

THE NEUROSCIENCE
OF PSYCHOTHERAPY

HEALING THE SOCIAL BRAIN

LOUIS COZOLINO

Foreword by Daniel J. Siegel

■ SECOND EDITION ■

The Neuroscience of Psychotherapy

Healing the Social Brain

• Second Edition •

Louis Cozolino

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The Neuroscience of Psychotherapy

Second Edition

This book is dedicated to my family:
my mother's courage, my father's determination, and
the memory of my grandparents. Together they somehow
instilled within me the belief that all things are possible.

Foreword

Louis Cozolino's contributions to the Norton Series on Interpersonal Neurobiology have been instrumental in moving this new interdisciplinary field forward. The first edition of *The Neuroscience of Psychotherapy* inaugurated the series, which now includes 16 titles. With this second edition, Lou has extended and deepened interpersonal neurobiology's basic view that integration is at the heart of well-being. I loved the first edition and have learned a tremendous amount from reading this exciting and extremely accessible updated edition. Readers new to interpersonal neurobiology (IN) will find this a wonderful place to start their journey, as Lou deftly brings the latest in cutting-edge science together with the healing art of psychotherapy. Those familiar with the field will find this a welcome addition to their IN library of texts written with the clinician in mind.

As the founding editor of the IN series, I have been proud to oversee the publication of these books that explore various dimensions of psychotherapy and science. Though each of the individual authors of and contributors may not articulate their work with the same vocabulary, their contributions have all added to the research and clinical synthesis that forms an educational foundation for IN as a multidisciplinary and synthetic way of knowing about what it means to be human. Ours is a complex species: We have inherited a nervous system whose evolution has left us with many mechanisms not suited to modern life. And we live within relationships that have shaped and continue to shape how our

social brains are constructed within families, communities, and society. Cultural evolution continues to mold our synaptic architecture, influencing how we experience our inner, subjective lives and learn to communicate with one another.

This complexity could easily make us as clinicians move away from science to approach healing from an intuitive way of knowing alone. My hope in founding the field of IN has been that we would be able to see the forest for the trees, so to speak, and not get distracted by details, with all of their fascinating and nuanced complexities, but rather become enriched by all of this cutting-edge unfolding of new knowledge and ideas. But, this certainly is a challenge. In the busy lives of clinicians (and just plain everyday life), the tremendous amounts of data emerging from ever-expanding fields of science can be daunting. What we are trying to do with the IN series is to provide a forum for those working at the creative boundary between the chaos of overwhelming knowledge and the order of an intellectual framework. Lou Cozolino rides that edge like a master surfer, bringing together emerging findings from neuroscience with the beauty and power of healing relationships. It's a magnificent adventure, and you will need to take a deep breath and hold on as he takes you along with him through the various dimensions of science to see psychotherapy from new and helpful vantage points.

A framework that can be helpful in this important quest views clinical work as involving a triangle of well-being comprising the three points of Mind, Brain, and Relationships. This is a visual metaphor depicting the most foundational dimensions of our human lives, the essence of our subjective and our objective lives. This is a triangle revealing the flow of energy and information. Relationships are how we share energy and information with one another. The brain is here the extended nervous system distributed throughout the entire body, which is a mechanism through which energy and information flows. And the mind, in part, is how that flow is regulated—how we see and shape energy and information as it moves through our bodies and through our relationships.

Psychotherapy entails shaping these elements of our triangle toward well-being. From the IN perspective, health is achieved by promoting integration in our lives: Our minds come to monitor and modify our internal and interpersonal worlds toward the linkage of differentiated elements. The mind is a process that is both embodied and relational. In this view we can use our minds to cultivate integration, which promotes

harmony; the lack of integration leads to chaos or rigidity. From the IN standpoint, we can see, for example, the various psychiatric symptoms and syndromes as revealing the chaos and rigidity that emerge from impairments to integration. Clinical assessment can detect when chaos and rigidity are present and identify the neural or interpersonal domains in which integration is lacking. Focusing on the need to enhance differentiation and promote linkage, an IN clinician is offered the framework with which to evaluate, so he or she can then create a treatment plan based on the centrality of integration in the cultivation of well-being. Beyond just eliminating symptoms, this view defines health and offers practical steps to promote the integration at the heart of living a harmonious, creative, and meaningful life.

Providing us with a rich and varied tapestry that weaves up-to-date science with his decades of fabulous work as a clinician and master educator in the field of mental health, Professor Cozolino is our guide in this eye-opening exploration of integration and the pathway toward health. Both our patients' and our own lives can greatly benefit from this fruitful journey of discovery. Welcome to the world of integration and interdisciplinary thinking!

Daniel J. Siegel, MD

Founding Editor, The Norton Series on Interpersonal Neurobiology

Preface to the Second Edition

It has been extremely gratifying to witness the first edition of *The Neuroscience of Psychotherapy* play a role in introducing a new generation of therapists to the complex and fascinating world of the brain. Over the years, this book has created many opportunities for me to interact with students, teachers, and therapists who are curious about the biological basis of human behavior. Their enthusiastic feedback has strengthened my belief in the relevance of neuroscience to clinical practice and my dedication to the integration of mind and brain.

There are a number of reasons for this new edition. The first is that I've discovered the truth of the saying "writing is the process of rewriting what you have already rewritten," an urge that, for me, didn't diminish with the publication of the first edition. Second, the energy and enthusiasm generated by neuroscience in the 1990s has continued to build momentum and bear fruit. New technologies have broadened our window to neural functioning; empirical discoveries have led us into new areas of exploration; and increasingly sophisticated theories have fueled our imaginations. Finally, the findings relevant to psychotherapy and mental health from all this new research continued to accrue and called out to be included in *The Neuroscience of Psychotherapy*.

This second edition contains a few new chapters that focus on attachment, epigenetics, and the construction of consciousness. There is also a discussion of some of the evolutionary shortcomings of the human brain

that make us so susceptible to psychological distress. You will notice that this second edition embodies a shift in perspective toward social neuroscience, and the recognition that the human brain is a social organ. Reflecting this shift is the change in the book's subtitle from *Building and Rebuilding the Human Brain* to *Healing the Social Brain: Less mechanistic and grandiose perhaps, and also more human*. I hope you enjoy the fruits of this labor of love.

I want to thank Lauren Harb, Tehniat Mirza, Vanessa Streiff, Denise Duval, and Nazanin Moali for their assistance in the preparation of this manuscript. Thanks also to Andrea Costella and Deborah Malmud for being highly competent and compassionate rocks at the center of the storm. And finally, thanks to my family, friends, clients, students, and colleagues for their caring, support, energy, and love.

Louis Cozolino
Los Angeles, September 2009

The Neuroscience of Psychotherapy

Second Edition

PART I.

Neuroscience and Psychotherapy: An Overview

THE NORTON SERIES ON INTERPERSONAL NEUROBIOLOGY

Allan N. Schore, PhD, Series Editor
Daniel J. Siegel, MD, Founding Editor

The field of mental health is in a tremendously exciting period of growth and conceptual reorganization. Independent findings from a variety of scientific endeavors are converging in an interdisciplinary view of the mind and mental well-being. An interpersonal neurobiology of human development enables us to understand that the structure and function of the mind and brain are shaped by experiences, especially those involving emotional relationships.

The Norton Series on Interpersonal Neurobiology will provide cutting-edge, multidisciplinary views that further our understanding of the complex neurobiology of the human mind. By drawing on a wide range of traditionally independent fields of research—such as neurobiology, genetics, memory, attachment, complex systems, anthropology, and evolutionary psychology—these texts will offer mental health professionals a review and synthesis of scientific findings often inaccessible to clinicians. These books aim to advance our understanding of human experience by finding the unity of knowledge, or consilience, that emerges with the translation of findings from numerous domains of study into a common language and conceptual framework. The series will integrate the best of modern science with the healing art of psychotherapy.

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Chapter 1

The Entangled Histories of Neurology and Psychology

We must recollect that all of our provisional ideas in psychology will presumably one day be based on an organic substructure.

—Sigmund Freud

How does the brain give rise to the mind? Where do the brain and mind meet, and by what means do they interact with one another? These are difficult questions—so difficult, in fact, that the common reaction is to focus on either the mind or the brain and act as if the other is irrelevant (Blass & Carmeli, 2007; Pulver, 2003). The problem with this approach is the barrier it creates to understanding that the human experience of brain and mind is essentially a unified process (Cobb, 1944). Neurology and psychology are simultaneously pushed apart by academic and intellectual politics while being drawn together by their common psychobiological foundation. The entangled histories of neurology and psychology reflect the push and pull of these powerful opposing forces (Ellenberger, 1970; Sulloway, 1979).

Freud started out as a rebel, a neurologist curious about the mind. I suspect he was frustrated with the mind–brain partisanship of medical school, and longed to work with others who shared his interests. At the age of 29, Freud won a traveling fellowship to spend the fall and winter of 1885 at the Salpêtrière Hospital on the left bank of Paris. The choice of the Salpêtrière was based on the reputation of Professor Jean-Martin

Charcot, a man considered an expert on both mind and brain. In Charcot, Freud sought a teacher who was well established, confident, and unafraid of the no-man's-land between mind and brain. One can imagine Freud's excitement as he walked the streets of Paris on his way to meet the great man, a possible kindred spirit.

Charcot specialized in patients suffering from what was then called *hysteria*. These patients had symptoms, such as seizures or paralysis, that mimicked neurological illnesses but were without apparent physical cause. A classic example is a condition called *glove anesthesia*, in which feeling is lost in one or both hands beginning at the wrist. In these patients, the hands appear to take on symbolic significance; perhaps they have been used to commit some taboo act that triggered overwhelming guilt or fear. It was believed that a conflict within the mind was converted into a bodily symptom.

The 1880s were also a time when the ability of the subconscious mind to control behavior (as demonstrated through hypnosis) burst into popular awareness. Charcot used hypnosis during clinical demonstrations to illustrate his emerging theories about mind-body interactions. The months Freud spent at Salpêtrière with Charcot had a profound effect on him. He came to believe that hidden mental processes do indeed exert powerful effects on consciousness, and that hysterical symptoms result not from malingering or feigning illness, but from the power of the unconscious mind embedded within the neural structures of the brain. Hysteria, from this perspective, reflected the capacity of traumatic experience to reorganize the brain and disrupt conscious experience. Dissociative splits between consciousness and behavior demonstrated to Freud that the brain is capable of multiple levels of conscious and unconscious awareness. In the decades to come, he would explore the use of language, emotion, and the therapeutic relationship to reconnect them. Freud returned to Vienna in February 1886, and opened his own clinical practice 2 months later. Despite his entry into the medical establishment, he continued his rebellion later that year with the presentation of a paper on the existence of hysteria in males. Deeply fascinated by the unconscious, Freud remained its most ardent explorer until his death in 1939.

In the years following his residency at Salpêtrière, Freud expanded on Charcot's thinking in many significant ways. He placed the unconscious in a developmental context by tracing the genesis of hysterical symptoms