Infant Research
&
Neuroscience at Work
in Psychotherapy
EXPANDING THE CLINICAL REPERTOIRE

Judith Rustin

W. W. NORTON & COMPANY
New York • London

A Norton Professional Book
CHAPTER FIVE

Mirror Neurons and Shared Circuitry

A Basis for Knowing the Other

SAY YOU ARE WALKING past a playground filled with children. Their joy in playing is "contagious." Suddenly a 5- or 6-year-old boy tumbles from the high bar of the jungle gym and lands in a heap on the ground. Immediately, you recoil, tense, and possibly grimace. You behave as if you know how he feels. All of your responses occur seconds before the child starts to wail.

Or say you are watching the finals of a Grand Slam Tennis tournament. You are rooting for player X. Each unforced error he makes or point he loses “hurts” and disturbs you as if you yourself were losing the point. Neuroscientists attribute this instantaneous response of “living in the other’s shoes” to brain cells that have been designated mirror neurons or shared circuitry.

Mirror neurons and shared circuitry are relatively recent discoveries of neuroscientists. Mirror neurons, (Rizzolatti, G., & Arbib, M.A.,1998; Rizzolatti, G., & Craighero, L., 2004) first discovered in monkeys in the early 1990s by neuroscientist Giacomo Rizzolatti and colleagues at the University of Parma,

reveal that when a primate performs an action that is observed by another primate, the same cells or areas of the brain of the observing primate activate as well. It is as if the observer is also the virtual doer. The ideas emanating from the discovery of mirror neurons were so exciting, the research quickly moved to study of humans and areas of emotions and sensations. Similar findings to those in the mirror neuron system emerged. When the brain in the observer registers similar activity as the brain in the experiencing subject, the phenomenon is called shared circuitry (Keysers, C. & Gazzola, V., 2006). Mirror neurons in both primates and humans describe actions and intentions, whereas shared circuitry describes feelings and sensations. As the name shared circuitry implies, the observer’s brain is partly activated as if the observer were the experiencer when he or she observes a feeling or sensation in the other. Although mirror neurons remain the most researched, they are actually a subset of shared circuitry (Pally, 2010). These implicit, automatic, and nonconscious processes of what has become known as embodied simulation “enable the observer to use his or her own internal resources to penetrate the world of the other without the need for explicitly theorizing about it” (Gallese, 2003, p.174). The existence of mirror neurons and shared circuitry has major implications for the therapist–patient dyad. These areas of research suggest that we have implicit knowledge of the other (our patients). We don’t only have to think about “putting ourselves into the others’ shoes.” Rather, if we tap into ourselves, we know a lot about what is going on with the other (our patients) as we read the messages from our own mirror neurons and shared circuitry.
The Research

Knowing the mind of the other is essential to the therapeutic endeavor. It facilitates the clinical process and enhances the opportunities for patients to feel deeply understood. The research on mirror neurons and shared circuitry gives a biological basis for an inborn capacity to understand the mind of the other. The research on mirror neurons and shared circuitry is described below.

Mirror Neurons

As just noted, mirror neurons were accidentally discovered in 1992 by neuroscientist Giacomo Rizzolatti and his colleagues. While conducting research on the premotor cortex of macaque monkeys, the researchers noticed that the same area of one monkey’s premotor cortex (F-5) fired while the monkey was observing the researcher reach for a peanut. The F-5 area is the same one that fires when the monkey himself reaches for the peanut—that is, “a mirror image” is created in the observer. The monkey’s premotor cortex was firing as if he, the monkey, were reaching for the peanut (Rizzolatti, Fadiga, Gallese, & Fogassi, 1996; Rizzolatti & Craighero, 2004). Repeating this activity in actual studies designed for this purpose, the researchers confirmed that when a monkey observes another primate involved in an action such as grasping or reaching for a peanut, or eating an apple, the motor neurons designed for that particular activity fire in the observing monkey. According to this perspective, to perceive an action is equivalent to internally simulating it.

Further research has refined the concept. It is now believed that during both observation and execution, when mirror neurons fire they not only mirror the movement, such as reaching or grasping, but they also directly specify the goal (i.e., know the intent) of the activity. Experiments conducted in which the end goal was hidden (the peanut or apple was behind a screen) produced the same level of activity in both the doing and observing monkey. Further study by the same Italian group showed that a particular class of F-5 neurons (audiovisual neurons) can be activated not only by action execution and observation but also by the sound produced by the action, such as the cracking of a nut being opened. Other studies in monkeys revealed that a small percentage of object-related ingestive actions (grasping, biting, licking) activate the mirror neuron system, as do other mouth-related communicative facial actions. In sum, the mirror neuron system seems to underpin many of the monkeys’ essential activities and needs, including their social, facial communication (Gallese, Eagle, & Migone, 2007).

In 1995 Fadiga, Fogassi, Pavesi, and Rizzolatti documented the same mirror neuron phenomenon in humans by imaging “motor evoked potential” (a signal that the muscle is ready to move) in their research participants. Thus, these mirror neurons that exist in monkeys exist in humans as well. There are some differences in the studying of the mirror neuron system in humans and monkeys, however. In monkeys, one can study a specific motor neuron correlated with the specific action being studied. In humans one can see only a very small area of the brain (3 \times 3 millimeters) involved in mirroring specific motor actions. But this one tiny area contains millions of neurons, as opposed to the one neuron in monkeys. From a research perspective, it would present ethical difficulties to isolate and study just one specific neuron from
that 3 x 3 millimeter area in humans. Despite this difference and the clearly higher level of complexity in humans compared to monkeys, it is reasonable to infer that mirror neurons operate in humans in similar ways. The observer "knows" from within his or her own body what the other is "doing."

The existence of mirror neurons has generated considerable excitement in neuroscience, social psychology, and psychoanalysis. At the same time, because the discovery of mirror neurons is relatively recent and experiments in humans even more recent, the data emerging addresses different, sometimes not seemingly related domains of knowledge.

An area of research particularly relevant to psychotherapy is the investigation of intent. Do we "know" what the other has in mind as he or she describes or performs an action? Iacoboni, Szakaco, Gallese, Mazziotta, and Rizzolatti (2005), at UCLA, also demonstrated through functional magnetic resonance imaging (fMRI) that the same motor areas fire as human viewers watch the experimenters grasp an object. The group then went further to measure the intent of the action. Does the observer "know" the intent of the action? The group used fMRI to measure activity in the premotor cortices of humans using two different scenarios, with each scenario composed of 3 pictures. In scenario 1, the first picture shows a table set for tea (cup, teapot, a plate of cookies). The next picture shows a hand in grasping position reaching toward a cup. And the third scene puts the two together (context); the reaching hand is put in the same scene with the table set for tea, implying the person is reaching for the cup in order to drink the tea. The second scenario shows a messy table where the food has already been eaten. The second picture shows the hand in grasping position reaching toward the cup. And, the third picture puts the two together. The reaching, grasping hand is now in the same scene as the messy table suggesting that in the scene with the messy table a cup is being lifted to clear the table. Although there was activity in the premotor cortex of the subjects as they viewed the reaching hand, the last picture in each of the two scenarios (i.e., the one that combined action and context) activated many more areas of the premotor cortex. The researchers concluded from this experiment that the subset of premotor mirror neurons that are active during the observation and execution of an action are also involved in understanding the intent of the action. In other words, when we move in very particular ways, that movement (at least for very simple movements) also identifies or (possibly) strongly suggests the intent of the movement. Perhaps our bodies, over time, have become familiar with particular movements in the service of particular actions. Gallese (2003) uses these kinds of findings to assert that we have an "implicit action understanding": "There is an internal copy of actions utilized not only to generate and control goal-related behaviors but also to provide at a prereflexive level a meaningful account of behavior performed by others" (Gallese, 2003, p. 174).

Further confirmation of the connection between action/doing and mirror neurons comes from another fMRI study at UCLA (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003), on the activation of mirror neurons in relation to studying emotion while observing faces and parts of faces. In this study, subjects were asked to view faces and parts of faces that depicted the emotions of happiness, sadness, anger, surprise, disgust, and fear. As hypothesized, the observations of emotional expressions robustly activated premotor areas for the
same emotion in the observing subjects. Additionally, the activity significantly increased when the subjects mimicked and imitated the observed face. In other words, they “acted” (used their own musculature) instead of only observed. This finding lends further credence to the notion that action representation in the brain reinforces and amplifies a way of knowing the other. In other words, knowing and action are in some way inextricably interwoven, with physical action reinforcing a way of knowing the other.

The importance of “imitating” as a way of “knowing” the other derives considerable support from infant research. In *Forms of Intersubjectivity in Infant Research and Adult Treatment* (Beebe et al., 2005), three infant researchers, Andrew Meltzoff, Colwyn Trevarthan, and Daniel Stern, all cite intersubjectivity as the centerpoint of their theory. The three infant researchers lay out the template for the presymbolic forms of intersubjectivity of self with other: “Each of these theorists, in different ways, had the insight that the infant appreciates correspondences between his own action and that of the partner, long before the discovery of mirror neurons” (Beebe et al., 2005, p. 53). Meltzoff (1990) comes the closest to the concept of mirror neurons through his emphasis on imitation. He argues that the newborn creates a sense of self in relation to the other through imitation. By imitating the mother’s face, the infant proprioceptively experiences him- or herself in relation to the other. Meltzoff’s experiments documented that newborns as early as 42 minutes after birth have the capacity to imitate mouth movements of the adult. In experiencing him- or herself physically in relation to the other in this way, the infant/newborn has an experience of self: “The first psychologically primary notion of

self concerns not one’s featural peculiarities, but rather one’s movements, body postures and powers” (Meltzoff, 1990, p. 142). The emphasis here is not necessarily on mirror neurons, but rather on the underemphasized, even ignored aspect of knowing oneself and the other through the physicality (musculature) of the body-to-body communication.

**Shared Circuitry**

Although mirror neuron research began on premotor neurons (i.e., actions), the findings were sufficiently intriguing as a way of understanding how people communicate, interact, and understand each other that researchers broadened the areas of research to include how we perceive others’ feelings and sensations. Since 1995, experiments with humans have expanded from studying only motor activities to studying the equivalent of mirror neurons in emotions and sensations. In researching these questions, an additional concept of shared circuitry has developed: Shared circuits operate by re-creating the other’s experience in the same regions used for self experience (Pally, 2010). Although the same brain region is activated in the observer viewing the other (doer), who is having certain feelings or sensations, there is both a large shared space and a separate space within the brain regions of both observer and doer. The discovery of both shared and separate spaces supports the idea that experiences of self and other are both shared and separate (Pally, 2010; Gallese, 2006). It remains controversial whether the concept of shared circuitry is the same as mirror neurons or whether mirror neurons are but a subset of shared circuitry. Regina Pally (2010) and Susan Hurly (2005) argue that mirror neurons are but a subset of shared circuitry, whereas Gallese
(2006) views shared circuitry as but another example of mirror neurons. According to him, both mirror neurons and shared circuitry create a “we-centric” space that serves as a way to detect coherence, regularity, and predictability with individuals and the environment. In my view, there is no compelling argument to tilt the balance one way or the other. From a clinical standpoint, both mirror neurons and shared circuitry are useful neuroscience concepts because they expand the concept of relationships as intersubjective phenomenon. We learn about others not only through our visceral, bodily, and intellectual experiences of them, but also through our shared minds.

Christin Keysers and colleagues at the University Medical Center Groningen in The Netherlands have done groundbreaking work on shared circuitry. Earlier I described work on the differences between watching an emotion and imitating it, with the imitating (doing) having a much more robust activation of the parallel brain structures. Keysers and Gazzola (2006) report on experiments involving the sensation of touch and the emotions of disgust and pain. The researchers propose that the anterior cingulate and insular cortex are involved in the experience of one’s own pain and in observing the pain of others. Similarly, the anterior insula is also involved in the experience of disgust and in the observation of disgust in others. They state their view of shared circuitry: Common to all these cases is that “certain brain areas are involved both in the first-person perspective (I do or I feel) and third-person perspective (knowing what he does or he feels)” (p. 390).

Keysers and Gazzola (2006) tested subjects in the area of touch. Subjects were touched by an object on their legs. This touch activated both their primary and secondary somatosensory cortices as measured in fMRI machines. The subjects were then asked to view movies in which a person was touched on the legs in a way that was very similar to what they had just experienced. In this control experiment, the secondary somatosensory cortex was activated as if the subjects themselves were being touched, but the primary somatosensory cortex was inactive. Thus the secondary somatosensory cortex appears to include a shared circuit for touch, whereas the primary somatosensory cortex remains a circuit only for the person having the touch experience. Furthermore, they asked the subjects to view movies in which the actor is being approached by an object as if the actor is going to be touched by the object. Contact between the object and the skin (actual touch) never happens. The secondary somatosensory cortex in the subject is in fact activated as if the touch happened. But the activation is not as strong as it was when the subject was actually touched.

Keysers and Gazzola (2006) substantiate their findings by citing an experiment by Blakemore, et al. (2005) that studied “Ms. C.,” who reported that when she sees someone being touched on the face, she literally feels the touch on her own skin. Ms. C. and a group of normal controls were scanned while they were being touched on their faces and necks. In the following sessions they were all shown video clips of someone else being touched on the same locations. When the subjects were touched themselves, their primary and secondary somatosensory cortices were active, whereas in the observers only the secondary cortices were active and at a
lower level of intensity. However, the activations in Ms. C. were much stronger, perhaps explaining why she literally felt the touch on her own face.

Experiments on the sensation of pain show similar findings to the ones derived from the studies on the sensation of touch. In the pain experiments the subjects received a small electroshock on their hands. Later, the subjects were shown a signal on a screen signifying that their partners in the experiment were receiving a similar shock. Some areas in the anterior cingulate cortex were activated in both cases, and the amount of activation was correlated with the degree of subjects’ empathy, as measured by two paper-and-pencil empathy scales (Keysers & Gazzola, 2006).

In the experiment on disgust the findings were similar. Using fMRI scans, brain activity was measured while subjects viewed movie clips of actors responding with a disgusted face while sniffing the contents of a glass. The subjects were then exposed to disgusting odorants through an anesthesia mask. The exposure to the offending odor induced an experience of disgust in the subjects. The same area of the anterior insula was activated in the observer of disgust as in the subject’s own experience of disgust.

In the light of this data, the idea of shared circuitry is particularly exciting because it accounts for what we know empirically. As much as we are the same, we are also different. In the discovery of shared circuits we “know” in our brain–body what the other is experiencing, yet there is a separate part of that same area of the brain–body that is individually ours. Pally (2010) points out that shared circuitry provides the neural basis for relational understanding while at the same time differentiating self from other. For the same activ-

ity, we share neural circuits as a subset of the total neural circuitry that belongs only to the self. When we interact with another human being, we both share and resonate with his or her experience while superimposing our own separate experience of the same emotion and/or sensation.

Different Theories of Mirror Neurons and Shared Circuitry

The recent research on mirror neurons and shared circuitry activates both excitement and skepticism. Some neuroscientists view mirror neurons and shared circuitry as the latest major breakthroughs that will prove to be one of the major developments in the early 21st century. One proponent of the “wow” factor in this perspective is Vilayanur Ramachandran, an eminent neuroscientist. He believes that mirror neurons will do for psychology what the discovery of DNA did for biology. In his view, the development of mirror neurons in the human brain facilitated social cognition and imitation—capacities that enabled early humans to read intentions, imitate, have empathy, and develop language, all of which led to the exponential spread of culture and civilization (Ramachandran, 2000).

Gallese (e.g., Gallese, Eagle, M., & Migone, 2007) also views mirror neurons as the key to social cognition. He integrates the different aspects of the mirror neuron system in monkeys and humans with research on action intention, mirroring emotions, sensations, and language and argues persuasively for a theory of embodied simulation. He differentiates embodied simulation from standard simulation. In the latter, the observer generates imagined or pretend mental states (desires, feelings, beliefs, etc.) of the other, very similar to what a therapist does when he or she imagines him- or herself in
the other person's "shoes." Alternatively, in the simulation model, the observer puts him- or herself into the shoes of the other and uses his or her own mental and physical being (emphasis here on the therapist's physical self) to generate the same mental states and experiences based upon what the therapist him- or herself would do. In other words, the therapist shifts the emphasis from the mind to the body and from the patient to the self. In all the arenas described above—intention, actions, emotions, and sensations—embodied simulation means that perceiving the other automatically activates in the observer the same program being observed. Such bodily based experience facilitates a direct grasp of the other's experience; it constitutes a basis for an automatic, non-conscious, and noninferential knowing of another's actions and feelings. It is not exactly the same as being the one who is experiencing, nor is it an imagined resonance. It is a felt (bodily) resonance.

Ralph Adolphs (2003), taking a more skeptical point of view, notes that although there is good evidence to support that we know what others intend, feel, and act, based on our shared circuitry and mirror neurons, there are many parallel routes that contribute to the social processing of information. However, there remain many unanswered questions, such as the degree of this kind of empathy and how much shared embodied simulation is necessary for empathy. Nevertheless, Gallese's attempt at synthesis (which is perhaps a bit extreme) strongly suggests that empathy and attunement are partially a component of bodily based experience. We know the other in our bodies without knowing what we know (Eisold, 2009).

In The Neuroscience of Human Relationships, Cozolino (2006) puts it simply and succinctly for clinicians. He underlies the specificity of mirror neurons and shared circuitry, but wonders why evolution may have selected the automatic imitation of facial expressions, gestures, and movements as parts of human interaction. He speculates that, most likely, imitation is central to learning and the coordination of group behavior. Mirror neurons gain import because of their location in the association areas of the frontal cortex, where many neural networks converge to process high-level information. They lie at the crossroads of processing inner and outer experience and therefore are able to serve as an important bridge.

In studying this material, with its emphasis on motor activity and actions as a way of knowing the other, I found my thoughts often turning to the actress Charlize Theron and her Academy Award–winning role as Aileen Wuornos, the prostitute/serial killer in the 2003 movie Monster. After seeing the movie I became curious about how this beautiful, delicate, ex-model and dancer was able to portray a cold-blooded murderer of seven innocent men. Although Theron plays the character with sympathy, there is no escaping the viciousness of Wuornos's crimes. In interviews with Theron following her Oscar win, she reported that after reading Wuornos's letters to a friend, she learned that Wuornos hated her body and appearance. Theron gained 30 pounds for the role, made her hair dry and brittle to accentuate her unattractiveness, and used prosthetic teeth and skin rubber to mimic Wuornos's face so that she too could get into the experience of hating her body and appearance. Finally, she reported "getting" Wuornos's gait, a somewhat subtle, awkward shift from one leg to the other. Theron notes that in getting
the gait of the character—literally “walking as she walked”—she found the essence of the person. Although I am sure that Theron learned a lot from the book written about the character and from Wuornos’s personal letters, she herself emphasizes the physical imitation as the key to the role. She was able to convey the pathos and awkwardness as well as the coldness and viciousness of the killer who killed for money in order to please and keep the first woman who loved her.

In the case of Linda, presented below, I grasped central underlying dynamics through attending to my own very intense bodily and emotional reactions. The mirror neuron and shared circuitry concepts heightened my appreciation of attending to my own reactions as the very important communication they are with a particular patient. In addition, my own reactions to a patient, although at times uncomfortable as they were with Linda, imbue the clinical work with aliveness and meaning.

**Linda: Our Shared Internal Experiences**

Linda, a lesbian in her early 40s, entered treatment to understand the nature of her “intimacy issues.” At the time Linda was in yet another relationship following an endless string of relationships that went nowhere. She very much wanted to have a long-term partner; her ultimate goal was to create a family, including a child (whether biological or adopted). Linda’s current relationship had been going on for 2 years, but it was fraught with interpersonal difficulty and seemed to be going nowhere. She was having trouble extricating herself from this relationship.

I learned little about Linda’s family, her history, her likes and dislikes. When I asked questions, she ignored them as if

I hadn’t spoken to her. She tolerated no questions from me; she wanted to use her time for her agenda—which centered on the minutiae of her current life, particularly her relationship with her “deadbeat,” somewhat psychologically abusive girlfriend. Linda filled the room with torrents of words delivered in pressured speech. Her presentation revealed considerable anxiety from which she appeared disconnected. My attempts to address the disconnection of her anxiety from her narrative fell on deaf ears. There seemed to be no place for my voice in this therapeutic relationship. I was troubled by the implicit mandate for silence. In retrospect I don’t think I paid enough attention to my mild, inner disquiet.

When Linda was finally able to extricate herself from her current relationship, she went through a series of briefer relationships. Her sessions with me followed the exact same pattern: that is, minute details of every event that occurred with her current girlfriend and psychological analysis of each woman she dated. When I asked about her feelings or behavior, she looked at me puzzled and confused, took a deep breath, paused, and then continued as if I hadn’t spoken.

Linda interacted with me as if I didn’t exist. I felt inundated, even drowned by her verbiage, its pace, its vocal rhythm, and its unrelenting pressure. She did most of the talking and, taking off on my few interventions, she did a good part of the clinical work as well. She played both roles, hers and mine. She seemed to consciously yearn for a relationship, but judging from what she described and from her interactions with me, she held others at bay. Her attachment capabilities seemed to have been seriously compromised. I believe she came to rely on her considerable intellect and obsessional thinking as the substitute for maternal care and
nurture. But meanwhile, what was going on with me? I knew I did not like the nature of our interaction, but I felt it was something I needed to tolerate. Like Linda in relation to her partners (hoping things would get better), I held onto a secret hope that through my tolerance, she would develop a feeling of trust in me so that things would get better between us. In other words, I was experiencing in myself the mirror experience of her hope that things would automatically work out. Why?

Several years into the treatment, I became increasingly aware that I was feeling smaller and smaller in this relationship. I felt that Linda wanted me to disappear, yet she appeared to be getting something out of the treatment. She came regularly for appointments and her choice of women improved. Nevertheless, the core relational issue remained: There was a marked absence of mutuality in her interactive exchange with me and with others. I attempted to bring this subtext into our clinical interaction. My attempts to explore this absence of mutuality through our interactions were of no avail.

The subtext finally found its way to the surface as my own unexpressed, previously disavowed fury boiled over. During one session, Linda was telling me about the newest woman in her life. As usual, I listened patiently, but felt increasingly irritated and somewhat bored. Triggered by my own irritation, I openly wondered whether she really wanted to connect and settle into a committed relationship. She looked at me with puzzlement, mild disdain, and contempt and asked what had prompted me to ask such a question (implied: stupid question). I pointed out that she found fault with every woman she dated; I openly wondered whether this criticism represented her own concerns about a committed relationship. In other words, was her fault finding functioning as a defense against involvement? Linda’s response to my explanation was to repeat, in an increasingly pressured and desperate tone, all the details and deficiencies of her latest woman; she had already voiced these to me twice. Although this kind of interaction had occurred between us many times before, this time I felt a huge knot of fury form in my stomach. My fury was so intense, I physically felt that I wanted to punch her. I was confused by the strength of my reaction, since I had previously accepted this kind of interaction with Linda with, at the most, mild irritation or boredom. I tried to remain outwardly calm and quiet throughout the remainder of the session until I could process the strength of my own reaction. Linda did not seem to notice my intense reaction and continued, seemingly unperturbed. I openly wondered with her whether she was irritated with my questions. “No, not really,” she answered. She indeed appeared to be fine.

Following the session, I attempted to sort out the source of my fury and what it meant. Given what I knew about Linda, I had come to believe that her perseverative, pressured tone represented her desperate attempt to differentiate what “is real” from what is “not real.” For her, the intensity of the detail she presented was a way of giving validity to her thinking and perceptions. She seemed to feel that if she spoke it strongly enough and with enough detail, and I heard her, then her perceptions became “real” or “true.” It was almost as if I was bearing witness to her perceptions of her experience. At the same time, she dissipated some of the anxiety she was experiencing in relation to what had occurred. Linda had grown up relying on her thinking and very strong intellect as
primary sources of care and strength. She relied on herself rather than on her erratic, unpredictable mother. Thus my intervention, disrupting her story and questioning the validity of the content, separated her from her source of strength and well-being. This I had known for quite a while and therefore had tried not to engage even in mild defense analysis.

What was operating for me? As I sorted through the meanings of my own reactions, what stood out for me was that I was tired of feeling small and smaller, essentially disappearing, in the exchange. This was not an ordinary power struggle. While she was struggling to maintain her view of reality in order to not disappear and become inundated with anxiety, I too was trying to avoid my own annihilation in the face of her overwhelming torrent of words. I too was attempting to avoid psychic annihilation by trying to insert myself into her narrative. It may not have been necessary. Since Linda was improving, with her choice of partners moving more toward mutuality, there was very little need for me to insert myself. I was following what I thought was good clinical theory, but putting that over trusting my own visceral experiences with Linda. Although this subtext had been present since the beginning of treatment, it had never bothered me in such an extreme way. Something had shifted in our interaction that seemed important to look at and understand. My powerful reaction and this implicit shift opened a door for me to explore other ways of understanding what was going on in the interaction between us that may not have been apparent.

I began to wonder whether the intensity of my fury toward Linda was in some way "permission" from her for me to exist in our relationship. Perhaps I was sensing, through our shared circuitry or our implicit communication, that it was now okay for me to take some space in our previously one-way relationship. Perhaps she was signaling to me that she was willing to count on me and our strong bond and not only her excellent intellect and thinking.

In the next session, I began by sharing my frustration in the previous session and wondered if Linda had noticed. "Not really," she said. But she said that she had given some thought to my question. Perhaps her pickiness with women and unrelenting fault finding deserved some consideration. I was more than surprised and pleased to hear such a reflective response. And, I took her response as confirmation that my formulation regarding a shift in our relationship had occurred; she was indeed making space for me to exist. This acceptance of me signaled the beginning of Linda's trust in, and a capacity to rely on, another person rather than only her own thinking. Although it was not ever articulated, I believe after this prolonged period of my listening, accepting her reality, and not intruding, she had internally shifted to allow space for me to enter her psychic world. In other words, she now felt safe enough with me to allow me to exist and she could allow herself to rely on me. We could have a relationship, at last.

I proceeded accordingly. Prior to this moment of intense affect on my part, I was mirroring her need for me "to stay away." I could be sensitive to this need because of my own early childhood experiences. But once she allowed space for me to enter our interaction, I was able to mirror her underlying anxiety experience; that is, her expectation of annihilation and abandonment and the reactive fury attached to such a terror.
Over the next 6 months, we had a number of interactions of the kind described above. They followed the same pattern. Linda's character style did not change. She would describe, in minute detail, the distress of her latest interactions. However, when I found myself feeling frustrated and irritated being "forced" to accept her view of reality without questioning the underlying motivations, I forged ahead in pursuing my agenda—looking at her underlying motivation. I could move into interpretive mode, saying things such as "Are you are complaining and finding fault because you have some concerns about being close to someone? Being close to someone for you is always fraught with concerns about feeling pulverized and annihilated." At these moments, Linda continued to cling to her perception of reality, but with less intensity and assurance. She was invariably able to reflect on my comments and integrate them into her thinking. In addition to all the dynamic formulations I had constructed, I came to understand that Linda was exquisitely vulnerable to absorbing thinking and feelings of others. Thus, her defensive reliance on her logic and thinking represented not only a relational defense but also a way of regulating the exchange with others so that she did not drown in others' thoughts and feelings. The psychodynamic, relational, and self aspects of her experience came together through this new understanding derived from what I would label "our shared circuitry."

Eventually, we were able to locate this dynamic in her relationship with her mother, who emerged in Linda's narrative as erratic and very unpredictable. Although she had given up on her mother as someone to rely on, Linda nevertheless remained quite vulnerable to what she described as her mother's unpredictable flights into "craziness." During those moments she was literally overtaken by the torrent of words and affects emanating from mother and couldn't distinguish her own perception of reality from her mother's crazy outpourings. Over time, Linda and I moved increasingly toward a more mutual interaction. She became less insistent on defending her reality and better able to let me in. This mutuality was reflected in her life outside of therapy. She was able to forge a satisfying, long-term and committed relationship, and she and her partner adopted a little girl from China. Her personal life goals had finally been satisfied.

The work with Linda helped me appreciate the power of shared circuitry in the clinical exchange. Early in the treatment, despite my personal sensitivities to feeling annihilated, I believe I was resonating with her urgent need to pour out her experiences in minute detail. Based on my increasing knowledge of mirror neurons and shared circuitry, I knew enough to recognize that my "sudden" internal outburst meant something important. It signaled me to look further. After all, my sensitivities to annihilation had been present throughout the previous period of our work. My knowledge of shared circuitry grounded me so that I could use such an unusually intense angry reaction on my part to look further into what was going on between us. Different clinical theories account for these kinds of seismic shifts in the clinical process. Relationists call it enactments (Aron, 2003; Ginot, 2007, 2009), the Boston Change Process Study Group (2002, 2010) calls it now moments and moments of meeting, Beebe and Lachmann (1994) call it heightened affective moments. There is consensus among theorists that these moments or interactions are the ones that shift the therapy to new plateaus. For me, the research on mirror neurons and shared
circuitry lends credence to the idea that people in interaction may be communicating through shared circuitry outside of each one’s reflective awareness. We “know” without knowing what we know (Eisold, 2009).

From the research on mirror neurons and shared circuitry, I have developed much more respect for my “intuition” (in some that might translate into shared circuitry) and have been able to accept that intuition as a privileged aspect of the therapeutic relationship. I am not a proponent of “wild analysis,” nor do I believe that intuition should replace clinical theory and practice. But paying attention to our intuition particularly to our bodies (a very neglected area of psychodynamic and psychoanalytic theory) and using it as an indicator or signal that something important is going on adds an important dimension to the clinical exchange. As in any concept or theory, the intervention in the clinical encounter must “fit” the moment between patient and the therapist and occur within the context of a strong therapeutic bond.

CHAPTER SIX

Weaving Together
New Research with
Traditional Theory

**BOB, A GAY MAN** in his mid 40s, sought treatment for a sexual addiction. He cruised gay bars looking for cross-dressers with long legs wearing shimmering silk stockings. He was most turned on by the silk stockings; he longed to rub his cheeks against them and feel their silkiness. He was desperate to break the addiction, as going to the bars was getting tiresome and the use of elite escort services expensive.

Bob was rigidified in his sexual behavior and similarly robotic in his presentation with me. He was unusually punctual and immaculately groomed, and his narrative, detailed and dry. Just as he described his symptom as being one-dimensional, I experienced our interaction in the same way. He appeared to me to be encased in fortress-like walls. When I tried to make some human contact with him, I experienced the walls as growing thicker. Periodically there was a hint of some uneasiness as he described situations in which, out of the “clear blue,” he found his hands cold, wet, and shaking. These were clearly indications of anxiety, but he was not aware of feeling any anxiety, and he could not connect the symptom with any particular happening. To him it was all