Book Reviews

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Affect Dysregulation and Disorders of the Self - (Pp. 350; $45.00).
Affect Regulation and Repair of the Self - (Pp. 350; $45).
By A. N. Schore. ISBN (two-volume set) 0-393-70408-4. W. W. Norton & Co.: New York. 2003.

These books are a timely and thought-provoking addition to the fields of both psychology and neuroscience. Allan Schore is internationally recognized for his groundbreaking efforts to forge a link between the hitherto disparate fields of psychoanalysis and neurobiology by describing the central role of emotion (affect) in the development of the brain, personality and hence ultimately, the self. In these two volumes, Schore updates, expands and augments his regulation theory of self-development, as described in 1994 in the landmark work, *Affect Regulation and the Origin of the Self*, building upon Bowlby's attachment theory and Freud's model of the unconscious in view of recent developments in the neurosciences.

This 'psychoneurobiological perspective' of human emotional development stems from Schore's insightful theoretical research in developmental affective neuroscience and developmental neuropsychiatry, seamlessly interwoven with emerging models and concepts from other fields (e.g. cognitive and social neuroscience, developmental and social psychology, psychoanalysis, psychobiology and neurochemistry).

In *Affect Dysregulation and Disorders of the Self*, Schore uses a multilevel approach to characterize the structure-function relationships that underlie the normal development of affect regulation. The fundamental tenet of regulation theory is that 'the self-organization of the developing brain occurs in the context of a relationship with another self, another brain.' This relationship is between the developing infant and the social environment, and is mediated by affective communications and psychobiological transactions. His central thesis is that the early social environment, mediated by the primary caregiver, directly influences the fine wiring of the circuits in the infant's brain that are responsible for the future socio-emotional development of the individual.

In Part I, Developmental Affective Neuroscience, Schore describes how age-appropriate transactions of regulated positive and negative affect between the primary caregiver and infant act as a growth-facilitating environment for the postnatal maturation of a corticolimib control system in the right prefrontal cortex that mediates regulatory, homeostatic, and attachment functions. He stresses the importance of caregiver-infant interactions throughout the first two years of life in shaping the 'experience-dependent maturation of the right brain' which is the seat of unconscious affect regulation and critical to adaptive stress-coping capacities and interpersonal behavior throughout the lifespan. He cites a growing body of interdisciplinary studies which suggest that these interpersonal affective experiences are critical to the early organization of the limbic system, the brain areas specialized for not only the processing of emotion but for the

organization of new learning and the capacity to adapt to a rapidly changing environment.

In Part II, Developmental Psychiatry, the focus is on abnormal development, where Schore presents compelling evidence to show that early relational trauma which leads to unregulated stress during critical periods of growth of the orbitofrontal cortex may generate different types of insecure attachments, due to infant hyperarousal and/or dissociation. Heightened negative affect and chaotic biochemical alterations may predispose the genetically vulnerable individual to future psychopathology by permanently impairing corticolimibic circuits. This is expressed in the dysregulation of social, behavioral and biological functions that are associated with an immature frontolimbic control system and an inefficient right hemisphere. Deprivation of early maternal stress modulation is known to trigger an exaggerated release of corticosteroids upon exposure to novel experiences which, in adulthood, persist for a longer period of time. This toxic brain chemistry induces synapse destruction in 'affective centres' in the maturing limbic system and hence permanent functional impairments of the directing of emotion into adaptive channels. At a psychological level, Schore describes how the infant's stressful transactions with an emotionally misattuned environment are stored in the infant's developing corticolimbic circuitries as imagistic, visceral, and non-verbal implicit memories. As opposed to a secure interactive representation of a 'regulated-self-in-interaction-with-an-attuning-other,' these 'pathological' internal working models encode an enduring cognitive-affective schema of a 'dysregulaed-self-in-interaction-with-a-misattuning-other,' which is the only model available during times of stress in later life. Moreover, avoidance of novel situations and diminished capacity to cope with challenging situations, denies the individual exposure to new socio-emotional learning experiences that are required for the continuing experience-dependent growth of the brain. So the deficits of an early compromised right cortex are associated with chronic difficulties in affect regulation, in implicit, unconscious mechanisms, which Schore argues is at the core of various psychopathologies such as post-traumatic stress disorder, various personality, anxiety and mood disorders.

The third volume of Schore's comprehensive treatise, *Affect Regulation and the Repair of the Self* applies his developmental theory to an understanding of the essential processes occurring within the psychotherapeutic relationship. Throughout the book, the author highlights the fact that psychology and neuroscience are currently moving away from a long-standing focus on cognitive processes and consciousness, to converge on that of emotion, the self and personality. This is a result of the growing number of studies, many of which are cited, that demonstrate how fundamental unconscious regulatory functions are to psychological processing and overt behavior. Schore continues to show how the right hemispheric regulation of emotion is specifically accessed in stressful situations associated with uncertainty, and that this is largely non-verbal and part of what makes us human.

In Part I, Developmentally Oriented Psychotherapy, Schore reviews the foundation of regulation theory, i.e. the psychobiology of attachment bond formation and concomitant

imprinting of maturing corticolimbic circuits that come to govern and regulate affective processing and socially adaptive behavior. The work he details reinforces both Freud's original assertion that the unconscious mind is the major source of human motivations, and his own hypothesis that the underlying psychic and neurobiological structures in the right brain are those same corticolimbic circuits. With the knowledge that these critical right brain regions undergo repeated cycles of growth throughout the life-span, and retain substantial plasticity, it is fascinating to read how an understanding of the development of what Schore terms "the relational unconscious' within the infant-caregiver dyad can be paralleled to the subtle processes at work in the patient-therapist relationship. In particular, Schore emphasizes the unconscious 'right brain-right brain' emotional communication through facial, auditory and bodily states, in the processes of transference and counter-transference in the therapeutic dyad, and reveals how it is through such 'affective resonance' that dysregulating internal relationship models can be made conscious and reworked in such a way as to adaptively alter internal structure within the patient's brain/mind/body. In his psychoneurobiological model of projective identification, Schore provides an in-depth exploration of the patient-therapist relationship and follows with an integrated update on recent advances in neuropsychoanalysis, attachment and trauma which confirm his proposals and offer guiding insight into successful psychotherapy.

Part II, Developmental Neuropsychoanalysis, specifically focuses on the psychoanalytic branch of psychotherapy, investigating in greater depth the neurobiological substrate of the unconscious mind. Schore draws on recent advances in the neurosciences, and those of early researchers, to posit the biological identity of key internal psychic structures upon which psychoanalytic theory is based, and in so doing, revises and updates this theory to one of 'developmental neuropsychoanalysis.' For instance, he discusses the central role of shame in the formation of the superego and ego ideal, but also in fostering the healthy maturation of right-brain socio-affective-regulating structures, with implications for narcissistic personality and mood disorders. By such efforts, he is actually continuing Freud's early attempts to work out direct links between the operations of the brain and the functioning of the mind in his 'Project for a Scientific Psychology.' Indeed, Schore urges us that the time is right for such interdisciplinary integrations, that they are critical to a deeper understanding of the normal and abnormal workings of human mind/brain/body. To demonstrate this point, he theoretically re-formulates key psychoanalytic concepts such as driver and consciousness within a psychoneurobiological framework, and confirms the hypotheses of early neurologists that the key to the operations of the unconscious mind may be found in the socio-emotional development of the interactive right brain/body, in other words, the self. Finally, Schore outlines practical implications arising from his model. In particular, early intervention programmes that address infant care in the postnatal period would be able to target brain development during its maximal growth spurt and thus have more lasting positive effects on the self's affect regulatory capacity. An appendix outlines therapeutic treatment principles based on the developmental models of Schore's regulation theory.

Throughout these two volumes, readers are directed to Schore's first book *Affect Regulation and the Origin of the Self* for more comprehensive details of the molecular

mechanisms underlying regulation theory, the neuroendocrine, neurochemical, genetic and bioenergetic processes by which the early environment interacts with the body-mind to modulate the brain and foster self-development. However, Schore reinforces the salient points of regulation theory throughout, which at times can seem unnecessarily repetitive, but which is a helpful reminder of key concepts and allows each chapter to stand alone. A full-color insert with figures and charts illustrates some of the recent brain-imaging and psychobiological studies that contribute to the concept o regulatory theory and provide a clear guide to the neuroanatomical circuitry described in the text. These books should be of significant interest to researchers and professional health-care workers in many fields, as a source pool not only of inspiration but also major publications in the field. Clear and detailed explanations of the key concepts throughout also make this work accessible to the motivated reader who lacks background in these areas. Those who may require more experimental details will find an extensive bibliography for further exploration. This substantial body fo work shows the critical value of further interdisciplinary research to our understanding of the developing unconscious mind/brain/body.

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Reference
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Affect Dysregulation and Disorder of the Self. (Book Review) by A. Rebecca Neal

Affect Dysregulation and Disorder of the Self, by Allan N. Schore, New York, NY, W. W. Norton and Company, 2003, 306 pp., $45.00/

Self-regulation has been identified as a critical domain of development in infancy and early childhood. Even so, self-regulation has been broadly and multiply defined across disciplines. The author acknowledges this diversity and then focuses his exploration of self-regulation on the examination of the “convergence of psychology and neuroscience.” He applies a transactional model of developmental psychopathology) to probe how early life experiences impact the neurobiological systems that serve as the foundation for self-regulatory development.

The book is divided into two sections. The first section clearly defines the author’s experience-expectant model of brain development, as it relates to self-regulation. He explores the impact of dyadic interaction between the caregiver and infant on the neurobiological systems associated with regulatory development. In particular, he maintains a focus on these dyadic r3lations as precursors to attachment. In this section, the author emphasizes understanding these mechanisms in the context of typical development. This foundation in typical development prepares the reader well for the second section of this book.

In the second section, the author changes his focus to understanding these mechanisms in the context of atypical development. This section begins with an examination of the interaction between attachment relationships and relational trauma on (1) the development of neurobiological systems, (2) affect regulation, and (3) infant mental health. I was particularly interested by his discussion of the neurobiological correlates of Disorganized Attachment status (found at high rates in maltreated children). I also found his detailed discussion of the impact of ongoing relational trauma on the growth and development in the brain, at both micro and macro levels, to be fascinating. In the latter part of this section, the author proposes theoretical connections between traumatic attachment experiences and development of specific psychopathology (e.g., posttraumatic stress disorders, personality disorders, and violent behavior).

In sum, the author presents a wealth of information on theory and empirical findings associated with the development of self-regulation in infancy and early childhood, with an emphasis on the role of attachment. The author's focus on the transaction between early childhood experience and the development of self-regulation (both biologically and behaviorally) helps it stand out from other works on this topic. I strongly recommend this book to the developmental scientist and/or practitioner who may be looking for a thoughtful, integrated approach to understanding the development of self-regulation. Notably, this book would be particularly accessible for those with a basic foundation in neuroanatomy. For those without such a foundation, a color insert section does an excellent job of illustrating neurobiological data.

Also notable is that the author has written a companion volume entitled Affect Regulation and the Repair of the Self. In this volume, the author uses his model of self-regulation to identify fundamental mechanisms of psychotherapeutic change. Consistent with the first volume, his work has a foundation in attachment theory. Additionally, the author introduces the concept of neuropsychoanalysis, which places aspects of Freud's Psychoanalytic Theory in the context of neurobiological systems.

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