How do genes interact with the environment? How does the environment actually enter the body to affect the genes? When we perceive the environment, bits of information are encoded within the brain as memory, which consists of a series of neural connections, a brain code (see Chapter 9). When perception occurs, the new sensory input interacts with existing memory and creates new memory.

Primitive memory formed by trial and error died with the organism. With the evolution of complex brains, however, memory in the form of brain codes acquired the ability to skip from one brain to another, first by imitation as a shortcut to trial and error, and later, with language, as knowledge and information. When memory achieved portability, it became memes, bits of replicating information (see Chapters 8 and 9). Memes, like genes, undergo Darwinian evolution in a complex relationship with genes. In our time, it is the gene × meme × environment interaction that is fundamental in understanding mental health and illness.

This book integrates the concepts of genes and memes in understanding mental illness as a final common pathway brain dysfunction. The brain dysfunction is manifested by the symptoms and signs of mental illness that are determined by both genes and memes.

In Part I. What is Mental Illness? An Epigenetic Model, we consider the current model of mental illness based on gene × environment interaction and stress. The concept of epigenesis – how genes are switched on or off by the environment – is discussed. I introduce the concept of memes as perception and memory, neural entities introduced from the environment and interacting with genes and existing memes, and build a case for gene × meme × environment interaction model of mental illness.

In Part II. Evolution and Mental Health: Genes, Memes, Culture, and the Individual, we discuss and integrate the basic concepts of genetics, evolution, and memes and how learning led to the emergence of memes. We then examine how memes are actually stored in the brain, and how they evolve within the brain as well as outside the brain as elements of culture. We discuss beneficial, symbiotic, and pathogenic memes and how the latter may enter the brain “under the radar.” I discuss mental health and mental illness in the light of gene × meme × environment interaction and propose that mental health is achieved when a democracy of memes representing the self (selfplexes) is achieved in the brain.
In Part III. Principles of Diagnosis and Treatment of Mental Illness, I propose a new psychiatric diagnostic scheme based on gene $\times$ meme interaction, epigenesis, and the concept of final common pathway brain dysfunction with replication of pathologic memes. I propose that the diagnostic scheme should be multiaxial, and that Axis I should be for phenomenological, neurophysiomemetic diagnosis based on a continuum of brain function while Axis II should be for genetic and neuroscience diagnosis. I then discuss existing and to-be-developed techniques for making a memetic diagnosis. I propose that effective treatment for mental illness should be geared toward both genes and memes, and discuss memetic therapeutic approaches.

Memetic therapy may be broad-spectrum or specific. I discuss existing psychotherapies from a memetic perspective as well as the need for novel meme-oriented therapies. Virtual reality therapy utilizing avatars (virtual image of oneself with desirable attributes) is a promising novel technique.

Prevention is of utmost importance as vulnerable individuals could be identified in early childhood and immunization against toxic memes may prevent an epigenetic cascade toward mental illness. Education plays a crucial role in strengthening the meme-filtering, meme-sorting, and other meme-processing skills.

In Part IV. Specific Psychiatric Syndromes, I discuss specific proposed Axis I (neurophysiomemetic) psychiatric syndromes under the categories of (1) attention-cognition spectrum syndromes (delirium, dementia, attention deficit and impulse control syndromes, obsessions, compulsions), (2) anxiety-mood spectrum syndromes (anxiety, panic, phobias, acute stress disorder (ASD), PTSD, borderline, mania, dependent traits and personality, avoidant traits and personality, depression-neurotic and major depressive syndrome, adjustment disorders), (3) reality perception spectrum syndromes (imagination, dissociation, conversion, somatoform, misattribution somatization, psychosis), (4) pleasure spectrum syndromes (substance use/abuse, addictions to substances, beliefs, fanaticism), (5) primary memetic syndromes (eating disorders, factitious disorders, malingering, meme-directed destructive behaviors). We focus on the memetic diagnosis, gene–meme interaction in development, and genetic–memetic treatment for each category. In the last chapter, Future Challenges, I briefly discuss the testable hypotheses derivable from our model of gene $\times$ meme $\times$ environment interaction, and the need to develop new techniques in memetic diagnosis and treatment as well as their ethical considerations.

The seemingly perennial dichotomy of mind and body becomes irrelevant with the concept of memes – there is no single mind but a sea of memes in the brain. What is perceived as my mind at a particular time is but a large wave crashing on the shore of my consciousness.

This work is intended to integrate the seemingly disparate languages and methods of biological and social sciences around the indivisible organism, the patient. It is intended to stimulate thinking and hopefully innovations among psychiatrists, physicians of other specialties, health-care professionals, psychologists, sociologists, anthropologists, and others who are interested in human behavior and emotions.
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