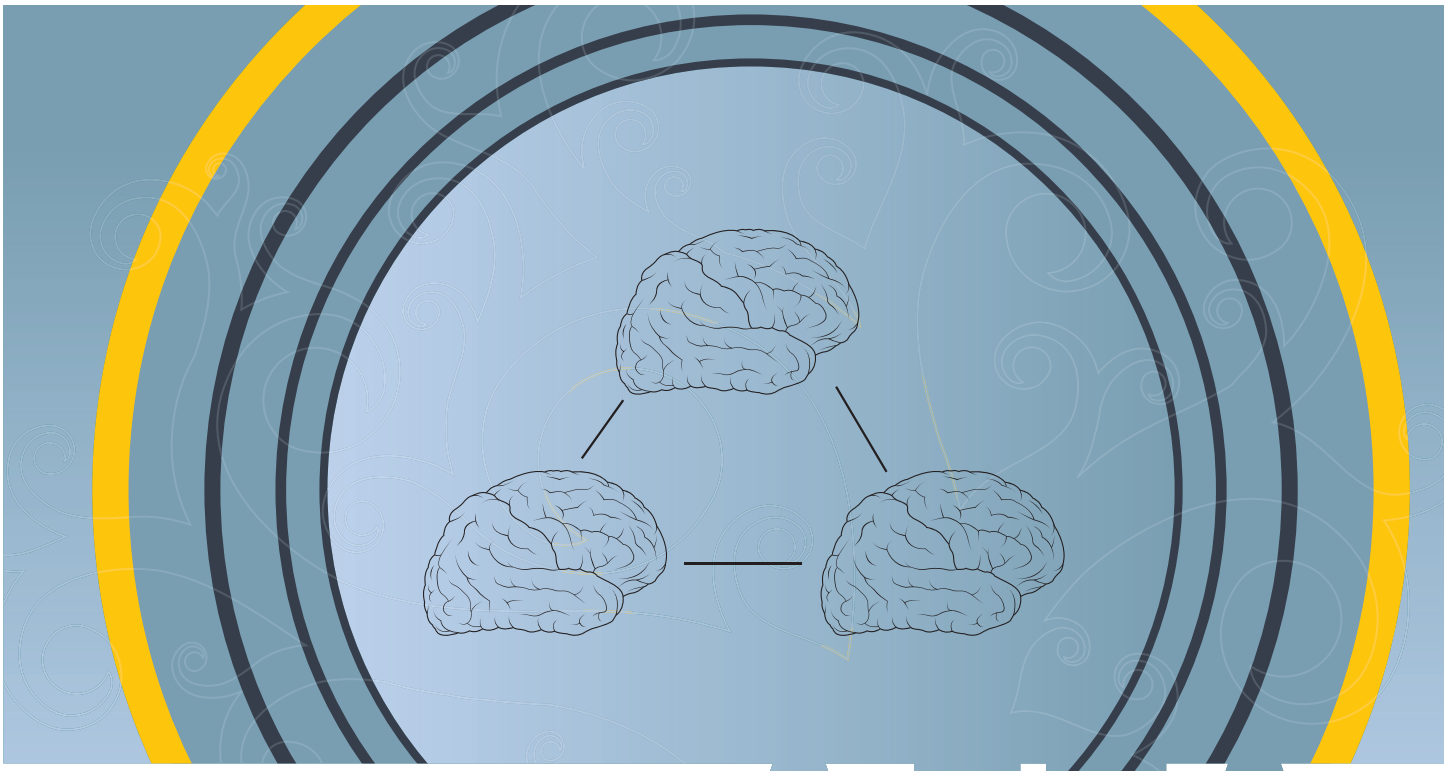

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In This Issue

From Neurons to Neighborhoods : An Expanded Systems Framework for Family Therapy

Martha E. Edwards, Ph.D.

Overview

Fifty years ago, family therapists introduced a revolution into the mental health disciplines by demonstrating the powerful influence of the social field on individuals, making a passionate case that the unit of treatment for psychological difficulties should include the family. Over time, family therapy's lens widened to acknowledge the profound impact on individuals and families of inequalities in power and privilege associated with gender, class, race, ethnicity, sexual orientation, nationality, and other variables in the larger social context. This monograph reflects the further widening of our systemic lens to embrace the neurobiological level of experience of individual family members. The authors here join others in the field (Siegel, 1999, 2006; Atkinson, 2005; Cozolino, 2006) to make an equally passionate case that a systems framework for family therapy should encompass "neurons to neighborhoods"[1] in order to take advantage of advances in neuroscience and broaden our repertoire of effective therapeutic interventions. In this and the articles to follow, we will focus on the recursive processes whereby neurobiology shapes feelings, thoughts, behaviors, and interactions and, at the same time, the interaction processes in families and societies impact the neurobiology of their members. At any one time, it is not possible to hold all of these multiple systems in mind to understand a particular family and its members. We must zoom in and zoom out (Stern, 2002) to focus on these various levels and units of analysis.

In this issue, Gillian Walker recounts her personal journey to a multi-systems perspective, focusing her lens on the neurobiological variations that we label "temperament" or "disorders" of learning, attention, and mood. Mona Fishbane describes patterns of interactions in couples, linking the neurobiological and behavioral levels of analysis to elucidate the effect of one on the other. Judith Landau and James Garrett focus on the profound impact of substance abuse on brain structure and function. All argue that psychoeducation is a critical part of couple and family therapy, increasing family members' understanding and compassion both for self and others. They all demonstrate how they apply "news from neuroscience" (to borrow Fishbane's phrase) in every day clinical practice.

Before moving to these authors' contributions, I would first like to step back to consider a larger question: As we broaden our lens, on what view of mental health are we focusing? In Daniel Siegel's keynote address at the 2006 AFTA Annual Meeting, he observed that the field of mental health had not clearly defined what was meant by the term "mental health." He proposed complexity theory as a framework in which a system's health is defined by the integration, or linkage, of differentiated parts. This integration produces complexity and, according to the theory, when a system moves toward complexity, it is the most stable, flexible and adaptive. When a system is unhealthy, it moves in either one of two directions: rigidity or chaos.

This conception of mental health echoes both foundational theories in psychology, as in the work of Alfred Adler (Ansbacher & Ansbacher, 1956) as well as in family therapy (Bowen, 1978; Minuchin, 1974). An advantage to such a defini-

1 The wonderfully descriptive phrase "neurons to neighborhoods" comes from the title of a book on early childhood development (Shonkoff & Phillips, 2000).

tion is that it applies to multiple levels of systems – e.g., societal, familial, dyadic, neurobiological. And given the tremendous diversity across and within systems, this definition might provide a unifying conception for health that embraces diversity rather than privileging one group's view of normal over another's.

In this introductory essay, I would like to explore briefly what this integration might look like at a neurobiological level both within and across individuals and the implications for family therapy practice and training.

Intra-Individual Integration

A fascinating clinical case illustrates one domain of intra-individual integration – the integration of different types of memory (Claparede, 1911/1951). An unfortunate woman had lost the capacity to make new memories. Every time her physician came to see her, he had to introduce himself to her as she had no memory of ever having met him. He altered his greeting one day, by putting a tack in his hand and shaking his patient's hand. She withdrew her hand in pain. When he returned minutes later, she again had no conscious memory of having met him, but she refused to shake his hand.

This case illustrates vividly that memory is a complex process and that different aspects of experience are encoded into different memory storage systems. In what is called explicit memory, we store facts about the world (semantic memory) as well as about ourselves (autobiographic memory). In what is called implicit memory, we store sensory information from both the external world and from our own bodies, emotions, and what our bodies feel like when we perform behaviors. Much of this implicit processing occurs out of our conscious awareness. Normally, implicit and explicit memory systems are integrated so that we have a unified conscious experience of the world (Cozolino, 2006).

Implicit memory functions at birth (and even before) and, as a result, the myriad of sensory and emotional experiences of the infant are being registered and remembered before language capacities have developed to put them into words. The countless interactions with caregivers – the mutual gaze, soothing caresses, lyrical vocalizations, animated facial expressions – are coordinated with the child's cues in an intricate dance of contingent responsiveness and reciprocity. The child generalizes these experiences into an internal model for relationships in which the other is seen as caring, consistent, and safe, and self as worthy, competent, and comfortable in the presence of others.

Imagine a child whose mother is ambivalent about being a parent, and that this is reflected in a dullness of voice and expression and a stiffness and distance in her embrace. On the surface, the mother may do many of the things that other mothers do, but lodged in the child's body are these memories of disconnection. Since these early experiences were nonverbal and occurred before the maturation of the explicit memory system and the development of language, the awareness of what is wrong is vague and ill-defined and seems at odds with later explicit memories of relatively pleasant family activities. Such a child's experience of relationship may be an inchoate sense of not being wanted and, consequently, a persistent state of deprivation and loneliness and yearning for relief.

In my work with Angela, Tom, and Bethany, their five-year-old temperamentally hypersensitive and moody daughter, Angela's implicit memories worked against her in her mothering. Rejected in some ways in childhood by her mother, Angela was primed to interpret Bethany's irritability as further rejection, and her husband's ability to soothe Bethany as the ultimate proof of her own unlovableness. Angela's memory of her mother holding Bethany opened an impor-

tant door. She described how awkward her mother seemed, remarking, "I guess it's been so long since she held a baby that she doesn't remember how." But one never forgets how to hold a baby. Using that visual image of Angela's mother and Bethany, we imagined together how uncomfortable it must feel to be held that way. We then connected this to Angela's current bodily sensations when physically close to Bethany and to Tom, and then back to what it must have been like for her when her mother held her. This was instrumental in integrating implicit and explicit memories and in creating a coherent story that held them all together. Then, we also imagined a different mother-daughter experience – close, warm, comfortable, soothing – and connected these ideas to physical experiences she had actually had that came close to such feelings. Providing this "missing developmental experience" (Stein & Edwards, 2000), gaining a perspective on what might have been going on for her mother at the time, and mourning the mother-daughter relationship she wished she had experienced helped her feel more connected within herself. She was then able to tolerate Bethany's irritability and not take it personally and make a more consistent connection with both her and Tom.

Angela experienced a disconnect from both her husband and daughter – a disconnect born of perceived and actual rejection, criticism, and ineptitude. She overlaid her feelings of deep pain with an aggressive, angry response. Underneath, however, she deeply yearned to be more connected.

Inter-Individual Integration

Connection with others, i.e., inter-individual integration, has long been known to be associated with both physical and mental health (Cohen & Syme, 1985; Sarason et al., 1990). Social isolation has repeatedly been shown to predict mortality and disease (Brummett et al., 2001) and is as dangerous as cigarette smoking (House et al., 2001). It is also a risk factor for depression (Bruce, 1994) and disruptions in social relationships can trigger unipolar or bipolar episodes of depression or mania (Malkoff-Schwartz et al., 2000).

Social connections are also central to the social, emotional, and physical growth and development of infants. The human infant is born with an immature brain that requires the input from an attuned other to grow and develop fully. This other, through tuning into the child's internal states of feeling, desire, intention, resonates with these states and mirrors them in facial expressions, vocal tone and rhythm, touch, and gaze. As a result, the child "feels felt" and understood, and learns about self through these reflections in the other. The child also develops the capacity for positive affect, finding that good feelings are enhanced when shared with others and these others can help to regulate both positive and negative feelings. When fearful or uncomfortable, the child signals the caregiver, whose ministrations help the child return to a feeling of safety, security, and comfort.

This process, leading to the development of a secure attachment relationship, also shapes neurobiological structures in the middle prefrontal area of the brain associated with capacities central to adaptive functioning in the world. Siegel (2006, pp. 42-43) lists seven capacities that are associated with secure attachment and dependent, in part, on this middle prefrontal area of the brain: (1) body regulation; (2) attuned communication; (3) emotional balance; (4) response flexibility; (5) empathy; (6) insight or self-knowing awareness; and (7) fear modulation.

Just as a resonant, responsive relationship is associated with the original development of capacities related to good mental health, later-life relationships can support adults in making up for childhood deficits in caregiving (Mitchell, 2007; Siegel, 2003). The therapist can be a central figure in this process of adult development.

Therapeutic Interventions and Implications

Several models of therapy now exist that build on attachment theory to promote interpersonal integration and focus on interpersonal attunement and safety in the therapeutic relationship. Johnson's (2004) Emotionally Focused Couple Therapy (EFT) and Fosha's (2000) Accelerated-Dynamic-Experiential-Psychotherapy are two such models, focusing respectively, on couples and/or families and individuals.

Although there are critical differences which are beyond the scope of this essay to review, there are several central ideas about interpersonal connection that are helpful to understand.

In both models of therapy, safety is predominant. Just as a central purpose of the caregiver-child attachment relationship is to create a feeling of safety for the vulnerable child, the safety of the therapeutic encounter is the bedrock for all therapeutic work. This safety feeling enables clients to feel deeply the emotions that they have guarded against. For some, those emotions are the dark ones – anger, grief, pain, sadness, shame, and despair; but sometimes the more positive emotions – tenderness, pleasure, enjoyment are avoided. When the therapist's attuned presence provides a safe guide with which to traverse these rocky roads of deep, unfelt, and unexpressed emotions, clients are able to connect to these walled-off parts of themselves, releasing the adaptive energy associated with core affective states. In couple or family therapy, the other(s) are both witnesses and recipients of this more authentic emotional communication which can be deeply moving and transformative.

This type of therapeutic work has implications for both the nature of the conditions under which it can be done as well as for what it requires of the therapist.

First, how does the therapist create a safe environment? Johnson (2004) cautions that EFT is not appropriate for violent couples or for couples who are separating. She also reports that the female partner's belief in her partner's caring is predictive of a positive couple therapy outcome. This underscores that there may be thresholds of emotional safety and good will that are necessary in order for couple or family therapy to be successful. How does the therapist assess the level of emotional safety? If the partners are not ready to work together, how much individual work might be necessary to prepare them to create safer environment with one another?

Finally, what is required of therapists who are doing this kind of work and how do we prepare them for it? This is emotionally demanding work, and it requires the therapist's capacity to let go of self and be fully present and attuned to the client(s). The therapist needs to intuit, resonate with, reflect, contain, modulate, model, and guide the sometimes ferocious affective currents running within and among family members in our care. A therapist's unresolved issues will hamper his or her ability to engage authentically, creatively, and competently in this process.

Our field has not, typically, recommended that therapists engage in their own personal therapy. Some training programs help trainees explore their families of origin, identifying patterns of interaction and meaning that shape current functioning. But for many therapists in training this is not enough. This monograph proposes that knowledge from neuroscience will enhance the family therapist's knowledge base and therapeutic repertoire. But this mere knowledge will add only a superficial layer unless the therapist has the capacity to deeply connect to self – integrating body and mind, thoughts and feelings, past and present – and to others.

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Mind-Ecologies

Gillian Walker, L.C.S.W.

An ecology of mind: a new way of thinking about the nature of order and organization in living systems, a unified body of theory so encompassing that it illuminates all particular areas of study of biology and behavior. It is interdisciplinary, not in the usual and simple sense of exchanging information across lines of discipline, but in discovering patterns common to many disciplines.

Gregory Bateson, cited in Donaldson (1991, p.xi).

The Making of a Systemic Therapist

Some thirty years ago, when I was first learning to be a family therapist, Al Sheflin, an anthropologist and family communications theorist, invited a group of trainees from the Ackerman Institute to watch videotapes of families taken in their homes. As we watched the patterned interactions that characterized family life, Al paused the tape in the middle of an interaction. Perhaps Mom and Dad were drifting towards an argument, signaled only by an almost imperceptible rise in tension. He then asked us to predict who in the family would be the next to make a move. Again and again, as if on cue, one child, for example, initiated a fight with a sibling and family tension shifted from the parental dyad to the children, rising until one child started to cry. Father intervened to protect the distressed child, Mother objected, and the tension shifted back again to the parental dyad.

Witnessing the amazing regularities of family interaction and reading Gregory Bateson's *Steps to an Ecology of Mind* (1972) and *Naven* (1958) – which outlines the way cultures, like families, use patterned ritualized behaviors to maintain social stability – made me into a committed systemic thinker. I saw that deciphering family-societal relational systems was central to understanding human behavior; to decipher the meaning of any behavior, any communication, one must know the context within which it occurs. As I began to practice family therapy, my work was shaped by Bateson's collaborators at the MRI who combined his cybernetic view of social systems with the ingenious hypnotherapeutic work of Milton Erickson (Haley, 1993) to form a brief systemic psychotherapy (Watzlawick, Weakland, & Fisch, 1974). In their model, change was produced by interrupting problem-generating or sustaining sequences of behaviors, triggering a snowball effect of a stream of positive interactions. I was also impressed by the usefulness of Bowen's genogram method for understanding the relational forces that shaped my patients' beliefs, emotions, and behaviors. I expanded my concept of the family relational system to include the family of origin and its multi-generational patterns of relating. The family eco-maps I drew grew to include the larger kin system, even important figures and institutions outside the immediate family ecology that might have a shaping effect on beliefs and behavior. I still use the eco-genogram as my major tool for note-taking.

Because family therapy was rooted in the anti-psychiatry movement of the 1950's and 1960's, (Laing & Esterson, 1970; Watzlawick, Beavin, & Jackson 1967; Watzlawick, Weakland, & Fisch, 1974; Haley, 1963), I frequently saw traditional psychiatric diagnoses, the use of medications, and

hospitalizations as forms of social control. This was supported by Foucault's majestic, *Madness and Civilization* (1973) which analyzed the operations of power implicit in diagnosis (labeling), psychiatric incarceration, and defined much psychiatric treatment as "normalizing practices" aimed at bringing the outlier patient into conformity with the norms of dominant groups. From there it was a logical step to embrace the postmodern concept that psychiatric diagnosis was not objective, scientific truth but was, instead, a mental construction, often influenced by the norms, prejudices, and narratives of those in power.

Conversion to a Multi-Systems Therapist

My conversion to a multi-system view of family therapy that embraced neuroscience, genetics, and attachment took place in the early 1980's when my just-school-aged, oldest daughter, Rebekah, started having tantrums and stealing. I looked for answers in my relationship with my husband, mother, and father, but to no avail. Rebekah seemed increasingly depressed, had few friends and stubbornly refused to read. The school's explanation was that she was rebelling against an intellectually pressuring family, an explanation that had some validity given the high regard with which our family held academic achievement. My colleagues, who saw Rebekah as a smart, able child, gave me paradoxical, strategic, and structural interventions, but, again, to no avail. Nothing I tried, including a family consultation, seemed to make a difference.

One day, a senior therapist at the Ackerman Institute asked her sister, Barbara Novick, then director of the Learning Disabilities Program at Lenox Hill Hospital, to speak at a faculty meeting. As Barbara summarized what she thought all therapists treating children needed to know about learning difficulties, her description of the learning disabled (LD) child seemed to fit my daughter. I immediately asked Barbara to test Rebekah. She found Rebekah to be profoundly dyslexic, a diagnosis that her school, which served as a laboratory for a distinguished graduate school of education, refused to accept, despite Barbara's eloquent and learned presentation of the data. I later learned that my experience in the trenches with all three of my children, fighting therapists and educators to get my children's needs met, is common to almost all families whose children have LD and ADHD. Pat Heller, a learning specialist, tutor and family therapist, came to the rescue. With her tutoring and psychoeducation about learning difficulties, Rebekah's behavioral problems simply vanished. As she felt less confused about what was happening to her at school and, therefore, better about herself, she began to make friends.

As we explored our family history with a new understanding of LD and attention deficit and hyperactivity disorder (ADHD), we realized that my husband, my brother, and my other two children had both ADHD and dyslexia, highly heritable neurobiological variations that were seen as "disorders." These "disorders" would require remediation, psychoeducation, and possible use of medication if my children were to succeed in a culture that is fairly narrow in its vision of success. My husband, a filmmaker, had struggled mightily in school and for many years bore the scars of his learning disabilities. He and my children were all divergent thinkers, artists, poets, creative people. But within the narrowly focused socio-educational system in which they had to function they were often found lacking, an experience that damages self -confidence. It was all too common for them to be both chastised for being off-task and unable to contain an idea or an impulse and to be mocked or thought weird by other children. It is not surprising that clinical research concerning LD and ADHD children has shown that these children suffer from cumulative trauma (Hammill, 1990). Like Seligman's harnessed dogs unable to escape electric shock, many of these bewildered children manifest depression and social problems (Osman, 1995). Forced to endure the misery of school without the possibility of achieving academic success, they receive the "shock" of shame

and punishment from teachers and other children who term them as "stupid" or "lazy." In some LD and ADHD children, fighting depression and shame manifests by pretending that school does not matter, by flaunting a "choice" to act out, by embracing antisocial behaviors, or by hanging out with kids who get in trouble. They often use drugs or alcohol to medicate their feelings of discouragement, helplessness, and hopelessness. My daughter's stealing, a behavior common to LD children, was her language to express her despair that in the confusing world of school, no matter how hard she tried, she did not have the power to legitimately acquire anything for which she worked.

Needing a way to re-narrate my children's story of failure and shame to one that celebrated their gifts, I explored Gardner's (1993) liberating work about multiple intelligences. His work has been critical in helping me see that what schools consider "intelligence" is defined largely as the potential for academic success and is based on a narrow band of testable competences that in no way represents the wide variety of human intelligences necessary to the functioning and flourishing of human societies. This narrow view often leads to families and schools that fail to nurture the capacities of children who are gifted, for example, in the arts, interpersonal relations, the ability to work with their hands, or the understanding of the world of nature – skills that are indeed important to the functioning of complex societies.

What I took away from my personal experience with my daughter was that, as a clinician, I had been blind to the impact of a wide range of genetically-driven neurobiological disorders that affect and influence individual and family functioning. I had experienced the value of psychoeducation in changing our family narrative both about the nature and meaning of Rebekah's difficulties and about ourselves as effective people. We again knew not only how to love her, for even love is obscured by helplessness and anger, but equally important for her development, we had learned how to make her feel understood by us. With psychoeducation we could be empathic to her difficulties and become a team of effective helpers and advocates. Understanding our family's genetic inheritance, we could see how similar difficulties in other family members over generations had shaped our family's behaviors and beliefs. And as Rebekah began to understand her strengths and weaknesses, she began to develop her creative capacities for art and poetry.

These personal experiences have made me a fierce advocate for my patients' rights to celebrate their biologically driven differences. Hallowell and Ratey (2005) write of the advantages possessed by people with ADD, and Jamison (1996) describes the many people with bipolar illness who are touched by the fire of creativity. One remembers Temple Grandin's (2006) amazing use of her autism to alleviate the suffering of animals who are to be slaughtered, Picasso, Edison and others who famously had dyslexia, and the belief of Mahmoud Abdul Rauf, the greatest free thrower in basketball, that the secret of his persistence at getting the shot right was the obsessive features of his Tourette's Syndrome (Schoenfeld, 1994).

The problem of essentialism, when applied to "mental illness," is not so much that neurobiological and genetic phenomena related to illness do not exist conventionally for, of course, they do[1], but rather that Foucault's analysis of the politics of psychopathology is correct. Syndromes labeled as "mental illness" together with their very real genetic and neurobiological substrates, are assigned positive or negatives values in relation to the norms and politics of the groups who dominate Western society. Behaviors categorized as mental illness are not always essentially dysfunctional. They can, in

1 Here I use the word 'conventional' in the Buddhist sense, which well fits the systemic/complexity/chaos theory philosophy in which family therapy is grounded. "Conventional reality" refers to what we see and take to be "real," as opposed to a deeper understanding of all phenomena as inter-dependently arising and therefore existing in a constant state of mutual transformation and change.

fact, give an evolutionary edge as in the value of ADHD for survival in pioneer or nomadic cultures. Manic-depression gives rise to extreme experiences that may translate into the poetic sensitivity and creative fire of mystics, poets and artists. In "advanced" cultures, such "symptomatic" behaviors are judged "aberrant" by dominant groups and their medical representatives and the patient is subjected to what Foucault has called "normalizing practices" that include hospitalization, medication, psychosurgery, and in the case of instances of gender identity disorder and homosexuality, "corrective" therapies. Family therapists such as Epston and White (1989) have made us acutely aware of the politics of pathologizing. Their work keeps us mindful of Jamison's (1996) concerns about medicine's tendency to reduce that which is beautiful and original "to a clinical syndrome, genetic flaw, or predictable temperament." As a scientist who herself has bipolar disorder, Jamison (1997) attributes both her suffering and her gifts of perception to the intensities of this condition. While she acknowledges that medication and psychotherapy have enabled her to be a productive person and argues for knowledge about the illness and its causes in order to alleviate suffering, she also cautions: "What remain troubling is whether we have diminished the most extraordinary among us – our writers artists and composers – by discussing them in terms of psychopathology or illness of mood. Do we – in our rush to diagnose, to heal and perhaps even to alter their genes – compromise the respect we should feel for their uniqueness, independence, strength of mind and individuality?" (Jamison, 1996, p. 259).

The Challenge of Consilience – A Multi-Systems Paradigm

The challenge of the second half of my career as a family therapist has been translating into clinical work personal understandings of the relationships among neurobiological variations, problem formation in the individual, and the contexts of the family and larger systems. This translation involved exploring new areas including attachment theory, genetics, neuroscience, and the biological basis of specific disorders and treatment protocols that targeted their specific symptom constellations. In the past, in order to treat problematic behaviors I would have explored only the relational system; I now understood that many problem behaviors had genetic origins that affected brain functioning and, in turn, shaped the relationship surround.

Wilson (1998), in wondering why Western social sciences and humanities have been historically impervious to consilience with the natural sciences, speaks of the fragmentation of knowledge into more and more detailed areas of specialization and argues for fostering consilience among multiple domains of knowledge. Eastern traditions of thought[2], together with the writings of my familiar Western guru, Gregory Bateson, helped me know that from a true systems perspective, all phenomena from the microscopic gene to the vast societal systems that organize and disorganize our planet cannot be understood in isolation one from the other. Rather they exist as elements in vast, patterned, mutually influencing, self-organizing networks that are transient and in flux, constantly shaped by and shaping each other in an infinitely complex dance. In the relational dance, which is the unit of exploration of family systems therapists, nature – expressed in neurobiological, psychological or behavioral phenomena – interfaces with nurture – the larger context of family organization, family history, and culture. Nurture both shapes and is shaped by nature, also maintains it, changes it, and assigns it value.

Family therapists will find in the work of Gregory Bateson the necessary underlying paradigm

2 An important influence has been the Mind-Life conferences founded by Francisco Varela, conducted every two years by a group of scientists, Buddhist monks and the Dalai Lama. The proceedings of all these conferences have been published by Shambala Press and provide fascinating insights into the value for behavioral change of the Dharma, the body of Buddhist teaching, when translated into lay terms. William James was known to have predicted that Buddhism, a fully systemic philosophical tradition, would come to the West as a psychology.

that makes such consilience not only possible but also ultimately the only way in which we can deeply understand the infinitely complex context in which the phenomena we are studying arise. Bateson hypothesized that the new sciences, cybernetic and general systems theory and its sister paradigms, complexity and chaos theory, allow us to construct a unifying explanatory paradigm that holds that all systems are governed by similar laws, by the isomorphism inherent in the "metapattern," which is the "pattern that connects all systems" (Bateson, 2002, p.10). In searching for "the pattern that connects," Bateson attempted to describe universal recursive processes, governed by laws of natural selection, that connect all living systems within a mutually evolving ecology and create stable, ordered, patterned wholes or networks out of parts. In offering a theory that would suggest a resolution of the nature/nurture dichotomy, Bateson used a simple metaphor: "the horse shapes the grass and the grass shapes the horse" and in their relationship they evolve "along together to make a constancy … a sort of steady state" (Bateson, 2002, pp.276-277). In this capacious model, multiple theories about the nature and origins of human behavior can be seen as complementary rather than competing. Integrating this model and Wilson's dream of consilience into our work serves to deepen our understanding of the multiplicity of systems involved in our when we try to understand how ecologies work.

Application of the Multi-Systems Paradigm to Family Therapy

Grasping the impact of learning disabilities on the organization and functioning of my own family has broadened my work by integrating multiple domains of continually emerging new knowledge. I find the very familiar genogram is an indispensable tool for tracing heritable conditions and confirming diagnoses such as bipolar illness, major depression, or anxiety. Asking simple questions such as "Does anyone in your family have ADHD?" often does not yield the important information. One must be on the lookout for more subtle manifestations of these disorders such as erratic school or work history, substance abuse, or family members described as "odd," "out of control," "rageful." These are all possible undiagnosed disorders that shape intergenerational patterns of interaction and might be inherited by current generations.

Over the last ten to fifteen years, I have worked with an Ackerman team[3] to create models of family psychoeducation for LD, ADHD and bipolar illness which have become staples of my private practice. Family psychoeducation is an essential tool in changing narratives in which the child or family member is thought to be "bad." The more I and the family with whom I work know about the symptomatic manifestations of the "disorder," the more the debilitating family anxiety and conflict quiets. Family members are gradually able to feel empathy for the sufferer who was once considered insufferable, and as a result learn to eliminate the high negative "expressed emotion," which is known to exacerbate illnesses such as bipolar disorder and schizophrenia (Miklowitz & Goldstein, 1997).

I now understand more about the individual differences that can wreak havoc in couples and families. For example, variations in the ways individuals process and express information or attend to matters at hand (Levine, 2000) as well as sensory hypersensitivities to sound, touch, or smell (Bundy, Lane, Fisher, & Murray, 2002) Can make the lives of patients a bewildering hell. As a family therapist who has been trained to ask patients entering couple or family therapy to take a break from their individual therapy because it was thought that it would vitiate the family systems work, I find myself referring patients to cognitive-behavioral work; mindfulness workshops for anxiety, stress reduction and depression; EMDR for trauma; and breathing practices for developing calm and centeredness.

3 Marcia Stern, Pat Heller, Susan Shimmerlik, Martha Edwards, Anne Rivers, Ana Escalante

Effective therapies targeted at specific disorders can be integrated into family work. Some examples include Franks' Interpersonal Social Rhythm Therapy for Bipolar Disorder (Frank, 2007); Williams, Segal, Teasdale and Kabat- Zinn (2007) on the use of mindfulness in depression; Linehan's (1993) Dialectical Behavior Therapy for Borderline Personality Disorder; Schwartz's (1996) treatment for Obsessive-Compulsive Disorder (OCD); and Schore's (2003) work on therapeutic interventions to repair attachment disorders.

For example, Schwartz and Begley harness what they call "mental force," that is, mindful interruption of the brain's automatic and perhaps genetically-driven patterns of thought to make way for the practice of targeted new learning (Schwartz & Begley, 2002, p. 42). This work is based on Eastern meditative traditions and involves training the patient to "observe sensations and thoughts with the calm clarity of an expert witness." Psychoeducation teaches the OCD patient to "relabel, reattribute, refocus and revalue" compulsive behaviors (Schwartz, 1996, p. xiii). A compulsive thought merely represents a brain-wiring defect not worth an emotional reaction to the discomfort it causes. Instead, by using mindfulness practice, the patient can learn to let the thought pass or can substitute a healthier thought (Schwartz & Begley, 2002; Begley, 2007). Using PET brain scans, Schwartz demonstrated that after a treatment in which the patient essentially learned to think about thoughts, not only was there a change in the metabolism of the recursive OCD circuit between orbito-frontal cortex and limbic system, but that the caudate nucleus, a brain structure which becomes abnormally large in OCD, actually shrunk. Other forms of mindfulness therapy, in which the patient learns to use mindful attention to identify and then change or ignore pathology-generating patterns of thought and the actions that arise from those thoughts, has been successfully used in the treatment of mental disorders including depression, OCD, Tourette's Syndrome and anxiety disorders (Kabat- Zinn & Saki Santorelli, 2007).

Work on child development and parenting has opened up new strategies for helping families create optimal caretaking relationships that serve as protection against the expression of genetic predispositions for psychopathology. For example, Suomi's (2000) work with primates suggests that genetically-driven temperamental traits may be overcome by a parent-child relationship that fosters healthy functioning. He demonstrated that shy/anxious monkeys (inherited traits) raised by shy/anxious parents continued to manifest traits for shyness and anxiety and were at the bottom of the monkey hierarchy in terms of dominance. When the shy/anxious monkeys were given to confident, outgoing parents to raise them, they learned to turn their genetic predisposition to an evolutionary advantage. These fostered monkeys became leaders of the pack because they were observant and vigilant but at the same time outgoing enough to know how to relate to and gain the trust and respect of other monkeys. Gunnar and her colleagues' studies of anxious children raised by confident mothers who did not overprotect their timid children from stressful situations showed that the children were able to lower their production of cortisol, a physiological marker of high levels of stress. In contrast, children raised by overly protective mothers remained at high levels of stress (Gunnar et al., 1992; Gunnar et al., 1995). Family researchers such as Reiss and colleagues (Leve et al., 2007) and Edwards (2002) believe that one can intervene with families whose offspring are at risk for developing mental illness to provide protective factors during the vulnerable stage of early brain development.

I have found Greene's (Greene & Ablon, 2006) collaborative problem solving model critical to my work with children suffering from mood disorders, explosiveness, and ADHD. The essence of this work is the generation of parental empathy and respect for the affected child's capacity to collaborate with the family in finding solutions to problems, as

a way of developing the executive functioning skills of reflectiveness, affect regulation, and planning that these children lack.

Clinical Translations: A Day in the Life of a Family Therapist

In the four brief vignettes below, I illustrate the use of these therapeutic strategies in my therapy practice in a typical day.[4]

Case #1

I am seeing Joe and Sally for a final session. Last week Sally started her first job in fifteen years and seems happy to be working. The couple sought treatment because their marriage was heading for divorce and bankruptcy. An important aspect of the work has consisted of identifying Joe's ADHD and LD, which had prevented him from finishing college, caused a turbulent work history, and led to self medicating with alcohol. After some psychoeducation, Joe agreed to Ritalin, and Sally began to understand his difficulties not as a character flaw, snobbism, and entitlement (his family has old money which is now running out), but as a physiological disorder producing cumulative experiences of shameful failure. Joe seems more relaxed and with this new explanation; over time, Sally begins to soften towards him and helps him to organize his college work. Years of psychoanalysis had taught Joe to attribute his drinking to his neglectful alcoholic family and to the loss of his mother when he was seven. In fact, he had little insight into – or memory of – his childhood: signs of an insecure attachment. This relational pattern, combined with the helplessness associated with his LD and ADHD disorganization, set the pattern for his marriage. Joe clung emotionally to Sally and became highly upset when he thought she was ignoring him or being condescending. Problems with affect regulation, common to ADHD, led to angry tantrums, Sally's withdrawal, and Joe's increasing panic. Our work helping him to be more mindful of his emotions and Sally's increased compassion and appreciation of his struggle seem to have stilled his rages. Joe and Sally's teenaged son shares his symptoms and has covered his school struggle and disorganization with a studied indifference that mirrors his father's defensive contempt. The couples work has helped give a name to his difficulties so that he could begin receiving appropriate treatment.

Case #2

Jonathan was referred by other family members who had seen me in treatment and who were prepared to be a part of his treatment team. Jon has had bipolar disorder since adolescence, but by sheer determination got through college and law school. Beginning in his twenties, he had a series of hospitalizations following suicide attempts. Employment suffered each time, spiraling downwards from a position in a law firm to night work as a temp in law firms, a job thought to be not stressful. In fact, the inconsistent work schedule played havoc with his circadian rhythm cycle, a critical factor in bipolar illness. That, together with the dullness of the work, made him suicidal and he was rehospitalized. Our work consists of weekly half hour sessions, largely based on Ellen Frank's Interpersonal Social Rhythm therapy and centers on psychoeducation, mood and activity charting, and collaboration with the psychopharmacologist to adjust his medication whenever the chart and his narrative account of the week shows signs of either mania or depression. I conduct occasional family sessions to increase support for Jon's choices. Jon is now able to handle his mother's disappointment about him; while painful, in the past, it would have been destabilizing. Jon works hard at creating a meaningful life on disability and has found volunteer work in the arts community. Today his weekly chart indicates he is entering a stressful period as he attends family events around the high holidays, which coincide with the anniversary of the death of his sister, the person who understood

4 The names and identifying details of these cases have been changed to protect the patients' confidentiality.

him best. Anticipating and discussing these stressors, encouraging him to make medication changes with the psychopharmacologist, and being available by phone are all stabilizing interventions.

Case #3

Dennis complains that Sarah has an orgasmic dysfunction that has reduced the frequency and pleasure of their sexual life. Dennis, a professor of English, believes that women want to be romanced. Before they make love he initiates intimate romantic conversations about their desires, feelings, and relationship, the kind of conversation which seems to him to be any woman's dream. He becomes acutely disappointed, even angry, when Sarah fails to respond. Sarah admits that despite an initial sexual interest, as Dennis woos her, she feels so anxious that Eros evaporates. Sarah is an academic as well. She teaches poetry and is widely published, so Dennis is perplexed as to why she is so unresponsive to his verbal foreplay. On the surface it would seem that only psychodynamic factors – Sarah's invasive mother and Dennis's early loss of a depressed mother – are at play. By investigating Sarah's communication style, however, I learn that Sarah has difficulty processing and remembering verbally presented information, and that her anxiety about this difficulty interferes with her ability to respond on demand. Neither Dennis nor I would ever have suspected that Sarah had any underlying learning issues, because her accomplishments in her field are extraordinary. But as I explore what happens to her when she hears a stream of conversation, she starts to tell me not about her antipathy to Dennis but rather about fear that she cannot process what is said. Tearing up, she tells me of a school history marked by failures until she began to write and study poetry. As a lecturer, when she needs to field questions from her students she responds to an idea, a general notion of what she thought she heard, and anxiously hopes that she has answered the question. Sarah's intelligence helped her to disguise problem areas and to develop compensatory strategies, but her identity has been forged by the shame generated by these early failures; so despite the triumph of her career she always worries about impending failure.

Sarah connects through affect and feeling and longs for nonverbal seduction. While she feels that Dennis' verbosity impedes her ability to experience sexual passion, she also sees in Dennis' disappointment a reflection of her feelings about herself. Dennis, whose primary way of connecting is through the verbal exchange of ideas, is swept away by his fantasies and ideas. He idealizes Sarah and so doesn't notice that he has verbally left her in the dust. As Sarah withdraws into an angry silence, Dennis feels the familiar helpless rage of an abandoned child, a helplessness he defends against by sharply criticizing her. This in turn increases her self-doubt and withdrawal, and eventually turns into overt anger at Dennis. As we explore the rich intertwining of cognitive and dynamic factors, there is audible relief from both partners that their dilemmas are not the result of not caring for each other but rather of communication styles mixed with painful histories.

Case #4

Mr. and Mrs. Madison come in with their 14-year-old adopted son. Peter had a violent meltdown when his mother, tired from a long day at work, brushed off his urgent request to go shopping to get a special kind of jacket she had promised him. Peter is a child whom Ross Greene would call inflexible and explosive. On the surface, Peter's request seems trivial and his violent response over the top. One could see Peter as an out-of-control child who needs clearer boundaries from his well-meaning parents who tend to fight instead about how to handle him. The house is full of broken doors and walls with holes, graphic evidence of his rages. His adoptive father is a big man and when he tries to protect his wife, to her dismay, he and Peter can get into physical fights as they did this time.

As we deconstruct the fight, many factors seem to be in play. The weather is turning cooler and Peter is worried that his old jacket is too small and

uncomfortable. I know that Peter is hypersensitive to stimuli, and there is a family tale that as an infant when Peter was restrained in a car seat he became so hysterical that by the time he was three years old the back of the front seat was destroyed. Peter can tolerate only the softest of clothing. He is also so impulsive that he cannot yet manage his urgent need to have any request honored immediately. This impulsiveness is not helped by a long school day in which his struggles with learning and collisions with authority have exhausted him. Peter's history of impulsiveness and rages has elicited parental anger, which makes him profoundly ashamed. Although he hides his shame under a "don't care" bravado, he is acutely attuned to and expects rejection by his parents. Being adopted makes his hold on attachment all the more tenuous, and the brush-off by his tired mother aroused a terror that their connection was severed.

In our session, Peter tells his mother that had she told him she knew how important the sweat jacket was to him but was too tired, he could have managed his reaction. The discussion led to a poignant talk about the difficulty for some adoptive children, perhaps most particularly those with neurobiological vulnerabilities, to feel connected to their adoptive parents. Mother told Peter with some sadness that although she had felt profoundly connected to him when he came to her as an infant, she wondered if he ever felt securely connected to her. If smell, touch and even visual stimuli were so powerful for her son, what did it mean to him in terms of bonding to be removed from his biological mother after a few days with her, and nine months in the womb, to no longer hear her voice or smell her familiar smell? Peter started to talk openly about his longing to meet his biological mother whose name he had discovered. During the session, Peter's mother clearly conveyed her understanding of the depth of Peter's despair, her sorrow that he felt so desperate, and her willingness to help him find his biological mother. His father, a gruff but feeling man, let him know that despite their fights he deeply loved him. As he left Peter seemed immensely relieved and put his arms around both parents.

Afterword

"You know one went off into the hills to find a donkey and at the age of seventy one discovered that one had been riding on one for sixty years. I think what one did was in some way to give oneself permission to discover that one is riding a donkey. That giving oneself permission is very close to … things like art and ... poetry and rhythmic prayer. They are uncoveries of that which one knew before. Then sacredness has something to do with this covering and uncovering deeper components." (Bateson, quoted in Harries Jones, 1995/2002, p. 218).

After some 30 years as a teacher of family therapy, I continue to ride that same donkey, across an amazing universe, a sparkling web of interrelated systems, riding towards sacredness. I hear Bateson's phrase "the pattern that connects" as I once did when Al Sheflin showed me the miracle of recursive patterned relationships that organize families. Only now my understanding of the patterns that inform all systems seems deeper, infused with the compassion that grew out of a life spent in witness to human suffering and joy. And I, too, as I ride my donkey through a universe of reflecting systems, find that I am riding to an uncovery of the sacred.

I attend a retreat by Jon Kabat Zinn for clinicians that weds mindfulness meditation to neuroscience. The retreat is an elegant translation of Buddhist Dharma into Western psychological terms. I attend the Dalai Lama's teaching on that most difficult of Buddhist thinkers, the second century Indian philosopher Nagarjuna, and am amazed at how beautifully Nagarjuna's arguments reflect general systems theory of human relationships. Buddhist philosophy centers on the concept of dependent origination, which refers to the recursive nature of the innumerable systems that make up our interactive universe, continuously shaping phenomena as they arise, dissipate, are always in the process of transformation into other

elements. In fact, remembering that the Buddha envisioned the universe as a jeweled network of vibrating strings, again I am reminded of "the pattern that connects," the meta-pattern that unites all systems. The Dalai Lama explicates Nagarjuna's argument that all phenomena that make up the seemingly tangibly solid world we believe we know are, in fact, not solid at all but evanescent as soap bubbles in the wind, existing in a continuous state of flux and transformation, given form and meaning by the context in which they exist which is, in turn, continuously changing as it is shaped and reshaped over time by the dance of innumerable systems in interrelationship. As a result, the phenomena that make up our physical and emotional world can be said to have only a conventional rather than an intrinsic reality. We find ourselves in a profoundly relational and continuously changing universe wherein even the "self," for which we have a prideful illusion of solidity and continuity, is in fact nowhere to be found in its "solid" form. Rather, the illusion of "self" is contingent on context, being constructed and reconstructed from moment to moment by recursive relationships with other systems. Among those systems are the internal biological systems of body/mind, and the external systems of family, social groups, of ideas and spiritual practices that are, in turn, situated within over-arching political and ecological systems. Internalized memory systems comprised of past actions and experiences are in the process of continuous reconstruction as they are interpreted and assigned meaning in relation to the context in which they are remembered, as they too shape our sense of self, of relationship. It continues to be a miraculous journey on that donkey, and as our field is continuously refined and deepened, I envy the next generation of family therapists.

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"News from Neuroscience": Applications to Couple Therapy

Mona DeKoven Fishbane, Ph.D.

Consider the following scenario: A couple comes to a therapist, and, in presenting their complaints, the partners escalate so quickly that the therapist is left breathless and sidelined. Much of the literature in couple therapy focuses on how to empower both couple and therapist to translate and transform this gut-wrenching wild ride into a manageable process that can ultimately lead to greater calm, safety, and generosity within the couple. In recent years, findings from neuroscience have shed light on the workings of our emotional brain, and on the interplay between minds in intimate relationships. In this essay I will discuss how I integrate "interpersonal neurobiology" (Siegel, 1999) in my own work as a couple therapist (see also Fishbane, 2007).

In my practice, I utilize "news from neuroscience" in several ways. For one, learning about the brain can deepen our theories of human development, relationships, and therapy. The fundamental questions of what it means to be a human being, what we share with and how we differ from other mammals, how we end up on the "low road" of reactivity and how we can regain the "high road" of thoughtfulness and self-regulation – questions so central to therapy – are all addressed by neuroscience. Much of our relational/systemic theory in family therapy is validated by interpersonal neurobiology and its emphasis on how our social/emotional brains link up with each other. Second, findings from neurobiology help shape specific interventions I use in couple therapy. Finally, I incorporate neurobiology psychoeducationally – or "neuroeducationally" – with couples, empowering them to understand and modulate their own reactions and behavior. I will explore these various influences of interpersonal neurobiology on my work as a couples therapist.

Neuroscience research makes it clear that, as humans, we are born to connect with others, and that it is through our connection with others that our brains get wired (Goleman, 2006; Siegel & Hartzell, 2003). Critical aspects of the development of the young child's brain depend on attunement and attachment between child and parents or caregivers (Schore, 2003; Siegel & Hartzell, 2003). In the interplay of genetics and experience, nature and nurture, our brains develop neuronal connections that underlie thought, emotion, and behavior. Our affective life is particularly influenced by our early environment, as the right hemisphere (responsible for much of our emotional life), functioning from birth, is most impacted by parental attunement or lack thereof. The left hemisphere, responsible for language and logic, develops later. Likewise, explicit memory is not available in the first years of life; implicit, preverbal memory registers our early life experiences, and this influences current reactions even though we may not be able to recall explicitly what has triggered our feelings.

As adults, we carry these implicit emotional memories into our current interpersonal interactions; they are particularly potent in our most intimate relationships. When partners become reactive with each other, one or both may be experiencing a triggering of old emotional memories. The flavor of these memories often makes the current escalation seem irrational; the client may not have words to put to his or her experience, may not explicitly recall a past trauma, and may try to justify an emotional reaction on the basis of current couple issues. In my experience, the more intense and irrational the reaction appears, the more likely there is an earlier

emotional or traumatic memory that has been activated. The memory may be from early childhood, from parental misattunement, abuse, or neglect. On the other hand, the memory may stem from a prior wound in the couple's relationship itself (Johnson, Makinen & Millikin, 2001), or from wounds from other relationships or life experiences. Even as the therapist may be befuddled by the power of the reaction, so may the other partner, who might be thinking, "I just forgot to tell her I'd be a half hour late coming home. What's the big deal?" The big deal is that ten years ago he had an affair; or that twenty years ago her father had a sudden heart attack and died. Or, a client may not recall having been sexually abused repeatedly as a child, yet panics when approached for sex today by the spouse. The power of these emotional memories, and the hold they can have on us, is often perplexing and upsetting to all involved.

These emotional memories tend to be processed and "remembered" in the amygdala, a part of the limbic (emotional) brain that we share with other mammals. In evolutionary terms, the amygdala functions to protect our survival; it is one of the brain areas that mediate the fight-or-flight response. The amygdala scans the environment for danger; its quick work is done without consulting the higher brain processes of the prefrontal cortex. The amygdala can identify a snake in the woods and prompt us to run before we even know that we are seeing a snake (or what passes for a snake but is really a shadow or a stick). This survival function is obviously crucial in the woods, in a dark alley, or any unsafe circumstance. However, our amygdala doesn't know that now we are in a mature love relationship and our lives are not necessarily at stake when we get hurt. When the amygdala gets a whiff of threat, it sends our bodies into high gear before we have a moment to collect ourselves. This is the neurobiological underpinning of the escalation in the couple therapist's office.

Our sense of threat in an intimate relationship is not always a distortion, however. There are certainly real dangers – of physical or emotional abuse, for example – that must be addressed on their own terms. Even in these circumstances, in addition to maximizing safety, the therapist may need to help clients harness their "thinking brains" to evaluate, plan, and respond most successfully.

As humans, we are blessed not just with an amygdala, but also with more complex brain functions for processing our emotional lives. Among the gear with which we are outfitted is the prefrontal cortex (PFC), the seat of reasoning, reflection, and judgment. It is the PFC that we call upon as therapists – both our own and the partners' PFCs. When we ask couples to take a time out, breathe, meditate, reflect, or journal, we are calling on this part of the brain. The PFC – especially the orbitofrontal cortex – is wired to communicate with the amygdala and calm it down. For some clients, the PFC underfunctions due to a history of early abuse or neglect, which can actually damage brain circuits. Furthermore, even in a healthy brain, the links from amygdala up to PFC are stronger than from PFC to amygdala (LeDoux, 1996). Thus we so often experience meltdowns, moments when our higher brains are not in control, and we are at the mercy of our emotional reactivity.

The PFC has been called the "high road" (LeDoux, 1996; Siegel & Hartzell, 2003) as it allows us to make thoughtful choices – and also because it is located higher in the brain and developed more recently in evolution. The "low road" is identified with limbic functioning, often the amygdala, and involves automatic appraisals, outside of awareness, that can lead to impulsive, reactive behavior (LeDoux, 1996; Siegel & Hartzell, 2003). The "low road" language sounds a bit disparaging of our emotional/limbic brain, which, in fact, is crucial for social processing, including such skills as nonconscious empathy (Damasio, 1994; Gladwell, 2005). What is most important

for healthy functioning is integration, the ability to coordinate limbic system and PFC, left and right hemispheres, thought and feeling, mind and body (Siegel, 2007).

The amygdala is "quick to learn and slow to forget" (Cozolino, 2006, p. 318). It holds emotional memories, probably forever (LeDoux, 1996). Therapy and healing, then, do not entail erasing painful memories in the amygdala. Rather, what is involved is strengthening the PFC and its connections to the amygdala, so we can learn to self-soothe and self-regulate even in moments of stress, when the amygdala is activated.

For many clients, both self-attunement – reading their own emotions – and self-soothing are impossible tasks. They may have never learned to read emotions, their own or others', and due to misattuned, abusive, or overindulgent early family experiences, may not know how to self-regulate or calm themselves when upset. Instead, such clients often look to their partner to calm them down, to understand, hold, and love them, even when they are most difficult and attacking. Clients tend to be hurt when their partner disappoints in this job description. Teaching such clients how to self-regulate is empowering for the individual and vital for the couple's well-being.

Using imagery can be a useful technique to help clients learn to calm down when agitated. Specifically, I ask clients to image their amygdala getting worked up, and their PFC coming in like a good parent to empathically contain and soothe the amygdala. This process is similar to Schwartz's (1995) Internal Family Systems (IFS) approach, in which the therapist promotes a dialogue within the client between Self and parts. If clients have a hard time enlisting their loving Self/PFC to soothe themselves, yet are relatively empathic with their own (actual) child, I ask them to imagine calming their upset inner child as if it were their own child. Clients appreciate this work, as it empowers them to access a more compassionate state within themselves. As with IFS parts work, clients come to see that they are not one with their dysfunction, that when a part of their brain is stirred up, another, soothing part can be called upon. Like externalization (White & Epston, 1990), this process helps free clients from a sense of shame, promotes curiosity, and allows for a new story of the self to emerge.

Another imagery technique I have developed is "the fence exercise" (Fishbane, 2005). For example, in the course of couple therapy, it emerges that Maria loses herself and becomes agitated when her husband or mother becomes anxious or sad. Maria tries to make them feel better; when she fails, she gets angry at them. Maria's boundaries are highly porous in both relationships. I ask Maria to imagine that her mother is her neighbor, with a fence between their yards. The fence is not a brick barricade; like most fences, it is in part symbolic. While one can see over it, it demarcates a boundary between the two yards. I suggest that if the neighbor gardens in a way that Maria feels is problematic—putting sun-loving flowers in the shade, for instance—Maria may or may not choose to offer advice to the neighbor. But if the neighbor ignores the advice, Maria can still enjoy her own garden; her summer doesn't have to be ruined because of her neighbor's horticultural mistakes. If, of course, the neighbor plants poison ivy that will creep into Maria's yard, Maria needs to protect herself. Clients find this exercise helpful. Maria reports to me, "I put my mother on her side of the fence this week;" Maria was able to let her mother be without losing her own footing. As she developed greater differentiation (Bowen, 1978) and self-regulation, Maria became less angry and more compassionate toward her mother and husband, and she was able to stay calm in the face of their turbulence. The fence exercise facilitates healthy boundaries, and from that place clients can afford to be more generous and curious in their intimate relationships.

Research has shown that imagining doing an activity can activate the same neural circuits as actually doing the activity (Doidge, 2007). I would hypothesize that both the imagined PFC/amygdala dialogue and the fence exercise activate brain circuits of reflection and thoughtfulness that allow the client to take a step back from automatic reactivity, and that through these and other practices, synaptic connections between PFC and amygdala are indeed being strengthened. If this is the case, then conjuring the image of brain circuitry can help create and strengthen that very circuitry. In any case, it certainly helps clients make more thoughtful choices and feel less victimized in their intimate relationships.

This internal imagery work facilitates self-empathy, which includes being able to read one's own emotions. In the neuroscience literature, emotions are considered nonconscious and embodied; we "read" our own body's signals, and then give words to the experience. "Feelings" result from this conscious labeling of our body experience (LeDoux, 1996). Many of the body cues come from our gut. The vagus nerve carries information from the gut to the brain, giving literal punch to the expression "gut feeling." Clients who have not learned to label their own emotions are handicapped in their relational lives. This is especially the case for men who have been socialized away from awareness of emotion, and for members of both genders who were not raised with attunement. These clients may have sudden upsurges of rage without knowing why. In such cases I help clients tune into the prodromal body cues before the anger, and learn to give words to these subtler emotions. Siegel (2007) suggests that mindfulness meditation facilitates "intrapersonal attunement," which he posits may utilize the same "resonance circuitry" in the brain as interpersonal attunement. Research shows the beneficial effect meditation can have, facilitating positive and resilient mood states (Davidson, 2004; Siegel, 2007).

In addition to self-empathy, we help couples in therapy develop greater empathy for each other. The neuroscience literature has much to say about this interpersonal resonance. The human brain is wired to attune to others, to read social cues, facial expressions, and the intentions of our fellow humans. These capacities are considered part of our evolutionary survival mechanism; they utilize the social circuits of the emotional brain. Among the more fascinating discoveries in recent years are "mirror neurons," which activate a resonance in our brain when we see someone else do or feel something. Through this process we can feel what another feels "from the inside out" (Siegel & Hartzell, 2003).

One of the most delightful aspects of falling in love is looking in our lover's eyes and "feeling felt" (Siegel & Hartzell, 2003), understood, and cherished. Unfortunately, couples seeking therapy have often lost that magic mirroring; looking into each other's eyes, they see instead disconfirmation and rejection. Part of our work is to help the partners see each other with more generous eyes. Facilitating empathy and helping clients calm their amygdala go hand in hand in therapy. Just a look from one's partner can set off alarm bells which lead to the low road and which block empathy entirely. I find that interventions like the Speaker/Listener technique facilitate both calm and empathy, as partners learn to listen to each other in dialogue rather than prepare their rebuttal in debate. The shift in the room is palpable as each shifts from self-protective modes of discourse to an openness to the other. The eye contact in this exercise is key; hopefully partners are conveying in their eyes a desire to understand – a remnant of their initial, loving mirroring – rather than the piercing glance of enmity with which they may have come to the session.

Some clients find empathy a foreign language. The person learning empathy may work his or her way through the left brain to try to understand the other. For example, a husband, struggling to

understand his wife's experience, might learn to say to himself, "If I were my wife right now, with all I know about her, how might I be feeling?" This process may frustrate the partner, to whom this seems artificial, wooden, and painfully slow. Using a "neuroeducational" approach, I normalize the awkwardness and slow pace of the learner, as well as the frustration of the partner, thus validating the experience of both. Framing empathy as a skill that can be learned is reassuring to both partners. Atkinson (2005) refers to therapists as coaches, teachers of "emotional literacy." I find that eventually clients get the hang of empathy more naturally, as their brains rewire for more efficient, less effortful attunement.

Looking into our partner's eyes and feeling what they feel is not always salutary. What we find there may send us into reactive orbit. Neuroscience has shown that our ability to resonate with others, to feel what they feel, is a mixed blessing. Due to "emotional contagion" (Goleman, 2006), we can be driven into reactivity by others. Perhaps mirror neurons are implicated in this as well. Witnessing our partner become angry, defensive, or accusatory may activate similar circuits in our own brains, leading to escalations such as our struggling couple in the opening of this essay. Partners set each other off, as they escalate into a "dance of parts" (Fishbane & Lessing, 2000).

There are serious health implications of our ability to drive each other into agitated states. Gottman's "limbic tango" (Goleman, 1995, p. 141) describes the dance of a wife raising conflictual issues, leading to escalation of the husband's heart rate and physiological flooding, leading to his shutdown or stonewalling, leading to her distressed heart rate. This all happens in an instant, and can result in long-term emotional and physical distress for one or both. Research identifies that nurturing relationships promote physical and mental health, while "toxic relationships are as major a risk factor for disease and death as are smoking, high blood pressure, or cholesterol, obesity, and physical inactivity" (Goleman, 2006, p. 224). Clearly, the stakes in relationships are very high.

The skills of empathy and self-empathy are components of relationship empowerment, which includes Goleman's notions of emotional and social intelligence (1995, 2006). In facilitating relational empowerment, I offer clients "tools for your toolbox" (Fishbane, 2007), specific social/emotional skills that engage the other in a mutually respectful manner. Men are particularly appreciative of the "tools" and empowerment language, as many males are suspicious of therapy as a "soft," female endeavor, for the weak and vulnerable. Men are often at a disadvantage in relationships, not having learned to read others' or their own emotions. Framing these tools as skills to be mastered makes the project manageable, as we operationalize specific abilities that increase the client's relational competence. I find that when clients feel relationally empowered, they are less likely to resort to "power over" tactics with their partner.

As one of these relational tools, I encourage partners to learn how to "make a relational claim" (Fishbane, 2001) with each other. This entails speaking one's needs, while holding the needs of the other and of the relationship at the same time. It means having a voice without obliterating the other. Given that our culture encourages debate rather than dialogue, it is not surprising that so many couples don't know how to do this. In teaching skills of dialogue, we are challenging the "power over" assumptions many couples hold in their relationship, in which win/lose negotiations dominate. While recognizing power differences—based in financial, physical power, or other differentials—I also introduce the idea of "power to" (Goodrich, 1991) and "power with" (Jordan et al., 1991). "Power to" includes self-

mastery, the ability to be thoughtful in one's relational life. It is epitomized by the Roman stoic philosopher Seneca's statement, "He is most powerful who has power over himself" (Seneca, Letters to Lucilius, 90.34, Loeb Classical Library). "Power to" requires integration of higher and lower brain regions, bringing thoughtfulness and emotion together. It bears much in common with differentiation of self. "Power with" reflects a mutuality of concern, and the nonzero sum game that is crucial to a successful intimate relationship.

When partners do get reactive or defensive with each other, I use "news from neuroscience" to normalize this reaction as part of our evolutionary brain heritage when we feel attacked. At the same time, I challenge clients to call upon their higher brain functions so they are not at the mercy of their own instinctual reactions. This combination of normalizing and challenging is crucial in my work with couples. For example, in exploring a couple's vulnerability cycle (Scheinkman & Fishbane, 2004), I identify their mutually recursive vulnerabilities and survival strategies. While normalizing self-protective mechanisms such as criticism and withdrawal when a partner feels vulnerable, I also point out the self-defeating nature of these mechanisms. Externalizing the couple's dance and each partner's survival strategies allows for greater empathy, thoughtfulness, and choice.

Along with "neuroeducation," I explore with couples the natural life cycle of relationships and their shifting neurobiological characteristics. According to Fisher (2004), there are three distinct phases in love relationships, each with its own brain circuitry and hormones, and each with its own evolutionary purpose. She denotes these as Lust, fired mostly by testosterone, whose purpose is to get people interested in mating in general; Romantic Love, powered by dopamine and norepinephrine, whose purpose is to settle on a particular mate; and Attachment, fueled by oxytocin and vasopressin, whose purpose is to keep the parents together long enough to rear their young beyond infancy. (Fisher doesn't address how this evolutionary paradigm would apply to childless couples.)

In addition to helping couples understand the normal processes of the life cycle of love, I reframe disconnection as a normative relationship process. Connection and disconnection, rupture and repair, are part of the natural ebb and flow in any intimate relationship. Gottman's (1999) research, for example, shows that both happy and unhappy couples experience conflict, and it is how the happy couples repair their conflicts that distinguish them from unhappy couples. Framing repair and apology as part of relational intelligence and relational power rather than as indices of "losing" a fight is crucial for couples. Apology is a major tool in the relational toolbox. Gottman's 20-minute rule – that couples should take a break when in an angry escalation and reunite after they have calmed down – makes neurobiological sense. The couple return to each other without their inflamed amygdalas running the show.

Couple therapists deal with the tension between change and no-change with our clients. Our field has produced tomes on the topic of "resistance." Neuroscience sheds light on this dynamic so central to our work. On the one hand, habits and personality characteristics are formed early in life, and are reflected in brain wiring. Hebb's Law, "neurons that fire together wire together" (Siegel, 1999, p. 26) captures the neuronal basis for the tenacity of our habits. The more we do, think, or feel something, the more likely we are to do so in the future. We literally become stuck in our own neuronal ruts. While this is adaptive much of the time, in that so much of our functioning is automatic and smooth, it is also the basis for the difficulty in overcoming unproductive habits and behaviors.

On the other hand, we are not doomed peren-

nially to repeat the past. In the last decade, it has become clear that the adult brain can and does change. Neuroplasticity (the creation of new neuronal connections) and neurogenesis (the growth of new neurons) allow us to change throughout the life cycle (Begley, 2007; Doidge, 2007). This is the neural basis for our business, the process of change in therapy. I find it helpful to share the news both of Hebb's Law and of neuroplasticity with clients who are struggling with change. When a client asks, "Can an old dog learn new tricks? Can I change?" I have an intelligent answer based in neuroscience. The answer is yes, but it requires a lot of effort and repetition of new habits; "massed practice" is a vital condition of rewiring in the human brain (Doidge, 2007). For new neuronal connections to take hold via Hebb's Law, the new behaviors need to be practiced over and over again until they become automatic. In times of stress, fatigue, or illness, the old patterns may re-emerge. Anticipating this helps clients not become discouraged with their own backsliding. Our role as therapists includes lending hope to clients. The hope we offer about change is tempered with a reliance on practice and overlearning of new habits so they can become natural.

Some clients are suspicious of behaviors, thoughts, or feelings that seem artificial, not natural or "from the heart." I explain that new behaviors, which both create and are maintained by new neuronal connections, will feel awkward at first, until they are overlearned. Eventually, they will feel natural as they become automatic. This "love (or change) takes work" philosophy comes as a surprise to some clients, who subscribe to a "love should just flow" or "love means never having to say you're sorry" philosophy.

When changes do take hold, the new behaviors and skills are reflected in changes in the brain. Neuroscientists note that learning – including the learning at the heart of psychotherapy – involves new neuronal connections (Doidge, 2007; Kandel, 1998). This helps explain the phenomenon I often experience with clients, that changes they are working on in one relationship – say, with a spouse – carry over into other relationships – for example, with parents, child, or boss. The changes of self in relationship become synergistic, as the client builds on new capacities in different contexts.

Couple therapy that utilizes interpersonal neurobiology facilitates "limbic revision" (Lewis et al., 2000), a rewiring of the emotional brain. This is not about simple behavior change, nor is it achieved through strategic manipulation. It is deep, collaborative work, based on safety and respect. Clients feel they can risk limbic change when they feel accepted and respected rather than shamed or blamed by the therapist. Partners are encouraged to develop a new, more generous stance with each other as well.

The approach to couple therapy described here is based on a collaborative relationship between therapist and clients. Neuroeducation facilitates a transparency in the work, in which therapist and couple work as partners for change. Teaching clients about their own brain functioning is empowering. The constantly evolving field of interpersonal neurobiology can enhance our work as couple therapists, deepening our understanding of the profoundly social nature of the human being, and pointing to clinical interventions that help both couple and therapist make informed choices. This work helps clients and therapists feel less overwhelmed by the reactivity in the room, and more capable of facilitating and maintaining change.

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Neurobiology and Addiction: Assisting the Family and Support System to Get Resistant Loved Ones into Treatment

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I drove through the neighborhood and I walked those mean streets
I begged those using buddies for the secrets they keep
And I raged out at their silence and I almost lost control
Now I question my own sanity as I search deep within my soul.
Where are our children tonight?

From song: *Where Is My Child Tonight* by Steve Dan Mills, 2004

Living With a Stranger

Counselor: Hello, may I help you?

Family Member: Yes. I got your name from a friend who said you helped her family get their daughter into treatment. Do you do that type of work?

Counselor: Yes, we work with families and others who care about the person with a problem to form a team designed to help get an individual with an addiction problem started in treatment.

Family Member: Thank you. I have been calling everywhere and you are the first person who will actually talk with me about this. The other places only told me that they couldn't help until the person called in requesting help or they just wanted to refer me to Al-Anon.

Counselor: Please tell me about the person you are concerned about.

Family Member: I am calling about my 18-year-old son. He got arrested over the weekend for an open beer container in the car and possession of pot. This happened a week after he got suspended from school for leaving after his 1st period class with some of his loser friends.

Counselor: Have you seen any major changes in your son's behavior, attitude, school performance, and/or respect for you as parents or other changes in his relationships?

Family Member: Major changes––that's an understatement! Our son was an honor roll student in 9th grade. He played two sports and was in the school play as a freshman. He was a delight to be around. Then, in his sophomore year, he began to drink on weekends. That next summer he began to smoke pot and last year turned out to be a disaster. He totally changed. He flunked three courses, quit sports, and became an angry, belligerent kid. We don't know him any more!

Counselor: It sounds like this is not the son you raised and once knew.

Family Member: You are right. He has turned into a complete stranger. We have lost our son and we want to get him back. We're really scared about what's happening to him. We don't know him anymore.

Counselor: I understand. Your story is really typical of parents who say they are now living with a stranger. We can help you get your son back as you begin to understand what the addiction is doing to his brain and how the love and support of the family plays a most important role in getting him into treatment and supporting his recovery.

As the words in the song quoted above and the telephone dialogue of the parent talking about the stranger now living with the family so painfully describe: substance abuse and addic-

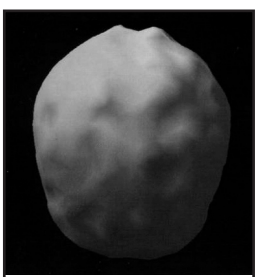
tion hijack the brain and the subsequent damage leads to increasingly intolerable circumstances. The inevitable progression of untreated addiction results in individuals becoming irrational, defiant, unpredictable, self-centered, and irresponsible. The people closest to them suffer the most hurt. These family members and concerned others are also the ones who most frequently call a treatment agency or therapist asking for assistance in getting their loved ones into treatment.

This paper explores the impact of active addiction on one area of the brain, the prefrontal cortex, as an illustration of the neurobiological effect of addiction. It describes how changes in identity of the active addict impact family and other significant relationships, leading to a perception of boundary ambiguity resulting from a situation of ambiguous loss very similar to that experienced by families dealing with Alzheimer's disease or Mild Traumatic Brain Injury (MTBI). The paper concludes with a description of an evidence-based best practice method designed to work with family members and concerned others to help get an addicted loved one (or other person not taking adequate measures to protect his or own physical or mental health) started in treatment.

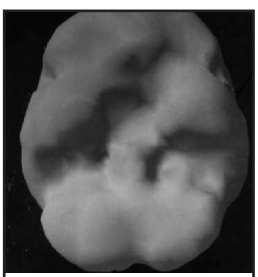
The Neurobiology of Addiction

The process of change and sense of loss experienced by the parent in the above phone call is typical after the onset of addiction (Landau & Garrett, in press, 2008). The experience is real and not imagined or an over-reaction. The vast majority of parents and spouses who call to get an addicted loved one into treatment report terrifying changes in personality, attitude, and behavior. The callers feel that they no longer know their loved ones and these changes are the most significant motivating factors behind reaching out for help. If the treating therapist understands the neurobiology of addiction and how addiction changes the brain and its function, the concern and loss that family members experience is validated, allowing them to develop strategies for dealing with the impact of the disease (Erikson & Wilcox, 2001). Five sections of the brain are impacted by addiction: prefrontal cortex, limbic system, temporal lobes, anterior cingulate, and basal ganglia (Amen, 1994, 2004). In this brief paper, we will describe the impact on only the prefrontal cortex to illustrate the disastrous effect of addiction on brain function.

Single Photon Emission Computerized Tomography (SPECT) provides a technology for studying brain function. SPECT imaging was developed in the late 1970s. It uses nuclear technology to study cerebral blood flow, an indicator of brain activity. SPECT images or brain maps are 3-D constructions by supercomputers that identify certain brain activity, often deep in the brain, that correspond to cognitive, behavioral, and emotional functioning. SPECT images document that addiction is not a problem of brain *structure*, but rather a problem of brain *function* or *lack of function*.



Normal, Healthy Brain—Top View

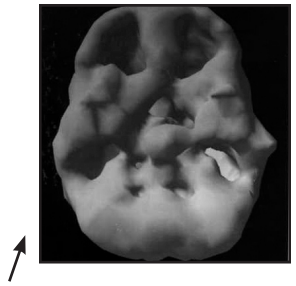


Normal, Healthy Brain—Bottom View

Figure 1. SPECT Images of Normal, Healthy Brain

The above images show a healthy, normal brain from both the top and bottom.

Note the smooth contours and surface fullness. There are no gaps or "holes" in the brain image, showing that all areas of the brain are functioning properly.



Prefrontal Cortex "holes" in functioning

Figure 2. SPECT Image of 18-year-old with 3-year history of marijuana use—4 times/week

The above image graphically shows the functional "holes" in the pre-frontal cortex of an 18-year-old who has been using cannabis four times a week since age 15. The First Call described above was from a parent about his 18-year-old son. This image shows how his son's brain is not functioning in a healthy way and has left the father "living with a stranger."

The prefrontal cortex is the first part of the brain affected by alcohol and other drugs. This is where the executive functions of judgment, impulse control (inhibitions), and self-monitoring are located, so it is not surprising that excessive use of alcohol and other drugs first impact judgment, inhibition, and rational thinking. It also augments the memory function of the temporal lobes, playing a major role in how memory is utilized as a learning tool that then appropriately guides and governs behavior (Nestler, 2001).

The prefrontal cortex is also involved in a number of coping functions: attention span, organization, learning from experience, empathy, and problem solving. Malfunction of the prefrontal cortex due to addiction results in irrational thinking, inability objectively to assess oneself, self centeredness, poor judgment, inability to learn from experience, disorganization, decreased attention span, becoming easily bored, short temper and argumentativeness, and becoming thin skinned (Hyman, 1994).

The effects of alcohol/drugs on the brain can vary depending on the age of the person and the type of drug used. For instance, in the case example with the telephone dialogue at the start of the paper, the parent was calling in about her 18-year-old son. We know that the prefrontal cortex normally continues to develop through the teen years and into the early twenties. The immature and/or problematic behavior patterns typically associated with adolescence are directly related to prefrontal cortex maturation and function. When an underdeveloped prefrontal cortex is impacted by drugs and/or alcohol, the neurobiological effects are more quickly noticed and the longer the individual continues to abuse alcohol/drugs, the more developmental catching up that individual will have in later life. These are the adults who are described as perennial adolescents with poor impulse control and judgment, immature handling of situations and relationships, difficulty with authority figures, irresponsibility, and irrational decision making. The old recovery adage that states, "A person stops growing emotionally at the point where the addiction began," is validated by the newest SPECT images (NIH, 2006).

The best prevention technique parents can use to reduce the likelihood of addiction is to postpone their son or daughter's age of starting to use alcohol/drugs as long as possible – certainly until the age of 20. The older an individual is when she or he starts to abuse alcohol or drugs, the less likely this individual will ever experience an addiction problem, regardless of genetic predisposition. "People who reported starting to drink before the age of 15 were four times more likely to also report meeting the criteria for alcohol dependence at some point in their lives" (DeWit, Adlaf, Offord, & Ogborne, 2000, pp. 745-750). These youngsters displayed problem-drinking patterns, using alcohol to "get high" rather than participating in what might be called culturally sanctioned social drinking with their parents (Grant & Dawson, 1997).

The research shows that all psychoactive drugs

impact the prefrontal cortex. Some drugs impact more quickly than others. For instance, cocaine has a much quicker and stronger impact on the prefrontal cortex than alcohol. It should also be noted that long-term neurobiological damage also differs by type of drug (Erikson, 2007). For instance, methamphetamine, cocaine, and ecstasy have all been shown to have long-term (over two years) impact on the neural pathways of the brain, suggesting it would be more difficult successfully to treat addiction to these particular substances (Zickler, 2000). The rate of healing the prefrontal cortex is dependent on such factors as the drug(s) of choice, the amount, and frequency of use, the length of use, and the age of the individual. Recent research indicates that it is necessary to have a minimum of 90 days of abstinence to show sufficient healing of the prefrontal cortex to return cognition, attitude, and self-assessment to a rational level of functioning (Lemonick, 2007).

When family members understand that the effect of addiction on the brain provides a rationale for their experience, their concerns and sense of living with a stranger are validated. They are then able to mobilize their energies and increase their commitment to focus on the problems and take action. The family is motivated to start the process of motivating their addicted individual to enter treatment. A profound change has occurred and the family dares to hope that they can get their loved one back, rather than being overwhelmed by despair.

Identity and Ambiguous Loss in the Family

The injury to the brain from addiction is, in many ways, similar to other types of brain injuries that have a profound impact on family relationships. Extensive research on the relational impact of Alzheimer's disease has been documented (Boss, 1999, 2006). Landau and Hissett (in press) describe the recent exploration of a similar process in the case of MTBI. Unless this process is recognized and dealt with in the relational setting, relational breakdown including problems with children and adolescents, marital problems, and divorce are likely to result.

In a very similar way, the loss of a loved one to the addictive process causes serious confusion because the person is still physically present, but is behaving very differently from the person the family knew and loved. The loved one's physical and emotional deficits profoundly alter interactions with family and others (Koob et al., 2004). This change in identity of the addicted individual (with or without his or her awareness) creates a sense of boundary ambiguity in couples and families. This may manifest as loss of the addicted person as the family knew her or him, as well as loss of the family system as it once was. All the rules have suddenly changed, and family members struggle to develop new boundaries and maintain effective communication. With such ambiguous loss, the boundary ambiguity is left unresolved. Since the addicted person is still present, family members do not recognize or grieve the loss of the loved one, and are often unable to heal and move on. Similarly to Seaburn's (1990) description of cancer as the unwelcome guest and Landau and Hissett's (in press) description of MTBI becoming the dominant topic in a family where a member has suffered a head injury, families dealing with addiction frequently struggle with the realization that the disease "has left a stranger in their midst who has become the predominant presence in every conversation and major decision" (Landau & Garrett, in press, 2008).

Families dealing with addiction refrain from discussing their experiences to avoid alienation, blame, guilt, and shame. They "walk on egg shells," terrified of losing the addicted individual by dealing openly with the problem. This combination of ambiguity and secrecy compounds the problem. Clinically, these effects appear to be associated with considerable stress, and may cor-

relate with the breakdown of couple, parent, and family relationships (Landau & Hissett, in press). The person (usually the spouse or parent) living with an addicted person is likely to make frequent visits to the primary care provider's office with minor ailments, or to consult a therapist about depression and anxiety. Unless specifically asked about addiction in the family, the cause of the distress might never come to light as in the situation of Mrs. M. described below (Landau & Garrett, in press, 2008).

A 43-year-woman, Mrs. M., who had requested therapy for depression and headaches, reluctantly brought her 18-year-old daughter, Mary, and 15-year-old son, Jerry, to the first session with her. Mrs. M. explained that her husband was too busy at work to take the time to accompany them. While she described a happy, successful family, the teenagers pulled faces and at times smirked behind her back. Finally, as she described her husband in glowing terms, Jerry burst out, "If you're so happy, why are you always in bed with a migraine?" At this point, Mary said, "If you're not going to tell the story I will." In total surprise, her mother asked, "What story?" "You have a headache every weekend when Dad comes home. The only time you do things with us, like going to movies or the pool, are the weekends he's away on business."

Mrs. M. looked stunned and explained that the changes in her husband's behavior were related to his overload in the office and his extensive travel as a result of promotion at work. She described how he frequently seemed to be distracted and that his concentration was not what it used to be. Jerry complained that he could no longer ask his father a simple question, "without getting my head bitten off." Mrs. M. also said that he'd become somewhat moody and had been involved in a recent accident. Mother had not noticed any relationship between her migraines and his behavior and felt that her depression was just a result of her age and hormonal situation.

On careful questioning about the gradual changes in Mr. M's behavior and habits, the family started to realize that he had begun to drink most Friday nights when he was home. In fact, sometimes, he even smelled of drink when he arrived. They had not associated this fact with any of the recent changes in him or in their family relationships. On further exploration, while Mrs. M. still rationalized his behavior in terms of his work situation, her daughter Mary sighed and said, "Gosh Mom, I hadn't realized, until we put it together now, how much he's been drinking. How could you not have noticed? He's not the dad I grew up with and he's not there for any of us any more. He hasn't seen a single one of Jerry's football matches this year and he pushed him to play in the first place."

While the children had been disturbed by the changes in their father, mother had attributed all them to his work situation. On careful assessment it became apparent that father had been drinking increasingly heavily over the past year, and was showing distinct signs of neurobiological damage. The family made a commitment to work with the therapist to motivate dad to accompany them to the next meeting and felt confident that he would do so in order to help his wife get better.

Addicted relationships are always fraught with guilt, shame, and blame, reinforced by a lack of societal understanding about the impact of addiction on the functioning of the family. Unspoken anger and helplessness of family members and concerned others increases as the addictive process causes deterioration of the brain, resulting in cognitive deficit, reduction in rational thought, decreased responsibility, and increased impetuousness. These factors further reduce the addicted individual's insight and motivation to stop using. Denial prevails.

Fewer than 10% of individuals addicted to substances ever get into treatment. The family is a neglected but critical source of motivation for

treatment entry and maintaining the individual in treatment. In fact, the only path to long-term recovery is through family recovery, not just individual recovery. Alcoholism affects the family, and the family can positively affect recovery from alcoholism. Helping members of the family and extended support system to understand the role of neurobiology in addiction reduces their ambivalence about the changes in their loved ones and allows them to focus on this disease with knowledge and hope.

Practical Implications for Clinicians Answering a Family Member's Request to Help a Resistant Loved One Getting Into Treatment

Overview of Invitational Intervention: The ARISE Model.

Addiction kidnaps not only the addicted individual but holds the family for ransom with its overwhelming power. The ARISE Model (A Relational Intervention Sequence for Engagement) mobilizes family and concerned others to motivate the addicted individual into treatment while moving the family as a whole into recovery. ARISE is a three-level, pre-treatment, engagement process based on openness and a commitment to honor and maintain the investment and connectedness of families. The ARISE Model has no surprises or secrets. The ARISE Interventionist is present (either in person or on the telephone) for all meetings. The family and support system take a very active role in the intervention process. This minimizes the clinician's expenditure of time and cost and empowers the family, overcoming their blame, shame, and guilt. The Invitational Intervention method stops at the first level where the addicted individual enters treatment. The principle of ARISE is to stop at the first level that works, thereby minimizing the time and effort of the outside professional – the ARISE Interventionist – as well as drawing on the resilience of the family and giving them back the power that the addiction has usurped.

Level 1 uses motivational techniques designed specifically for telephone coaching, but can also be applied in face-to-face sessions. The ARISE Interventionist helps the "First Caller" or "Concerned Other" establish a basis of hope, identify whom to invite to the initial intervention meeting, design a strategy to mobilize the support group, teach techniques to successfully invite the alcohol-dependent or addicted individual to the first meeting, suggest a recovery message (based on the intergenerational story of loss and on the neurobiological damage to the brain), and get a commitment from all invited individuals to attend the initial meeting regardless of whether or not the alcoholic attends. Level 1 comprises the First Call and The First Meeting. The ARISE Interventionist conducts both, while encouraging the First Caller and Intervention Network to take a central role in the decision-making and motivating the addicted individual to enter treatment.

In a recent study, over 55% of the 110 substance abusers in the sample entered treatment during Level 1 (Landau et al., 2004). Concerns about the loss of the loved one as the family once knew him or her always comes up during the First Call. The protocol includes questions about changes in cognition, responsibility, attitude, behavioral functioning, and relationships and builds on the interest of the First Caller in getting the loved one back (Landau & Garrett, in press, 2008). The ARISE Interventionist validates the changes described by the First Caller with solid scientific information relating the neurobiological process of addiction to the specific changes reported. The First Caller generally experiences a sense of immediate relief and begins to hope that recovery might be possible. Once this has occurred, the First Caller is in a far stronger position to mobilize the rest of the family and support network to motivate the addicted individual into treatment (Garrett, et al., 1999).

Level 2 follows if treatment does not start dur-

ing Level 1. Typically in Level 2, two to five face-to-face sessions are held, with or without the alcohol-dependent or addicted individual present, to mobilize the Intervention Network in developing motivational strategies to attain the goal of treatment engagement. Very few families (less than 2%) need to proceed to level 3 (Landau et al., 2000).

In **Level 3**, family and friends set limits and consequences for the alcohol-dependent or addicted individual in a loving and supportive way. By the time the Intervention Network gets to this point, the alcohol-dependent or addicted individual has been given and has refused many opportunities to enter treatment. Because the alcohol-dependent or addicted individual has been invited to each of the Intervention Network meetings in Levels 1 and 2, this final limit-setting approach is a natural consequence and does not come as a surprise. The Intervention Network commits to supporting each other in the implementation of the agreed upon consequences (Garrett, 1997).

Outcome data on ARISE (NIDA study DA09402) demonstrates that 83% of addicted individuals enter treatment as the result of families using the Invitational Intervention approach (Landau et al., 2004). There was no significant difference in severity of the addiction, drug of choice, or level of experience of the ARISE Interventionist. The average time taken per intervention was less than 90 minutes (average 88 minutes; median 75 minutes).

Summary

There is clear evidence that alcohol and drugs cause severe damage to the brain. The earlier the age of onset the greater is the damage to the brain and the likelihood of the development of addiction. These neurobiological changes have a profound impact on the behavior and personality of the addicted individual to the extent that those closest to him or her feel that they are living with a stranger. Unless this process of deterioration is recognized and the resulting ambiguous loss is dealt with in the relational setting, relational breakdown is likely to result. Early recognition and treatment are essential for promoting brain recovery and for maintaining important relationships.

One of the most effective methods of ensuring that this occurs is to develop outreach programs offering the Invitational Intervention as a way of educating and mobilizing families and concerned others to motivate their addicted loved ones into treatment. Invitational Intervention: The ARISE Model is used in illustration of this process. ARISE works particularly well because it enables families to get a high percentage of their addicted individuals into treatment. It maintains positive connections with family and support systems well into the recovery period, focusing not only on individual recovery but also on family recovery (Fernandez et al., 2006).

The authors also encourage readers to utilize some of the following references for psychoeducational purposes when working with family members and/or addicted individuals:

1) www.pubs.niaaa.nih.gov/publications/arh21-2/101.pdf

2) www.nature.com/neuro/focus/addiction/index

3) www.druginfo.nsw.gov.au/information_&_resources/addiction_and_neurobiology

4) Addiction is a Brain Disease, and It Matters. www.drugabuse.gov/scienceofaddiction

5) Levine, R. R., Walsh, C. A., and Schwartz, R. D. (1996). *Pharmacology: Drug actions and reactions.* New York: Parthenon Publishing Group.

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Abstracts

From Neurons to Neighborhoods: An Expanded Systems Framework for Family Therapy

Martha E. Edwards, Ph.D.

At the 2006 AFTA Annual Meeting keynote address, Daniel Siegel proposed that complexity theory be used to define mental health, i.e., the linking together of differentiated parts. Two types of integration are explored: intra-individual (implicit and explicit memory) and inter-individual. Implications for couple/family therapy and training of therapists are discussed.

Mind-Ecologies

Gillian Walker, L.C.S.W.

The author traces her personal and professional journey to becoming a multi-systems therapist. Using Bateson's "pattern which connects" as a starting point, a case is made for E.O. Wilson's conception of consilience—between body and mind, individual and family, psychiatry and family therapy—into a multi-systems model for family therapy. A number of case vignettes illustrate how this model is applied in the day-to-day work of a family therapist.

"News from Neuroscience": Applications to Couple Therapy

Mona DeKoven Fishbane, Ph.D.

This article offers ways to integrate findings from interpersonal neurobiology into the practice of couple therapy. Three aspects of "news from neuroscience" are proposed to aid the clinician: updating our theories of development and change; specific interventions with couples; and "neuro-education," teaching clients about their own brain functioning to enhance their relational growth and empowerment. The impact of experience—particularly early experience—on brain development is explored, with an emphasis on safe and attuned connection with caregivers for healthy functioning of the emotional brain. The power of implicit memories, from childhood or prior relational experiences, to affect current couple functioning is underscored, clarifying the often mystifying moments of escalation and reactivity in couples' relationships. The importance of helping clients learn to utilize "high road" brain centers of calm and thoughtfulness to soothe "low road" reactivity of the emotional brain is discussed. Techniques to facilitate self-soothing, empathy, and emotional intelligence are explored. Clients are offered "tools for your toolbox," specific strategies for relational competence and empowerment. The dynamics of change and no-change are explored in terms of neuroscience data on neuronal connections. Finally, the importance of safety, trust, and collaboration in the therapeutic relationship is underscored, in order for clients to risk the difficult work of rewiring their emotional brains in order to improve their intimate relationships.

Neurobiology and Addiction: Assisting the Family and Support System to Get Resistant Loved Ones into Treatment

Judith Landau, M.D., D.P.M., L.M.F.T., C.F.L.E., C.A.I., B.R.I. II & James Garrett, L.C.S.W., C.A.I., B.R.I. II

Fewer than 10% of addicted individuals ever receive treatment for their addiction. Families can serve as a significant resource for reaching many more addicted individuals and motivating them to enter treatment. One of the most significant experiences inducing family members to reach out to a clinician for help with their addicted member is the realization that the addicted individual they are living with has become a stranger. This can be readily explained to families if the clinician is familiar with the impact of addiction on brain functioning. This paper focuses on the changes in one section of the brain, the prefrontal cortex, as an example of the effect of addiction on the neurobiological functioning of the brain, to validate the family members' experience of living with a stranger. The paper then presents a best practice model for working with families who wish to get an addicted loved one into treatment. The 3-Level empirically based, manual-driven method of Invitational Intervention, A Relational Intervention Sequence for Engagement (ARISE) is presented as an effective tool for helping families to get their loved ones into treatment.

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