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## Integrating Attachment and Object Relations Theories and the Neurobiologic Development of the Self

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The findings of attachment theory and neurobiologic brain research have confirmed and elaborated on a theory I proposed 28 years ago (Masterson, 1976) concerning the role of the mother in the development and psychopathology of the self. As a prelude to discussing the integration of these three approaches, I will briefly review the development of that theory.

### REVIEW OF THEORY

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#### *Adolescent Turmoil Theory — Psychiatric Dilemma of Adolescence (Masterson, 1967)*

The work began in the 1960s when, as a resident, I became interested in the then-prevalent “adolescent turmoil” theory that adolescents who had symptoms did not need treatment because they would grow out of them as such symptoms were attributed to adolescent turmoil. In reviewing the literature, I found no studies supporting this theory, so I decided to do my own follow-up. This led to 12 years of research on two formal follow-up studies — one an inpatient retrospective and the other an outpatient prospective with controls. The conclusion I reached was that they did not “grow out of it.”

Five years after their initial evaluation, 50% of the adolescent outpatients were still severely impaired, and what was giving them so much trouble was what we called their pathological character traits, which had not been touched on in their treatment. These findings were published in *The Psychiatric Dilemma of Adolescence* (Masterson, 1967). This led to the next questions: What are these traits? Where do they come from? How does one identify and treat them?

***Treatment of the Borderline Adolescent —  
A Developmental Approach  
(Masterson, 1972)***

To pursue these questions, it was necessary to set up an adolescent inpatient program. The patients' symptomatology consisted predominantly of depression, acting out, truancy, drugs, and the like. At this point, we were able to diagnose them descriptively as Borderline personality disorders. When we controlled their acting out, they became depressed, which led to the first psychodynamic concept that the acting out was a defense against depression.

The next question was: What is the source of this depression? Our initial idea was that it was conflicts related to emancipation. But as we continued to overcome the defenses, the adolescents gradually shifted from talking about current conflicts to focusing on conflicts earlier and earlier in development.

At this time, while looking up developmental research in the library, I came across the work of Bowlby on children's reactions to separation and an article by Margaret Mahler entitled "Autism and Symbiosis — Two Disturbances in the Sense of Entity and Identity." Then I attended a movie presented by Mahler showing normal children's reactions to separation.

This led to a further deepening of the psychodynamic perspective to the effect that the Borderline adolescent's problem was a developmental arrest of the ego, a failure in separation/individuation owing to the mother's difficulty in supporting the adolescent's ego development. This lack of support was experienced as an abandonment depression, which was defended against by forgoing further development, in addition to other defenses. This then led to the adoption of the therapeutic technique of confrontation of the defenses. The findings were published in a book entitled *Treatment of the Borderline Adolescent — A Developmental Approach* (Masterson, 1972).

The success of the treatment was demonstrated by yet another follow-up study five years after discharge, published in *From Borderline Adolescent to Functioning Adult: The Test of Time* (Masterson, 1980).

***Psychotherapy of the Borderline Adult —  
A Developmental Object Relations Approach  
(Masterson, 1976)***

The next question related to identifying the link between maternal libidinal unavailability and the developmental arrest of the ego. The answers to this question were found in object relations theory and the notion of intrapsychic structure.

By this time, I was pursuing this question in work with adults in my private practice, which resulted in my focusing on the intrapsychic consequences of maternal libidinal unavailability, that is, the internalization of the mother-child interactions to form the object relations unit. I now added object relations to the developmental approach.

I put together four ideas: (1) maternal libidinal unavailability in the first three years during the separation/individuation phase; (2) object relations theory of intrapsychic structure; (3) Freud's article on two principles of mental functioning; (4) my own clinical observation that as Borderline patients got better, they felt worse, that is, more depressed. This led to the development of a concept called the Borderline triad: self-activation leads to anxiety and depression, which lead to defense. It also led to a broadening concept of its etiology as being attributable to three factors: nature, nurture, and fate. Nature referred to the genetic, nurture to the mother's capacity to support the emerging self, and fate to external separation stresses during the vulnerable phase of separation/individuation (Masterson, 1976).

***The Real Self  
(Masterson, 1985)***

This emphasis on the self in the triad produced an important shift in perspective from the ego and object relations to the recognition that the key pathology was the developmental arrest of the self, along with the ego and object relations, and that the triad was not just Borderline, but also applied to all of the personality disorders, and so it was renamed the Disorders of the Self Triad. Thus, the approach now became a developmental self and object relations approach. The central psychodynamic theme of all of the personality disorders is the Disorder of the Self Triad, and the clinical tasks are (1) to identify the clinical vicissitudes of this triad and (2) to intervene in a way that challenges the defenses so that the self and its abandonment depression can emerge and be worked through, freeing the self to resume its development. A number of publications have demonstrated these findings: *The Real Self* (Masterson, 1985), *The Emerging Self* (Masterson, 1993), and *Psychotherapy of the Disorders of the Self* (Masterson & Klein, 1988).

The theory has taken a journey that lasted over 40 years, from description, to developmental, to developmental object relations, to developmental self and object relations. But there is confirmation of, and additions to, the theory from attachment theory and neurobiologic brain research.

There are two important additions from attachment theory (Hesse, 1999) and neurobiologic brain research on the development of the self: (1) Attachment theory provided a scientifically researched base that confirms and elaborates on the effects of the interactions between the mother and child on the development of the self. (2) Neurobiology (Schorer, 1994, 2001) for the first time, took us inside the brain to find the neuronal basis of the development and functions of the self.

### MAHLER AND COLLEAGUES (1975), STERN (1985), AND CHILD-OBSERVATION RESEARCH

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The clinical observation of the relationship between mother–child interactions and the development of the self during the first three years in normal children provided a dramatic breakthrough in the understanding of the developmental arrest of the personality disorders. I will briefly summarize the work of Mahler and Stern before considering attachment theory and neurobiology.

The child-observation work of Mahler and Stern occupied the center of the psychoanalytic stage, primarily because they made intrapsychic hypotheses from the observation of behavior. Bowlby's (1969, 1973) child-observation work was shunted to the periphery because he limited his perspective to describing the observation of behavior. This difference, which promoted Mahler's and Stern's work initially, was later responsible for Bowlby's work coming to the fore since it formed the basis for scientific research on attachment that could be replicated. It is worthy of note here that I began with Bowlby, then shifted to Mahler's work, which formed one of the pillars of my own work initially, and then led me to the work of Stern, and, finally, back to Bowlby and attachment.

Mahler theorized that the child must separate from a symbiotic relationship with the mother. She made intrapsychic hypotheses based on the observation of child behavior and divided this development into three stages: the autistic (0 to 2 months), the symbiotic (3 to 18 months), and separation/individuation (18 to 36 months). The separation/individuation stage was further divided into the differentiation subphase, the practicing subphase, and rapprochement, on the way to object constancy.

Stern also developed his ideas from intrapsychic hypotheses based on

observing the child's behavior. He concluded that the child was prewired to see the mother as separate from birth cognitively and that the child was an active partner in the coregulation of his or her own development, which occurred in four stages: the emerging self (0 to 2 months), the core self (2 to 6 months), the intersubjective self (7 to 9 months), and the verbal self (15 to 18 months). Sterns emphasized that the child saw the mother as separate cognitively from the outset. However, he was less clear about emotional separation. He also suggested that the way in which the mother looked at the infant and thought about the infant were important.

### ATTACHMENT RESEARCH — BOWLBY

(1969, 1973)

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Bowlby, approaching the research from a different point of view, hypothesized that the child at birth had no attachment to the mother, and that in the first 10 months, the task for the child was to establish such an attachment.

Bowlby's observations initially were addressed to separation research: the reaction of children separated from their mothers by hospitalization or residential nurseries. He divided the reactions into three phases: protest and the wish for reunion, despair, and detachment. The great advantage of Bowlby's work was that he did not make intrapsychic hypotheses based on his observations, but kept strictly to the level of observation.

### ATTACHMENT RESEARCH — AINSWORTH

(AINSWORTH ET AL., 1978; AINSWORTH & EICHBERG, 1991)

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Ainsworth took the lead in the second phase of the development of attachment studies. She made naturalistic observations of infant-mother interactions in the home in Uganda and Maryland. She then developed a laboratory instrument — the strange situation — to study infants' reactions to separation. This was predicated on the observation of 1-year-old infants' responses to very brief separation from, and reunions with, a given parent, in order to classify the organization of its attachment process. Ainsworth discovered that the unfavorable reunion responses previously associated with older toddlers' reactions to major separations from the parent could appear in nonseparated 12-month-olds. She rated these reactions as secure or insecure. The insecure were further divided into avoidant or ambivalent resistant. Later, a fourth category was added: disorganized, disoriented.

The third stage in the study of attachment, which took place in the mid-1980s, was a move to the level of intrapsychic representation by many follow-up studies demonstrating continuity of the early attachment rating in later years.

### THE ADULT ATTACHMENT INTERVIEW

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In the mid-1980s, Main and Goldwyn (Main & Goldwyn, 1982–1998; Main, Kaplan & Cassidy, 1985) developed an interview protocol for parents called the adult attachment interview (AAI). It consisted of 18 questions to evaluate the parent's attitude toward attachment. The adult was asked to describe his or her relationship with his or her own parents during childhood, attitudes toward separation, and so on. The analysis of the AAI rested exclusively on the study of the verbatim transcript. The purpose of the attachment interview was to evaluate a parent's state of mind with regard to attachment.

It's important to keep in mind that the evaluation was not of an attachment to any single person, but was an evaluation of the individual differences in state of mind with respect to overall attachment history.

Main and Goldwyn (1982) took as their guide what has been identified as an ideal rational discourse (Grice, 1975), a cooperative principle that required adherence to four maxims: (1) Quality — be truthful and have evidence for what you say. (2) Quantity — be succinct and yet complete. (3) Relevance — let the direction of your conversation be relevant to the topic at hand. (4) Manner — be clear and orderly.

They developed three ratings: secure/autonomous, and insecure. Insecure was further divided into dismissing and preoccupied. Unresolved/disorganized was added later. The two outstanding characteristics of the parents of secure infants were a clear valuing of attachment figures in attachment-related experiences, together with an apparent objectivity in the descriptions and evaluations of particular relationships. The dismissing category tended to dismiss the effects of attachment-related experiences. Those in the preoccupied category appeared to be too preoccupied with early relationships with their own parents to describe them clearly and evaluate them. The unresolved/disorganized suffered from unresolved trauma.

The attachment interview evaluations closely correlated with the evaluation of the infant in the strange situation. For example, secure/autonomous was related to the secure infant, dismissing was related to the avoidant infant, and preoccupied with related to the resistant/ambivalent infant. Unresolved/disorganized was related to disoriented/disorganized.

## STUDIES OF ATTACHMENT

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Many studies of attachment were done using the AAI and strange-situation ratings, all of which showed a close correspondence between the two ratings.

Ainsworth studied children 2 to 6 months after their original attachment classification at 12 months of age. She found an 80% correspondence with the original rating and, particularly, that unorganized attachment in the parent predicted infant disorganization (Ainsworth et al., 1978). In order to examine the question of whether the mother's attachment classification could be influenced by the infant, Fonagy did attachment interviews with 96 mothers before childbirth, and then evaluated the children 12 months after they were born (Fonagy et al., 1991). He found a 75% correspondence between the rating of the mother and the rating of the child. Similar results were found with regard to fathers, and between mothers and adolescent daughters. Beyond that, a high-risk sample of unmarried intercity mothers, whose attachment interview was done before childbirth, demonstrated the same correspondence (Fonagy, Leigh, & Steele, 1996). In essence, 389 dyads studied showed the same correspondence. An impressive array of evidence was amassed that supported the fact that the mother's attachment style is predictive of the child's strange-situation classification.

The research then moved to the clinical scene, with studies of mothers of clinically distressed children and adolescents. The findings were as follows:

Only one of 23 mothers of children hospitalized for failure to thrive was judged secure/autonomous (Benoit, Zeanah, & Barton, 1989). None of 20 mothers of infants with sleep disorders were judged as secure/autonomous (Benoit et al., 1989). Seventeen of 20 mothers of children with behavior problems were insecure (Crowell & Feldman, 1988). Twenty out of 20 mothers of children with developmental delay were insecure. All mothers of children with conduct disorders were insecure. Interestingly enough, only 6 of 10 mothers of children with ADHD were insecure (Crowell & Feldman, 1991). With regard to adolescence: In comparing 12 Borderline adolescents with 12 dysthymic adolescents, all of the Borderlines' mothers were classified as preoccupied — as compared with only one of the mothers of the dysthymic adolescents. Nine of the mothers of the Borderline adolescents reported loss or trauma and were classified as unresolved. Only two mothers of dysthymic adolescents reported loss or trauma, and were classified as unresolved (Patrick et al., 1994).

In 1996, Fonagy studied the mothers of 82 clinically depressed adolescent inpatients and compared them with 85 controls. Most of the mothers of the patients were classified as unresolved/disorganized, whereas most of the mothers of the controls were classified as secure/autonomous.

**AAI Classifications and Corresponding Patterns  
of Infant Strange Situation Behavior**  
(Ainsworth et al., 1978; Hesse, 1999; Main & Goldwyn, 1982–1998)

**Adult state of mind with respect  
to attachment**

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**Secure/autonomous (F)**

Cohesive, collaborative discourse. Valuing of attachment, but seems objective regarding any particular relationship. Description and evaluation of attachment-related experiences are consistent, whether experiences are favorable or unfavorable. Discourse does not notably violate any of Grice's maxims.

**Dismissing (Ds)**

Not coherent. Dismissing of attachment-related experiences and relationships. Normalizing ("excellent, very normal mother") with generalized representations of history unsupported or actively contradicted by episodes recounted, thus violating Grice's maxim of quality. Transcripts also tend to be excessively brief, violating the maxim of quantity.

**Preoccupied (E)**

Not coherent. Preoccupied with or by past attachment relationships/experiences, speaker appears angry, passive, or fearful. Sentences often long, grammatically entangled, or filled with vague usages ("dadadada" "and that"), thus violating Grice's maxims of manner and relevance. Transcripts often excessively long, violating the maxim of quantity.

**Unresolved/disorganized (U)**

During discussions of loss or abuse, individual shows striking lapse in the monitoring of reasoning or discourse, i.e., individual may briefly indicate a belief that a dead person is still alive in the physical sense or that this person was killed by a childhood thought. Individual may lapse into prolonged silence or eulogistic speech. The speaker will ordinarily otherwise fit Ds, E, or F categories.

**Infant strange situation behavior**

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**Secure (B)**

Explores room and toys with interest in pre-separation episodes. Shows signs of missing parent during separation, often crying by the second separation. Obvious preference for parent over stranger. Greets parent actively, usually initiating physical contact. Usually some contact maintaining by second reunion, but then settles down and returns to play.

**Avoidant (A)**

Fails to cry on separation from parent. Actively avoids and ignores parent on reunion (i.e., by moving away, turning away, or leaning out of arms when picked up). Little or no proximity or contact-seeking, no distress, and no anger. Response to parent appears unemotional. Focuses on toys or environment throughout procedure.

**Resistant or ambivalent (C)**

May be wary or distressed even prior to separation, with little exploration. Preoccupied with parent throughout procedure; may seem angry or passive. Fails to settle down and takes comfort in parent on reunion, and usually continues to focus on parent and cry. Fails to return to exploration after reunion.

**Disorganized/disoriented (D)**

The infant displays disorganized and/or disoriented behaviors in the parent's presence, suggesting a temporary collapse of behavioral strategy, i.e., the infant may freeze with a trance-like expression, hands in the air, may rise at parent's entrance, then fall prone and huddled on the floor, or may cling while crying hard and leaning away with gaze averted. Infant will ordinarily fit the A, B, or C category.



Research has confirmed that those with histories of effective dyadic regulation of arousal and emotion are indeed later characterized by more effective self-regulation. For example, as preschoolers, those with histories of responsive care and secure attachment are judged by teachers and observers to have higher self-esteem, to be more self-reliant, and to be more flexible in the management of their impulses and feelings.

In middle childhood and adolescence, too, those with histories of secure attachment carry forward patterns of effective emotional regulation.

Moreover, throughout childhood and adolescence, research has now established a firm relationship between patterns of early dyadic regulation and later behavior problems and emotional disturbance. At each age assessed, those with secure attachment histories have been found to have fewer emotional problems, whereas those with anxious attachment histories have been found more frequently to have some type of problems. Again, these results often are quite specific. Anxiety disorders, in particular, have been found to be associated with histories of early dysregulation manifested in ambivalent/resistant attachment. Aggression, and conduct disturbances more generally, have been shown to be related to chronic rejection, emotional unavailability, and avoidance attachment. Both resistant and avoidant attachment appear to be related to depression. Finally, disorganized/disoriented attachment, a manifestation of an extreme form of dyadic dysregulation, exhibits the strongest overall relationship to disturbance. The disorganized pattern also is related to dissociative symptoms, that is, to disruptions in orientation to the environment and to the failure to integrate various aspects of emotional and cognitive experience.

### ***The Neurobiology of the Right Brain and the Development of the Self***

In medical school, years ago, we were taught that right-brain growth is strictly genetic, and that the brain cannot change after it is fully grown. Now, neurobiologic brain research has demonstrated that both of these propositions were wrong. The growth of the right brain is experience-dependent, and its wiring can change after it is fully grown.

The explosion of knowledge from neurobiologic brain research has been best integrated and articulated by Alan Schore, Ph.D. (1994, 2004), whose work has had a profound influence on the views presented here.

The right brain is the container and regulator of emotion. It is dominant for the first three years of life. The left brain comes on line in the second year. It is cognitive, logical, literate, and linear, and expresses itself in words. The right brain is nonverbal and, in milliseconds, expresses itself unconsciously in facial expressions, tone of voice, and body posture.

In the first years of postnatal life, the brain grows two and a half times its size at birth, mostly through the growth of the cortex. The growth of the human brain starts at least five to six months postnatal, and continues until about 18 to 24 months of age. The major part of the development of the axons and dendrites and their connections that underlie all behavior takes place in early and late infancy. During this time, a center emerges in the right prefrontal orbital cortex in the right brain for the control of emotion and emotional relationships, and is, therefore, a neurobiologic center of the self. Prior to this emergence, the child is unable to regulate his or her own affect, and thus the primary caretaker's interaction with the child becomes the principal regulator of emotion, and also the creator of the background from which the prefrontal orbital cortex will emerge, grow, and mature.

As the infant focuses on the mother's gaze, the mother, in turn, responds with her gaze, thereby providing a potent channel for the transmission of reciprocal mutual influences. The regulation of affect occurs through face-to-face interactions. The mother and the infant synchronize the intensity of their affective behavior within seconds.

In this process of affect synchronicity, the mother finetunes and corrects the intensity and duration of her affective stimulation in order to maintain the child's positive affect state. These mutually attuned synchronized interactions are fundamental to the ongoing affective development of the orbital prefrontal cortex, and, therefore, of the self.

Misattunement inevitably will occur in development, and the primary caregiver must participate in interactive repair to regulate interactively induced stress disruptions. This pattern of disruption and repair of the "good enough" caregiver corrects and, in a timely fashion, reinvokes her psychobiologically attuned regulation of the infant's negative affect state that she has triggered. The key to this is the caregiver's capacity to monitor and regulate her own affect state — especially negative affect. Normally this synchronous interaction is the interactive regulator of emotion.

These attachment experiences of infancy are deeply internalized in the right brain to become unconscious working models of attachment relationships. They are stored as self and object representations and their linking affects, and they function as the internal regulators of affect. Strategies are encoded to use these models for coping with stress. The misattunement are repair process conducted by the mother is internalized and makes an important contribution to the neurologic basis for the child's capacity for resilience, that is, to repair emotional stress. These internal representations are accessed as guides for future interactions, but they remain in implicit memory. The individual is not aware of them, and does not have a language to access them.

The orbital prefrontal cortex is the only cortical structure with direct

connections to the hypothalamus, the amygdala, the autonomic nervous system, and the structures in the brain stem that regulate arousal. The right hemisphere contains the most comprehensive and integrated map of the body state available to the brain. It is uniquely situated to process information concerning the external environment, such as visual and auditory stimuli, with subcortical information regarding the internal environment, and the integration of adaptive bodily responses with ongoing emotional and attentional states of the organism.

The prefrontal orbital cortex of the right brain matures in the middle of the second year. The core of the self is thus nonverbal and unconscious, and it lies within patterns of affect regulation. This structural development allows for an internal sense of security and resilience that comes from the intuitive knowledge that one can regulate the flows and shifts of one's bodily based emotional states, either by one's own coping capacities or within a relationship with caring others. The operation of the right prefrontal cortex is integral to autoregulation and interactive regulation.

### ATTACHMENT, NEUROBIOLOGIC RESEARCH, AND DISORDERS OF THE SELF

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The caregiver whose adult attachment rating is dismissing or preoccupied or unresolved/disorganized does not have the capacity to provide the synchronicity of affect states with the child that is essential to the development of the prefrontal orbital cortex and of the self. Therefore, there is a developmental arrest of this prefrontal cortex and of the self at the neurobiologic level in terms of a wiring defect, which then becomes reflected at the psychological level as a developmental arrest of the self. The right prefrontal cortex develops inefficient patterns of organization, which result in a limited capacity to perceive the emotional states of others and in difficulty with reading facial expressions that are succeeded by difficulties with empathy and relating by projective identification.

The deficit in self-regulation is further manifested in a limited capacity to modulate the intensity and duration of affects, especially biologically primitive affects. Under stress, such individuals can experience, not discrete and differentiated affects, but diffuse, undifferentiated, chaotic states accompanied by overwhelming somatic and visceral sensations, along with the activation of defenses, which leads to a limited capacity for self-reflection.

### **Integration of Attachment Theory and Neurobiology of the Brain with an Object Relations Approach to Psychoanalytic Psychotherapy**

For years, the developmental self and object relations theory was based on Mahler's work on early development and on the clinical work with personality disorders by myself and others. Attachment-theory experiments have provided further scientific experimental proof of the validity of this theory. Beyond that, it has made correlations with specific mother and child interactions that describe the channels of interactive behavior that produce problems in connecting with, and separating from, the object. Finally, in its concept of inner working models, it has demonstrated the origin and development of what we now call object relations or intrapsychic structure that become the healthy or pathologic regulators of affect, that is, self and object representations provide regulation.

## **NEUROBIOLOGIC BRAIN RESEARCH AND OBJECT RELATIONS THEORY**

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Neurobiologic brain research has made an enormous contribution to our understanding of the neurobiologic basis for affect regulation and its psychopathology, and of therapeutic alliance, transference, and countertransference.

### ***Therapeutic Alliance and Therapeutic Neutrality***

We have always know that therapeutic alliance — defined as the real relationship with the patient — must be more or less positive for psychoanalytic psychotherapy to succeed over the long term. However, now we can define the issue more precisely. We are dealing here primarily with the attunement functions of the right brain, which communicates its affective state unconsciously and instantly, not in words (like the left brain), but in facial expression, tone of voice, and body posture. It's quite possible to receive a verbal message from the left brain and the opposite message unconsciously from the right brain. It is vital for the empathic therapist to attune to, and to resonate appropriately with, the shifting affect states of the patient's right brain, thus creating a synchronous interaction whereby the clinician helps the patient to regulate the right brain. As the defenses are overcome, the dyad is able to hold interactively on-line and to amplify internal affective stimuli long enough for them to be identified, which leads to the emergence of memory. The therapist's objective left brain can now help the patient to use the left

brain to co-process subjective right-brain communications. The unconscious pathologic affects that had been locked in implicit procedural memory, and for which there has been no language, now get access to language as they come to awareness to be worked through.

### ***Transference Acting Out, Transference and Countertransference***

Nonverbal transference and countertransference interactions that take place at unconscious levels represent right-brain to right-brain communications of fast-acting automatic, regulated, and dysregulated emotional states between the patient and therapist. Transference acting out is the expression of the underlying inner working model or intrapsychic structure, and must be identified and confronted or interpreted. This leads to a therapeutic alliance and transference, which, in turn, must be interpreted.

The verbal formulations of affective states provide a powerful new self-regulatory function. Thus, the therapist functions to establish emotional synchronicity, and to overcome defenses so that affects can emerge with memory, to be processed by the left brain. This allows for the maturation and wiring of the prefrontal cortex, the development of self-regulating functions, and the formation of new inner working models, along with the increase in the capacities for empathy and self-reflection, as old neurologic pathways lose their charge and new neurologic pathways become charged.

### ***Countertransference***

Neurobiologic brain research has made an enormous contribution to our understanding of the role of projective identification in countertransference. Projective identification can be defined as a right-brain function whereby the patient's unconscious projects a painful emotion on the therapist, and then, by facial expression, tone of voice, or body posture invokes the therapist to feel it, thereby relieving the pain.

Projective identification used to be thought of as a pathologic mechanism used only by primitive patients. However, it is now redefined as a normal form of communication in the healthy person, beginning with the baby, who co-creates his or her own development by signaling the mother through facial expression, body movement, and so on. It is also now seen as a defense mechanism in the personality disorders. In therapy, it occurs so fast and so unconsciously that the therapist can be caught unaware. As with the mother, it is important for the therapist's right brain to identify and process the negative affect of the projective identification with the left brain, thereby containing it, rather than reacting to it and then returning it to the patient for processing. This process has similarities to the affective synchrony, disruption, and repair

that occurs between a mother and her child. The patient's right and left brains can now process it in the service of growth.

Following are some examples of countertransference.

A therapist reported seeing a patient who had been in a local prestigious training group, but had to drop out of the group and out of treatment. Unable to face her feelings of humiliation and embarrassment at her implied inadequacy, the patient started treatment with a new therapist, questioning her ability as a therapist. Did she have the ability to do it for the patient? The therapist identified with this projection, becoming very anxious about whether in fact she did have the capacity to treat this person. In this way, she identified with the patient's feelings of inadequacy and humiliation and embarrassment, rather than reflecting the feelings and interpreting them to her as follows: "Perhaps you were so concerned about my capacity because it was so painful to access the feelings of humiliation and embarrassment you had. Your way of soothing them was to place them on me."

A therapist who appeared Schizoid presented a case of a closet Narcissistic woman who began treatment with flagrant acting out that idealized her. The patient wanted advice, asked to sit next to the therapist, and she made various demands. The more the patient acted out this idealizing, the more the therapist experienced it as a reinforcement of the commanding object's wish for her to be a slave, and the more anxious and angry the therapist became, the more she withdrew and withheld from the patient. The more she withheld, the more the patient felt abandoned, and escalated her acting out. It was necessary to bring the therapist's countertransferential withdrawal to her attention so that she could regain therapeutic neutrality and be able to set the necessary limits for the patient and to interpret the projective identification.

These findings from attachment theory and neurobiologic research have added to and deepened the theory and the therapeutic approach, but they have not essentially changed the treatment approach to achieve the objective. That is, the new understandings have not altered the basic goal to overcome the initial transference acting out defenses to establish a therapeutic alliance and transference to work through the abandonment depression that leads to a repair of the wiring; to the growth of the prefrontal cortex, which is then able to perform more effective self-regulation at the neurobiologic level; and to the growth or transformation of the self from split self and object representations to whole self and object representations at the clinical level.

## IMPLICATIONS FOR THE THEORY

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The theory, as originally proposed, considered the etiology of the personality disorders to be attributable to a combination of nature, nurture, and fate: Nature referred to possible genetic input, nurture to the mother's difficulty with supporting the emerging self of the child, and fate to separation stresses that took place during the developmental period of separation/individuation.

Attachment theory and neurobiologic brain research have demonstrated a scientific basis for the nurture part of the theory. We also have ample scientific evidence of the separation/individuation stress component from the same source. What remains to be demonstrated is the genetic input.

A case in point demonstrating how the environment and genes interact is a study entitled "Role of Genotype in the Cycle of Violence in Maltreated Children" (Caspi et al., 2002). It addresses why some children who are subjected to chronic physical or emotional abuse grow up to be troubled, violent, abusive, and even criminal, but most become law-abiding and well-adjusted adults.

Researchers from the United States, Great Britain, and New Zealand presented persuasive evidence for why some children are resilient whereas others remain scarred by neglect and abuse: It depends on the child's genetic makeup.

Abused boys who carry one version of a particular gene are more likely to grow up to be violent and antisocial than are those carrying another version.

The gene lies on the X-chromosome and makes monoamine oxidase-A (MAOA), an enzyme that acts like a biochemical garbage disposal, breaking down and metabolizing neurotransmitters, including serotonin and dopamine.

The DNA that determines how much MAOA occurs in the brain comes in two varieties. One produces low gene activity, and thus small amounts of MAOA. Another produces high gene activity and high amounts of MAOA. In mice, the absence of MAOA has been linked to aggression. One study in humans found the same thing. But genetic determination — "gene A causes behavior B" — is too simple an explanation.

In studying 442 white, male New Zealanders who had been followed since their births in 1972, the researchers found that childhood maltreatment was far more likely to lead to adult violence in boys with low-activity MAOA genes than in boys with the high-activity version. The 55 men who have the low-activity form and had been neglected or abused were about twice as likely to have engaged in persistent fighting, bullying, theft, cruelty, and vandalism during adolescence, and also more likely to have been convicted of a violent crime than were men with the high-MAOA form who had been maltreated.

Low MAOA alone produced no increased risk for violence as an adult.

Without abuse, such boys were no likelier to be antisocial or violent adults.

“Genes can moderate children’s sensitivity to environmental insults,” the study’s leader said, which “may partly explain why not all victims of maltreatment grow up to victimize others; some genotypes, for example, high MAOA, may promote resistance to trauma.”

Maltreatment seems to cause lasting changes in brain chemistry. However, if MAOA levels are high, it constrains those changes. If low, it can’t. Hyper-reactivity and the attendant aggression becomes permanent.

## POSTSCRIPT

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Is it possible that there is a gene that acts in the personality disorders just as the gene in the above study did? If the gene is high, it protects the child exposed to maternal lack of support from becoming prone to a personality disorder; if it is too low, a personality disorder could develop — thus the etiology is a combination of environment and genetics. The frontier of research now focuses on finding the genetic factor.

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