Projective Identification: How Does It Work?

Toni Greatrex, M.D.

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Toni S. Greatrex, M.D. : Faculty, Boston Psychoanalytic Society and Institute; Faculty and Supervising Analyst, Massachusetts Institute for Psychoanalysis; Clinical Instructor in Psychiatry, Harvard Medical School.

Projective identification is a clinical enactment and part of the common currency of the psychoanalytic process that occurs especially around the difficult nodal points at the deepest levels of our psychic organization that seem resistant to change. Neurophysiological studies of pre-symbolic, unconscious emotional systems offer a biological explanation for the clinical experience of resistance to change. In addition, recent findings in affective neuroscience and infant research help us to understand how the spontaneous matching of emotional states between patient and analyst that occurs in projective identification and the system of mirror neurons that is fundamental to the observation and communication of intention contribute to change. Furthermore, the capacity for self-reflective thought, embedded in feeling and language, offers the potential for consolidating change. Thus, change at the deepest, affect-laden levels of psychic organization involves both pre-symbolic and symbolic levels of self-organization that neuroscience can help us to understand and ground in empirical research.

Introduction

Projective identification is a clinical enactment and part of the common currency of the psychoanalytic process that occurs especially around difficult nodal points at the deepest levels of our psychic organization. There it keeps close company with the repetition compulsion that Russell (1998) calls "education resistant," while it simultaneously and paradoxically contains the potential for something new to be experienced in context of the old. Projective identification has been seen as both defense and communication (Hinshelwood, 1991). It is just at that point of

intersection between the seemingly impenetrable bulwark built against intolerable psychic pain and attempts at communication that can penetrate such a barrier that I want to focus our attention through the lens of affective neuroscience.

Neuroscientific studies of pre-symbolic, unconscious emotional systems offer a biological explanation for the clinical experience of resistance to change. Furthermore, recent findings in affective neuroscience and infant research help us to understand how the spontaneous matching of emotional states between patient and analyst, which occurs in projective identification, contributes to change. This work demonstrates that "the other" can direct the feeling and fantasy experience we create at unconscious levels within ourselves. This view has recently been given support by the identification of mirror neurons, which may be fundamental to the observation and communication of intention. These new findings can help us to understand how projective identification works and how it contributes to change at the deepest, affect-laden levels of psychic organization that involve both pre-symbolic and symbolic levels of self-organization.

Traditionally, psychoanalysts have emphasized the process of projection, because we tend to focus on what patients are doing rather than what we are doing. By looking instead at the process of identification as it occurs in both analyst and patient, we may increase our understanding of both projection and identification. The concept of projective identification originated with Klein (1946), but here I draw on a more contemporary understanding articulated by Ogden (1979). He sees the core aspects of projective identification as simultaneous and interdependent rather than sequential. Let's hold this complexity in mind, as Ogden asks us to, as we review his schematic description of this single psychological event as process:

> [F]irst, there is the fantasy of projecting a part of oneself into another person and of that part taking over the person from within; then there is pressure exerted via the interpersonal interaction such that the "recipient" of the projection experiences pressure to think, feel and behave in a manner congruent with the projection; finally, the projected feelings, after being "psychologically processed" by the recipient, are reinternalized by the projector [p. 358].

Before we can fully appreciate the opportunity for psychic change that projective identification offers, we need to take a step back and understand how, from a neurological perspective, feelings appear resistant to change. After that, I will discuss how the possibility for change is found, for example, in the infant's neurological propensity for imitation, intuition, and suggestibility, in the neurophysiological correlates of matching, and in the operation of mirror neurons. Seen in the context of the mind/brain as an open, dynamic, self-organizing system, the process of projective identification becomes a facilitator of change in what we have been used to calling psychic structure.

Feelings and Resistance to Change: Neuroscientific Studies

Why is change so difficult? Clinicians all share the humbling recognition that events involving primary emotions are profoundly adhesive and resistant to our will, much like procedural motoric actions, such as a golf swing. In treatment we rarely change our primary emotions. We may learn to dampen dysphoric feelings and enhance pleasurable ones. Through our sustained relationship with another person, we may reconfigure the feeling memory of a complex cognitive-affective schema, such as the "temporal feeling shape" (Stern, 1995) of loving our mother. Even when we have created more gratifying ways of

loving, we remain vulnerable to reexperiencing the original form. In this sense, trauma lasts forever. If, however, we succeed in resetting our emotional thermostat to a less labile, more resilient position, the disruption associated with the old way of loving will be more transient, and we may be able to experience ourselves and others in new ways.

Emotion is an embodied phenomenon that expresses itself both psychologically and biologically. Panksepp (1998, 1999), LeDoux (1996, 1999), and Damasio (1994, 1999), who examine different functions at different levels of brain organization, nevertheless, share a number of positions: that emotion is a global state, much like consciousness, attention, volition, and intentionality; that there are no simple centers for emotion or consciousness; that multiple and possibly semiautonomous emotional systems may underlie human subjective feeling experiences; that there are biological emotional systems that are not easily modified by conscious experience; and that emotional learning can be mediated by pathways that bypass the neocortex and the higher processing systems believed to be involved in thinking, reasoning, and consciousness. We might summarize these positions into a perspective that is also psychoanalytic bedrock, namely, that when we feel an emotion consciously or unconsciously, our whole being is engaged in the experience. Furthermore, the more powerful the emotion, the more our subjective sense of time is altered.

Panksepp (1999) has identified a number of "prototypic emotional valence-tagging systems" in the mid-brain of mammals that are an extension of fundamental organismic needs, such as hunger and thirst. He believes these systems are genetically driven, that they generate affect dynamically, and that they express three basic conditions: a wanting-seeking valence that stimulates restless seeking behavior; an attachment valence that is expressed in sexual arousal, maternal nurturance, and play; and a fear/rage system that organizes defense and attack. The attachment system is aroused during the distress of separation as well as during the pleasure of closeness. Panksepp also thinks there are "ludic circuits" in this area of the mammalian brain that generate joyous and social engagement, such as play and laughter. It follows that the irresistible urge to behave emotionally does not need to be read out in the higher cortical memory areas. Based on this research, Panksepp believes that emotion structures consciousness and that emotion is "ultimately mediated by intrinsic, unlearned sensorimotor integrative abilities of ancient, subcortical regions of the brain that can establish various types of neurodynamic feeling states within the brain" (p. 23).

Panksepp's (1999) work resonates with postFreudian psychoanalytic paradigms of the last fifty years that center on emotion, attachment, and intersubjectivity. He notes, "Freud did not adequately recognize the existence of emotional systems devoted to distinct social processes. Although he gave abundant attention to sexuality, he failed to acknowledge the probable existence of biological systems for maternal devotion (tenderness), social attachment (lovingness), separation distress (sadness), and playfulness (joyfulness), all of which are heavily represented in basic thalamic and limbic cortices" (p. 23). Later theorists, such as Loewald (1980b), moved classical drive theory, in which motivation is distilled into sex and aggression, into the field of personal motivation where motivation is neither automatic nor inflexible. Putting aside the current psychoanalytic debate over affect and motivation, it is interesting to note that Panksepp's findings are congruent with Lichtenberg's (1988) five motivational-functional systems, which are centered on affect and are based on behavior observable in the neonatal period.

LeDoux's (1996) research on the central nucleus of the amygdala, "the hub in the wheel of fear," may help us to understand the nature of trauma and fear. It may also help us explain a patient's sudden shift from a self-reflection state to a state in which she is overwhelmed by unmodulated feelings and has no volitional ability to transform them. His thesis is that fear is a deep emotion that causes a global state change. He found that the learned fear response occurs quickly, because speed is more important than accuracy for survival. The response can bypass the neocortex (and is therefore unconscious) and can last indefinitely. Extinction of the fear response is difficult, and it does not eliminate the memory that a stimulus was once associated with danger. This may be because the dorsal part of the lateral nucleus of the amygdala comprises two groups of cells that selectively encode stimuli for both short-term and long-term memory.

Lesions of the central nucleus interfere with essentially every measure of conditioned fear, including freezing behavior, autonomic responses, pain suppression, stress hormone release, and reflex potentiation. The amygdala receives lowlevel inputs from sensory-specific regions of the thalamus, higher-level information from the sensory-specific cortex, and still higher-level, sensory-independent information about the general situation from the hippocampal formation. Through such parallel processing systems, the amygdala is able to process the emotional significance of individual stimuli as well as complex situations. "When electrical stimuli applied to the amygdala of humans elicit feelings of fear, it is not because the amygdala "feels" fear, but instead because the various networks that the amygdala activates ultimately provide working memory with inputs that are labeled as fear" (LeDoux, 1996, p. 46).[1]

This work is particularly relevant to psychoanalysis, because it can help us understand the sudden, unanticipated shifts in feeling states our patients experience as well as the difficulty of achieving stable inner changes that allow patients to organize themselves more harmoniously over time. If an infant lacks the parental holding environment that could help her learn to organize herself in an atmosphere of love and respect, she may experience recurrent states of emotional lability and fragility, characterized by fear and fragmentation (Winnicott, 1965). LeDoux's (1996) studies may also explain the painful disruption sustained by an older child or adult in the face of overwhelming psychological or physical trauma. From a neurophysiological standpoint, the danger systems go into high alert and cannot be spontaneously modified. In other words, the networks the amygdala activates create powerful feeling states, both during the presymbolic developmental stage and later in life when experience is centered on symbolic capacity. These memory states are not easily altered by conscious volitional control.

Both psychology and neurophysiology have offered explanations for resistance to change. Damasio's (1994) view that we are "wired" to respond to an emotion in a preorganized fashion when we perceive certain stimuli in the world or in our bodies is actually similar to the classical Freudian concept of the repetition compulsion, which invokes libidinal and aggressive drives. Russell (1998), who links trauma and the repetition compulsion, also notes how we tend to repeat what we would rather forget.

> We seem to be dealing here with some internal, systematic error that eludes our perception and control. In fact, the suspicion begins to dawn on us that the more painful

[1] Panksepp (1999) thinks that LeDoux's emotional systems most likely interact with lower substrates, such as the periaqueductal gray, to create feeling states that are then broadcast widely in the brain.

> the experience, the more we were injured by it, the more likely it is to be woven into something we find ourselves compulsively repeating. This is more than a little unsettling. It feels spooky; Freud used the word "daemonic." There is some powerful resistance that appears to operate against all efforts at learning to anticipate, to avoid, or to alter the painful repetition. The repetition compulsion is education-resistance [p. 2].

Today we might offer an explanation of the repetition compulsion that bridges the psychological and physiological domains. According to Modell (in press), the unconscious mental processes that cognitive science recognizes are not Freudian instincts but memories. Memory is a broad function that inheres in all repeatable organic activity, including psychological processes. Edelman (1987) describes memory as a form of recategorization during ongoing experience rather than a precise replication of a previous sequence of events. Modell (in press) uses the concept of "retranscription" to describe recategorization at the mental level. Furthermore, he feels that the repetition compulsion involves unconscious memory categories whose emotional and intentional texture includes the features we have traditionally ascribed to drive.[2]

Paradoxically, these continuous dynamic reconfigurations of neural/mental systems coexist with the more sluggish, slow-to-change implicit procedural systems, which are also memory dependent. Clinicians are very aware that "analytic time," or the time it takes a person to create and consolidate deep inner change, is often equivalent to several real-time childhoods. By definition, implicit procedural or subsymbolic schemas created through unconscious, nonrepresentational processes have a "how to" component (Westen, 1997). The subsymbolic schemas associated with emotional categories such as "how we love mother" or "how mother loves us," which infants develop before the emergence of symbolic thought, appear similar to other embodied functions like the basic sensorimotor schema of walking. According to Natika Newton (personal communication, 2001), we always learn the procedural "how to" before we learn the cognitive "what."

Douglas Watt (personal communication, 2001) believes that our affective procedural memories constitute the affective core of our personality that most defines who we are. They embody the foundation of our being. Heidegger (1927) stated that our primordial selves are not "knowers" or spectators. He used the word *dasein*, which means "being" as well as "to be in" or "to be there," to suggest that we engage in tasks that orient our basic ways of relating to physical objects and people (Safranski, 1998). Loewald (1980b) seems to have drawn on this concept when he redefined the static construct of "introject" as the function of internalizing an interaction.

From a dynamic systems perspective, these systems seem to be relatively closed. When we observe a motoric event, like a golf swing, or a feeling event, such as love, in another person or in ourselves, we recognize a familiar conformation even though each occurrence is unique. Today we accept the notion that continuous reorganization in time means that the present event is never identical to the past one. Heraclitus said as much when he observed that we never step in the same river twice. Nevertheless, the intrinsic slow rate of change in subsymbolic schemas

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[2] `Different researchers have given different names to these implicit procedural categories: subsymbolic process (Bucci, 2002); primary affective memory (Panksepp, 1998); memory of an emotion (LeDoux, 1996); emotional-meaning matrix (Watt, 1990); unconscious affect category (Modell, in press); implicit relational knowing (Stern et al., 1998); introjection of an interaction (Loewald, 1980b); schematic representation (Fishman, 1999); unthought known (Bollas, 1987); dynamic assembly (Thelan & Smith, 1994).

suggests that inherent activity is directed toward maintaining embodied form or, as we used to say, psychic structure.

Could one reason for the slow rate of change be that powerful emotional experiences, especially traumatic ones, are registered as subsymbolic processes that cannot voluntarily be brought into conscious awareness in their original intensity? LeDoux (1996) contrasts "emotional memory," meaning implicit fear-conditioned memory, with "memory of an emotion," meaning explicit declarative memory. When we remember explicitly, we are generally in a self-reflective state in which we "look at" a memory, using both intellectual and emotional capacities. Therefore, our conscious memory of a deep emotional event is flavored with the original feeling experience but remains a description of the event. For example, when a patient remembers what it felt like to fall off a bicycle, he may simply remember that he did and that it was scary. That is why Yovell (2000) uses the word "cool" to describe explicit, declarative memory, which is presumably mediated by the mature hippocampus. In contrast, emotional or "hot" memory may involve procedural systems and functions that LeDoux ascribes to the amygdala and the networks it activates (traditionally known as the limbic system). In this case the patient may say in response to the analyst's silence, "Then comes the feeling of need. It is so intense. I become enraged and full of despair. Then I feel empty."

Reliving an event in its emotional vividness requires "being in" it. Frequently, a stimulus like silence may be associated with intense fear and anger. Presumably it stimulates the amygdala, including the dorsal part of the lateral nucleus, activating both short-term and long-term memory capacities. Both these areas may function as neural generators. This is not to suggest, as Fodor (1968) noted, that functions have locations, but rather that neural generators implement functions. The long-term nucleus and the neural networks it activates may initiate a psychological response that is similar in feeling tone to past responses. The patient's psychological response of fear, anger, despair and isolation occurs spontaneously and often involuntarily during regression or enactment based on the phenomenon we call projective identification. In addition to stimulating the amygdala, this event may also involve neural pathways not mediated by self-reflective states. Panksepp (1999) believes that "there may exist several distinct areas of consciousness in the brain that normally communicate poorly with each other (and not just of the right and left hemisphere variety), and that when one is on-line, the others are not" (p. 21).

Psychoanalysts are familiar with both the functionally more integrated "looking at" position and the emotionally driven "being in" position. We have seen that the psychoanalytic "talking cure" involves doing as well as thinking. Change that is mostly cognitively driven may not involve unconscious affect categories and may remain superficial. My three decades of clinical experience have taught me that change that includes new habitual feeling expectations and experiences appears to involve reorganization of unconscious affect categories on a psychological level and, I believe, on a neurophysiological level. Being in an authentic feeling state is necessary for the deconstruction of old painful experience and for the formation of new helpful experience. Loewald (1980b) addressed this issue when he stated that no reorganization takes place by mere superimposition, since the latter is merely a defense (p. 103).

Toward Change: A Dynamic Systems View of the Mind/Brain

To begin to think of the mind/brain as a dynamic, open, self-organization system with potential to change, we need only look at its rapid growth in infancy. Childhood is the period of rapid development when we structure the basic architecture of our brain. Furthermore, we bring most of our mental capacities "on-line" while continually encountering and negotiating novelty. The

newborn's brain weighs about 400 grams; the adult's weighs about three times as much. The human brain is a very open system that is "soft assembled" rather than "hard wired" and develops as much outside the womb as inside (Shore, 1996). The current socio-bio-evolutionary perspective contends that our adult symbolic selfaware minds have evolved rapidly over the past two million years, because the genetic substrate of immature brains requires ongoing tuning by social interaction in order to evolve mature capacities. This means that multiple aspects of the infant's daily environment actually get structured into the organization of her developing brain and participate in its epigenetic maturation from simple to complex capacities.

Dynamic systems theory offers a way to conceptualize the ongoing reorganization of simple systems or functions into more complex ones mediated by interactions with the environment. Play appears to be a central organizer that allows complex systems to emerge from simpler ones. Using the paradigm of dynamic systems theory, we would say that every act of perception modifies the experiential learning processes of the brain. Psychological capacities such as causeeffect sequencing, self-other discrimination, symbolic thought, language, and defense mechanisms must all have their neurological correlates. We know that as the following areas mature neurodynamically, certain functions are established: the orbital prefrontal cortex endows mental events, such as representations and interpretations, with emotional significance and acts as an executive center of limbic arousal; the medial prefrontal cortex shares mnemonic functions with the hippocampus; the lateral prefrontal cortex enables sophisticated working memory functions, such as monitoring your own choices in your memory; and the hippocampus integrates longterm contextual, emotional information, and memory retrieval.

It is my contention that change can occur even around complexes at the deepest levels of psychic organization that seem most resistant to change when presymbolic and symbolic levels of organization are involved. Our subsymbolic communicative capacity allows us to alter our subjective state by spontaneously matching the emotional state of the other. In other words, we identify with the person and allow him or her to direct us, both consciously and more important, unconsciously. When we allow ourselves to be receptive to another person, we have the capacity to resonate with the unconscious feelings of that person like a vibrating tuning fork. And when we resonate with those feelings, our whole being is involved-both mind and body. Furthermore, the capacity for self-reflective thought, embedded in feeling and language, offers the potential for consolidating change.

Freud (1915) addressed the eternal mystery of unconscious communication when he said, "It is a very remarkable thing that the unconscious of one human can react upon the other without passing through consciousness" (p. 194). To better understand how projective identification facilitates psychic change, let's take another look at emotion from a neuroscientific perspective, especially at how we communicate emotion unconsciously.

In 1980 Zajonc, a social psychologist, claimed that simple emotions could be formed without any conscious registration of the stimulus. This view has recently been confirmed by a Swedish study (Dimberg et al., 2000) showing that "both positive and negative emotional reactions can be unconsciously evoked, and that important aspects of emotional face to face communication can occur at an unconscious level" (p. 86). The authors note that when people are exposed to emotional facial expressions, they react spontaneously with distinct facial electromyographic reactions in emotion-relevant facial muscles. Furthermore, these reactions reflect, in part, a tendency to mimic the facial stimuli.

According to Damasio (1994), astute observers have long recognized that facial muscles have special innervations. In the 1870s the neurologist Duchenne determined that the muscle

around the eye, known as orbicularis oculi, cannot be activated voluntarily. Furthermore, the zygomatic muscle of the cheek that creates the smile can be activated both voluntarily and involuntarily. Duchenne (1862) called these muscles "the sweet emotions of the soul." Darwin (1872) observed these unique features in his description of the commonality of emotional expression in the faces of humans and animals.

Damasio (1994) notes that a neuropathological condition called "the limbic smile" reflects this situation clinically and thus indicates that emotion-related movement is not triggered in the primary motor cortex. He agrees that components of the limbic system may influence involuntary movement. For example, a patient with a limbic smile, which may be caused by a stroke, cannot respond to the command to smile by producing a symmetrical smile but does move facial muscles bilaterally in response to spontaneous humor. In contrast, Geschwind (1974) determined that damage to the anterior cingulate gyrus of one hemisphere results in a situation of emotional facial paralysis. Here the smile is asymmetrical with spontaneous humor, and the contralateral side shows less mobility. Under command, the facial muscles move symmetrically bilaterally, because voluntary facial muscle movement is intact (Damasio, 1994).[3]

Imitation, a concept related to matching behavior, is a core component of learning behavior. All human cultures reflect imitation and mimicry in their expression of individual and group activity. Affect contagion may be seen as the spark that organizes imitation. Gergley and Ekman (1992), a differential emotions theorist, states that having an emotion involves changes in physiological arousal, a characteristic subjective feeling state, and salient expressive facial displays. These facial displays, which are probably universal, may make it easier to infer emotion in another person. Furthermore, the facial-feedback system may be stimulated by an inner emotion or by an outer facial imitation. An expression you may not even be aware of consciously can create an emotion you did not choose to feel. Developmentalists and neuro-psychologists have studied contagion of affect and spontaneous matching of facial expression between infant and parent in the first year of life. The terms "primary affective consciousness" (Panksepp, 1998) and "affective procedural memory" (Watt, 1990) are used to describe the presymbolic processes that are tuned by the infant-parent partnership.

In 1982, Fox and Davidson looked at cortical EEG studies of ten-month-old infants to determine whether asymmetrical brain activity occurred when the infant was presented with positive and negative stimuli. They presented a videotape of an actress generating either a happy or a sad face. When the infant fixated on the monitor, the infant's face mirrored the actress's emotion. This was accompanied by EEG recordings that demonstrated frontal

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[3] C. Semenza (personal communication, 2001) feels that "the phenomenon of blind sight illustrates how we may be aware of information we are not conscious of receiving and adapt our actions to it." (Here stimuli follow the retinal-colliculus-non striatal cortex route rather than the retinal-geniculate-striatal cortex route.) "Such patients, while having hemianopsia, can reliably guess the position of stimuli presented to the blind visual field, and they adapt movement according to what they do not consciously see."
Watson (1996) feel that "imitation-mediated emotional contagion generates an emotional state in the infant that matches the adult's expressed affect" (p. 1184). They suggest that this experience is central to the processes by which the infant comes to know herself and know the world. Recent evidence shows that whereas the six-month-old infant has only a very rudimentary ability to attribute states of mind to others, the nine-to-twelve-month-old can learn to interpret another's spatial behavior as goal-directed and predictable (Gergley and Csibra, 1996). Tomasello (1999) feels that modern man possesses a biol-ogically inherited capacity to understand himself and others as intentional mental agents and agrees that this intentionality becomes evident at this nine-to-twelve month stage.

laterality for happy versus sad epochs. The happy face resulted in statistically significant left hemisphere activation, and the sad face, in right hemisphere activation.[4]

I have wondered about a potential implication of this study that moves beyond the complex investigations of cortical laterality. It may demonstrate that when a ten-month-old infant visually engages a person who has a striking facial expression, she imitates that expression in a spontaneous and somewhat obligatory fashion.[5] It seems reasonable to suggest that imitation or matching is a presymbolic learning phenomenon that is subsequently reorganized by secondary processes as psychological and neurological maturation brings volitional capacities "on-line." The infant's interweaving emotional, cognitive, and motoric capacities are continually reworking themselves toward more complex states of selfawareness and self-agency.

Symbolic thought, intertwined with selfawareness and language, transforms the emotional matching capacity into a cognitive/emotional dialogue that we now refer to as mentalization (Fonagy et al., 2002). Drawing on Sandler's (1977) article, the Sandlers note, "the child will create increasingly complex representations of the interactions, the relationships, the dialogues between himself and his objects ... [W]ith selfobject differentiation ... another constant object with an equally enduring identity also emerges for the child. This is *the child's own self* ... the child constantly and automatically also has a dialogue with his own self..." (Sandler and Sandler, 1978, p. 294).

Malatesta (1989) believes we can infer that the one-year-old feels subjectively what she is expressing behaviorally. She cannot hide her distress, pleasure, or fatigue. During the second year of life, she develops the capacity to show a set of feelings and behavior to the observer that is different from what she is authentically feeling. At that point in the symbolic transition, behavior can become increasingly dissociated from and even contradictory to subjective experience. Psychoanalytic developmental researchers (e.g., Greenspan, 1979) have long felt that the dynamic unconscious first emerges at eighteen months, when the child moves into the practicing/rapprochement phase. This phylogenetic and ontogenetic developmental milestone marks the ability of the child to feel and behave one way consciously, while experiencing a different set of feelings and thoughts within, of which he need not be consciously aware. The classical Freudian concept of the dynamic unconscious highlights the dynamic quality of intrapsychic conflict. In this model unconscious wishes create pressure, which require an equal counterbalancing force in the form of unconscious defense mechanisms, such as repression. In contrast, the contemporary intersubjective model posits a dynamic unconscious that is derived from "experiences that were denied articulation because they were perceived to threaten needed ties" (Stolorow and Atwood, 1992, p. 33).

I believe that in the older child, the semiobligatory quality of spontaneous imitation or matching moves into the background as the cognitive, motoric, and emotional volitional systems, including secondary process representational capacities, establish themselves. We observe that the child develops an ever greater ability to regulate herself emotionally as her

[4] There appears to be consensus (Schore, 1999) that the early maturing right hemisphere is dominant for the first three years of life and contains a basic primitive affect system that is involved in the modulation of "primary emotions".

[5] This may be in accord with Meltzofl and Gopnik's (1993) "supramodal body schema" hypothesis that proposes that innate mechanisms allow the infant to attribute emotional states to others from the beginning of life.

sense of "self as agent" evolves. However, matching, which is a nonvolitional spontaneous sub-symbolic process mediated by nonconscious systems, continues throughout the lifespan as imitation, intuition, and suggestibility.

Currently we appear to have both neurophysiological and neuroanatomical evidence that the other can direct the feeling and fantasy experience we create at unconscious levels within ourselves. This view has recently been given unexpected support by the identification of "mirror neurons." In 1995, the neurophysiologists Gallese and Rizzolatti located this new class of visual/motor neurons in the premotor (FS) cortex of macaque monkeys. "These neurons appear to represent a system that matches observed events to similar, internally generated actions, and in this way forms a link between the observer and the actor ... The response properties of mirror neurons to visual stimuli can be summarized as follows: mirror neurons do not discharge in response to object presentation; in order to be triggered they require a specific observed action" (Rizzolatti and Arbib, 1998, p. 188).

These investigators, along with others, believe mirror neurons "represent" activities that can be used for imitating actions and for understanding them. "By "understanding" we mean the capacity to recognize that another individual is performing an action, to differentiate the observed action from other actions and to use this information to act appropriately" (Rizzolatti and Arbib, 1998, p. 189). The mirror neuron system may correlate with Freeman's (1999) neurodynamic hypothesis on the nature of perception, assimilation, and meaning: "The most elementary step in the way brains generate meaning occurs when neurons... make themselves similar to the form of a stimulus in the world and so perform the process of assimilation" (p. 84).

> Recently it has been demonstrated that a homologous area exists in the language areas Broca 44 and 45 of the left hemisphere in humans. Rizzolatti and Arbib (1998) hypothesize that phylogenetically "the mirror system has been fundamental for speech and, before speech, other forms of intentional communication" (p. 189). They believe "human language (as well as some dyadic forms of primate communication) evolved from a basic mechanism that was not originally related to communication: the capacity to recognize actions ... The long period from the appearance of these areas to the appearance of speech coincided with gesture and the progressive association of gesture with vocalization" (p. 193). Wolf et al. (2001) agree that the mirror neuron system is involved in the transition from gestural communication to verbal communication. When we gesture, we use our facial and hand/arm muscles, the very muscles infant matching behavior studies use to infer emotion.[6]

It appears that in the adult, there is a strong spinal cord inhibition that selectively blocks the motoneurons in the observed action execution. Sometimes, however, for example when the observed action is of particular interest, the premotor system will allow a brief prefix of the movement to be exhibited. This prefix will be recognized by the other

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[6] Rizzolatti and Arbib (1998) describe the emergent dialogue between actor and observer as a dyadic system of communication (Beebe et al., 1992) consistent with Freeman's (1999) concept of attention and expectation, the constituents of preafference. 'Wolf et al. (2001) also highlight the current dichotomy between cortical laterality that locates nonverbal emotional communication, including speech intonation and prosody, largely in the right hemisphere, and the mirror neuron system in the premotor speech area of the left hemisphere. They suggest that the limbic system may contribute the necessary emotional valence to speech-action behaviors of the mirror neuron system.

> individual. This fact will affect both the actor and the observer. The actor will recognize an intention in the other, and the observer will notice that its involuntary response affects the behavior of the actor. The development of the capacity of the observer to control his or her mirror system is crucial in order to emit (voluntarily) a signal. When this occurs, a primitive dialogue between observer and actor is established. This dialogue forms the core of language [Rizzolatti and Arbib, 1998, p. 191].

The idea that an involuntary "mirroring action" must be controlled voluntarily suggests that voluntary inhibition of spontaneous emotional matching in the older infant is a developmental milestone. As earlier noted, we know "how to" long before we know "what," both ontogenetically and phylogenetically. Modell (in press) has suggested that the symbolic transition from "how to" to "what" in our species is not mediated by language but by metaphor. The discovery of mirror neurons may add another dimension to our understanding of why enactment, meaning the spontaneous repetition of behavior and feeling, is a crucial precursor to the symbolic act of remembering. It suggests that the mechanism of inference is based on unconscious physiological and psychological matching capacities.[7] Our spontaneous matching capacity, possibly the perceptual, outwardly directed aspect of emotion, may be part of a system that is a key to intentional communication on many levels, both ontogenetically and phylogenetically. As such, it may be a precursor to phenomena such as imitation, identification, suggestion, empathy, and projection. This is congruent with Loewald's (1980a) perception: "Internalization ... is conceived as the basic way of functioning of the psyche, not as one of its functions" (p. 71). While these matching, imitating processes are central to our ability to acquire motoric, emotional, and verbal vocabularies, the unique manner in which we translate these capacities into self-regulating representational potentials reflects our ability not just to create inner change but also to consolidate it.

Projective Identification and the Reflective Function as Agents of Change

Our subsymbolic communicative capacities underlie the processes by which we both coconstruct meaning in the intersubjective space with the other and author meaning uniquely within ourselves. Fishman (1999) notes, "The intrapsychic or self-organizing aspects of subjective life are in a continuous dialectical relationship with those aspects that are organized from within key interactions" (p. 378). In our role as analysts, we live out this dialectic reality of communication most vividly in the clinical engagement involving projective identification. When we sit with a patient, we assume a receptive and unfocused posture while we engage our feelings as well as
our private and professional memory. This posture allows us to create associations from multiple levels of our current and past experience. We author our associations about our patient by creating an approximation of her feelings and thoughts.

In the complicated clinical enactment based on projective identification, painful representational schemas of early life impose themselves on the conscious awareness of both analyst and patient with an awesome and involuntary spontaneity. I am suggesting that in our

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[7] It may also lend support to the innatist hypothesis of Gopnik and Meltzoff (1993). The authors propose a "supramodal body schema" that is used to represent both the infant's felt movements and the other's seen movements, thus providing a blend of subjective and objective experience. According to this view, in development, understanding of states of mind in the other and in the self appears simultaneously and is based on similar inferential processes.

relatively open posture, we analysts are willing to let the patient direct our associations, and we do so by matching or identifying with the feelings the patient projects. However, when we match an inflamed feeling, be it conscious or unconscious, complementary or concordant (Racker, 1968; Lichtenberg et al., 2000), we may re-present in our minds our own powerful subsymbolic representations in addition to our conscious and unconscious memories of our patient's material. My sense is that when we do so, the experience may have an intense, unanticipated subjective feeling dimension that momentarily overrides our volitional symbolic capacities.

I believe that the analyst's painful predicament involves bearing and metabolizing issues of her personal past at the same time as she is experiencing deeply painful and/or ambivalent issues that define her patient's experience. What we have difficulty tolerating in the other is matched by what we disavow in ourselves. Our challenge at this critical juncture is to render our own feelings and thoughts as well as those of our patient into empathic understanding. Once we are able to maintain a self-reflective, empathic perspective, we will recognize that our patient is struggling with a fantasy about us. We will still participate in the disruption, which may include projection and identification and will require repair (Beebe and Lachmann, 1996). However, the encounter will no longer conform to the enactment based on projective identification.

From a dynamic systems perspective, disruption of attuned communication, which usually characterizes an enactment, implies that the patient's relatively closed self-system has reached a critical intensity. By definition, a system that reaches a critical mass collapses into disorganization out of which new organization can emerge. This new organization is catalyzed by the patient's intuitive perception of the analyst as a figure not responding with fear, anger, or despair but with empathy and understanding. The psychoanalytic endeavor offers an opportunity to open the relatively closed self-system for the purpose of reorganization.

Russell (1998) suggested that we fashion our disabilities in the presence of the other. It appears that the human condition is such that only in the presence of the other can we create change that endures. The intersubjective encounter permits patient and analyst to reexperience troubling feeling patterns and attitudes that constitute unconscious affect categories. This is the heart of the engagement, the deepest and sometimes most painful way we know "how to" experience the self in the presence of the other. The moment of repair includes the sense that the analyst can bear what both patient and analyst found unbearable. The therapeutic action rests on the possibility that the patient matches the empathic, hopeful, comforting feelings we project even as she recovers "a modified version of what was extruded" (Ogden, 1979, p. 357). This implies that a positive feeling experience that is "something more than interpretation" catalyzes the possibility of a new "temporal feeling shape" (Stern et al., 1998) in the analytic space. This emergent "how to" sensibility contains new potentials for intimate experience of self and other and supports the notion that change precedes insight.

However, for change to become enduring, we as agents must reorganize subsymbolic implicit "how to" feeling memory into explicit symbolic "what" constructs or, what Fishman (1999) has called, symbolic representations. Our capacity for self-reflective thought, embedded as it is in feelings, offers us the greatest potential for inner reorganization of unconscious affect categories. The intrapsychic work of creating psychic ownership involves translating temporal-feeling shapes symbolically through our words into thought, feeling, and fantasy that enlarge the inner vistas of our minds. Merleau-Ponty (1964) said that language bears the meaning of thoughts as a footprint signifies the movement and effort of the body. We create meaning by

correlating thoughts and feelings with words, which in turn correlate with other thoughts and feelings in our private minds in which we imagine ourselves anew.

References

Beebe, B., & Lachmann, F. M. (1996), Three principles of salience in the organization of the patient-analyst interaction. *Psychoanalytic Psychology, 13:* I-22. Beebe, B., Jaffe, J., & Lachmann, F. M. (1992), A dyadic systems view of communication. In: *Relational Perspectives in Psychoanalysis,* ed. N. J. Skolnick & S. C. Warshaw. Hillsdale, NJ: Analytic Press, pp. 61-82.

Bollas, C. (1987), *Shadow of the Object: Psychoanalysis of the Unthought Known.* New York: Columbia University Press.

Bucci, W. (2000), Pathways of emotional communication. *Psychoanalytic Inquiry,* 21: 40-70.

Damasio, A. R. (1994), *Descartes' Error.* New York: Avon Books.

- (1999), *The Feeling of What Happens.* New York: Harcourt Brace.

Darwin, C. (1872), *The Expression of Emotions in Man and Animals.* New York:

Philosophical Library. Dimberg, U. et al. (2000), Unconscious facial reactions to emotional

facial expressions. *Psychological Science,* 2: 86-89.

Duchenne, G.-B. (1990), *The Mechanism of Human Facial Expression, or an Electro-physiological Analysis of the Expression of the Emotion, trans. R. A. Cuthberton. New* York: Cambridge University Press [original work published in 1862].

Edelman, G. (1987), *Neural Darwinism: The Theory of Neuronal Group Selection.* New York: Basic Books, Inc.

Ekman, P. (1992), Facial expressions of emotion: New findings, new questions. *Psychological Science,* 3: 34-38.

Fishman, G. G. (1999), Knowing another from a dynamic systems point of view: The need for a multimodal concept of empathy. *Psychoanalytic Quarterly,* 68: 376-400.

Fodor, J. A. (1968), *Psychological Explanation.* New York: Random House.

Fonagy, P., Gergley, G., Jurist, E., & Target, M. (2002), *Affect Regulation, Mentalization, and Redevelopment of the Self.* New York: The Other Press. Fox, N., & Davidson, R. (1982), Asymmetrical brain activity discriminates between positive and negative affective stimuli in human infants. *Science,* 218: 1235-1236.

Freeman, W. J. (1999), *How Brains Make up Their Minds.* London: Weidenfeld and

Nicholson. Freud, S. (1915), The unconscious, trans. J. Strachey. In: *Standard Edition,* 14.

London: Hogarth Press, pp. 166-215, 1957.

Gergely, G., & Watson, J. S. (1996), The social biofeedback theory of parental affect-mirroring. *International Journal of Psycho-Analysis,* 77: 11811212.

Geschwind, N. (1974), Selected papers on language and brain. *Boston Studies in the Philosophy of Science, Vol.* XVI. The Netherlands: D. Reidel Publishing Company.

Greenspan, S. I. (1979), *Intelligence and Adaptation.* New York: International Universities

Press. Hinshelwood, R. D. (1991), *A Dictionary of Kleinian Tthought,* 2nd edn. Northvale, NJ:

Jason Aronson. Klein, M. (1946), Notes on some schizoid mechanisms. *International Journal of Psycho-Analysis,* 26: 99*110.*

LeDoux, J. (1996), *The Emotional Brain.* New York: Touchstone (Simon and Shuster).

- (1999), Psychoanalytic theory: clues from the brain. *Neuro-Psychoanalysis, 1:* 44-49.

Lichtenberg, J., (1988), A theory of motivationalfunctional systems as psychic structure. *Journal of the American Psychoanalytic Association,* 36: 57-72. Lichtenberg, J., Lachmann, F. M., & Fosshage, J. L. (1996), Affective experience: the golden thread in the clinical exchange. In: *The Clinical Exchange: Techniques Derived from Self and Motivational Systems.* Hillsdale, NJ: Analytic Press, pp. 113-134. Loewald, H. (1980a), On

internalization. In: *Papers on Psychoanalysis.* New Haven, CY: Yale University Press, pp. 69-86 [original work published in 1965].

- (1980b), On motivation and instinct theory. In: *Papers on Psychoanalysis.* New Haven, CT: Yale University Press, pp. 102-137 [original work published in 1971].

Meissner, W. W. (2000), *Freud and Psychoanalysis*. Notre Dame, Ind.: University of Notre Dame Press. Meltzoff, A., & Gopnik, V. (1993), The role of imitation in understanding persons and developing theories of mind. In: *Understanding Other Minds: Perspectives from Autism,* ed. S. Baron-Cohen, H. Tager-Flusberg & D. Cohen. Oxford: Oxford University Press, pp. 335-366.

Merleau-Ponty, M. (1964), *Signs,* trans. R. C. McCleary. Evanston, Ill.: Northwestern U. P. [originally published by Librairie Gallimard, Paris, 1960].

Modell, A. H. (1984), *Object Love and Reality.* New York: International Universities Press.

- (1993), *The Private Self.* Cambridge: Harvard University Press.

- (in press), *Imagination and the Meaningful Mind.* Cambridge: MIT Press.

Ogden, T. H. (1979), On projective identification. *International Journal of Psycho-Analysis,* 60: 357373.

Panksepp, J. (1998), *Affective Neurosciences.* New York: Oxford University Press.

- (1999), Emotions as viewed by psychoanalysis and neuroscience: An exercise in consilience. *N'euroPsychoanalysis, 1:* 15-38.

Racket, H. (1968), *Transference and Countertransference.* New York: International. Universities Press. Rizzolatti, G., & Arbib, M. (1998), Language within our grasp. *Trends in Neurosciences,* 21: 188-194. Russell, P. L. (1998), The role of paradox in the repetition compulsion. In: *Trauma, Repetition and Affect Rregulation: The Work of Paul Russell,* ed. J. G. Teicholz & D. Kriegman. New York: The Other Press, pp. 1-22.

Safranski, R. (1998), *Martin Heidegger.* Cambridge, MA: Harvard University Press.

Sandier, A-M. (1977), Beyond eight month anxiety. *International Journal of Psycho-Analysis,* 58: 195-207. Sandler, J. (1976), Dreams, unconscious fantasies and "identity of perception". *International Review of Psycho-Analysis,* 3: 33-42.

Sandler, J., & Sandler, A.-M. (1978), On the development of object relationships and affects. *International Journal of Psycho-Analysis,* 59: 285-296. Schore, A. (1999), Commentary. *Neuro-Psychoanalysis,* 1: 49-55. New York: Oxford Univ. Press.

Shore, B. (1996), *The Mind of Culture: Cognition, Culture, and the Problem of Meaning.* NY, Oxford: Oxford University Press.

Stern, D. N. (1995), *The Motherhood Constellation.* New York: Basic Books.

Stern, D. N. et al. (1998), Non-interpretive mechanisms in psychoanalytic therapy: the something more than interpretation. *International Journal of PsychoAnalysis,* 79: 903-922.

Stolorow, R., & Atwood, G. (1992), *Contexts of Being: The Intersubjective Foundations of' Psychological* Life. Hillsdale, NJ: The Analytic Press.

Thelen, E., & Smith, L. B. (1994), *A Dynamic Systems Approach to the Development of Cognition and Action.* Cambridge: MIT Press.

Tomasello, M. (1999), *The Cultural Origins of Human Cognition.* Cambridge, Massachusetts: Harvard University Press.

Yovell, Y. (2000), From hysteria to posttraumatic stress disorder: psychoanalysis and the neurobiology of traumatic memories. *Neuro-Psychoanalysis,* 2, 171-181.

Westen, D. (1997), Towards a clinically and empirically sound theory of motivation. *International Journal of Psycho-Analysis,* 78: 521-548.

Winnicott, D. W. (1965), Ego integration in child development. In: *he Maturational Processes and the Facilitating Environment: Studies in the Theory* of *Emotional Development.* Madison, CT: International Universities Press [original work published in 1962]. Wittgenstein, L. (1953), *Philosophical investigations,* ed. G. E. M. Anscombe. Oxford: Blackwell.

Wolf, S. N. et al. (2001), The developmental trajectory from amodal perception to empathy and communication: the role of mirror neurons in this process. *Psychoanalytic Inquiry*, 21: 94-112.

Wright, R. (1995), *The Moral Animal.* New York: Vintage Books.

Zajonc, R. (1980), Feeling and thinking: preferences need no inferences. *American Psychologist*, 35: 151-175.

Toni Greatrex, MD 115 Dean Road Brookline, MA 02445 *E-mail: Toni Greatrex@hms.ltarvard.edu*