to 1950, their visual impact is subordinate to that of the linear tracks of paint. Of the two processes, therefore, it was pouring rather than dripping that endowed Pollock's abstractions with their distinctive character.

By fine-tuning the physical qualities of his paint as well as controlling the process of dispensing it, Pollock not only made his particular way of pouring possible, he also produced some of the most vivid evocations of motion in the history of painting. For obvious reasons, the indication of movement has always posed a daunting challenge to artists, painters and sculptors alike, constrained to work within the confines of a static idiom.<sup>26</sup> Even if a particular posture appears dynamic on canvas, a spectator may always question whether the figure was caught in the middle of an action or simply portrayed striking a pose while at rest (Fig. 3). Since the same ambiguity pertains to inanimate motion, artists largely avoided representing objects in the course of falling (think of the altogether unconvincing suggestion of a dropping knife in Rembrandt's *Sacrifice of Isaac*).<sup>27</sup> To deflect their audience's skepticism, artists often depicted active figures adorned with flowing drapery, material whose pliancy, unlike rigid garments, accentuated the illusion of motion. In fact, Pollock himself practiced this very strategy in his numerous early copies after the old masters (Fig. 4).

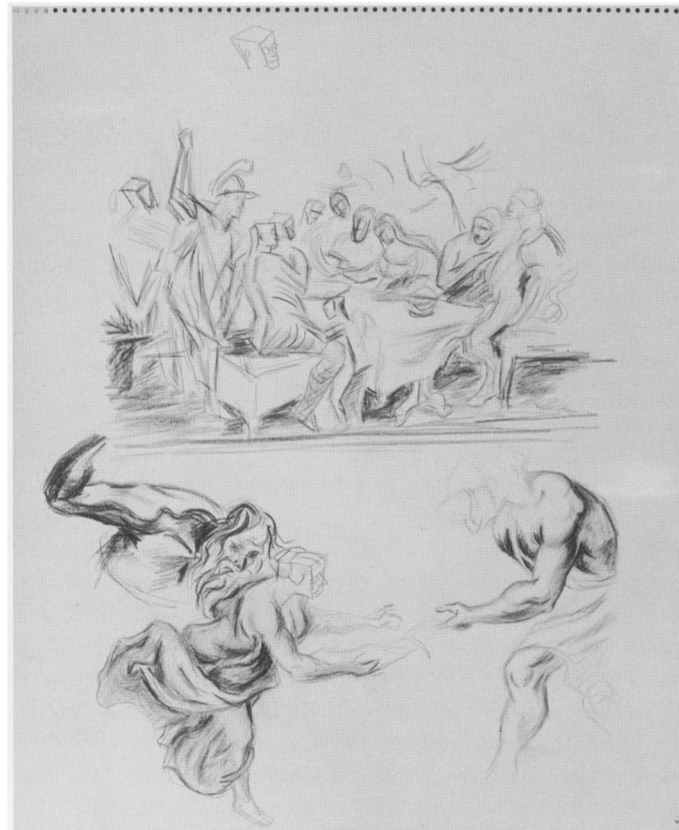
Rapid sketches, especially if loose and spontaneous, can also achieve a persuasive effect of motion (Fig. 5). But although incomplete contours, swift hatchings, and multiple attempts at resolving a specific form were perfectly acceptable in preliminary drawings, no such license existed within the conventions of academic painting. As looser modes of painterly execution gained acceptance, Diego Velázquez, for one, ventured to devise a markedly successful solution to the problem by having the spokes of a spinning wheel nearly “disappear” in *Las hilanderas* (Fig. 6). In the modern era,



3 Henry Raeburn, *The Skater*, 1795, oil on canvas, 30 × 25 in. (76.2 × 63.5 cm). The National Gallery of Scotland, Edinburgh (artwork in the public domain; photograph © The National Gallery of Scotland)

devices invented by cartoonists and illustrators, “air streaks,” “motion lines,” and “zip ribbons,”<sup>28</sup> provided another approach, one so simple as to be readily intelligible to small children (Fig. 7), yet one that lay beyond the purview of academic artists—a double standard eventually circumvented in avant-garde circles. The Italian Futurists, for example, covetous of the ease and efficacy with which cartoonists pulled off the illusion of speed, blatantly appropriated their conventions (with additional assistance, admittedly, from chronophotography; Fig. 8).<sup>29</sup>

For his part, Pollock was fully conversant with the effects of action photography and chronophotography, especially as his close friend the Swiss filmmaker and designer Herbert Matter was an accomplished practitioner of the genre.<sup>30</sup> By embracing an abstract idiom, however, Pollock was freed from having to blur, distort, or multiply his figures. Unlike cartoons, furthermore, his images cannot be parsed into elements representing the “subject” versus those representing “motion.” In Hergé’s drawing of Tintin chasing a parrot (Fig. 7), one could conceivably remove the air streaks—added post facto to convey flight—without violating the integrity of the human and animal forms in the least. Pollock’s pictorial language rendered such a separation inconceivable, of course, precisely because the devices used to suggest dynamism are somehow embodied in, and thus inextricable from, the shapes themselves. To be sure, the same may be said of the blurred spokes of the wheel painted by Velázquez; nonetheless, although its impact would be significantly al-



4 Pollock, *Untitled*, CR3: 440r, late 1937–39, pencil and colored pencil on paper, 16 $\frac{7}{8}$  × 13 $\frac{7}{8}$  in. (42.8 × 35.2 cm). The Metropolitan Museum of Art, New York, Purchase, Anonymous Gift, 1990 (artwork © Pollock-Krasner Foundation / Artists Rights Society [ARS], New York; photograph © The Metropolitan Museum of Art)



5 Aniello Falcone, *Cavalry Skirmish*, 17th century, ink on paper, 4 $\frac{1}{2}$  × 7 $\frac{1}{2}$  in. (11.4 × 19 cm). Private collection (artwork in the public domain; photograph by Liliane Fredericks)

tered, the overall structure of *Las hilanderas* would hardly be undermined if the wheel were depicted at rest. In Pollock’s abstractions, conversely, the dynamic and morphological aspects are utterly indivisible.

This effect is also found in the work of other abstract painters (Wassily Kandinsky, Franz Marc, Frantisek Kupka, just to name a few), but, since Pollock’s skeins of paint were obtained by sweeping lateral movements, the resulting trajec-



6 Diego Velázquez, *Las hilanderas*, 1657, oil on canvas, 86 $\frac{5}{8}$  × 99 $\frac{1}{4}$  in. (220 × 252 cm). Museo del Prado, Madrid (artwork in the public domain; photograph by Scala, provided by Art Resource, NY)



tories—recording the deformations of falling liquid paint as it settled on the canvas—evoke dynamism in an especially convincing way. Indeed, because liquids flow around obstacles or within vessel boundaries, may deform in motion, lose stability, or break into separate fragments, they are particularly suitable, even more than pliable drapery, to convey a sense of motion in a static image. As William Ivins Jr. observed, “The only way that a sense of motion can be given to a body in a still picture is by distortion of its tactile-muscular shape. . . . It is this distortion in the picture that makes us feel that the [object] is moving. The more we elongate our representations . . . the faster seems their movement.”<sup>31</sup> Accordingly, artists fare much better when attempting to depict liquids rather than solids in motion. Portrayed in the form of a continuous stream, liquids, after all, are far more likely to produce a persuasive illusion of movement than solids shown, as if frozen, levitating in space.<sup>32</sup> From the smooth, laminar flows in Jan Vermeer’s *Milkmaid* (ca. 1658–61) or Leonardo’s complicated vortical flows (ca. 1513, Fig. 9) to Gustave Courbet’s turbulent, chaotic flows (as in *The Wave*, 1871, National Gallery of Scotland), this tactic has served artists especially well.

Pollock went a step further. He did not just *paint* liquid in motion; he *set* liquid in motion. Diluting his solution and letting it fall freely under gravity, he enabled its very fluidity—its susceptibility to deform as it accelerated and decelerated above the canvas—to *record*, not *depict*, the velocity with which he moved.<sup>33</sup> In the process, Pollock made his work into an index of *actual* (instead of an icon of *simulated*) motion. Not surprisingly, he declared that “the more immediate, the more direct” a painting, “the greater the possibilities of making a direct—of making a statement.”<sup>34</sup> In certain ways, the translation of Pollock’s dynamic gestures onto a static entity is not unlike the recording of earthquakes by the needle of a



7 Hergé, *Tintin, Milou et le perroquet*, from *L'oreille cassée*, Brussels: Casterman, 1945, p. 5 (artwork and photograph © Hergé/Moulinsart)

seismograph. But, because neither were his marks mediated by an electrical apparatus nor his strokes constrained in their motion (like the tip of the seismograph, oscillating up and



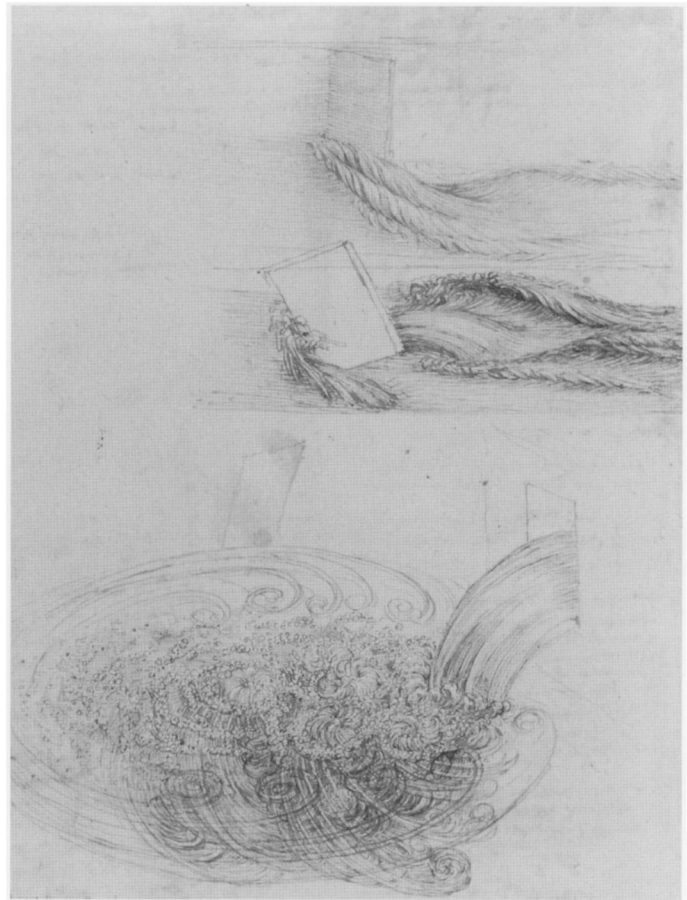


8 Giacomo Balla, *Dog on a Leash*, 1912, oil on canvas, 35 $\frac{5}{8}$  × 43 $\frac{1}{4}$  in. (90.8 × 110 cm). Albright-Knox Art Gallery, Buffalo, N.Y., bequest of A. Conger Goodyear and gift of George F. Goodyear, 1964 (artwork © Artists Rights Society [ARS], New York; photograph provided by the Albright-Knox Art Gallery)

down along a single axis<sup>35</sup>), Pollock's rendition of movement, as he himself put it, proves all the more immediate and direct.

Even so, the claim of "immediacy" and "directness" requires some qualification. The double indexicality of Pollock's process should not engender the view that his technique is so transparent as to make "reading" his paintings a straightforward task.<sup>36</sup> On the contrary, the very same complexities of fluid flow that amplify the illusion of motion may actually obscure the precise characteristics and sequence of the artist's gestures. At a minimum, three separate physical mechanisms, each operating at a different scale, impacted his linear trajectories, potentially leading spectators to misconstrue the precise causes of the marks left on the canvas.

The first mechanism is clearly manifest in the numerous fine oscillations of red enamel in *Untitled 1948* (CR3: 786, Fig. 10).<sup>37</sup> It is tempting, of course, to attribute these undulations to the trembling, intentional or not, of Pollock's hand. Yet it was impossible for the vibrations of Pollock's wrist to have produced ripples of such fine scale and consistent regularity (Fig. 11).<sup>38</sup> The effect, rather, was almost surely due to the fluid instability of the stream of viscous paint—known as coiling<sup>39</sup>—a common phenomenon familiar from the way honey or maple syrup oscillates and coils, even when poured with a steady hand. It thus stands to reason that coiling could easily ensue whenever Pollock poured viscous paint. Indeed, since the thick red lines in *Untitled 1948* (Fig. 10) were created with highly viscous enamel and the thinner ones in black with diluted ink, only the former exhibit coiling instability. The high viscosity of the red compound accounts for the difference: if diluted, the enamel would seep into the paper rather than produce the undulating lines visible in the detail (Fig. 11). It should be iterated, however, that because skeins of paint distort or diffuse upon landing on an uneven surface, woven canvases are unlikely to display similar undulations. Whereas the effect appears in Pollock's work on



9 Leonardo da Vinci, *Study of Water Passing Obstacles*, ca. 1513, ink on paper, 11 $\frac{3}{4}$  × 8 $\frac{1}{4}$  in. (29.7 × 20.8 cm). Royal Collection, Windsor Castle (artwork in the public domain; photograph The Royal Collection © Her Majesty Queen Elizabeth II)

paper such as *The Mask* (ca. 1945) and *Untitled* (ca. 1944),<sup>40</sup> it is particularly conspicuous in *Untitled 1948* (Fig. 10) because pigments were laid on a dry, smooth ground, not one made rougher by previous applications of pigment.

Another mechanism that problematizes the reading of Pollockian marks operates at larger scales. Since Pollock worked above his canvas—on average at about a foot and a half, but occasionally as high as five feet—falling paint fragments "retained the memory" of the horizontal components of the velocity with which they were moving at the moment of separation from his trowel. Whenever Pollock's hand accelerated, therefore, the fluid already released moved at a different velocity than his implement.<sup>41</sup> Not only did a lag ensue between any change in Pollock's motion and the recording of this change on the surface below, but also the recorded line became distorted as a result—the longer the flight, the greater the distortion. Accordingly, because fluid parcels move with constant horizontal velocity in the air, rapid flicks of Pollock's wrist may have "translated" into recorded arcs of exaggerated radii.<sup>42</sup>

The third mechanism pertains to the expansion and contraction of Pollock's poured trajectories. As indicated earlier, one readily assumes that the thinning or thickening of a line resulted from the acceleration or deceleration of Pollock's

10 Pollock, *Untitled* 1948, CR3: 786, ink and enamel on paper, 22 $\frac{3}{8}$  × 30 in. (56.8 × 76.2 cm). The Metropolitan Museum of Art, New York, Gift of Lee Krasner Pollock (artwork © Pollock-Krasner Foundation / Artists Rights Society [ARS], New York; photograph © The Metropolitan Museum of Art)



hand. The artist, though, could easily have produced the effect of changing tempos in a number of different ways: by switching the leading edge of an asymmetrical tool, varying the amount of pigment on his implement, allowing the paint to run out, or, alternatively, rapidly changing the height at which it would be dispensed. Of these techniques, the latter, though no less effective, was, arguably, the least transparent. Relying on a characteristic of gravitationally driven flows known from everyday experience—that streams narrow as they accelerate downward—Pollock, by raising or lowering his hand, may have expanded or contracted the flow at its point of contact with the canvas. In this way, he was capable of creating the remarkably vivid sensations of shifting velocity noted by O'Hara, yet without accelerating or decelerating the lateral (horizontal) sweep of his arm.<sup>43</sup>

An examination of the fluid-dynamic aspects of Pollock's process suggests, therefore, that, the artist's reputation for immediacy and directness notwithstanding, his signature effects do not always readily betray their causes. While pushing indexicality to the extreme, Pollock may have courted a look of unmitigated spontaneity and improvisation, but, far more sophisticated a craftsman than even his champions may appreciate, he managed to enlist and indulge autonomous physical phenomena, all without relinquishing the requisite degree of control. This not simply proved a clever means of occluding how practiced his performance actually became, it was also a way of eliciting his audience's empathetic response while inserting a certain artistic playfulness in a process partially given over to natural phenomena.

#### Gravity and Its Effects

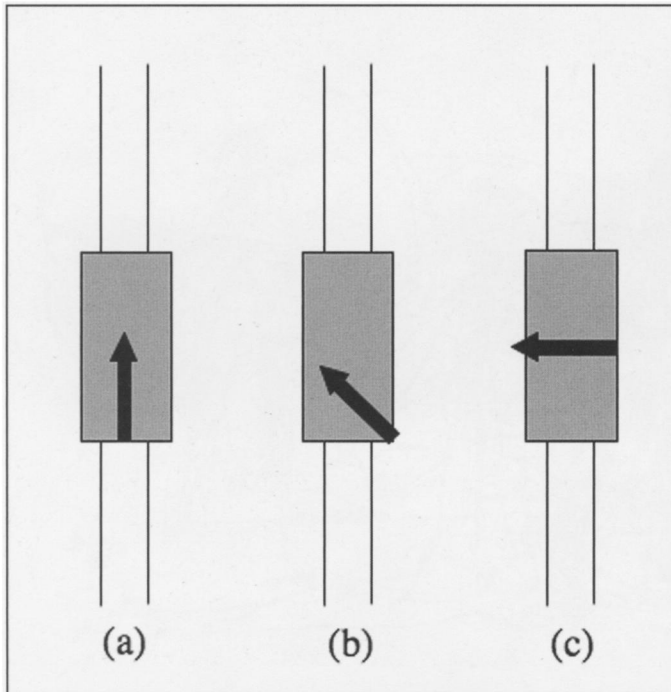
Even if Pollock's employment of fluid dynamics required delicate adjustments, his idiom also depended on exploiting sharply defined polarities. The artist's *creative* process may have been contingent on laying the canvas on the floor, but



11 Detail of Fig. 10 (artwork Pollock-Krasner Foundation / Artists Rights Society [ARS], New York; photograph © The Metropolitan Museum of Art)

the spectator's *re-creative* process is contingent on repositioning it on the wall. Demonstrably, Pollock's paintings would look strikingly different if seen horizontally rather than vertically. On the floor, the skeins of paint resemble any liquid simply released into space and lying inert on a piece of woven fabric (Fig. 1). On the wall, the skeins look unencumbered, "airborne," energetically moving upward, downward, and





12 Diagrams illustrating an external force acting on a cart. The gray rectangle represents the cart and the arrow the applied force (the tail end of the arrow is located at the point of application of the external force) (diagrams by Andrzej Herczynski)

sideways, as if somehow freed from friction and liberated from gravity.<sup>44</sup> Once the paintings are reoriented vertically, Pollock's marks, though impossible to generate without gravity, look, paradoxically enough, free of its relentless grip, a conundrum barely mentioned in the literature. Pollock scholarship, spanning numerous, often mutually exclusive positions—from biographical, formalist, psychoanalytic, feminist, Marxist, to poststructuralist, just to name some of the many lenses through which the artist has been viewed—has yet to address this issue on its own terms. Granted, a detailed investigation of Pollock's use of gravity may lie beyond the ideological purview or stated objectives of some of these interpretative approaches, and, as already indicated at the outset, a number of scholars have already tackled the implications of Pollock's change of orientation.<sup>45</sup> But even those who mentioned the complexity of the artist's idiomatic reliance on gravitational force did so without acknowledging the determinative role it plays—both in his mode of working and in guiding the spectator's response. Admittedly, Elizabeth Frank has noted that by “placing the canvas on the floor Pollock could both outwit and exploit the force of gravity,” and T. J. Clark alluded to the artist's “suspension” of gravity;<sup>46</sup> even so, neither engaged the question with the attention requisite to explain exactly how Pollock managed to generate this singular effect.

Upon reflection, this oversight is hardly surprising; art history, after all, provides neither an adequate critical terminology nor the specialized conceptual tools to account for the gravitational aspects of the artist's technique. For this reason, introducing additional insights from physics is essential to venture such an account and bridge this epistemolog-

ical gap. Essential not only because gravity was *indispensable* to Pollock's process but also because his particular way of deploying this force ultimately differentiates his own, idiosyncratic aesthetic strategy from that of other artists who fell within the compass of his influence. Such an interdisciplinary perspective, it is hoped, will speak to the very dilemma in question: specifically, how an artist, renowned for his reliance on gravity, could antithetically employ *and* elude it at the same time.

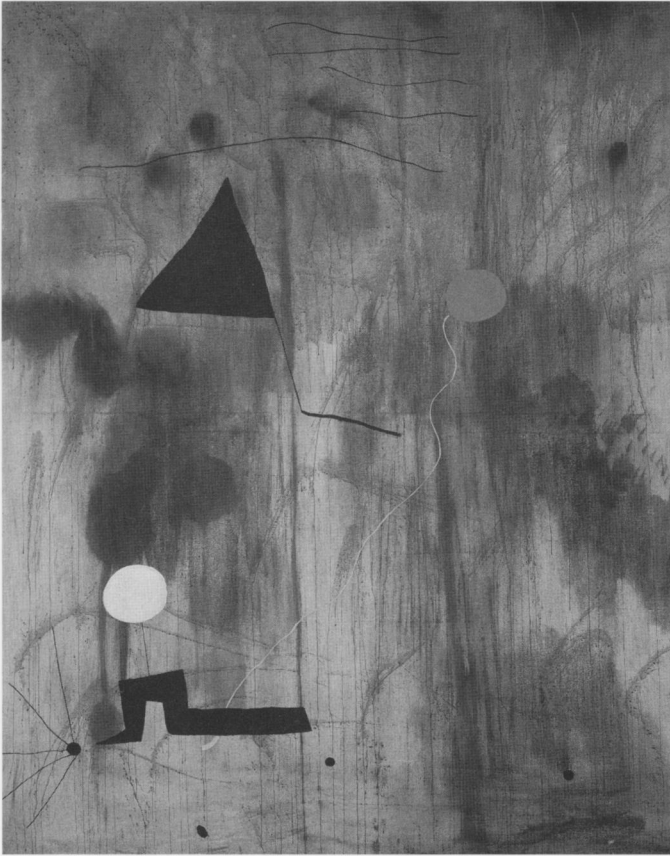
Pollock did so by reorienting his canvas by 90 degrees, an angle that plays a critical role in mechanics. The laws of physics<sup>47</sup> mandate that a small object subject to a single force will, at any time, accelerate in exactly the same direction in which the force is applied.<sup>48</sup> When the object encounters obstacles or constraints, however, its acceleration may be redirected.<sup>49</sup> For the purposes of the argument at hand, it should be emphasized that the acceleration of an object constrained to move on a plane or along a line can occur in any direction *except at 90 degrees* to the applied force.<sup>50</sup> Thus, although the paint released from Pollock's trowel will accelerate freely in the vertical direction while in flight, it will cease to accelerate altogether once it lands on a horizontally laid canvas.

Perhaps another example, though unrelated to Pollock's process, may clarify the particular significance of the 90-degree angle. Consider an object constrained to move in a straight line on a horizontal plane, like a cart rolling on a track (Fig. 12). In order to accelerate the cart forward, pushing in the direction of the track (from the rear) would be most “efficient” (Fig. 12a). Force may be exerted at some oblique angle (from the side), but this will noticeably reduce the resultant acceleration (Fig. 12b). The closer the angle of the applied force comes to 90 degrees, the less “efficient” the effort, and at exactly 90 degrees to the tracks, forward acceleration ceases altogether (Fig. 12c). For an applied force, then, the 90-degree angle is the threshold at and beyond which forward acceleration is no longer possible.<sup>51</sup>

Both examples are instructive. Just as the cart stops accelerating when pushed perpendicularly to the direction of the tracks on which it moves, so was gravitational force “neutralized” by Pollock's pouring onto a horizontally positioned canvas. In fact, by painting on the floor, with the canvas perpendicular to gravity, and then exhibiting it on the wall, parallel to gravity, Pollock, in both instances, reoriented his work by exactly 90 degrees.

Initially, Pollock “curtailed” the effects of gravity *physically* by placing the canvas at precisely 90 degrees to its vertical pull. This is not to say that gravitational force could ever literally be “turned off”—by Pollock or anyone else—but that he devised a mode of operation whereby gravity's impact on the horizontal displacement of poured paint, that is, along the plane of the canvas, was rendered as minimal as possible. Indeed, since gravity affects only the pigment's vertical velocity (by accelerating it downward), its horizontal motion while in flight was defined by Pollock's movements side to side. In other words, the lateral (horizontal) velocity of the pigment in free fall was *gravity independent*. Even if the duration of its fall, and thus the lag between Pollock's gesture and its recording on the canvas below, depended on the magnitude of





13 Joan Miró, *Birth of the World*, 1925, oil on canvas, 98¾ × 78¾ in. (250.8 × 200 cm). The Museum of Modern Art, New York, acquired through an anonymous fund, the Mr. and Mrs. Joseph Slifka and Armand G. Erpf Funds, and by gift of the artist, 1972 (artwork © estate of Joan Miró/Artists Rights Society [ARS], New York; digital image © The Museum of Modern Art/licensed by Scala, provided by Art Resource, NY)

gravitational force, the fact remains that the paint's horizontal motion was entirely freed from gravity.

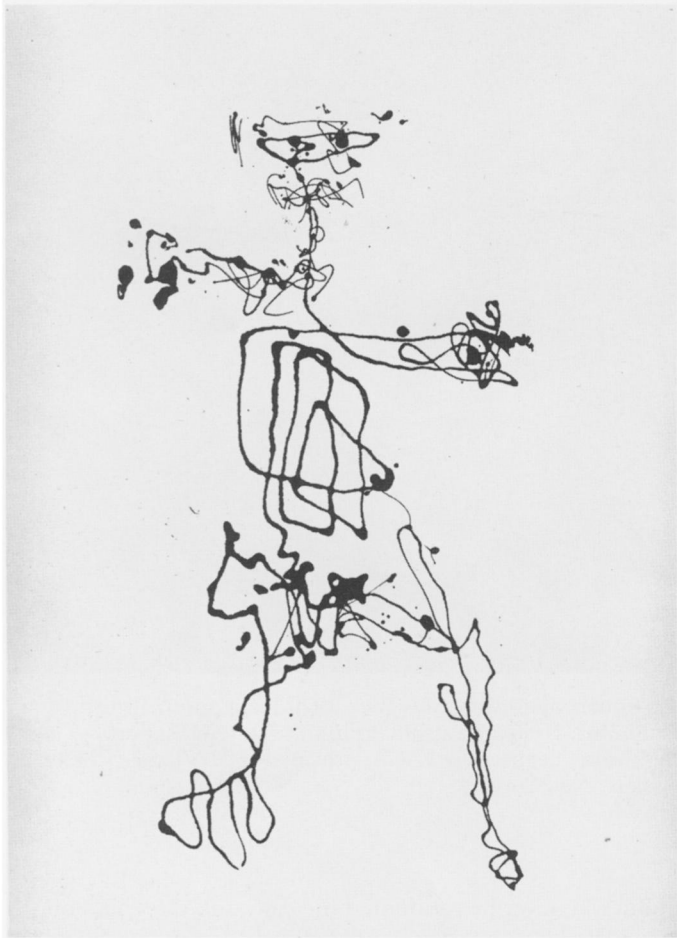
As signaled earlier, Pollock's tactic of laying the canvas on the floor also released paint from gravity subsequent to its impact on the picture surface. Even as poured material moves with constant horizontal velocity in the air, the situation changes once the paint encounters a constraining surface of any kind. The results would vary, of course, depending on the orientation of this surface. On an upright canvas, the paint—while still in liquid form—would continue to accelerate along the picture plane, causing runs and streaks (as in Joan Miró's *Birth of the World*, Fig. 13). A similar effect would ensue on an uneven or sloping ground (as in Robert Smithson's *Asphalt Rundown* or *Glue Pour*, Fig. 14). By positioning the canvas flat on the floor (that is, at every point perpendicular to the direction of gravity), Pollock chose the only orientation at which the paint would be prevented, as soon as it lands, from accelerating any further (discounting the small incursions made as it splashed or spread from a localized accumulation). In this way, Pollock maintained exclusive control over the motion most consequential for the poured marks—namely, the paint's horizontal motion—and created a visual effect altogether different from the gravity-driven marks generated by Miró or Smithson.



14 Robert Smithson, *Glue Pour*, 1970, Vancouver, British Columbia. Destroyed (photograph © Estate of Robert Smithson/licensed by VAGA, provided by the James Cohan Gallery, New York)

But whenever he reoriented the canvas to the wall, Pollock reintroduced gravity *experientially* by placing the image parallel to its vertical pull—a position that, invariably, has a marked effect on the spectator's perception. Since free-falling objects accelerate only in one direction,<sup>52</sup> gravity makes us automatically and continuously aware of where “up” is in relationship to “down.” When we peruse something on the floor, by contrast, there are no absolute ways of detecting orientation, explaining why we often lose our sense of direction while exploring unfamiliar territory, and, once points of reference are established, we can turn maps around, orienting them along the same axis as our itinerary, to help us navigate our environment. Pollock worked under similar conditions, as Krasner remembered: “Working around the canvas—in the ‘arena’ as he called it—there really was no absolute top or bottom.”<sup>53</sup>

Capitalizing on this very discrepancy between our different responses to vertical versus horizontal orientations, Pollock playfully, almost mischievously, used and *subverted* gravity at the same time. In effect—and this may be the first instance in the history of art—he displayed his works at an angle from which they could not possibly have been executed. Yet Pollock realized how powerfully this position enhanced the effects of kineticism already achieved by pouring. When reoriented to the wall, the marks produced independently—as far as is possible—of gravity's vertical pull are repositioned where that very same “up-versus-down” orientation and unidirectional pull are experienced by the spectator as not just active but inescapable. A twofold readjustment by 90 degrees, in other words, allowed Pollock to circumvent the effects of gravity *physically*, while displaying his work under conditions where gravity is instinctively felt to be fully and continually



15 Pollock, *Untitled 1948-49*, CR3: 783, enamel on paper, 31 × 23 in. (78.7 × 58.4 cm). Städelsches Kunstinstitut und Städtische Galerie, Frankfurt (artwork © Pollock-Krasner Foundation/Artists Rights Society [ARS], New York; photograph provided by Alex Matter)

operational. Had the paintings been painted on the wall, after all, the paint would have run or trickled downward, as in Miró's *Birth of the World* (Fig. 13)—an expectation tacitly, though firmly, held by the audience. Since a Pollock abstraction, with lines moving in all directions, betrays no such effect, then we experience its marks, if only on a cognitive level, as surprisingly liberated from the hold of gravity.

Although the effect of “subverting gravity,” in the sense just elucidated, is paradigmatic of Pollock’s “classic” abstractions from 1947 to 1950, exceptions can be found—even in works created with the same technique. *Untitled 1948-49* (Fig. 15), for example, evokes neither the sensations of kinetic energy nor the effect of suspended gravity discussed above. What accounts for this difference? The piece was, after all, executed by means of Pollock’s characteristic poured technique, with the attendant twofold manipulation of the picture’s orientation in play. Admittedly, the piece is conspicuously figural, but why should this obviate the otherwise idiosyncratic advances obtained by painting on the floor? Largely, because the piece clearly lacks the broad, sweeping lines Pollock deployed with such élan in “classic” paintings such as *Number 23* (Fig. 2), *Full Fathom Five* (Fig. 27), or *Number 1A, 1948*. The mandate imposed by figuration—the need to out-



16 Pollock, *Number 27, 1951*, enamel on canvas, 55¼ × 73 in. (141.6 × 185.4 cm). Private collection (artwork © Pollock-Krasner Foundation/Artists Rights Society [ARS], New York; photograph provided by the Marlborough Gallery, New York)



17 Pollock, *Number 23, 1951/Frogman*, 58¾ × 47¼ in. (149 × 120 cm). Chrysler Museum, Norfolk, Va. (artwork © Pollock-Krasner Foundation/Artists Rights Society [ARS], New York; photograph provided by the Chrysler Museum)

line, however schematically, aspects of human anatomy—no doubt curtailed the full freedom and spontaneity of the artist’s gestures, particularly the vigorous strokes oriented across the canvas. Consequently, the lines in *Untitled 1948-49* look comparatively constrained and meticulous. For the be-





18 Pollock, *Convergence: Number 10, 1952*, oil on canvas, 7 ft. 9½ in. × 13 ft. (2.374 × 3.962 m). Albright-Knox Art Gallery, Buffalo, N.Y., gift of Seymour H. Knox, 1956 (artwork © Pollock-Krasner Foundation / Artists Rights Society [ARS], New York; photograph provided by the Albright-Knox Art Gallery)

holder, furthermore, the figural reference introduces the unidirectionality of gravity, anchoring the painting firmly along its up-and-down axis. Intriguingly, the addition of a figurative element—even this minimal—was enough to preempt (within a gravitationally ordered context) the distinct, cognitive effect of perceiving poured marks as freed from gravitational force.

Pollock did not necessarily construe the experiential effects resulting from the reintroduction of figuration—despite their apparent “concession” to the force of gravity—as detrimental. They simply represented another option afforded by the poured technique. If figurative references were the exception rather than the rule from 1947 to 1950, their appearance from 1951 to 1953 proves more the rule than the exception (Figs. 16, 17). Pollock, moreover, frequently diluted his paint even further, letting it be absorbed into, rather than solidify atop, the canvas surface. Exactly how different pigment choices, and particular diluting additives, contributed to the artist’s stylistic and technical experimentation remains to be fully explored, especially as the precise identification of Pollock’s materials is only now beginning to see significant advances.<sup>54</sup> Although Krasner remembered that he “got Du Pont to make up very special paints for him, and special thinners that were not turpentine,” she was unaware of their precise constitution.<sup>55</sup> Regardless, it has long been recognized that Pollock’s proclivity from 1951 to 1953, in connection with the reintroduction of figural imagery, was to substitute staining and puddling for more plastic and

tactile effects, and contained and localized marks for more rapid and unbroken linear trajectories. In combination with figural references, such effects largely mitigated the sensations of dynamism and energy particular to the “classic” period. Predictably, patches of absorbed pigment signal more deliberate, slower gestures and result as much, if not more, from the paint’s gradual interaction with the weave of the canvas as from the artist’s willful agency.

However differently these compositional elements amalgamated in any individual piece, Pollock gauged their effectiveness on a case-by-case basis. If dissatisfied with a work in progress, Krasner recalled, “he wouldn’t give up. . . . He would just stay with it until it was resolved for him.”<sup>56</sup> One such work is *Convergence: Number 10, 1952* (Fig. 18), a painting whose first campaign was no less monochromatic than the majority of Black Pourings of 1951–53, and might even have resembled *Number 27, 1951* or *Number 23, 1951* (Figs. 16, 17), since vestiges of figuration may still be discernible in the upper-right quadrant. Presumably, this layer, by itself, did not meet the artist’s criteria for a successful, fully “resolved” painting, and he subsequently added white, red, yellow, and blue skeins to bring the composition to its current state. If this “reconstruction” is at all persuasive, then *Convergence*, arguably, straddles the fence between the “classic” poured paintings of 1947–50 and the Black Paintings of 1951–53. Even if latent figural references have been obscured, and even if characteristically Pollockian whiplash curves appear with some frequency, the work does not entirely recapture





19 Georg Baselitz, *Les jeunes filles d'Olmo II*, 1981, oil on canvas, 98 × 98½ in. (249 × 250 cm). Musée National d'Art Moderne, Centre Georges Pompidou, Paris (artwork © Georg Baselitz; photograph provided by the Réunion des Musées Nationaux / Art Resource, NY)

the sensations of vigorous activity and suspension of gravity emblematic of the artist's previous phase.

These examples alone reveal not simply the wide range of pictorial effects Pollock could generate, but the extent to which the experiential sensations of "suspending" gravity—themselves subject to greater or lesser intensity—were not an inescapable outcome of the poured technique. For Pollock to have conjured his signature effects, namely, the very sensations of "energy and motion made visible,"<sup>57</sup> it was not sufficient to dispense pigment freely in the air and reposition the canvas perpendicularly to the direction of its fall. No less requisite was modifying the viscosity of his paint so as to permit the formation of well-defined, distinctly linear tracks, and deploying it in such a way that the artist's motion in the horizontal emerges in sharpest relief. Only in combination did these deliberate (albeit intuitive) adjustments enable Pollock to "release" his marks from the pull of gravity—ironically, the very force without which they could not have come into being.

### Symmetry and Symmetry Breaking

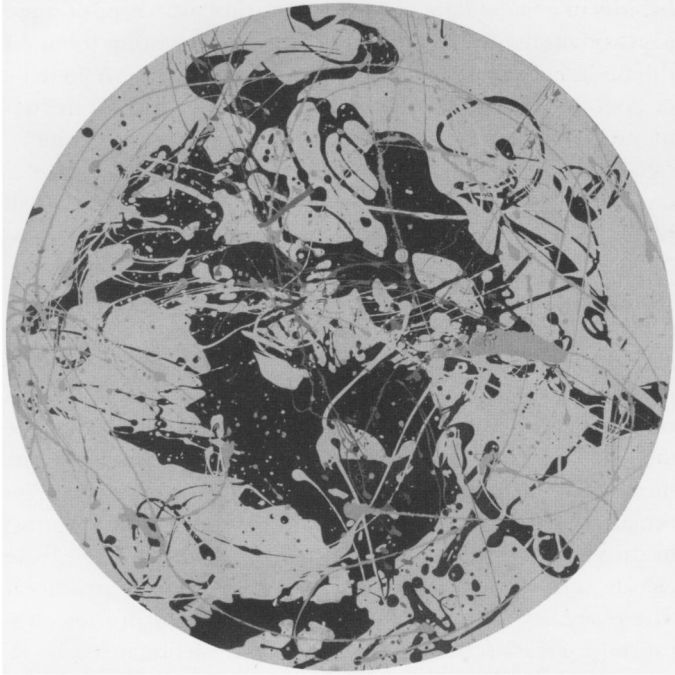
While Pollock's method of dispensing paint invites an investigation of the mechanics of pouring, the three dimensionality of his process invites an investigation of its geometrical properties.<sup>58</sup> A largely underappreciated but salient aspect of Pollock's employment of gravity in his classic abstractions is that he chose the only possible orientation whereby no direction along the surface of his canvases was privileged in any way. In practical terms, Pollock could rotate his horizontally laid paintings or, equivalently, move around them while he poured, with no change relative to the force of gravity. In conceptual terms, the geometrical framework established by

his placing the canvas on the ground qualified his creative practice as rotationally symmetric.

This orientation changes everything. Gravity is the most readily identifiable force shaping and defining our environment at a macroscopic level; of the four forces of nature,<sup>59</sup> only gravity has a well-defined, locally specific direction instantly and continually felt by anyone on the planet.<sup>60</sup> As such, this force provides a means of orientation, allowing us to distinguish—even in darkness—vertical from horizontal or top from bottom.<sup>61</sup> As noted earlier, it is precisely the fixed direction of gravity at any particular location on the surface of the Earth that makes this distinction possible: without it, words like "up" or "down" would be meaningless. If not for a compass, we would have difficulty inferring horizontal orientation, such as north from south,<sup>62</sup> but we need no instrument to infer vertical orientation, a truism that is reflected in art, especially representational art. We can speculate as to whether the window in, say, Vermeer's *Music Lesson* (1662–64) is facing east or west, but there is no danger of mistaking whether the pitcher is lying on the table or the table on the pitcher. Comparably, although artists usually insist on a unique orientation when exhibiting their work—Pablo Picasso and Morris Louis, among others, having made occasional exceptions to this rule<sup>63</sup>—they do not usually prescribe whether their work should be displayed on the north or south wall of a gallery.<sup>64</sup> This condition applies even to such a contrarian artist as Georg Baselitz (Fig. 19), whose insistence on painting figures upside down is both powerful and disconcerting precisely *because* it runs afoul of the gravitational order of the world. To hang a Baselitz "properly," that is, upside down, would rob it of its *raison d'être*.

Gravity, in other words, singles out one particular direction, and by imposing order on the vertical while leaving the horizontal unordered, it breaks the symmetry of three-dimensional space. From this perspective, Pollock's decision to dispense pigment with his canvas on the floor does more than simply contravene the long-established tradition of easel painting. His method also ensured rotational symmetry vis-à-vis gravity and simultaneously achieved maximum freedom of motion and flexibility while pouring. For these reasons, it may have been logical for Pollock to paint circular canvases; he did, in fact, execute a tondo (CR2: 208, Fig. 20). This choice of format, however, was an exception: all poured abstractions, but for this singular example, are rectangular in shape. To be sure, Pollock occasionally painted circular porcelain or chinaware bowls during his formative years (see CR4: 916–25), but he broke the perfect symmetry of the spherical surface in each case by establishing a dominant point of view.<sup>65</sup> From his earliest production, then, Pollock apparently never considered unbroken circular symmetry to be a viable way of configuring his paintings.<sup>66</sup> In Pollock's mature phase, his very choice of a rectangular canvas also broke circular symmetry, if only by privileging four out of an infinite number of equally viable orientations.<sup>67</sup>

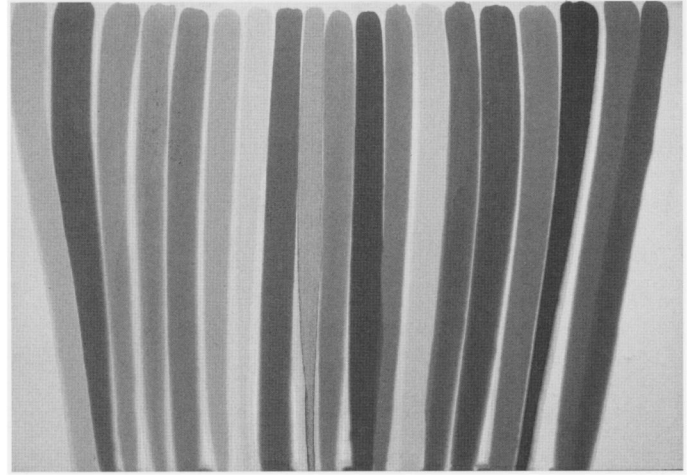
Even so, since the very positioning of the canvas on the floor placed all four principal orientations on an equal footing, Pollock could keep an open mind as to which of these four would ultimately prevail. For all intents and purposes, the horizontal placement of the canvas deferred the necessity to commit to a final orientation while work was still in



20 Pollock, *Tondo*, 1948, oil and enamel on metal, diameter 23 $\frac{1}{8}$  in. (58.7 cm). Private collection (artwork © Pollock-Krasner Foundation/Artists Rights Society [ARS], New York; photograph by Michael Tropea)

progress. Yet the artist had to come to a decision at some point. He may have approached a canvas with no predetermined plan in mind, but no sooner was a mark laid than a center of attention was established and perfect symmetry broken. Working within the dictates of an all-over compositional idiom, the artist compensated for these preliminary marks by distributing additional accents throughout the canvas, thereby partially restoring the symmetry broken by the first strike. By repeating this process, Pollock allowed the compositional balance—the “easy give and take”<sup>68</sup>—of his paintings to emerge. All the same, his improvisational manner ruled out perfect uniformity. As William Rubin already observed: “The precarious poise of his all-over, single image is achieved through the equally precarious balancing of virtually endless asymmetries.”<sup>69</sup> In many cases, Pollock accepted and even enhanced these asymmetries, permitting certain sections of particular pieces to prove more visually dominant than others. Accordingly, roughly 40 percent of Pollock’s two hundred or so poured abstractions seem to be more heavily weighted in the lower register, a choice exercised, presumably, to prevent his canvases from looking “top-heavy,” although, in some rare instances, this principle was contravened.<sup>70</sup> While working on an individual piece, Pollock most likely settled on its final orientation in midstream. But he always had the option—till the last minute—to delay any final decision regarding how the work should be exhibited.<sup>71</sup> This artistic license constituted an unusual turnabout: for traditional easel painters, the very *first* decision is orienting the canvas; for him, it may have been his *last*.

Since, as signaled earlier, the inclusion of even the barest of figural outlines inevitably breaks the symmetry of the composition, this license and, more important, the experien-



21 Morris Louis, *Where*, 1959–60, acrylic resin on canvas, 8 ft. 3 $\frac{3}{4}$  in. × 11 ft. 10 $\frac{1}{2}$  in. (2.524 × 3.621 m). Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, Washington, D.C., Gift of Joseph H. Hirshhorn 1966 (artwork © Morris Louis; photograph by Lee Stalsworth, provided by the Hirshhorn Museum and Sculpture Garden)

tial effect of escaping gravity clearly depended on Pollock’s faithful adherence to an abstract, all-over idiom. The Black Pourings of 1951–53 offer a case in point. An upright human body, after all, displays approximate mirror symmetry in the vertical, but no such symmetry in the horizontal (conveniently, mirrors reverse our left and right, rather than our top and bottom, halves). Although highly rudimentary, the suggestion of a female torso in *Number 23, 1951* and the head and multiple anatomical fragments in *Number 27, 1951* (Figs. 17, 16) not only break rotational symmetry, they also impose a definite orientation and gravitational order on the pieces—declaring, if not the intended positioning, then the work’s dominant axis. Even if figural elements are represented upside down, as in one, albeit exceptional, Black Pouring<sup>72</sup>—and in many a Baselitz canvas—rotational symmetry is unequivocally broken. Only by scrupulously avoiding recognizable shapes and by eliminating any such references if they “crept in”<sup>73</sup> could Pollock ensure overall symmetry and conjure effects of unfettered dynamism in the spectator’s imagination.

In the classic abstractions, then, Pollock’s artistic process can be described as a subtle interplay of both symmetrical and asymmetrical relations. He worked at an orientation symmetrical in relation to gravity but introduced asymmetric patterns by indulging the spontaneity of his arm movements and letting the fluid instabilities of the paint play out—a practice, incidentally, that was conducive to the generation of “fractal” patterns akin to those detected in complex, seemingly chaotic natural structures.<sup>74</sup> Yet if such unpredictable dynamics threatened to overwhelm his compositions with fragmentation and disorder, Pollock reestablished overall “symmetry” by adhering to the mandate of all-over composition.<sup>75</sup> And, to complete this balancing act, he exhibited his canvases vertically—in a manifestly asymmetrical position vis-à-vis gravity.





22 Pat Steir, *Three Little Dragon Waterfalls*, 1990, oil on canvas, 60 × 48 in. Collection Flomenhaft Gallery (artwork © Pat Steir; photograph provided by the Flomenhaft Gallery)

### Under the Pull of Gravity

To be sure, the intricacies of the poured technique just outlined—indulging symmetry-breaking versus imposing all-over symmetry, working perpendicular versus exhibiting his work parallel to gravity—are singular aspects of Pollock's practice. But what demarcates his artistic idiom even more sharply from those of subsequent artists who also worked within the field and under the sway of gravity is the concurrent employment *and* circumvention of this force.

Like Pollock, Morris Louis (Fig. 21) and Paul Jenkins made pouring integral to their working methods, adjusting the flow of paint to play a nearly autonomous role in their art. Unlike Pollock, however, who oriented his canvases either horizontally or vertically, Louis and Jenkins bent theirs into irregular surfaces, reshaping them even as the color ran. By folding, pleating, gathering, and funneling, they directed highly diluted pigment to channel in temporary grooves, run down inclines and curves, or pool in momentary basins. Capturing a wide multiplicity of transient gravitational flows, these maneuvers stand in sharp contrast to Pollock's. Whereas his marks were "gravity-independent," theirs were gravity-bound; whereas his "escaped," theirs embraced the pull of gravity. Louis's and Jenkins's gravitationally driven flows, moreover, were relatively slow, even when compared with the Black Paintings of 1951–53, but especially when contrasted with the streams of paint generated either by the fastest thrusts of Pollock's arm or the rapid flicks of his wrist. As Pat Steir put it, "To handle paint the way Pollock did, you need the mus-

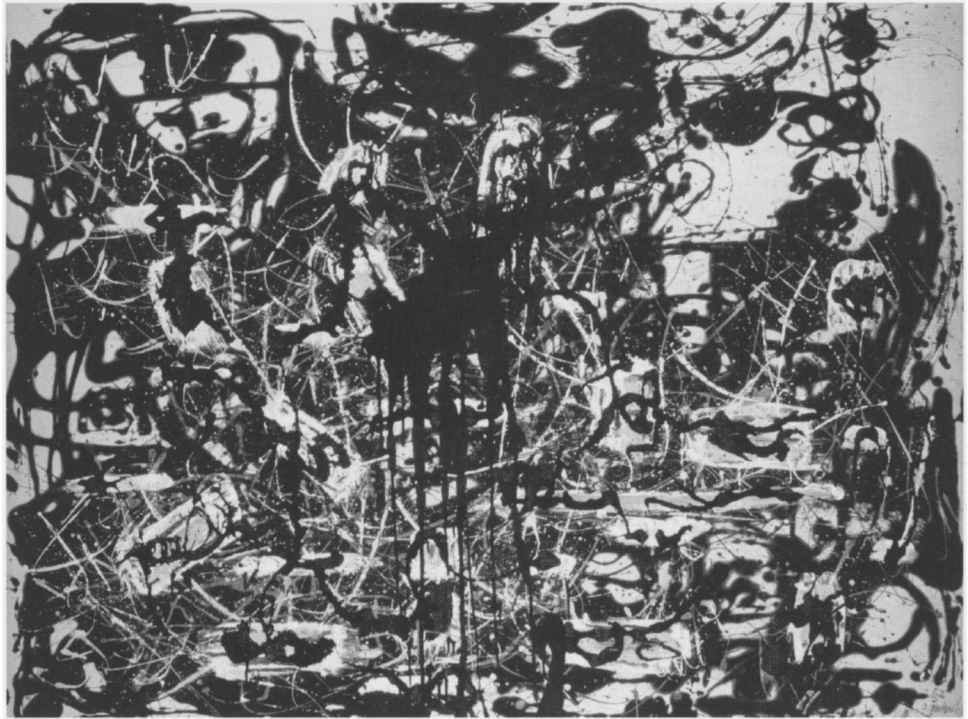
cularity of a ballet dancer."<sup>76</sup> Even Warhol, who repositioned his Oxidation Paintings on the wall after executing them on the floor, could not obtain the effects of velocity emblematic of Pollock's abstractions. Why? Because, his skill and dexterity notwithstanding, Warhol still employed an "instrument" that, in comparison to Pollock's, did not permit a similar range of horizontal movement—at the very orientation, it will be recalled, where motion functions independently of gravity.

Larry Poons and Steir (Fig. 22) also engaged the force of gravity, yet without physically manipulating their canvases in any way. "I depend on gravity," Steir declared, ". . . [I] let the paint hit the canvas, walk away and let it do its thing."<sup>77</sup> From start to finish, Poons and Steir kept their canvas on the wall—parallel to gravity—compelling paint to run along its direction and providing direct visual evidence of its unidirectional attraction. In so doing, they obtained the fastest gravity-driven rivulets possible, with pigment running down the canvas (rather than in free fall, as was Pollock's practice). These rivulets, however, were relatively limited in their evocation of kinetic energy, since the paint was retarded by its interaction with the canvas surface and most likely depleted before reaching appreciable speed.<sup>78</sup> Not surprisingly, Pollock himself generally avoided this effect. An exception is *Yellow Islands* of 1952 (Fig. 23); although primarily executed horizontally, its central cluster was probably applied with the canvas standing vertically, allowing the pigment to run as it would in a Poons or Steir.<sup>79</sup> The rarity with which this combination is repeated in Pollock's work suggests that the artist may have viewed this "concession" (or partial relinquishing of control) to an external force at the center of *Yellow Islands* with a certain degree of ambivalence; in this particular context, though, the painting illustrates how drastically the visual impact of a painting may alter depending on the way its maker employs gravity.<sup>80</sup> Indeed, gauging their disparities side by side clarifies (perhaps more convincingly than any other explanation) how the marks generated by Poons or Steir appear driven by, while those generated by Pollock appear free of, gravitational force.

Pollock's skeins of paint, even from 1951 to 1953, supply direct evidence of the force the artist willfully exerted to overcome the pigment's inertia,<sup>81</sup> a tactic in direct opposition to the passive mode of execution employed by either Louis, Jenkins, Poons, or Steir—artists who permitted the pigment to flow down their canvases with far less interference. If Pollock's trajectories look active, freely driven, predicated on human agency, their color fields look passive, weighed down, surrendered to a deterministic process. As Kenneth Noland remembered, Louis "wanted the appearance to be the result of the process of making it—not necessarily to look like a gesture, but to be the result of real handling."<sup>82</sup> As for Steir, she declared, "I try to make paintings that make themselves."<sup>83</sup> Pollock was of an altogether different mind-set; for him, accidents had to be denied, and "total control,"<sup>84</sup> once asserted, was not to be forsworn.

A reliance on gravitational force was no less crucial to the work of sculptors such as Linda Benglis (Fig. 24), Richard Serra (Fig. 25), and Robert Smithson (Fig. 14). Their strategy of generating painterly effects hinged on using materials especially susceptible to deformation when poured or





23 Pollock, *Yellow Islands*, 1952, oil on canvas, 56½ × 73 in. (143.5 × 185.4 cm). Tate Gallery, London (artwork © Pollock-Krasner Foundation/Artists Rights Society [ARS], New York; photograph © Tate Gallery, provided by Art Resource, NY)

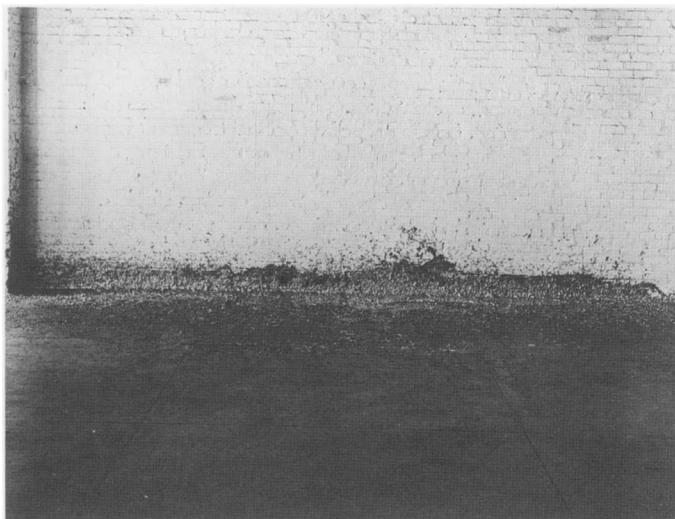
splashed: pigmented latex and polyurethane foam (Benglis),<sup>85</sup> rubber and molten lead (Serra), or glue, asphalt, and granular material (Smithson). Benglis, for example, described her works as “hybrids—somewhere between painting and sculpture.”<sup>86</sup> Like Pollock—but unlike Louis, Steir, or Poons—Benglis, Smithson, and Serra often worked on the floor or ground, though, in some instances, on sloping terrain or scaffolding. Unlike Pollock, they arranged for their materials to be dispensed almost passively, letting gravity act on the work with minimal intervention on their part; Benglis, Serra, and Smithson, furthermore, never intended to reorient their pieces, neither while their materials were still liquid nor after they solidified. As a consequence, the final shapes and configurations of their pourings are entirely consistent with the way one would expect their materials to behave; there is no trace of Pollockian double play.

The working methods of Eva Hesse (Fig. 26), Robert Morris, and again Serra (in his forged pieces) strike an even sharper contrast with Pollock’s. Although critically dependent on gravitational force to maintain shape and stability, the materials used—whether rigid solids, flexible ropes, or volatile steam—made later “repositioning” either physically inconceivable, incompatible with the integrity of their design, or both. What, after all, could be more absurd than attempting to “reposition” steam? The works of these sculptors, moreover, are—to various degrees—impermanent and contingent on exhibition conditions: Morris’s Minimalist sculptures are predicated on their particular placement within a gallery or museum space; many of Serra’s works are meant to be site specific; Hesse’s rope pieces and Morris’s felt sculptures depend on the precise position of their suspension points; and Morris’s steam pieces are, arguably, among the most ephemeral sculptures conceivable. In Serra’s words, “the form of the work in its precariousness denied the notion of a transportable object, subverting the self-referential, self-righteous notion of authority and permanence of objects.”<sup>87</sup>



24 Linda Benglis, *Eat Meat*, 1975, cast aluminum, 24 × 80 × 54 in. (61 × 203.2 × 137.2 cm), LB-157-SC, Collection Paula Cooper Gallery (artwork © Linda Benglis; photograph provided by the Paula Cooper Gallery)

Irrespective of the materials they chose or the methods used to shape them, the post-Minimalists and earthwork artists shared a marked predilection for directness and transparency. As Eva Hesse put it, “I . . . have a strong feeling about honesty—and in the process, I like to be . . . true to whatever I use, and use it in the least pretentious and most direct way.”<sup>88</sup> This directness and transparency extended to the various ways they relied on, and “compensated” for, the effects of gravitational force. Once complete, their sculptures would obviously prove unstable (like Morris’s steam) unless other forces counteracted the pull of gravity. In Hesse’s rope pieces, for example, gravity is balanced by the tension in the cords (tensile forces); in Serra’s props, by friction; in the latter’s early, forged structures, and in Smithson’s mirror and sand pieces, by both friction and the normal force. *Normal*

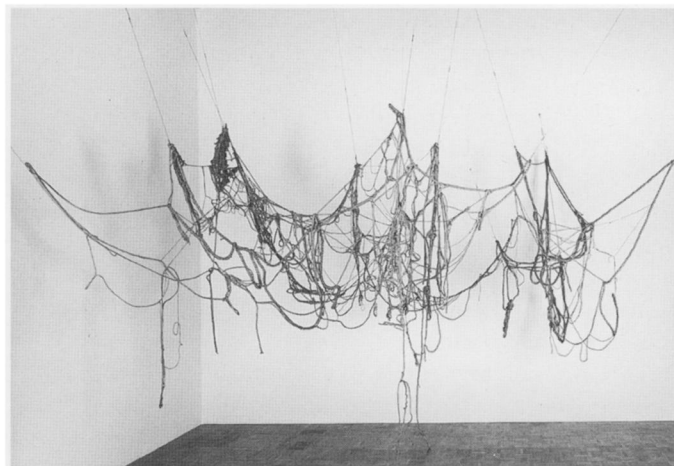


25 Richard Serra, *Splashing*, 1968, lead, 1 ft. 6 in. × 26 ft. (45.7 × 792.48 cm), installation, Castelli Warehouse, New York. Destroyed (artwork © Richard Serra/Artists Rights Society [ARS], New York; photograph by Gianfranco Gorgoni)

force refers to the force exerted by a surface on an object in contact with it, hindering the object's breaking through the surface in question (such as the upward force of the floor exerted on any object placed on it).<sup>89</sup> By relying overtly on tensile, frictional, and normal forces to maintain stability—and, to a lesser degree, on the internal stresses in their structural elements—these artists were able to arrange their materials in readily intelligible configurations. “In most of my work,” Serra professed, “the construction and decision-making processes are revealed. Material, formal, and contextual decisions are self-evident.”<sup>90</sup> By comparison, Pollock's approach—his use, escape from, and “reinsertion” of gravity—is more complex, nuanced, and crafty. To be sure, critics and historians have long recognized the originality of Pollock's contribution, but even among those select artists who conceded a defining role in their art to gravity, Pollock still engaged that force in so idiosyncratic a way as to place him in a category all his own.

#### Art and Metaphor

Pollock's singularity notwithstanding, one final question remains: Why did he risk “subverting” gravity while other artists who employed it no less integrally than he did not? He could have exhibited his canvases on the floor. This would have constituted an unorthodox choice, no doubt, but from ancient mosaics to rugs—not to mention the Indian sand painters with whose techniques he recognized a close kinship<sup>91</sup>—there was no shortage of precedents on which to draw. Krasner's recollections confirm, however, that Pollock intended his works to be viewed on the wall,<sup>92</sup> the orientation, as noted above, where the illusion of motion and evocation of energy would be most effective. But it may also be argued that even if his technique required working in concert with gravity, he circumvented its effects in order to suggest meanings that artists such as Serra and Smithson sought to avoid. Pollock, by his own admission, construed technique only as “a



26 Eva Hesse, *Untitled*, 1969–70, latex over rope, string, wire, 2 strands, dimensions variable. Whitney Museum of American Art, New York, Purchase, with funds from Eli and Edythe L. Broad, the Mrs. Percy Uris Purchase Fund, and the Painting and Sculpture Committee (artwork and photograph © Estate of Eva Hesse; photograph provided by Hauser & Wirth Zürich and London)

means of arriving at a statement.”<sup>93</sup> Like many artists of the New York school, he expected his works to conform to an abstract idiom yet connote something more than what his materials denoted literally. Among his contemporaries, it was perhaps Clyfford Still who articulated this ambition most emphatically: “I never wanted color to be color. I never wanted texture to be texture, or images to become shapes. I wanted them all to fuse into a living spirit.”<sup>94</sup>

Similarly, Pollock hoped his paintings would convey aspects of the external world—not in terms of an “illustration” but in terms of what he and other Abstract Expressionists called an “equivalent.”<sup>95</sup> When Pollock declared: “my concern is with the rhythms of nature,”<sup>96</sup> he did not mean that his works referenced natural phenomena by imitating the appearance of clouds, oceans, or rivers (“I try,” he stated, “to stay away from any recognizable image; if it creeps in, I try to do away with it. . . .”<sup>97</sup>); what he meant, rather, was that his works were intended to create visual equivalents for the underlying dynamism of nature.<sup>98</sup> The way Abstract Expressionist artists understood “the equivalent” is remarkably similar to how cognitive linguists define “metaphor.”<sup>99</sup> Metaphors, after all, do not describe literal characteristics but establish relationships—relationships of equivalence.

Devising a conceptual framework for this idea, the linguist Eve Sweetser has persuasively contended that our intellectual way of construing the external world and of describing emotional states develops according to “metaphorical projections” from physical experience. Without drawing an analogical relation between the two, she reasons that we reference physical situations to express psychological states because both have “numerous experiential links drawing them together.”<sup>100</sup> Verbs such as “to seize,” “to grasp,” or “to capture” are obviously descriptive of physical experience: we *physically* seize, grasp, or capture objects in our daily encounters with our environment. The same verbs are frequently employed to denote nonphysical, mental, or emotive states—as in “seize



an opportunity," "grasp an idea," or "capture a meaning," expressions through which they acquired new, metaphoric meanings. In this way, the universality and tangibility of the physical realm are recruited to express the properties of the more nebulous and intangible psychological realm. Since we know what it means to "seize" an object physically, we rely on this knowledge to interpret what is meant when someone says he or she has "seized" an opportunity. Significantly, these mappings are constrained; for a metaphor to strike the right note, we need to construe these activities as having "experiential links" in common.

If the Abstract Expressionists conceptualized "equivalence" as analogous to metaphor, then these artists projected meanings on the physical sensations elicited by their work in a comparable way. Pollock would have construed the effects of dynamism evoked by his canvases not simply as a celebration of the act of painting but as a metaphor—or "equivalent"—for some other order of experience. To be sure, he enjoyed great latitude when constructing or refining the implications of his canvases during postcreative contemplation. "When I am *in* my painting," he conceded, "I am not aware of what I am doing. It is only after a sort of 'get acquainted' period that I see what I have been about."<sup>101</sup> Nonetheless, those meanings—like the "metaphorical projections" mentioned by Sweetser—must have been constrained by the physical sensations he felt were being conveyed by his work. Given his identification with and affinity for nature (Pollock's "relationship to nature," according to Krasner, "was intense. . . . He identified very strongly with nature"<sup>102</sup>), it would hardly be surprising if he associated the impulsive rhythm of his work with the rhythmic pulse of the natural world.

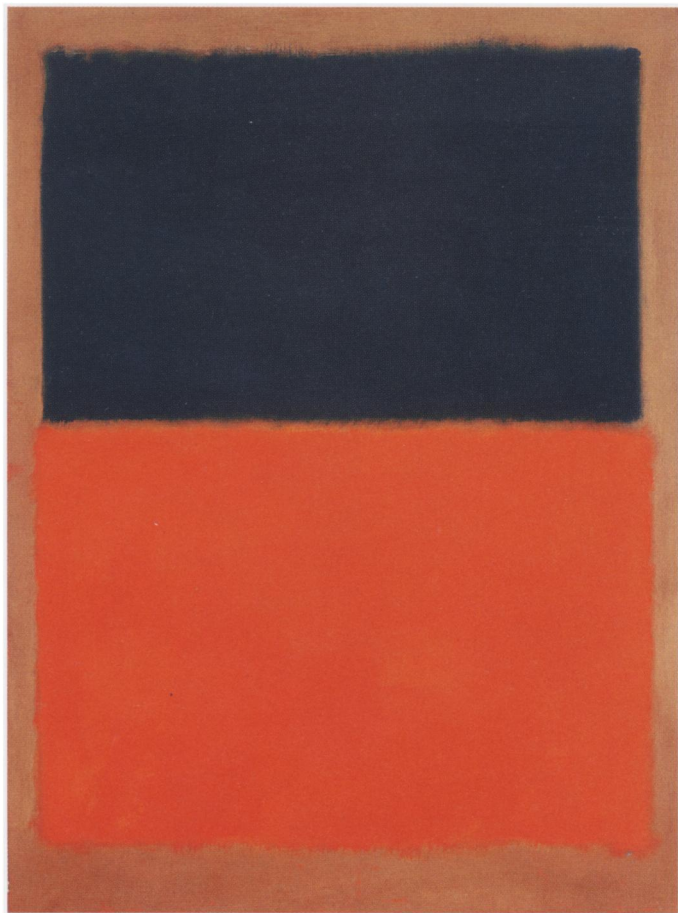
Steir, Serra, and Smithson clearly took an altogether different tack; by employing their materials *literally* and non-metaphorically, they shunned representational or symbolic allusions. Steir felt that her work was "not complicated . . . the paintings are, what actually is—paint falling."<sup>103</sup> "I am not interested," Serra declared, "in sculpture that conventionalizes metaphors of content."<sup>104</sup> The contrast was especially underscored by Smithson: "Jackson Pollock's art," he wrote, "tends towards a torrential sense of *material* that makes his paintings look like splashes of marine sediments. Deposits of paint cause layers and crusts that suggest nothing 'formal' but rather a physical metaphor without realism or naturalism. *Full Fathom Five* [Fig. 27] becomes a Sargasso Sea, a dense lagoon of pigment. . . ." <sup>105</sup> Thus, although Pollock intended no "realistic" or representational allusion to natural phenomena, he sought to establish a link, as Smithson observed, exclusively on the metaphoric plane (the artist, according to Krasner, once told her, "I saw a landscape the likes of which no human being could have seen"<sup>106</sup>). It is precisely this form of reference that Smithson or Serra rejected. Smithson felt that the evocations of nature "constantly . . . lurking in Pollock . . . [presented] a problem . . . [something] somehow seething underneath all those masses of paint." In counter-distinction, he utilized materials in a way that, in his own words, was "abstract and devoid of any mythological content."<sup>107</sup>

Accordingly, Smithson and Serra manipulated their materials in a literal as opposed to referential manner. In this spirit, they decided to leave their splashings, scatter pieces,



27 Pollock, *Full Fathom Five*, 1947, oil on canvas with nails, tacks, buttons, keys, combs, cigarettes, matches, and so on, 50 $\frac{7}{8}$  × 30 $\frac{1}{8}$  in. (129.2 × 76.5 cm). The Museum of Modern Art, New York, Gift of Peggy Guggenheim (artwork © Pollock-Krasner Foundation / Artists Rights Society [ARS], New York; photograph licensed by Scala, provided by Art Resource, NY)

and earthworks on the floor rather than tamper with them in any way (Figs. 14, 25). For an abstract sculpture, of course, the distinction between a "horizontal" or "vertical" orientation, or between a piece left in its "original position" or "repositioned," may be less obvious.<sup>108</sup> A number of Smithson's or Serra's works could—conceivably—have been reconfigured vertically and, in some cases, fastened to the wall. But such repositioning would compromise the intent of these pieces and, more to the point, render their configurations susceptible to metaphorical projection, a condition the creators expressly sought to avoid. Subsequently, pieces that include prominent vertical components and meticulous arrangements—Serra's *Prop* (1968) or *House of Cards* (1969), for example—are more likely, as their titles indicate, to be construed associatively. This predicament also applies to Steir's *Waterfalls*: even as she saw her materials to be nothing but



28 Mark Rothko, *Green and Tangerine on Red*, 1956, oil on canvas, 93½ × 69½ in. (237.4 × 175.5 cm). Phillips Collection, Washington, D.C. (artwork © Kate Rothko Prizel & Christopher Rothko/Artists Rights Society [ARS], New York; photograph provided by the Phillips Collection)

“paint falling,” the artist conceded that some of her works did “look like a picture of water falling.”<sup>109</sup>

When repositioned on a wall, further, any object or material is more easily reinscribed within an aesthetic framework. As Clement Greenberg declared, the “look of non-art was no longer available to painting, since even an unpainted canvas now stated itself as a picture.” Consequently, “the borderline between art and non-art had to be sought in the three-dimensional, where sculpture was, and where everything material that was not art also was.”<sup>110</sup> It therefore stands to reason that whereas Smithson and Serra exhibited their works as they were created, Pollock did not. Displayed vertically, his work would be firmly relocated within aesthetic rather than nonaesthetic territory, and the pursuant effect of subverting gravity, detracting from the literal matter-of-factness of his materials, was more likely to encourage the very kind of kinesthetic participation Pollock himself engaged in while perusing works of art, and which he hoped would also be triggered whenever anyone perused his own. These physical sensations, in turn, would encourage the spectator to initiate the process of metaphorical projection—the same process, presumably, on which Pollock himself relied when constructing the meanings of his work.

What this implies, on a more practical level, is that when-

ever we contemplate a Pollock abstraction, our eyes will start following the linear tracks on the canvas, just as we tend to fix our gaze on any moving object (cognitive psychologists call this tendency “trajectory tracking”<sup>111</sup>). As suggested earlier, a thinning and a thickening line is involuntarily interpreted as an index of acceleration and deceleration; yet, as one peruses Pollock’s works, no sooner are lines tracked in a particular direction—and a definite orientation assigned to them—than they crisscross, merge, overlap, run off the edge of the frame, or simply end. With the spectator’s gaze repeatedly skipping from one thread to another in a haphazard way, no individual mark is likely to compel attention for long; thus, any particular line is as likely to be followed in one as in the opposite direction. Projecting a particular orientation on any specific line, therefore, proves not just provisional but reversible, and as soon as that orientation is reversed, the line’s visual impact may alter in a decisive way. Contingent on the direction the viewer happens to select, the skeins may alternatively look “leaden,” “sinking,” “drooping” or, conversely, “buoyant,” “floating,” and “soaring.” No matter how subjective, or descriptive of mental states rather than actual conditions, all of these metaphorical projections are nonetheless extrapolated from our physical experiences with gravity: indeed, these epithets describe gravitational phenomena par excellence.<sup>112</sup>

Irrespective of how provisional or reversible these spatio-temporal projections may be, there is one aspect of Pollock’s pictorial language that proves far less open to interpretation. By appearing “energetic,” “mutable,” and “restless,” his poured paintings call up physical sensations of overcoming inertia. As a result, they hardly lend themselves to be construed as “lethargic,” “inflexible,” or “placid.” On the contrary, Pollockian trajectories bring to mind swift and swirling currents, or turbulent flows of liquid akin to those in Leonardo’s drawing (Fig. 9). In fact, when acknowledging his “concern with the rhythms of nature,” Pollock specifically referenced “the way the ocean moves.”<sup>113</sup> It is their very dependence on the recording and evocation of fluid dynamics, therefore, that make Pollock’s abstractions such effective metaphors for concepts or experiences we associate with the propagation of energy—especially the propagation of energy in the natural world.<sup>114</sup>

Against such a background, Pollock provides an instructive contrast to Mark Rothko, a fellow Abstract Expressionist whose work is no less metaphoric and no less dependent on the physical sensations associated with gravitational force. Unlike Pollock, of course, Rothko did not rely on gravity in the actual process of painting. All the same, the metaphoric meanings projected on his work arise from the viewer’s propensity to superimpose gravitational order on his canvases—in particular, the expectation that “heavier” objects settle below “lighter” ones, and fluids of larger density beneath those of smaller density.<sup>115</sup> For this reason, Rothko’s *Green and Tangerine on Red* (Fig. 28)—where an intensely dark green rectangular area rests atop a markedly brighter, reddish one—will likely strike a spectator as untenable. On the experiential level, Rothko’s composition seems “unstable,” “unbalanced,” even “frustrated.” These “physical” states, in turn, will provoke emotional responses that count, in Sweetser’s sense, as experientially linked. “High” is invariably connected with



what is positive and dominant, “low” with what is negative and subservient: the elect *ascend* to heaven but the damned *plummet* into hell; the brave *rise* to the occasion but the overconfident *fall* flat on their face; the conscientious live *up* to expectations, but the indolent let others *down*.<sup>116</sup> Within this framework, the placement of the darker above the lighter area in Rothko’s painting will appear burdensome, oppressive, even ominous. In fact, Rothko himself described the lower measure as “the happier side of living” and the higher measure as “the black clouds and worries that always hang over us.”<sup>117</sup> In this manner, both Pollock and Rothko could be said to generate metaphoric projections by using the physical as an analog to the psychological.<sup>118</sup> But each in a different way and for a different purpose: whereas Rothko foregrounds gravity, Pollock conceals it; whereas Rothko indulges our expectations, Pollock confounds them.

Viewed in this light, the subversion of gravity emerges as instrumental to the artist’s overall strategy. It solved important practical problems, reinforced the most salient visual characteristics of his work, kept his process from transgressing the domain of the aesthetic, and underpinned his broader strategy of constructing and communicating meaning. Still, it is ironic that in evoking nature all the more effectively, Pollock endeavored to “obfuscate” its most readily observable force. No doubt perplexing, this conundrum is nonetheless reminiscent of a gravitational effect that, at first glance, seems no less counterintuitive: if an elevator severed from its cable accelerates down a shaft, the passengers floating inside will, if only momentarily, enjoy the sensation of weightlessness. Pollock’s art (without subjecting his audience to imminent danger) presents a comparable paradox; he may have enlisted gravity, but he concealed its effects. His method of dispensing pigment was inconceivable without gravitational force, yet his poured trajectories appear to accelerate and decelerate, advance and retreat, dash and swerve, all beyond its reach.

Even so, these illusions of motion were never meant to function as ends in themselves. In fact, these very same illusions provoked a multiplicity of readings, even among critics determined to locate Pollock’s work firmly within a broader sociohistorical context. In “The Liberating Quality of Avant-Garde Art,” for instance, Meyer Schapiro argued that the celebration of spontaneity and impulse in the work of Pollock and his contemporaries represented an oblique but pointed means of cultural critique. Since artistic activity constitutes one of the few arenas left in capitalist society for individual expression to manifest itself without managerial oversight, then the Abstract Expressionists’ unprecedented flaunting of improvisation in their mode of execution could be construed as a direct attempt to compensate for the marginalization of spontaneity and individual agency in mechanized industrial production.<sup>119</sup> Whereas this materialist, though ultimately metaphoric, interpretation may not fit all painters associated with the New York school,<sup>120</sup> and many social art historians have actually come to diametrically opposed conclusions,<sup>121</sup> Pollock’s political sympathies were closely aligned with its basic premise.<sup>122</sup> From this perspective, the artist’s evocation of spontaneous bodily motion, empathy with natural phenomena, and enlisting of a natural force in his working process served to reinforce his rejection

of all things programmatic, precalculated, and repressive; his reaction to the industrial age in which he lived—the airplane, the atom bomb, the radio,<sup>123</sup> as he described it—took the form of a denial or negation. The majority of Abstract Expressionists would have concurred; Robert Motherwell, for example, insisted, “The abstractness of modern art has to do with how much an enlightened mind rejects of the contemporary social order.”<sup>124</sup>

This thesis is not altogether incompatible with the synthesis proposed here. If it is not the employment but the *subversion* of gravity that sharply differentiates Pollock’s contribution from that of other artists, might not this subversion have signaled yet another individual act of rebellion, a defiant refusal to conform, a stubborn resolve to “outwit” the very natural order with which his own abstractions were meant to be consonant? In which case, might not the artist be beckoning us to project a plurality of meanings on his abstract canvases? Not only our sympathy with the rhythms of nature,<sup>125</sup> but our sense of personal autonomy<sup>126</sup> and unlimited potential as well?<sup>127</sup> Too many overtones, too many demands, perhaps, for any work of art to accommodate. Yet Pollock grasped, if only intuitively, how resonant and portentous his vivid rendition of energy and momentum would prove. As Michel de Montaigne remarked: “notre vie n’est que mouvement.”<sup>128</sup>

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## Notes

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1. Paul Brach, “From a symposium, ‘Jackson Pollock: Portrait and a Dream,’ Guild Hall Museum, East Hampton, NY,” in *Such Desperate*

- Joy: Imaging Jackson Pollock*, ed. Helen A. Harrison (New York: Thunder's Mouth Press, 2000), 277.
2. Rosalind Krauss, *The Optical Unconscious* (Cambridge, Mass.: MIT Press, 1993), 242–329.
  3. Jackson Pollock, interview by William Wright (1950), broadcast on WERI (Westerly, R.I.), 1951, reprinted in Pepe Karmel, ed., *Jackson Pollock: Interviews, Articles, Reviews* (New York: Museum of Modern Art, 1999), 21.
  4. Renaissance painters working on cartoon drawings meant to be transferred to the wall, as is well known, did not alter the conventions of their craft in the slightest.
  5. The time of flight of a paint fragment depends, of course, on the vertical component of its initial velocity (at its moment of separation from Pollock's implement). For example, if the pigment were propelled upward (in addition to any lateral movement it may have), it would take longer for it to reach the canvas than if it initially were propelled downward. But the time of flight is independent of the horizontal (lateral) component of initial velocity.
  6. Intriguingly, there is a photograph of an exhibition at the Sidney Janis Gallery in 1955 (Francis O'Connor and Eugene Thaw, eds., *Jackson Pollock: A Catalogue Raisonné of Paintings, Drawings, and Other Works*, 4 vols. [New Haven: Yale University Press, 1978], vol. 4 [hereafter referred to as CR4], 275), where *White Cockatoo: Number 24A, 1948* (CR2, cat. no. 194 [hereafter referred to as CR2: 194]) is shown exhibited on the ceiling. But this may have been an anomalous example, which the gallery may have decided to exhibit this way one time only. The painting, as far as can be discerned, was not intended to be exhibited this way, nor has been ever since.
  7. Leo Steinberg, *Other Criteria* (New York: Oxford University Press, 1972), 84.
  8. T. J. Clark, *Farewell to an Idea: Episodes from a History of Modernism* (New Haven: Yale University Press, 1999), 325.
  9. Satellites orbiting the Earth, like the space station, are themselves in free fall, and therefore any object inside them will not be subject to gravitational acceleration relative to the orbiter.
  10. The most famous example is that of the Greek painter Nealkes, who, unable to reproduce a horse foaming at the mouth to his satisfaction, flung paint at his work in frustration, only to obtain the very effect he desired. In many ways, Nealkes could be seen as providing a precedent for Pollock, at least insofar as he relinquished a certain degree of control, as well as severed the artist's dependence on the physical contact between the brush and the canvas. Closer in time is Man Ray, who, in using spray paint in his aerographs, also eliminated any physical contact between the artist and the canvas (see *Aerograph*, 1919, Staatsgalerie, Stuttgart).
  11. The Native American sand painters (and Tibetan monks), to whom Pollock himself owed some debt, constitute an exception, of course. But these artists practiced a mode of pigment application that was far more restrictive in its range of motion.
  12. It should be said, however, that after his apprenticeship with the poured technique, Pollock learned how much pigment was necessary to achieve any particular effect.
  13. Frank O'Hara, *Jackson Pollock* (New York: Braziller, 1959), 26.
  14. B. H. Friedman, *Jackson Pollock: Energy Made Visible* (New York: McGraw Hill, 1972), xiii.
  15. *Ibid.*, xiv.
  16. Thomas Hart Benton, quoted in Stephen Polcari, "Jackson Pollock and Thomas Hart Benton," *Arts Magazine* 53 (March 1979): 123.
  17. John Dewey, *Art and Experience* (New York: Minton, Balch, 1934), 54.
  18. Different three-dimensional trajectories may, in principle, be recorded in nearly the same way on the canvas below, just as objects of different shapes may cast the same shadow. Up-and-down motion, for example, will in some cases (namely, when it is confined to a single vertical plane) register only as variations in skein thickness, not in their altered direction.
  19. Even highly indexical works on paper—such as the freely meandering "automatic drawings" practiced by the Surrealists, for example—lack comparable immediacy.
  20. For a penetrating discussion of this idea, see E. H. Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation* (Princeton: Princeton University Press, 1972), 179ff.
  21. In addition to having appropriate density and viscosity, liquid paint must have other properties to make it suitable for painting in a Pollockian manner. A liquid with too large a surface tension (mercury, for example) may be "pourable" but may not leave permanent marks on the canvas.
  22. Pollock, interview by Wright, 21.
  23. B. H. Friedman, "An Interview with Lee Krasner Pollock," in *Jackson Pollock: Black and White* (New York: Marlborough-Gerson Gallery, 1969), reprinted in Karmel, *Jackson Pollock: Interviews, Articles, Reviews*, 38.
  24. *Webster's Seventh New Collegiate Dictionary*, s.v. "drip" and "pour."
  25. In addition, discrete droplets may be produced, irrespective of the amount of pigment carried on an implement, by a sudden jolt or thrust.
  26. The mobiles of Alexander Calder or the kinetic pieces of George Rickey and Jean Tinguely have also introduced motion in sculpture. But these mobiles, subject to external forces, actually move rather than depict motion while remaining at rest.
  27. Falling figures, given their frequency in mythological scenes (as in Pieter Bruegel's *Fall of Icarus* or Hendrik Goltzius's *Phaeton*) and Christian iconography (particularly in the Last Judgment), are perhaps more persuasive, most likely because their poses are immediately recognizable as "unnatural."
  28. Scott McCloud, *Understanding Comics* (Northampton, Mass.: Tundra Publishing, 1993), 111–13.
  29. Giacomo Balla's rendition of human locomotion was most likely inspired by the precedents found in the comic strips of Wilhelm Busch. Other examples include Umberto Boccioni, who blurred the outlines of his figures, and Luigi Russolo, who used arrowhead configurations to evoke dynamism.
  30. This connection was elucidated by Ellen G. Landau in "Action/Reaction: The Artistic Friendship of Herbert Matter and Jackson Pollock," in *Pollock Matters*, ed. Landau and Claude Cernuschi (Chestnut Hill, Mass.: McMullen Museum of Art, Boston College, 2007), 9–57. For additional information on Pollock's relation to photography, see David Anfam, *Abstract Expressionism* (London: Thames and Hudson, 1990), 122–23; idem, "Pollock Drawing: The Mind's Line," in *No Limits, Just Edges: Jackson Pollock Paintings on Paper*, ed. Susan Davidson (New York: Guggenheim Publications, 2005), 31–33; and Caroline Jones, *Eyesight Alone: Clement Greenberg's Modernism and the Bureaucratization of the Senses* (Chicago: University of Chicago Press, 2005), 242–50.
  31. William M. Ivins Jr., *Prints and Visual Communication* (Cambridge, Mass.: Harvard University Press, 1953), 152–53.
  32. Interestingly, Pollock was known to have admired Darcy Thompson's book *On Growth and Form* (New York: Macmillan, 1948), which included several examples of strobe photography.
  33. See Martin Kemp, "Doing What Comes Naturally: Morphogenesis and the Limits of the Genetic Code," *Art Journal* 55 (Spring 1996): 30.
  34. Pollock, interview by Wright, 22.
  35. A seismograph needle moves with a single degree of freedom, whereas Pollock's gestures range in space with three degrees of freedom. The number of degrees of freedom pertains to the number of variables needed to specify the configuration of the system. In the needle's case, the position of the recording tip can be specified just by the angle of the arm to which it is attached.
  36. In his essays, William Rubin made a similar observation: "marks have no inevitable relationship to the speed, character or range of the body-movements that produce them. Similar marks can be made in quite different ways just as similar body and wrist movements can lead to quite different marks." Rubin, "Jackson Pollock and the Modern Tradition," *Artforum* 5 (February 1967), reprinted in Karmel, *Jackson Pollock: Interviews, Articles, Reviews*, 124.
  37. These "sinusoidal" oscillations range up to about a quarter inch (or five millimeters) in wave length from peak to peak and frequently vary in amplitude (that is, they gradually transition from minute to larger size, or vice versa).
  38. This effect is exceedingly rare in Pollock's production and was achieved here because of the confluence of two factors. First, the paper was coated so as to make its surface unusually smooth (for Pollock), and, second, the red paint's viscosity was unusually high (for a drawing), so as to make such pronounced oscillations possible.
  39. For a comprehensive discussion of this phenomenon, see Neil M. Ribe, "Coiling of Viscous Jets," *Proceedings of the Royal Society, London, Series A*, 460 (November 2004): 3223–39.
  40. Respectively, CRS (catalogue raisonné supplement) no. 24 and CR4: 977.
  41. For a fluid-mechanical model of the paint jets created by the artist, a computational simulation of some of the effects he generated, and a review of the relevant physics literature, see S. Lee, S. Olsen, and B. Gooch, "Simulating and Analyzing Jackson Pollock's Paintings," *Journal of Mathematics and Art* 1 (June 2007): 73–78.
  42. This description of delay between the motion of pigment in flight and that of the change in the artist's movement ignores, for the sake



- of simplicity, other factors that will tend to "rein in" the paint, such as the cohesion forces within the fluid.
43. See Claude Cernuschi and Andrzej Herczynski, "Cutting Pollock Down to Size: The Boundaries of the Poured Technique," in Landau and Cernuschi, *Pollock Matters*, 73–89.
  44. In accordance with Newtonian mechanics, Pollockian skeins would be straight unless under the influence of external forces. But, since Pollock's abstractions are typically composed of curved lines, the inescapable conclusion—at least in a literal, physical sense—is that the motion recorded on the canvas was not free from some extrinsic push or pull. It was, of course, the artist himself who provided that "external" force by changing directions as he moved his implement in the air.
  45. See also Robert Morris, "Some Notes on the Phenomenology of Making: The Search for the Motivated," in *Looking Critically: 21 Years of Artforum Magazine*, ed. Amy Baker Sandback (Ann Arbor, Mich.: UMI Research Press, 1984), 88–92; Rosalind Krauss, "The Crisis of the Easel Picture," in *Jackson Pollock: New Approaches*, ed. Kirk Varnedoe and Pepe Karmel (New York: Museum of Modern Art, 1999), 155–80; and Yve-Alain Bois and Rosalind Krauss, *Formless: A User's Guide* (New York: Zone Books, 1999).
  46. Elizabeth Frank, *Jackson Pollock* (New York: Abbeville Press, 1983), 114; and Clark, *Farewell to an Idea*, 335.
  47. Newton's second law,  $\vec{F} = m\vec{a}$ , where the bar denotes a vector quantity (that is, a quantity, like force and acceleration, that have both a magnitude and direction). This equality requires that the acceleration ( $\vec{a}$ ) of any mass ( $m$ ) follow the direction of the applied net force ( $\vec{F}$ ).
  48. The term "small" refers here to the concept of an ideal point particle, that is, an object small enough so that its rotation, any internal degrees of freedom (such as deformability), and the effect of air resistance can be ignored.
  49. Perhaps a simple mechanical example will clarify this point. Imagine a small ball falling under gravity: it accelerates downward, in the direction of the force applied to it, namely, gravity. If the same ball rolls down an incline, it will accelerate along its slope, not directly downward. To put it differently, when constraints are present (such as an incline on which the ball rolls), the applied force may cause a reaction or constraint force (that of the incline acting on the ball). The object will then accelerate in the direction corresponding to the net force—namely, the sum of the applied and reaction forces—acting on it (in our scenario, the ball will accelerate along the incline).
  50. In the example given in n. 49 above, the ball will cease to accelerate if the surface on which it is constrained to roll becomes horizontal—precisely because it cannot accelerate perpendicularly to the applied force (gravity).
  51. Of course, when the angle between the applied force and the tracks becomes greater than 90 degrees, the cart will begin to accelerate backward (that is, with negative acceleration).
  52. Discounting, again, the effect of air resistance, in the case of pigment fragments in flight with horizontal as well as vertical components of velocity.
  53. Friedman, "An Interview with Lee Krasner Pollock," 38.
  54. See Nicholas Eastaugh, "What It Says on the Tin: A Preliminary Study of the Set of Paint Cans and the Floor in the Pollock-Krasner Studio," in Landau and Cernuschi, *Pollock Matters*, 143–54.
  55. Referring to the constitution of these paints and thinners, Krasner added, "I don't know what it was." Lee Krasner, "Jackson Pollock at Work: An Interview with Lee Krasner," by Barbara Rose, in Karmel, *Jackson Pollock: Interviews, Articles, and Reviews*, 43.
  56. *Ibid.*, 45.
  57. Jackson Pollock, handwritten statement, in Karmel, *Jackson Pollock: Interviews, Articles, and Reviews*, 24.
  58. Following scientific usage, the terms "geometric" and "geometrical" carry a subtly different meaning. By "geometric" we mean a mathematical property of a pattern or an image (geometric figure, geometric facade), whereas "geometrical" refers to a quality of an observation or a description—geometrical thinking, geometrical considerations. Likewise, we say "symmetric equation" and "symmetric design," but "symmetrical placement" and "symmetrical relations."
  59. The four forces (gravitational, electromagnetic, strong, and weak) are now all thought to be different manifestations of a single, unified force. Only three of the four—weak, strong, and electromagnetic—have been shown thus far to derive from the same "source" and to be unified in what is called the standard model; gravity, which has always proved difficult to understand, remains un-unified.
  60. The direction of gravity, of course, is fixed relative to the Earth's surface; it is dependent, in other words, on location; for residents of the North and South Poles, "down" or "up" would actually be in the opposite direction.
  61. Seasickness, as the name suggests, is an anomalous state in which the "vertical" and "horizontal" begin to lose their separate identities.
  62. Numerous animals (from bacteria to turtles, sharks, and pigeons) can in fact orient themselves with respect to Earth's magnetic field but, apparently, humans lack this ability. The mechanism of magnetoreception in living organisms is poorly understood but is a subject of intense research; see Sonke Johnsen and Kenneth J. Lohmann, "Magnetoreception in Animals," *Physics Today* 61 (March 2008): 29–35.
  63. Picasso's *The Swimmer* of 1929 (Musée Picasso, Paris) was ostensibly created so that it could be hung following any of the four principal orientations. See Pepe Karmel, "A Sum of Destructions," in Varnedoe and Karmel, *Jackson Pollock: New Approaches*, 75. In parallel, Louis also left himself open to change the orientation of his canvases after they were completed; see John Elderfield, *Morris Louis* (New York: Museum of Modern Art, 1986), 35. For an analysis of El Lissitzky's similar proclivities, see Yve-Alain Bois, "El Lissitzky: Radical Reversibility," *Art in America* 76, no. 4 (1988): 160–81.
  64. Of course, certain paintings, permanently placed, such as frescoes, were created in view of the orientation of architectural structures and sources of light, requiring a particular location for the work.
  65. The question as to whether a dominant symmetry-breaking axis should be imposed or overall symmetry preserved was faced by artists working within the confines of rotationally symmetrical spaces—either circular ceilings or hemispheric cupolas. In Pietro da Cortona's *Assumption of the Virgin* (S. Maria in Vallicella, Rome, 1647–51), for instance, the focus on the Virgin imposes a privileged line of sight, thereby breaking the rotational symmetry of the hemispheric dome. In Andrea Mantegna's ceiling of the Camera degli Sposi in the Palazzo Ducale in Mantua (1474), by contrast, the overall symmetry of the design is preserved: as one rotates underneath the fresco, no perspective seems privileged over any other. A similar problem, to bring the matter down to earth, faced clock designers from the very beginning of horology. Whereas the Roman numerals of early clocks are oriented symmetrically with respect to the center, Arabic numerals of later clocks are often aligned vertically, breaking the rotational symmetry of the circular dial.
  66. Consequently, these round pieces run afoul of their likely prototype—José Clemente Orozco's *Man of Fire* (1938–39)—a fresco that, although not rotationally symmetric, nonetheless avoids a single privileged compositional axis.
  67. Artists such as Piet Mondrian (*Counter-Composition*, 1924), Ivan Puni (*Still Life with Hammer*, 1915), Kenneth Noland (*Autumn Spirit*, 1965), and Richard Serra (*Boston Road*, 1974), of course, explored other alternatives to the four canonical orientations of rectangular canvases.
  68. Jackson Pollock, "My Painting," *Possibilities I* (Winter 1947–48), reprinted in Karmel, *Jackson Pollock: Interviews, Articles, Reviews*, 17.
  69. Rubin, "Jackson Pollock and the Modern Tradition," 131.
  70. See, for example, CR2: 224, 225, 228, 236.
  71. Several photographs of Pollock's studio, as well as his exhibition layouts display a number of works at an orientation different from how they are hung today. In a photograph of Pollock's 1950 exhibition at Betty Parsons (CR4, p. 254), for example, *Number 17, 1950* (CR2: 271, Whitney Museum of American Art, New York), is hung vertically as opposed to horizontally. Moreover, a photograph of Pollock's studio of 1951 (CR4, p. 261, lower left) shows a single strip of canvas containing several paintings, which, as was Pollock's custom during this period, were later separated. *Black and White Painting II* (CR2: 330) now hangs with an orientation different from how it appears in the photograph.
  72. A 1951 photograph of Pollock's studio, CR4, p. 261, shows a number of paintings executed on a single roll of canvas. Among them is *Black and White Painting II* (CR4: 330), a piece that was presumably executed with a different orientation from the one in which it is presently exhibited. Even if the reductive evocation of a human head is reversed, the artist obviously favored (though at which point is unclear) this particular reorientation, as evidenced by the placement of his signature. Breaking with his practice of painting from all four sides of the canvas, Pollock, as the photograph indicates, must have painted these pieces predominantly from one side.
  73. "I try," he stated, "to stay away from any recognizable image; if it creeps in, I try to do away with it. . . ." Jackson Pollock, interview in *Life Magazine*, quoted in Steven Naifeh and Gregory White Smith, *Jackson Pollock: An American Saga* (New York: Clarkson Potter, 1989), 591.
  74. For a detailed discussion of the applicability of fractal geometry to the analysis of Pollock's poured abstractions, and of the structural connection between his work and naturally occurring patterns, see Claude Cernuschi, Andrzej Herczynski, and David Martin, "Abstract Expressionism and Fractal Geometry," in Landau and Cernuschi, *Pollock Matters*, 91–104. Other discussions of this topic include Richard P.

- Taylor, "Order in Pollock's Chaos," *Scientific American*, December 2002, 116–21; Taylor, Adam P. Micolich, and David Jonas, "Fractal Analysis of Pollock's Drip Paintings," *Nature* 399 (June 1999): 422; Taylor, Micolich, and Jonas, "Fractal Expressionism," *Physics World* 12 (October 1999): 25–28; Taylor, Micolich, and Jonas, "The Construction of Jackson Pollock's Fractal Drip Paintings," *Leonardo* 35 (2002): 203–7; J. R. Mureika, G. C. Cupchik, and C. C. Dyer, "Multifractal Fingerprints in the Visual Arts," *Leonardo* 37, no. 1 (2004): 53–56; Mureika, Dyer, and Cupchik, "Multifractal Structure in Nonrepresentational Art," *Physical Review E* 72 (2005): 046101; and Katherine Jones-Smith and Harsh Mathur, "Revisiting Pollock's Drip Paintings," *Nature* 444 (November 2006): E9–E10.
75. The all-over compositions of Color Field painters such as Larry Poons (for example, *Nixe's Mate*) and Jules Olitski (*Untitled*), while still introducing a certain degree of variation at fine scale, are, arguably, even more symmetrical than Pollock's works.
  76. Pat Steir, quoted in Paul Gardner, "Pat Steir: Seeing through the Eyes of Others," *ArtNews* 84 (November 1985): 88.
  77. Pat Steir, quoted in Anne Waldman, "Pat Steir," *Bomb* 83 (Spring 2003): 36.
  78. A flow of viscous liquid near a surface (down a wall or in a pipe, for example) will conform to what is called the "no slip" condition, a condition whereby the velocity of liquid particles will be diminished near the wall (and will be zero right next to the wall).
  79. Conceivably, Pollock could also have applied a large amount of paint in the central area and repositioned the canvas while that area was still wet.
  80. Another such exception is *Number 6, 1948: Blue, Red, Yellow* (1948, CR2: 209).
  81. It is actually the horizontal component of the force applied by the artist that is most evident on the canvas.
  82. Kenneth Noland, quoted in Elderfield, *Morris Louis*, 33.
  83. Pat Steir, quoted in Hilary Stunda, "April Gornik and Pat Steir," *ArtNews* 200 (February 2000): 169.
  84. Pollock, handwritten statement, 24.
  85. Some of these pieces, such as *Eat Meat* (Fig. 24), were later cast in metal.
  86. Linda Benglis, quoted in Rosalind Constable, "New Sites for New Sights," *New York Magazine*, January 12, 1970, 44.
  87. Richard Serra, quoted in "Interview: Richard Serra & Bernard Lamarche-Vadel," in *Richard Serra: Interviews, Etc. 1970–1980*, ed. Clara Weyergraf (Yonkers, N.Y.: Hudson River Museum, 1980), 140.
  88. Eva Hesse, "An Interview with Eva Hesse," by Cindy Nemser, in Sandback, *Looking Critically*, 94.
  89. Friction and normal forces are two components of the force exerted by a surface on an object in contact with it. Friction acts along, and the normal force perpendicularly (or normal) to, the surface. When an object lies at rest (is motionless) on a plane, friction and the normal force exactly counterbalance its weight (that is, the force of gravity acting on it). To put it differently, since the object at rest does not accelerate, the three forces (friction, normal force, and gravity) vectorially add up to zero. If an object at rest on a surface is in contact with another object, as in the vertical plate in Serra's *Prop*, all the forces acting on it must balance out. In the sculpture, the force of friction with the wall, the normal force of the wall, gravity, and the force exerted by the beam on the plate all add up to zero.
  90. Richard Serra, "Basel, January 18, 1994," in *Richard Serra Intersection Basel*, ed. Martin Schwander (Düsseldorf: Richter Verlag Düsseldorf, 1996), 75.
  91. Pollock, "My Painting," 17.
  92. See Robert Goodnough, "Pollock Paints a Picture [May 1951]," *ArtNews* 76 (November 1977): 164.
  93. Pollock, interview by Wright, 23.
  94. Clyfford Still, quoted by Katherine Kuh, "Clyfford Still," in *Clyfford Still*, ed. John O'Neill (New York: Harry N. Abrams and the Metropolitan Museum of Art, 1979), 10.
  95. Mark Rothko, for instance, declared that his works functioned as a "pictorial equivalent for man's new knowledge and consciousness of his more complex inner self," letter to the editor, *New York Times*, July 8, 1945, sec. 2, 2. In addition, Robert Motherwell stated, "The idea that appears in Baudelaire . . . is the idea of nature being analogies—that nature is essentially a system of equivalences . . . any given thing can be a corresponding metaphor for something else." Motherwell, quoted in Robert Mattison, *Robert Motherwell: The Formative Years* (Ann Arbor, Mich.: UMI, 1987), 14.
  96. Friedman, *Jackson Pollock*, 71.
  97. Pollock, interview in *Life Magazine*, 591.
  98. See Claude Cernuschi, *Jackson Pollock: Meaning and Significance* (New York: Harper/Collins, 1992), esp. chap. 3; and Cernuschi and Herczynski, "Cutting Pollock Down to Size," 73–89.
  99. See Claude Cernuschi, "Not an Illustration but the Equivalent": *A Cognitive Approach to Abstract Expressionism* (Madison, N.J.: Associated University Presses, 1997).
  100. Eve Sweetser, *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Change* (Cambridge: Cambridge University Press, 1990), 145; see also Mark Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason* (Chicago: University of Chicago Press, 1987); and George Lakoff, *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind* (Chicago: University of Chicago Press, 1987).
  101. Pollock, "My Painting," 18.
  102. Krasner, "Jackson Pollock at Work: An Interview with Lee Krasner," 42.
  103. Pat Steir, "Interview with Pat Steir, San Francisco, November 1990," by Constance Lewallen, *View* 7 (Fall 1991): 5.
  104. Richard Serra, "Rigging," interview by Gerard Hovagyan in Weyergraf, *Richard Serra: Interviews, Etc.*, 128.
  105. Robert Smithson, *The Writings of Robert Smithson*, ed. Nancy Holt (New York: New York University Press, 1979), 89.
  106. Friedman, "An Interview with Lee Krasner Pollock," 37.
  107. Robert Smithson, interview by Paul Cummings, in Smithson, *The Writings of Robert Smithson*, 146, 147.
  108. More generally, the terms *horizontal* or *vertical* are problematic when used to describe the placement of a three-dimensional object in space, unless the object's utility (or intention) dictates a preferred orientation.
  109. Steir, "Interview with Pat Steir," 5.
  110. Clement Greenberg, "Recentness of Sculpture," in *Minimal Art: A Critical Anthology*, ed. Gregory Battcock (New York: E. P. Dutton, 1968), 182.
  111. See Ulrich Neisser, *Cognition and Reality: Principles and Implications of Cognitive Psychology* (New York: W. H. Freeman, 1976), 108ff.
  112. The exception here is "soaring," which may refer to a gravitational effect, as in a hot parcel of air rising up, but may also describe birds or planes whose flight depends on other physical mechanisms.
  113. Pollock, quoted in Friedman, *Jackson Pollock*, 228.
  114. See Cernuschi, *Jackson Pollock*, 135ff.
  115. For example, helium-filled balloons rise, oil floats above water, and salinity increases with depth. In unstably stratified fluids, such as water in a container heated from below, a flow is induced whereby fluid parcels of smaller density (hot water) at the bottom move up and parcels of larger density (cold water) move down. This flow, called natural convection, is due to gravitational force.
  116. See Julius S. Held, "Gravity and Art," in *Art Studies for an Editor: 25 Studies in Memory of Milton S. Fox* (New York: Harry N. Abrams, 1975), 117–28.
  117. Mark Rothko, quoted in Marjorie Phillips, *Duncan Phillips and His Collection* (Boston: W. W. Norton, 1970), 288.
  118. See Jeffrey Weiss, "Dis-Orientation: Rothko's Inverted Canvases," in *Seeing Rothko*, ed. Glenn Phillips and Thomas Crow (Los Angeles: Getty Publications, 2005), 135–58.
  119. Meyer Schapiro, "Recent Abstract Painting," reprinted as "The Liberating Quality of Avant-Garde Art," in *Modern Art: 19th and 20th Centuries* (New York: George Braziller, 1978), 213–26.
  120. Although Mark Rothko was a nonaligned Socialist, Barnett Newman an anarchist, and Ad Reinhardt a Soviet sympathizer, they painted in so careful a way as to run afoul of Schapiro's interpretation. Even the gestural works of Pollock, Willem de Kooning, and Yves Klein were far more controlled and calculated than their appearance suggests. See Claude Cernuschi, "The Politics of Abstract Expressionism," review of *Abstract Expressionism as Cultural Critique: Dissent during the McCarthy Period*, by David Craven, *Archives of American Art Journal* 39, nos. 1–2 (2000): 30–42.
  121. Michael Leja, for example, interprets Abstract Expressionism's tragic bend as disguising "the conditions of authoritarian domination," as "a tool of bourgeois ideology," and as "operating within the hegemonic process" of an oppressive capitalist society. Leja, *Reframing Abstract Expressionism: Subjectivity and Painting in the 1940's* (New Haven: Yale University Press, 1993), 117, 118. For other readings of Abstract Expressionism as reflective of, if not complicit with, the American power structure and imperialist foreign policy during the Cold War, see Eva Cockcroft, "Abstract Expressionism, Weapon of the Cold War," in *Pollock and After: The Critical Debate*, ed. Francis Francina (New York: Harper and Row, 1985), 125–34; David Shapiro and Cecile Shapiro,



- "Abstract Expressionism: The Politics of Apolitical Painting," in *Pollock and After*, 135–52; and Serge Guilbaut, *How New York Stole the Idea of Modern Art: Abstract Expressionism, Freedom, and the Cold War* (Chicago: University of Chicago Press, 1983).
122. In a letter to his father, quoted in Naifeh and Smith, *Jackson Pollock: An American Saga*, 231, Jackson expressed his distrust of capitalism: "The system is on the rocks so no need to pay rent and all the rest of the hokum that goes with the price system." For an expansion of Schapiro's argument and a penetrating analysis of the political and ideological loyalties of New York school artists, including an analysis of the files the FBI compiled on members of the movement, see David Craven, *Abstract Expressionism as Cultural Critique: Dissent during the McCarthy Period* (New York: Cambridge University Press, 1999).
  123. Pollock, interview by Wright, 20.
  124. Robert Motherwell, "A Personal Expression," reprinted in Stephanie Terenzio, ed., *The Collected Writings of Robert Motherwell* (New York: Oxford University Press, 1992), 61.
  125. "Way I see it, we're part of the one, making it whole. That's enough, being part of something bigger. . . . We're part of the great all, in our lives and work. Union, that's us." Jackson Pollock, "Jackson Pollock: Fragments of Conversations and Statements, Selected, Extracted & Categorized from His Own Notes by Jeffrey Potter, 1949–1956," in Harrison, *Such Desperate Joy*, 89.
  126. The connection between Pollock's interest in nature and an evocation of freedom was made by Krasner: "after living in Springs for six years, I think he would have given just as much emphasis to this Eastern Long Island landscape—and seascape. They were part of his consciousness: the horizontality he speaks of, and the sense of endless space, and the freedom. . . ." Friedman, "An Interview with Lee Krasner Pollock," 37.
  127. According to the artist Jane Freilicher, Pollock's work conveyed a sense of unlimited freedom; Pollock's achievement, she maintained, "brought a glamour and authority to American painting which inspired younger painters. . . . If you could bring it off, 'make it work,' it might be possible to do anything." Freilicher, quoted in "Jackson Pollock: An Artist's Symposium, Part 2," *Art News* 66 (May 1967): 72.
  128. Michel de Montaigne, *Essais*, vol. 3 (Paris: Gallimard, 1965), 390: "Our life is nothing but motion."