

## MOVEMENT, EMBODIMENT, EMOTION

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For a long time, both anthropology and the history of art neglected issues of emotion and embodiment. Now these subjects have become all too fashionable. The phenomenological involvement of beholder and investigator in the objects of observation, whether pictures or people, has come to be taken for granted. Disembodied analytic detachment, once the most favored of investigative strategies, has come to be seen as a hindrance and a disadvantage. The study of motion, or rather, the perception of bodies in motion, has also gained increasing attention. Let me begin by acknowledging the many names I will have to omit, not just because of lack of time, but as a consequence of the proliferation of research and discussion in areas in which we think we're being original, and of the loss of work from the pre-Google era, work that precedes modernity and contemporaneity and yet always has something relevant to what we do now. Indeed, in what I have to say today, there is much that is pertinent not only in Merleau-Ponty (most obviously of all), but also in the great nineteenth-century empathy theorists, Visscher, Lipps, and even that eventually most reactionary of art historians, Heinrich Wölfflin. I speak not of the oldness of the past, but its newness, its topicality, its always prophetic possibilities.

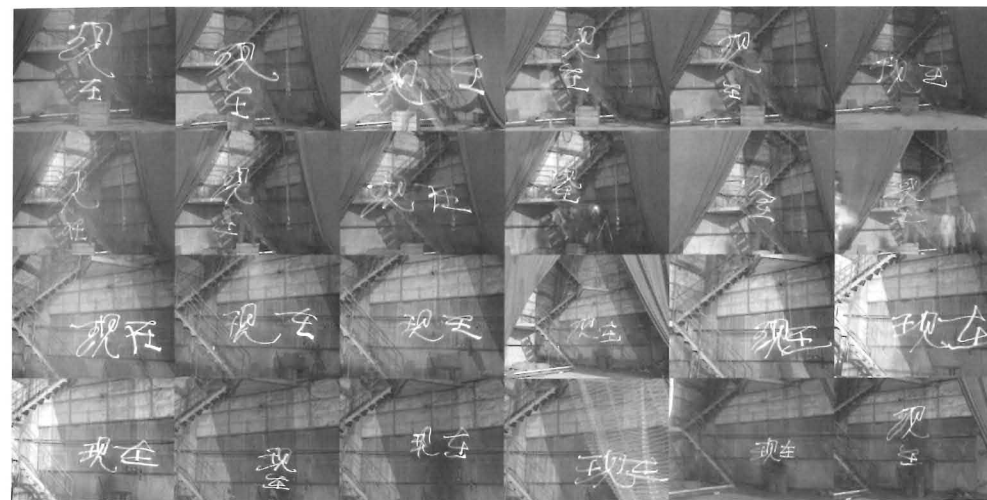
It would be superfluous to mention the differences between anthropology and art history; most of us know what they are. In fact, the fields can now be said to be rapidly merging. Instead of simply concentrating on high art, all self-respecting art historians now pay attention to the full range of visual images in different cultures while anthropologists have long attended to the esthetic aspects of images and to esthetic rankings within cultures. All this has been salutary and has led to the kinds of discourse we initiate today. The organizers' original idea was for me to talk about a subject that is more or less untranslatable into English, namely, "L'œuvre de l'art à l'épreuve de l'histoire et de l'anthropologie," and I take it that the question remains: how much can art be reclaimed at a time when the history of art is so often alleged to have come to an end, and when the distinctions between art and non-art have come to be more fluid than ever?

So what remains to be done? We need to see how we, both as anthropologists and art historians, can be open to other disciplines, so that we can profit from them, and embark on the project of understanding what contemporary artmaking entails, just as the prospectus for this conference suggests.

The new studies of embodiment and emotion which I am going to talk about this morning raise an even more critical problem of our time, namely the relationship between the cultural construction of responses and those aspects of response that pertain to our human nature. It is the old question of how culture modulates biology. These are issues that were raised with some force from the mid-1980s on by writers like Tim Ingold, Margot Lyon, Catherine Lutz, John Leavitt and many others. But the great challenge for our new age, I think, is to reconcile the local and the particular with the general and the automatic. It is to come to terms with the claims of anthropology, predicated as it is on difference—in this sense we are all anthropologists now, especially (and not just occasionally) art historians—and of cognitive neuroscience, predicated as it is, for the most part, on the general. We students of human behaviors have for too long simply dismissed this important dialectic. To speak of automaticity is to speak of the human condition, to speak of responses that are predicated not so much on the particular, but on the neural substrate of human behavior and feeling that subtend the particular. What I have to say today will depend as much on Visscher, therefore, as on Ramon y Cajal.

We are all familiar with one or another form of embodied engagement with the image or the work before us, with the faces or represented bodies within it, or simply with the sheer scale and weight of the object. But the image need not even have a body in it to elicit such phenomenological responses; it can simply be the weight and sheer scale that calls forth a sense of our bodies and seems to constrain them. Take the obvious case of the sculptures of Richard Serra. To look at one of his sculptures is to be physically involved with it. The sheer scale and proximity of his over-lifesized walls fosters intense awareness of the insubstantiality and fragility of the body. In our bones we feel a sense of scale and weight and a pressure to move around or within them. The sculptures command attention because they involve our bodies. But more than this. To see the great curves of works like the *Torqued Ellipses*, or *Sequence*, or many others; to see the walls that seem to descend on us and to close in on us, is to feel a sense of movement within ourselves, when we look at them from the outside, or from above, or to be drawn ineluctably in, as we find ourselves forced to move along with and within them.

But there is another form of embodied response that is critical to our understanding of the relations between visual representations and motor responses. It can also extend, as Vittorio Gallese and I have recently shown, to the beholder's corporeal sense of the artisan's movement behind the mark, indeed the action itself, the creative work in other words, behind the mark. We are now in a position to plot the cortical motoric responses to the movements of the hand implied by calligraphy, to the implicit movements behind the great strokes of the pen in works such as these, and to the large-scale torch-drawn ideograms by Qui Zhijie (fig. 1).



1. Qiu Zhijie, from series: 607 Now,  
photograph (light writing), 38 x 50 cm, 2005.  
© Qiu Zhijie.

Today I want to talk about the sense of movement that ensues from vision, and the emotions that ensue upon movement—subjects which relate to my current concern with dance in culture, and dance in and as representation. Movement lies at the basis of our phenomenological and empathetic understanding of culture, images and works of art. Specific claims about the role of movement in such understanding have been made many times before—one needs only to think of the work of Aby Warburg, and of recent commentaries on it such as those by Philippe-Alain Michaud and Georges Didi-Huberman—but what I want to suggest today is that the perception of movement—even implied movement—is fundamental to our understanding of the other and the represented other. Such perception may be cultural and it may be automatic. I should add here that when I speak of automatic perceptions I mean perceptions uninformed by cognition (in other words I take a view of perception that is not the common one). In order to fully understand the mechanisms of our direct grasp of action, movement, embodiment and emotion, we need to pay heed to a discipline that lies beyond the traditional boundaries of the humanities and the social sciences—the neuroscience of movement and action. This is the field that allows us to plot the neural substrate of imitation and the imitative basis of action understanding. In the framework of what Gallese has correctly called embodied simulation, imitation thus acquires a dimension beyond its usual art historical and anthropological meaning.

Let me begin with an image of a stony beach and a wide sky. The tide is clearly out, with a few houses on the line of hills across the water, and perhaps some snow. It speaks of a certain remote beauty, this scene of what is probably a cold winter's day; it seems devoid, except for those houses, of human interest. But as with all such long shots, as our eyes become accustomed to the scene, we begin to wonder whether indeed it is as empty of human interest as a swift glance might suggest. For what are those slight dots on the edge of the water where this stony beach ends – are they rocks or perhaps human beings? The discovery of the human in the inanimate is the first hope of vision; we search for it when our ability to make sense of representation is exhausted.

And indeed they are humans, as we look closer, as we move closer. A man is bent over, perhaps digging in the sand. We can tell from his posture that it is hard work, that effort is involved in whatever he is doing. Then comes a man in a similar posture, almost certainly engaged in the same activity; while another figure, his head bent, walks with a certain lack of enthusiasm towards the water. He has in his hands

some implements, we cannot make them out, but he is clearly going out to work. The truck on the left seems to await whatever booty it is that they will draw from their labors. If any of you have lived on tidal flats such as these, of a kind that provide a yield for cultures all over the world, you will recognize what is going on here. My last image in this sequence makes all this much clearer. More digging, more back-breaking work, more rest from labor – and, of course, more trucks in the background that will at least substitute for the human burden of transport. These of course, are all scenes of clamdiggers at work, a subsistence culture, entirely manual, still not industrialized.

To look at these pictures of clamdiggers is to be aware of the physical processes of work, more precisely of the corporeal activities that constitute work, of the embodied dimensions of labor. We spectators feel a sense of the backbreaking work involved, and a certain relief when the clambers walk away from the scene. We cannot understand the social dimension of work unless we understand the bodily processes involved, as Marcel Mauss noted so many years ago in his famous *Techniques du corps*; but those bodily processes are available to us in ways that have not yet been fully comprehended, as I will set out shortly. What is at stake is not just the relationship between vision and felt emulation of muscular effort, but also the emotional consequences that ensue from the perception of the body at work, and from the empathetic perception of the efforts involved in the production of labor, whether in the case of works of art, or not.

Four closely interrelated domains stand at the conjunction of art and anthropology, of the history of art and the present practice of art. First of all: work and the processes of work; secondly, and most importantly, the physical dimension of this work, the corporeality of production in the widest sense; thirdly, the felt emulation and imitation of movement; and fourthly the emotional freight of movement, both of actual execution of movement and of sight of movement. We might even hypothesize that all felt emulation of movement entails the generation of emotion; we will return to this later. Valuable research has been done on the role of embodiment in the analysis of work and culture by writers such as Michael Jackson, Thomas Csordas, Carlo Severi, and Tim Ingold; while Howard Morphy, in his nice essay on the Yolngu, made a compelling case for the inclusion of both the senses and the emotions in any consideration of esthetic effect; and Alfred Gell made clear his impatience with intellectualizing views of art (such as those of Arthur Danto). But I think it is possible to go still further.

Consider these images of soccer players. I take them from the magnificent exhibition of soccer photos held in Berlin in 2006. To look at images such as these is to feel a form of emulative movement in our bones, or rather in our own muscles. So clear is this effect that even the Chilean rightback raises his arms in almost perfect imitation of the English forward in front of him during the 1950 World Cup in Rio (fig. 2). When we look at images such as the next, we feel our own muscles activated in the same ways as those of the players, even though we know we cannot jump so high. We feel the energy in our bones, and some of the vigorous awkwardness of the players in this photograph of the Spanish final of 1982 (fig. 3); or we open our mouths and rush forward in triumph, a feeling intensified when we notice the prostrate player on the left, his hands covering his eyes in a gesture of despair which we also understand on an empathetic motoric level. This is a gesture which wells up in us, just as that determined run or that open mouth might evoke a similar sense of triumph in ourselves. We feel the movements of the players and, significantly, their excitements and despondencies all the more. Images such as these make all too clear the possible roles of felt imitation in our understanding of the movement of others. We feel the tensions, the excitements, the muscular contractions, and, for the most part, all the emotions that ensue upon such movements, as Barthes set out so eloquently in his famous essay on Wrestling. To say “we,” I believe, is not simply to take a culture-centric view of emotion, or of response to bodily movement, as Lutz and Abu-Lugod claimed some years ago in their insistence on the cultural construction and politicization of emotional responses.

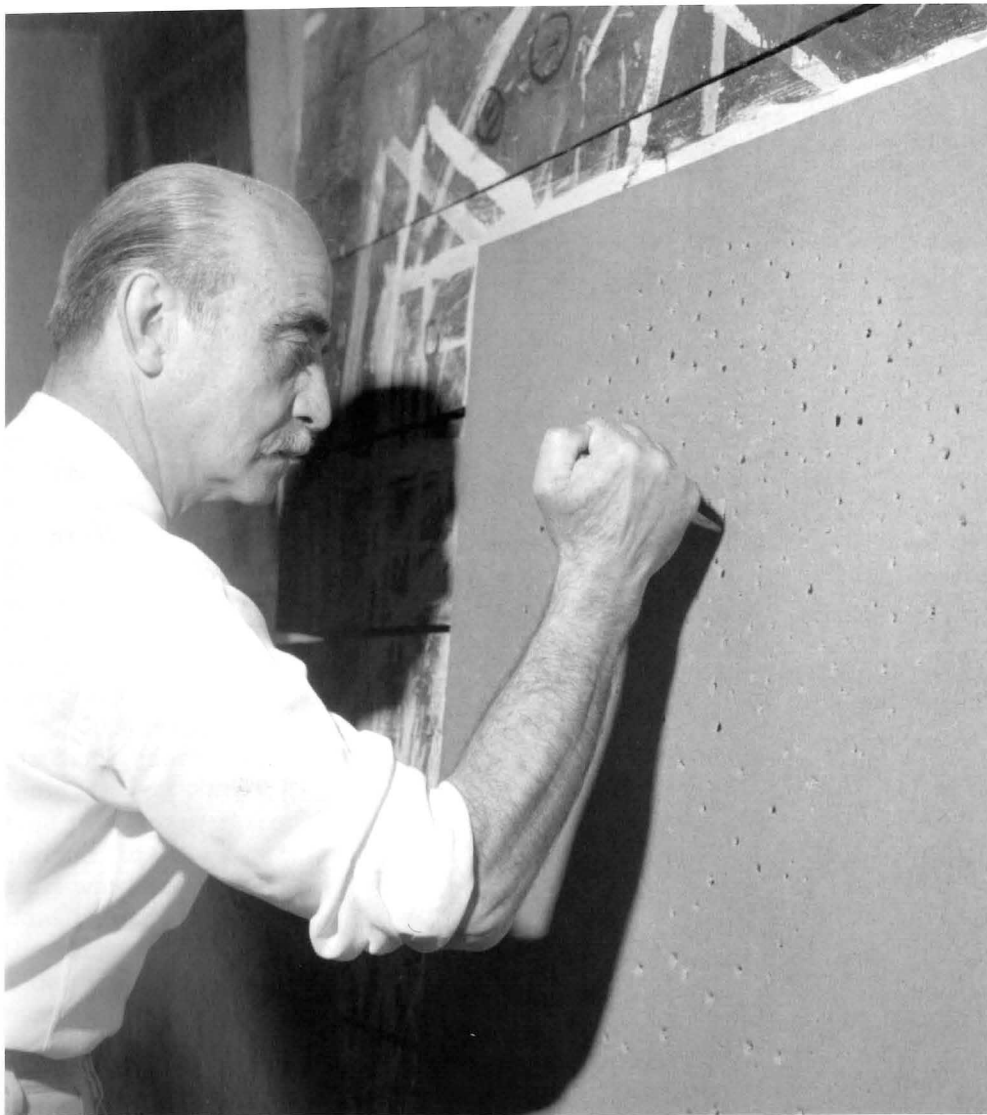
Such reactions also account, for example, for the popular appeal of wrestling matches—though no one would claim that wrestlers’ movements have the grace of those of soccer players; but when they do they too reach the status of art. To understand this, however, requires more than the simple sociology of wrestling (as, for example, in Alter’s interesting book on wrestling practices in India). To properly grasp wrestling’s cultural expressions one also needs an adequate theory of the relations between the constitution of a culture in particular and the constitution of the human body in general; one needs to know the mechanisms of its potential for action understanding, for acting and reacting in the presence of the bodily movements of others. Such an approach will help us understand not only the physical basis of the connections between sport and art, but also the multifold varieties of body art, and the intersection of anthropology and art in performances such as, say, those of the members of the Gutai group in Japan.



2. World Cup match between England and Chile showing Thomas Finney and Fernando Roldán, Estádio Maracanã, Rio de Janeiro, June 1950.  
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3. World Cup final between Italy and West Germany showing Bruno Conti and Hans-Peter Briegel, Estadio Santiago Bernabéu, Madrid, 1982.  
© Presse Sports/ L'Équipe.





4. Lucio Fontana at work, Milan 1960.  
© Giancolombo/contrasto

But what really does sport have to do with art? The athletic grace of the sportsman, his finely and intelligently executed moves, may well be equivalent to whatever it is we choose to call art.

In his essay entitled “What is art”, the great Trinidadian writer C. L. R. James took the game of cricket as his central example; and he concluded his discussion with this remarkable claim: “we someday may be able to answer Tolstoy’s exasperated and exasperating question, what is art... but only when we integrate our vision of Walcott on the back foot through the covers with the outstretched arm of the Olympic Apollo.” James takes the view that that cricket is an art because like all art it implicates the viewer in the physical aspects of the game. And here the revolutionary draws on the reactionary, by citing the views of Bernard Berenson on what it is that can make art life-enhancing, as Berenson notoriously put it. He quotes Berenson’s famous passage on Pollaiuolo’s *Hercules and Antaeus*, in which the art historian insists on the ways in which spectators may feel in their own muscles the efforts represented in the works they observe and give them an enhanced sense of their own muscular capacity, as a result of the felt activation of the muscles they observe. James made it plain that what was critical in our understanding of art is precisely, as he put it, “the business of setting off physical processes and evoking a sense of movement in the spectator.” This is what joins sport with art, and it is the skill of the sportsman, or the artist, in setting off the process of inward imitation—or of the possibility of imitation—that distinguishes the superior sportsman or artist.

But it is not only the felt imitation of actual movement that comes into play here, it is also the imitation of the implied action of the artist, as in the case of Gutai art, or Lucio Fontana (fig. 4), as we shall see in a moment. So how might it be possible to account more precisely for the ways in which we seem to intuitively engage, in a felt corporeal way, with the actions, work, pleasures and representations of others?

It seems to me that the discovery of mirror neurons in the premotor cortex of the brain—and especially in Brodmann’s area 44 in humans, in an area significantly overlapping Broca’s area—provides significant clues, and helps us better understand the shared interests and common ground of anthropologists and art historians. To come to terms with these new ways of understanding the relationship between observation, movement and emotion does not seem to me to entail a lapse into scientific reductionism. Mirror neurons were first discovered in monkeys, but then mirror networks

were discovered in the human brain as well. They provide substantial and in my view convincing evidence for the activation of the premotor cortex, in both monkeys and humans, upon observation of the actions of others. The very same neurons fire in our premotor cortex (the area of the brain that prepares our muscles for movement) *as if* we were engaged in the same actions as the ones we observe, even if we do not execute those actions ourselves. As a result of the work of Giacomo Rizzolatti and Vittorio Gallese, we now know what happens in the case of that most fundamental of esthetic and anthropological responses, what I—along with Antonio Damasio, the great expert on the corporeal bases of emotion—have called “as-if” responses, in other words, the ways in which we respond *as if* we were actively engaged in the same action—or placed in the same situation—as others we observe, without actually engaging in the same actions ourselves, or without even being in the same situation or location ourselves. To a significant extent, this also accounts for our inclination to respond to scenes of things and of people, above all, as if they were real. Mirror neurons thus seem to lie at the basis of our felt imitative responses to the actions of observed others, as well as for what Gallese has called embodied simulation and our understanding of the intentions and sufferings of others.

In other papers I have discussed the forms of empathy that ensue upon observation, whether observation of a painting or observation of a subject. I've insisted that it is no longer as difficult as philosophers once claimed to understand the pain of others. Such understanding is always through the body, and often in terms of the movement of the body.

Remarkable progress has been made in cognitive research on recognition of the emotional responses of others. How does this happen? It happens (as we now know most conclusively in the case of fear and disgust) on the basis of the activation of the identical areas of the brain in the observer as those that underlie the emotions of the observed. So, for example, when someone is disgusted, the main area of the brain that responds is the right anterior insula; and when we observe someone who expresses disgust or the representation of disgust, it is precisely our own right anterior insula that is activated too. Although in his *Expression of the Emotions in Man and Animals*, Darwin insisted on the instinctive recognition of the emotions, and despite the remarkable work of Paul Ekman on facial recognition, and Nancy Kanwisher's and others' discovery of the selectivity of the facial fusiform gyrus in the temporal lobe of the brain for facial recognition, the current anthropological and art historical orthodoxy remains that we cannot understand the emotional responses

of others outside their (or our) contexts. We are supposedly unable to understand the minds of others. But we understand others via the forms of simulation, most of which are embodied, that I have been outlining. The situation is much more complex than the conventional contextualist position allows. We, who play no role in the cultures concerned, immediately invest faces such as these (fig. 5) with particular emotions, while in the case of the Inuit masks from Point Hope, say, although we may not be able to pinpoint the exact emotions involved, we can be sure that part of their force resides in our bodily responses, perhaps even our felt buccal responses to masks such as these. Part of their effectiveness resides precisely in an incipient and perhaps as yet undefined emotional and corporeal response not just to the positions of the mouths and eyes, but even to the great downward incisions that emphasize

the downward tilt of the mouth of the mask on the right; while the force of sickness masks such as this Pende Mbuya mask (fig. 5) depends at least partly on our intuition that this is a face whose distortions, which we somehow equivalently feel, too, express the torment of sickness. To say this is not to take away from the esthetic aspects of the work; it is to better understand their effectiveness.

Those downward incisions in the Point Hope mask are significant, because they so powerfully arouse a sense of implicit movement in their beholders, a form of movement which has clear esthetic implications.

I hope that you can see that I am moving towards an esthetic understanding of objects that, even when most functional, require a sense not only of context, but of



5. Pende mask, Zaïre. Photo R. Asselberghs.  
© MRAC Tervuren.

the neural substrate of human engagement with movement and embodiment, and the innate potential for recognition of the emotions that may ensue from them.

Now take the case of damage to the body, even to the skin. The mirror researchers have also discovered activation of the secondary somatosensory cortex in the case of the observation of damage to the skin; so that it is now possible to understand the frisson of horror in the relevant part of the body not only in the case of images of torture, about which I've recently spoken, but also of Grunewald, Caravaggio, and Goya, as well as the intuitive responses we may have to the initials of the Revolutionary United Front scarified into the chest of this female child soldier from Sierra Leone, where the effect is further strengthened by a sense of the bodily engagement in the actual production of letters, where action understanding and language actually overlap.

The fact that this image served as an invitation to an exhibition of photographs by Candace Scharsu points to the typically fragile boundary between photographic documentation of horror and the historical aesthetic that also emerges in the protest images of Goya, images that have long offered some of the most telling exemplifications of the narrow borderline between the realistic recording of violence and art; between propaganda and art; between bodily terror and art; and between images as pure emotional instrumentality and high aesthetics. The history of the representation of martyrdoms provides an over-sufficiency of examples in which it is impossible to escape from the conclusion that movement, embodiment, and emotion are essential bases of art.

A body is a body in movement, or, even when immobile, a body potentially in movement. It is always capable of being activated, liberated from its bonds and even, when truly dead, of being resurrected, as we know from countless images of the Dead Christ. It is not surprising that one of the basic Catholic defenses of images is predicated on the resurrection of the incarnate body of Christ. Images work only once they are activated, once their potential for movement is acknowledged and released. This is fundamental to the bodily sense with which we invest all images, even non-figurative ones.

But let me draw your attention very briefly to the apt image on the cover of the excellent catalogue of Stéphane Breton's exhibition *Qu'est-ce qu'un corps?* at the Musée du quai Branly. Its effectiveness depends not just on our felt reaction to the saw-like row of jagged teeth, to the distended eyes, to the weight, if we are male, of the downward pointing penis, to the implied movement of the scarified

jagged-patterned body. It is interesting to reflect on the physical consequences of the marvelous representation of pubic hair, suggesting not just movement, but also a *phallus dentatus*, a sign, as if we needed this renewed reminder, of the bisexuality implicit in all sexuality; but perhaps its effectiveness depends first and foremost on the felt resonance of the gesture of the arms.

There is a study to be written about the history and ethnography of this gesture—but it is clear that its particular power, its recurrence as one of the great *Pathosformeln* of art, does not simply derive from its conventionality. We know, of course, that it does not convey a single kind of emotion. It is polyvalent and contextually dependent. But at the same time it is not only that. Take Basquiat's 1982 drawing (fig. 6), which uses many of the devices the African artist used, from the dentate mouth to the distended corneas; but here Basquiat adds hair standing on end, smoke emanating from the hands, and above all those jagged wild strokes over the body and in the sun or halo over the figure's head. It is an image that arouses reactions, almost certainly of fear, that can be plotted—to the face by fMRI, to the arms by TMS. I and a number of colleagues in New York have recently been measuring motor-evoked potentials in muscular responses to the sight of particular gestures often found in artworks, such as the raising of a wrist; but it is true that the very common gesture of raised arms is too complex a movement to permit the precise location of the relevant somatopic areas on which to perform TMS. In principle, however, it should be possible to do so, even in the case of shoulder movements such as this one. A future project lies precisely in attempting to establish the connections between motor responses in the premotor and motor cortices on the one hand, and limbic responses on the other.

To be aware of automatic intuitive responses to an image such as this is to become even more conscious of the artist's conscious and unconscious uses of devices and strategies to engage such responses; and our awareness of these devices may well play into our esthetic understanding of this image and the satisfactions—as well as the terrors—it offers. The same for the Gope mask, or more extravagant versions of the gesture such as, say, Caravaggio's great *Entombment of Christ*. It is in the light of the artist's effective use of such gestures—whether that effectiveness is conscious or unconscious is irrelevant here—that one can then begin to pursue the emotional and esthetic implications of the variations of such *Pathosformeln*, from the ones we have just seen through the sad photo of mourning women in Bosnia, the opening page of Goya's *Disasters*, and the despair of Jeff Wall's *Sudden Gust of Wind* (fig. 7) to the



6. Jean-Michel Basquiat, untitled,  
oilstick on paper, 76 x 56 cm, 1982.  
© The Estate of Jean-Michel Basquiat/Adagp, Paris 2010.

grand gestures of mourning the dead body of Christ which we know from the whole history of Western art, such as Giotto's great *Lamentation* in the Arena Chapel, and Rosso's unforgettably dramatic painting in the Louvre.

The effectiveness of gestures depends on the human ability to understand them intuitively and motorically, through our motor system, even before such intuitive understanding—it would actually be better to say such intuitive grasp—is or is not be modulated by cultural knowledge. Some gestures seem to be immediately capable of our grasp—particularly the wiping of the eyes, for example, the wiping away of tears, and in general any clasp of the cheek in sadness, resignation, repose, or tenderness.

I know that moving around across the history of art will exasperate the high contextualists amongst you; but I am not pleading, as I have sometimes been accused of doing, that we ignore contextual factors. I am suggesting that we look carefully at the ways in which context modulates automaticity, at top-down modulation of bottom-up responses, and at the role of the prefrontal cortex in modulating emotional responses in the derivation of esthetic pleasure.

The kinds of research I have been describing in this paper suggest that if there is one term in the history of art that needs reconceiving, it is that of imitation. For what is at stake is not just the representational mimesis of the world out there, or of other art works, but rather the inward imitation of perceived bodily movement; not actual mimicry, but rather a felt sense of imitation that is predicated on what Damasio called the “as-if body-loop,” in other words, the activation of the very same somatotopic regions of the brain that would be activated if we were engaged in the same actions, gestures, and situations ourselves. Much research has obviously been done in this area by the mirror neuron group, but valuable work has also come from Julie Grèzes (working with scientists such as Jean Decety, Richard Passingham, and Chris Frith) on the brain mechanisms underlying the ways in which we infer deceit in the actions of others, and how, through a combination of both emotional inferal and simulated action of observed others we may tell in which way their expectations may be thwarted. Grèzes and her colleagues were specifically interested in such judgments of living actors; we may assume that the same also applies to judgments about the emotional states of those we see represented in art works; and once more it will be the skill of the artist that is decisive in successfully conveying the evidence for the emotions associated with such mental states as deceit and thwarted expectation.





7. Jeff Wall, *A Sudden Gust of Wind* (after Hokusai),  
transparency in lightbox, 229 x 377 cm, 1993.  
Courtesy of the artist.



I have been describing a variety of direct forms of bodily understanding that enable beholders to grasp the emotional states of others, or that offer us the possibilities for the interpretation of such states. It is precisely these basic forms of understanding, knowable only via the community of our bodily mechanisms with those of others' that take such interpretation beyond the level of guesswork; and it is also the factor that makes us aware not just of the expertise and skills of others—particularly relevant in the case of all forms of art that are predicated on skill and expertise—but also of the potential of our bodily capacities, a potential that, as Berenson believed, could also be “life-enhancing,” to use the phrase that once sounded sentimental but now has sense as well as sentiment. It is not surprising that C. L. R. James, in his panegyric on cricket, should have cited Berenson's memorable passages on Uccello's wrestlers.

This newly understood mode of imitation thus enables our understanding of the motoric bases of the work and skills of others. When we look at work of art, the body of the artisan (to use the title of Pamela Smith's fine book on the subject) is always present in the work itself. We as spectators always have available to us one form or another of body knowledge of the work in the work of art. We activate whatever motor skills we may have in order to grasp the subtleties of the work, just as certain subtleties—and this appears radically in the case of our perception of dance—may escape us, because without the dancer's training or skills, we cannot have the same body knowledge of what the execution of particular movements entails. It is in the domain of expertise that cultural factors enter into the evaluation of body knowledge, even though in many cases we may have a sense of the skills implicit in movement without actually knowing exactly how these are carried out; and it may be, as I've just suggested, that it is in the very improbability of what we see executed, the very fact that those motor skills somehow transcend description, that we assess the aesthetic status of the work.

Moreover, it has now been proved that we respond not only to the actual movements shown in the work, but also to the implicit movements involved in the actual execution of the work, in the brushstrokes and chiselmarks themselves. From Willem de Kooning to Pollock's powerfully dynamic drips to the slashes of Lucio Fontana, we may now test motoric responses to the actual traces of the artist's movement in his works (just as Merleau-Ponty occasionally suggested but could never prove). Two examples show just how clearly this is works: take, for example, the recent work of Qui Zhije where body seems to emulate the implicit movement behind

the calligraphy, even in this photo, even before we learn that these are letters that are produced in the air by the artist moving his arm in these forms with the aid of a torch (fig. 1); or even before we see the studio photograph of Fontana punching holes in his canvas (fig. 4). The action here is vivid and striking. In this case we may or may not have a sense of the physical action required to produce works such as the punched varieties of his *Concetti Spaziali* but once we have seen the photograph, it becomes impossible ever again to look at one of these Fontanas without an awareness of the action of the work involved in producing them. In this example, too, we may perhaps begin to see the glimmerings of the therapeutic possibilities of the recuperation of movement through vision; but this is yet another story.

Even in the representation of an apparently static limb, one has a sense of physical engagement with the work, a sense of the potential activation of the limb or limbs involved in movement. Indeed, this applies even to the traces, the very track of a limb, as suggested quite precisely by the Piercean notion of the trace. I think, for example, of the case of the Buddha's feet, a long tradition that begins at the beginning of Buddhism, and is to be found, still, in the work of the contemporary Tibetan artist Ang Sang. It may seem absurd to claim that neurons in the motor cortex are activated when we look at the image of the feet of the Buddha (as opposed, say, to those whirling, wheel-like hands). The phenomenologists may not be entirely surprised; but we are now in a position to move beyond phenomenological speculation and test this kind of engagement with a work with precision. The lesson from such an image is surely that the energy of a work (and its rhetorical *enargeia* too), need not necessarily depend on figuration, as the early aniconists knew. The body can be present in its traces and even in its absence. The Buddhapada depends precisely on this knowledge of the movement of life implicit in the representation of the flat soles of the feet.

And so to dance, to feet explicitly in movement. Much work has been done in recent years on negative emotions, particularly fear. I myself have commented on the relationship between movement and fear (we see someone running away in fear, and we ourselves feel a sense of locomotion and fear); but little work has been done on positive emotions generally, and of the positive feelings that may ensue from the sight of movement in particular—and of dance especially. We've already looked at photographs of soccer players in action; but surely the most obvious instance of pleasure in sight of movement occurs in the case of dance. Most of us are familiar with the emulative sensations of movement that arise in the case of real dance,

of represented dance, and even, significantly enough, of the abstract suggestion of dance movement, as, for example (to take only instance) with David Smith's marvelous *Personage*—head thrown back, arm raised in elegant grace, and so on. For years experiments have been conducted on the emotional correlates of light-point indicators of movement, that is of what can only be regarded as schematic representations of body movements, to examine the ways in which such movements, even in these rudimentary forms, are invested with emotion (and to assess the degree to which the emotional reactions of the spectator overlaps with the emotional impressions the dancer or actor may wish to convey). I have long been pressing my neuroscientific colleagues to devise experiments by which to plot the relationship between emotional and somatopic responses to images such as these; and to see whether the undoubted pleasures of watching certain movements have not only to do with the sense of liberation from the force of gravity which they seem to generate, but also with the evocation of the potential of our bodies for such movements. This, of course, is what C. L. R. James claimed for cricket, when he compared Walcott executing a stroke of the backfoot with the Apollo Belvedere; and what Berenson claimed for Pollaiuolo's sculpture of two wrestling figures.

It is this form of activation of muscular sensitivity, of bodily potential and suppressed potential, that we are also apt to discover in responses to works, say, such as David Smith's, as well as to a variety of Japanese dance forms—take this Butoh performance, for example. On the one hand we have no experience of all the complexities of movement and expression here, of their rule-boundedness and the training involved in learning the rules and practices; but we do know, we can feel in our bones, not just the movements implicit in our own bodies as we observe those of the dancers, including the gestures of their hands, but also some sense of imitative buccal activation as we observe those open mouths. Such expressions and the possibility of responses to them take us back to the cradle, as shown in the remarkable work of Meltzoff and Moore of buccal imitation in neonates.

But still the question of the emotional content of such expressions remains, as well as the equally critical one about prefrontal evaluation and modulation of intuitive and automatic responses. Once again, it is Antonio Damasio and his colleagues above all who have devoted considerable attention to the ways in which emotions are processed and evaluated in the orbitofrontal cortex. The further question, of course, is the degree to which the kinds of precognitive imitative processes I have been describing in the case of motor simulation are modulated by top-down

processing, including cultural factors. This is where the cognitive processing of automatic responses to gestures becomes critical, and offers the possibilities for the interpretation of particular gestures—but by no means all of them. I say “by no means all of them” because one of the most important and interesting aspects of the cognitive and anthropological study of gestures in art is precisely that some seem to transcend cultural modulation, while others seem all too susceptible too it; this is yet another potential area of study in a field which, as I hope to have shown today, opens up so many rich possibilities. Even admitting this bipolarity of gestural and emotional capacity, it is impossible to avoid the initial sense of imitative, corporeal response when we look, for example, at Jeff Wall's marvelous *Sudden Gust of Wind* (fig. 7), and find that our bodies seem to twist and turn in what seems to be exactly the way the way the central figure does. But what is perhaps most telling, is that we find ourselves in almost complete physical *sintonia* with the great curve of the tree, just as we might even with a twisted Romanesque column. Here one begins to realize some of the further implications of—or perhaps I should say some of the as-yet unexamined elements in—our habitual investment of the inanimate with the animate. At the basis of this psychic and physiological event lie our motor responses to what we observe, even to static images. It is only once we begin to grasp how all this happens, how we stop ourselves from engaging with the implied bodies of others, as well as our willingness not to stop ourselves, once we understand the activation of inhibitory processes and the deactivation of such processes, that we may begin to have some sense of the mysteries of art.