Wesleyan University The Honors College

Embracing Complexity:
"Modest Pluralism" and the Future of American Psychiatry

by

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For My Grandparents

His general tendency will be to make many species, for he will become impressed…with the amount of difference in the forms which he is continually studying…As he extends the range of his observations, he will meet with more cases of difficulty for he will encounter a greater number of closely-allied forms. But if his observations be widely extended, he will in the end generally be able to make up his own mind, but he will succeed in this at the expense of admitting much variation…

–Charles Darwin, *On the Origins of Species*[1]

[1] Darwin, C. (1861). *On the Origin of Species*. New York, NY: D. Appleton and Company.

Introduction

Between "Brainless" and "Mindless"

On February 12th, 2011, the *New York Times* reported the tragic story of a Senior Airman in the United States Army, 23-year-old Anthony Mena. Mena served two tours of duty in Iraq as part of a Baghdad military police unit, where his responsibilities included cleaning up "the remains of suicide bombing victims." At one point, he "was nearly killed by a bomb himself…" Mena developed insomnia, anxiety and nightmares, incurring a diagnosis of Post-Traumatic Stress Disorder. Soon after leaving the Army on medical discharge, he remarked to a doctor, "I should have died in Iraq." Rather, on July 21st, 2009, five months after his discharge, Anthony Mena died in his apartment in Albuquerque, New Mexico. Toxicologists reported that, at the time of his death, the 23-year-old had eight different prescription medications in his blood, "including three antidepressants, a sedative, a sleeping pill and two potent painkillers." The cause of death was "not an overdose of any one drug, but the interaction of many."[2]

Mr. Mena's tragic death may serve as a radical emblem of American psychiatry's pharmacologic paradigm of treatment *gone awry*. A profession that so recently embraced psychotherapy to treat the mind is now often accused of employing psychopharmacology to treat "the mindless brain."[3] This thesis explores the conceptual history of psychiatry's "divided consciousness" between the psychic and

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[2] Dao, J. (2011, February 12). For some troops, powerful drug cocktails have deadly results. *The New York Times,* Retrieved from http://www.nytimes.com

[3] Hobson, JA., & Leonard, JA. (2001). *Out of its mind: Psychiatry in crisis*. Cambridge, MA: Perseus Publishing. p. 12.

the somatic, and draws from contemporary perspectives within the professional community to frame a potential bridging of this psychiatric divide. As it has recently embraced the somatic perspective, psychiatry has also allowed for, as philosopher of science Thomas Kuhn wrote, "the depreciation of historical fact."[4] Set in resounding opposition to the story of Mr. Mena are the ameliorative techniques employed by American psychiatric professionals on the frontlines of the Second World War.

In his account of these techniques, historian of mental health policy and medicine Dr. Gerald Grob demonstrates the historical evolution of psychiatric care on the frontlines. When American soldiers in World War II experienced acute "neurotic episodes," Army psychiatrists provided them with "a judicious combination of psychotherapy and environmental changes."[5] In fact, these psychiatrists observed, "Supportive forms of psychotherapy, when combined with rest, sleep, and food, produced almost instantaneous results…With prompt treatment about 60 percent of neuropsychiatric casualties were returned to duty within two to five days." As if this view were not polarized enough, Grob even includes remarks from an American psychiatrist in Europe who exclaimed "Successful treatment…depend[s] less upon specific procedures or specific drugs than upon general principles…and firm emotional support…"[6]

Does this historical portrait simply reflect the changing nature of war? Or is it a demonstration of the modern advance of biomedicine, or perhaps the ameliorative value we assign to different forms of medical therapy? For psychiatric thinkers, what

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[4] Kuhn, TS. (1996). *The Structure of Scientific Revolutions* (3rd ed.). Chicago: The University of Chicago Press. p. 138

[5] Grob, G. (1991). *From Asylum to Community: Mental Health Policy in Modern America*. Princeton, NJ: Princeton University Press. p. 16.

[6] Ibid, p. 16.

might these evolving circumstances suggest about the "true nature" of mental illness? Is it a dynamic process that is molded by experience and environmental stress? Or does it refer to a discrete, "disease entity" that can only be explained by hard science and pharmacology? While history has produced a number of arguments that may answer affirmatively to each of these questions, not one can wield sufficient explanatory power by itself. Rather, as I will argue, it is only through a pluralistic integration of different explanatory perspectives that we may begin to illuminate the "whole truth" that is mental illness.

An important current in modern American psychiatry is a tendency to express an attitude of "biochemical confidence," both within the profession and among patients and laypersons.[7] Throughout the 1980s and 90s, professional journals, such as "The American Journal of Psychiatry," were laced with frequent advertisements for new and presumably more efficacious medications. In the public domain, psychiatric authorities and the pharmaceutical industry have often promoted the "chemical imbalance theory," fueling America's enthusiasm for pharmaceutical recalibrations of neurotransmitters. This reductive hope that mental illness would be wholly understood and treated through the biochemical lens has only recently begun to deflate: "For fifty years the neurotransmitter models were the prime candidates to provide explanatory power, but they have failed to deliver on early hopes."[8]

Still, "chemical imbalance theory" has fostered a sense of biochemical confidence so profound that it has often allowed psychiatrists to handle the complex

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[7] Leo, J, & Lacasse, J. (2008). The media and the chemical imbalance theory of depression. *Society, 45*(1), 35-45.

[8] Frances, A. (2010). DSM in philosophyland: curiouser and curiouser. *Bulletin of the Association for the Advancement of Philosophy & Psychiatry, 17*(2), p. 69.

phenomena of mental illness through the use of a single primary principle—brain disorder. The story of Anthony Mena offers an extreme example of both the inadequacy and the hazards of this approach when taken to the extreme. This method of treatment refers, more specifically, to the penchant for *biological reduction* that has shaped much of the American psychiatric landscape for over 30 years. Of course, what is retrospectively seen as reduction was, in 1980, a great victory for science and biomedicine over the "speculative" theories of the field's prior paradigm: *psychodynamics*.

In 1989, a psychosomatic psychiatrist, Dr. Z.J. Lipowski (1924-1997), delivered a lecture to the Canadian Psychiatric Association in which he admonished the extreme swing of the psychiatric pendulum, from the *psychodynamic* school of psychotherapy to the *biological* school of pharmacology. He referred to these two paradigms, respectively, as psychiatry's "brainless" and "mindless" conceptual enterprises. In a critical message for the future of psychiatric practice, Lipowski insisted to his colleagues "that human behaviour cannot be explained or predicted from any single theoretical standpoint."[9] As Lipowski understood it, psychiatry is a field charged with the *pragmatic* resolution to the mind-body problem: a resolution that has, thus far, been sought largely through either "brainless" or "mindless" conceptions of psychiatric illness. He believed that the biological and the psychological aspects of the mental "are real, different, and not reducible to each other." This stance illustrates the modest and pluralistic ambition that American psychiatry has, due to a lack of professional and epistemic security, seldom been in

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[9] Lipowski, ZJ. (1989). Psychiatry: mindless or brainless, both or neither? *Canadian Journal of Psychiatry, 34*(3), 249-254.

position to embrace. Lipowski, a vocal figure of this pluralistic moderation, argued "that neither brainless nor mindless psychiatry could do justice to the complexity of mental illness and to the treatment of patients."[10]

Although American psychiatry has remained largely divided between advocates of "humanistic" psychodynamics and proponents of "scientific" psychopharmacology, several eminent voices in the field are now calling for a professional future that can accept a more "pluralistic" way of thinking. Hidden within the National Institute of Mental Health's (NIMH) research agenda for the future may be a rejection of a singular, "reductionist" methodology, along with a *scientific* embrace of both different levels of analysis and contrasting explanatory lenses. In this light, the world is not reducible to one ultimate level of explanation, but is rather a complex and multidimensional reality: "one needs more than one form and level of explanation to answer all questions in the best way possible."[11] This is the essential doctrine of pluralism in science. Psychiatrist and philosophy writer Nassir Ghaemi states this view in a succinct and forthright manner: "Pluralism *is* scientific method: the willingness and ability to use the best method for the relevant circumstance. As long as psychiatry fails to be pluralistic, it remains unscientific."[12]

In 2008, NIMH released a new strategic plan to incorporate 21st century scientific developments into mental health research.[13] The first strategic objective of

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[10] Lipowski, ZJ. (1989). Psychiatry: mindless or brainless, both or neither?

[11] Vreese, LD, Weber, E, & Bouwel, JV. (2010). Explanatory pluralism in the medical sciences: theory and practice. *Theoretical Medicine and Bioethics, 31*(1), 371-390.

[12] Ghaemi, NS. (2007). Pluralism in psychiatry: Karl Jaspers on science. *Philosophy, Psychiatry & Psychology, 14*(1), 57-66.

[13] National Institute of Mental Health. (2008). *The National Institute of Mental Health strategic plan* (NIH Publication No. 08-6368). Retrieved from http://www.nimh.nih.gov/about/strategic-planning-reports/ index.html

this plan was to "*promote discovery in the brain and behavioral sciences to fuel research on the causes of mental disorders*." NIMH then specified an important component of this objective: to *"develop, for research purposes, new ways of classifying mental disorders based on dimensions of observable behavior and neurobiological measures."* They have since named this initiative the Research Domain Criteria (RDoC) project.

This project is designed to offer a new conceptual framework to reconstruct understandings of the pathophysiology of "mental disorders" based on genomics and the neurosciences. It aligns well with a recent pronouncement by the Director of NIMH: "Mental disorders are brain disorders."[14] At first, this perspective may seem as biological as it gets. But rather, a paradox may be buried within this framework that could prompt a pivotal break with recent trends toward pure biological reduction. The current investigation will hinge on addressing this paradox by exposing and articulating its underlying explanatory and methodological pluralism, recognizing the existence of more than one "ultimate principle."

In 1907, philosopher William James delivered a series of lectures that would later be titled *A Pluralistic Universe*, in which he warned the critical thinker of the danger in seeking a singular and "absolute" form of explanation for any given question he may ask. James outlined a program for a rational empiricist shift from *monism* (also referred to as *absolutism*) to *pluralism*—or, as he also frames it, from a pursuit of the "all-form" of explanation (absolutism) to a pursuit of many "each-forms" (pluralism):

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[14] Insel, TR. (2009). Disruptive insights in psychiatry: transforming a clinical discipline. *The Journal of Clinical Investigation, 199*(4), 700-705.

> …whereas absolutism thinks that [a] substance becomes fully divine only in the form of totality, and is not its real self in any form but the *all*-form, the pluralistic view which I prefer to adopt is willing to believe that there may ultimately never be an all-form at all…[15]

The "all-form" of analysis describes an explanatory program that orients all questions toward one, single form of explanation. James questioned the epistemic validity of this "all-form" and appeared skeptical of those who sought to uncover a "divine" understanding of a substance only in its "totality." He believed "that the substance of reality may never get totally collected, that some of it may remain outside of the largest combination of it ever made."[16] In other words, certain substances or concepts in question may possess an "essence" that defies a singular explanatory model. Nassir Ghaemi similarly wrote, "there is an aspect of each person that transcends any attempt to understand or capture that person by a certain way of knowing, whether through science or anything else."[17] In this view, it may be misguided to frame an understanding of a "substance," say, mental illness, as a reality that is entirely explicable in absolute, monistic terms.

This thesis explores a mechanism through which modern biological insights may allow American psychiatric authorities to embrace explanatory pluralism—an embrace that would signal the field's rejection of the reductive perspectives that have defined much of its recent history. Through the course of the 20th century alone, the psychiatric pendulum has swung from psychodynamics ("brainless") to "extreme biologism" ("mindless"): two opposing perspectives that, in Lipowski's eyes, are both "reductionistic positions." The RDoC has the potential to flesh out a third way for

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[15] James, W. (1977). *A Pluralistic Universe*. Cambridge, MA: Harvard University Press.
[16] Ibid, p. 20.
[17] Ghaemi, NS. (2007). Pluralism in Psychiatry. p. 58.

psychiatric medicine, in which emphases on brain and mind, genes and environment may be fostered together through a sense of professional deference and an appreciation of contrasting explanatory lenses.

The method employed in this thesis may best be described as a conceptual analysis, through which three critical domains of psychiatric medicine will be assessed: philosophy, history and science. Instead of developing psychiatric issues in an empirical context where *facts* of each domain are *stated*, this thesis attempts, rather, to ground arguments about each domain within the evolving beliefs and perspectives of psychiatric physicians. As such, the use of philosophy here does not facilitate the discovery of epistemic or ontological truths—nor does the explanation of science or history seek to propose arguments *about* historical or scientific fact. Each realm will be called upon in order to frame changing psychiatric perceptions within their scientific, philosophical and socio-historical conditions.

Chapter One introduces vital concepts and professional debates within contemporary American psychiatry. It outlines the conceptual framework of the field's two contrasting paradigms: psychodynamics and biological psychiatry. Similarly, the two diverging approaches to psychiatric diagnosis, *categorical* and *dimensional*, are framed through their conceptual alignment with one paradigm over the other. This chapter also presents important terminological distinctions within psychiatric medicine, such as that between a "reliable" diagnosis and a "valid" diagnosis. Illuminating these elusive distinctions is critical in understanding the field's still profound epistemic uncertainty.

Chapter Two provides a detailed description of the conceptual and scientific structure of the NIMH RDoC project. It explores the notions of "reductionism" and "pluralism" in the context of both scientific methodology and philosophical epistemology. It establishes the RDoC initiative as an emblem of methodological pluralism that may, in turn, serve to mold a new psychiatric paradigm of "anti-dogmatic" and pragmatically pluralistic perspectives.

Chapter Three reviews selected aspects of the historical progression of American psychiatry, beginning with its formative 19th century origins, and leading all the way up to the currently emerging 21st century perspectives. It situates the mid-20th century rise of American psychodynamics within the epistemic and socio-historical circumstances of the time, and explores its ultimate eclipse by the forces of biological psychiatry amid changing social, political and professional conditions. After the 20th century battle of psychiatric paradigms, the field still preserves a deep chasm between psychodynamic and biological philosophies. This fissure between the "person-oriented" therapist and the biochemical, or "disease-oriented" practitioner may, in fact, now be more of "a ravine."[18] Chapter Three illustrates the manner in which biological psychiatry's fundamental principles took hold less through "clear biological evidence," and more through a rejection of the imprecise and unquantifiable theories of psychodynamics.

Chapter Four presents the emerging scientific evidence that supports the conceptual bridging of brain and mind, biological and psychodynamic psychiatry. It elucidates the specific mechanisms through which some of the most important tenets

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[18] Luhrmann, TM. (2000). *Of Two Minds: The Growing Disorder in American Psychiatry*. New York, NY: Alfred A. Knopf. p. 7.

of the psychodynamic philosophy—including those largely rejected by the succeeding biological paradigm—are now reemerging in the biological domains of neuroscience and genomics. It introduces the field of *epigenetics*, which describes the study of interactions between genes and environment, and the concept of *endophenotypes*, which are particular physiological or behavioral measures that may function as a bridge between "genomic complexity and disorder heterogeneity." On a more "macro" level, Chapter Four details exciting contemporary efforts to use neuroscience to inform psychotherapy and traditional realms of "brainless" psychiatry.

The Fifth and final Chapter attempts to integrate the historical, scientific and conceptual paradigms previously established. It introduces a recent philosophical framework for the future of psychiatric research and practice. The designer of this framework, Dr. Kenneth Kendler, can serve as a critical and illustrative actor within modern American psychiatry and its current transitional state. A man whose fame rests on his discoveries of the genetic bases of psychiatric disorders,[19] Dr. Kendler's new philosophical program, as well as his own personal transition through the field's complex conceptual landscape, may help ground a final conjecture of psychiatry's current trajectory and its notional future direction.

The end result: American psychiatry's emerging embrace of the pluralistic complexity of mental illness. As Ghaemi notes in his 2003 monograph, *The Concepts of Psychiatry*, "Pluralism is the toughest of all approaches to psychiatry...[it] requires us all to be multilingual." Here, the most critical element of a psychiatric pluralism

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[19] Clayton, P., Richardson, M., Russell, RJ., & Wegter-McNelly, K. (2002). *Science and the spiritual quest: new essays by leading scientists*. New York, NY: Routledge.

lies within the new, "enlightened" mindset of the psychiatric investigator: "The pluralist must be exceedingly humble. For him there are no finished systems. There are no ideologies to which he can cling."[20] It was Socrates, the father of Western philosophy, who had long ago proclaimed, "I know nothing except the fact of my ignorance."[21] Certainly, a sign of intellectual maturity may be the ability to admit how little one actually knows. In this light, the future of American psychiatry may very well hinge on its willingness to concede its own scientific adolescence.

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[20] Ghaemi, N. S. (2003). *The Concepts of Psychiatry: A Pluralistic Approach to the Mind and Mental Illness*. Baltimore, MD: The Johns Hopkins University Press. p. 308

[21] Knowles, E. (Ed.) (1998) The Oxford Essential Quotations Dictionary. New York, NY: Oxford University Press. p. 234.

Chapter I

Issues in Modern American Psychiatry

Conceptions of Mental Illness and the Battle Lines Drawn

	PSYCHODYNAMIC PARADIGM	BIOLOGICAL PARADIGM
Psychotherapy	✔	–
Psychopharmacology	–	✔
Dimensional Diagnostics	✔*	–
Categorical Diagnostics	–	✔
Etiology of Mental Illness	✔	–
Symptomatology of Mental Illness	–	✔

Figure 1[22]

In the conflict between *psychodynamic* and *biological* paradigms of psychiatric research and practice, each side may be seen as engaging in certain contemporary "proxy wars." Each of these "proxy wars" describes a different ongoing debate within American psychiatric circles, three of which are listed in the left-hand column of the above table. "Therapy versus pharmacology," "dimensional versus categorical," and "etiology versus symptomatology" each describe "sub-debates" within psychiatric medicine. They represent the manner in which different

[22] American psychiatry's current nosology, DSM-IV-TR, employs the framework of "categorical diagnostics." The asterisk for the cross listing of the "psychodynamic paradigm" with "dimensional diagnostics" indicates simply that these two subjects are conceptually alike. The APA does not currently include dimensional diagnostics in its official nosology.

psychiatric practitioners may answer an elemental professional question: "What is the proper way to *conceptualize*, *diagnose* and *treat* mental illness?" In order to fully understand the conceptual landscape of contemporary American psychiatry, it is important to first outline the fundamental ways in which those who traditionally seek to treat the mind may differ from those who tend to treat the brain.

1. *Psychodynamics*: Therapy, Etiology and the Psychiatric Continuum

For much of the 20th century, psychodynamic psychotherapy was America's premier treatment for mental illness. The broad theory of psychodynamics viewed mental illness as a process in which environmental stressors upset "the vital balance" of mental stability, resulting in maladaptive thought or behavior.[23] Psychodynamic theory hinges on the essentiality of mind, in contrast to much of contemporary psychiatry's biochemical emphasis on neurotransmitters and neural pathways in the brain. The original aim of psychodynamics, in opposition to pharmacological therapy, was to "understand the meaning of the symptom and undo its psychogenic cause, rather than manipulate the symptom directly."[24]

The term "psychodynamic" is often conflated with Sigmund Freud's method of psychoanalysis, which was, itself, a rather influential form of dynamic psychotherapy. The term is often used interchangeably with the psychosocial model of mental illness as well, but "psychodynamics" may be seen as an all-encompassing terminology for the psychiatric school that emphasizes "mind-environment"

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[23] Menninger, K. (1963). *The Vital Balance: The Life Process in Mental Health and Illness*. New York, NY: The Viking Press.

[24] Wilson, M. (1993). DSM-III and the transformation of American psychiatry: A history. *The Americal Journal of Psychiatry, 150*(3), 399-410.

interactions and, as such, will be the terminology used here. Through the practice of psychotherapy, psychodynamic psychiatrists embrace both individual difference and the causal complexity of mental illness. The psychiatrist's task, as proclaimed by famed 20th century American psychiatrist and psychodynamic theorist Dr. Karl Menninger is to discover what lies "behind the symptom."[25]

Menninger, of the eponymous Menninger Clinic in Topeka, Kansas, has been lauded as "the most articulate spokesman" for the psychodynamic movement.[26] His *unitary concept* of mental illness may serve as a model of the mid-20th century dynamic tradition. He conceptualized mental health and illness as part of a unified continuum, and emphasized the importance of unearthing psychogenic etiologies.

This search for causal etiologies, in particular, may be the most important descriptor of the original psychodynamic frameworks. A classic 1952 textbook on *Dynamic Psychiatry* asserted that diagnosis should be grounded, first and foremost, in "an understanding of etiologic factors."[27] Concurrently, in the 1952 publication of the First Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM), the authors declared, "Perhaps the greatest change in this revision from previous listings lies in the handling of the disorders with known…etiological factors."[28] Yet these etiologies were not well grounded in biology and as such, would soon be labeled by biomedicine as purely "speculative."

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[25] Menninger, K. *The Vital Balance*. p. 325.
[26] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 400.
[27] Alexander, F., & Ross, H. (1952). *Dynamic Psychiatry*. Chicago, IL: The University of Chicago Press. p. 307.
[28] Committee on Nomenclature and Statistics, (1952). Diagnostic and Statistical Manual of Mental Disorders. Washington, D.C.: American Psychiatric Association. p. 9.

The psychodynamic notion of mental illness as a continuum helped free dynamic psychiatry from the restricted domain of the severely mentally ill and the psychiatric asylum. In contrast, the biomedical concept of illness as a discrete disease process wholly segregates the "disordered" from the well. But when placed on a continuum, some patients may be severely disordered, while others may only be mildly so. This perspective allows dynamic psychiatry to care for those who inhabit the "softer end" of the psychiatric spectrum. Indeed, psychodynamic theory extends its scope beyond "the study of 'psychotics' or the severely insane" and concerns itself "with the whole field of personality and behavior disorders."[29] This boundless arena populated by American dynamic psychiatrists suggests a professional accord with Menninger's primary conceptual proposition: "most people have some degree of mental illness at some time."[30]

While Z.J. Lipowski had viewed psychodynamics as the "brainless" form of reductive psychiatry, Menninger wholly promoted his theory's pluralistic structure. He declared that psychodynamics is "not dominated by solidism, somaticism, or psychologism," but rather bases its philosophy and diagnoses on a combination of "modern concepts of psychology…personality…behavior, as well as modern concepts of anatomy…physiology, and pharmacology."[31] Despite the potential epistemic validity of this claim, the immaturity of the six conceptual domains Menninger listed may have prevented his statement from being anything more than theoretical. It was, perhaps, ideologically pluralistic, although psychodynamic

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[29] Brown, J., & Menninger, KA. (1940). *The Psychodynamics of Abnormal Behavior*. New York, NY: McGraw-Hill Book Company. p. 4.
[30] Menninger, K. (1963). *The Vital Balance*, p. 33.
[31] Ibid, p. 73.

psychotherapy's focus on treating only the mind may suggest its polarized conception of psychiatric illness, as many modern critics now claim.[32]

2. Psychodynamics and "Dimensionality"

Psychodynamics fuels a mindset in which illness exists as a measure of "quantitative" deviation along an overarching psychological scale. This became a formative tenet of the numerous psychodynamic theories that emerged out of the field's post-war dynamic boom. Each of these theories maintained common fundamental perspectives, like the fluidity of mental health and illness, and the pivotal interaction of mind and environment. In DSM-I, mental disorders existed as "reactions," deeply implicating the role of environmental stressors in pathological states. But Menninger, unlike many of his psychodynamic colleagues, maintained an importantly critical view of psychiatric certainty and held a unique sense of deference when approaching illness: he "was one of the few who questioned the claim that psychiatry rested on a foundation of science and truth."[33]

An essential component of Menninger's *unitary concept* bears considerable relevance for contemporary issues in psychiatric diagnosis. In presenting his theory, Menninger declared that one should conceive of "all mental illness as being essentially the same in quality…differing quantitatively and in external appearance."[34] Today, this idea is viewed as scientifically invalid, although it, in fact, may have simply been framing an important conception through too broad of a lens.

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[32] Ghaemi, NS. (2003). *The Concepts of Psychiatry*. p. 299.
[33] Grob, G. (1991). *From Asylum to Community*, p. 43.
[34] Menninger, K. (1963). *The Vital Balance*, p. 2.

In personal communication, Dr. Steven Hyman—American psychiatrist, neuroscientist, and former Director of NIMH (1996-2001)—maintained that Menninger's psychodynamic view of a single form of mental illness was misguided. Hyman, like Menninger, acknowledges the infancy of the psychiatric science, but nonetheless affirms that the field has advanced beyond (at least part of) Menninger's theory: "We still know very little, but the global neurodevelopmental processes that produce autism or schizophrenia (interestingly with some shared genetic loci) have little in common with panic disorder or posttraumatic stress disorder, even though both groups are better conceptualized dimensionally than categorically."[35]

The notion that all mental illnesses may be placed on the same theoretical continuum may be outdated. But, as Dr. Hyman hinted, a conceptual shift has recently begun to take place, in which individual disorders, or groups of disorders, may be viewed "dimensionally" as part of their own continuum. This notion describes the *dimensional approach* to psychiatric classification and diagnosis: a conceptual framework that will likely be applied to "personality disorders" in the Fifth Edition of the DSM (DSM-5), scheduled for release in May of 2013.

Today, the dimensional approach may stand as a diagnostic memorial to the psychodynamic concept of a mental health continuum. Dimensional diagnosis assesses "clinical presentations based on quantification of attributes rather than the assignment to categories." It looks to describe "phenomena that are distributed continuously and that do not have clear boundaries."[36] In the most technical sense, a dimensional scale in psychiatric diagnosis is defined by the possession of "three or

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[35] Hyman, SE. (2011, March 20). [Personal Communication].

[36] Kraemer, HC., Noda, A., O'Hara, R. (2004). Categorical versus dimensional approaches to diagnosis: methodological challeges. *Journal of Psychiatric Research, 38*, 17-25.

more ordered values," allowing mental health workers to conceptualize the patient as occupying one position along a sliding scale (e.g. of illness severity).

This differs from a *categorical approach*, in which there exist "only two values" and, as such, better describes a more definitive, "disease entity." Within categorical diagnostics, "The patient is either positive (thought to have the disorder) or negative (thought not to have the disorder)."[37] Perhaps the most vital characteristic of the dimensional system, unlike the categorical system, is its consideration for "clinically important individual differences among those who fall above, and among those who fall below, a categorical diagnostic threshold."[38]

In an intriguing parallel to Menninger's older theories, contemporary psychiatric authorities within the American Psychiatric Association (APA) are now claiming "every DSM categorical diagnosis would be enhanced with a dimensional adjunct…to identify the most clinically important sources of heterogeneity…"[39] And just as Menninger asserted that mental illnesses should be conceived "quantitatively," psychiatry is now hoping "to go beyond the current categorical illness definitions as set forth in DSM-III and DSM-IV and suggest ways of incorporating more quantitative, dimensional concepts into DSM-V."[40]

Dimensionality appears to be a modern mechanism through which psychiatric authorities may further account for the complexity and variability of each individual's potential pathology. This methodology has been referred to as a "person-centered"

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[37] Helzer, J., Kraemer, HC., Krueger, RF., Wittchen, H., Sirovatka, PJ., & Regier, DA. (2008). *Dimensional Approaches in Diagnostic Classification: Refining the Research Agenda for DSM-V*. Arlington, VA: American Psychiatric Association., p. 8.

[38] Helzer, JE., Kraemer, HC., Krueger, RF. (2006). The feasibility and need for dimensional psychiatric diagnoses. *Psychological Medicine, 36*, 1671-1680. p. 1672

[39] Helzer et al. (2008). *Dimensional Approaches in Diagnostic Classification*, p.10.

[40] Ibid, p. xxv.

brand of psychiatric classification.[41] It embraces the many differences that may exist between any two individual patients. Researchers Michael Musalek and Oliver Scheibenbogen suggest a conceptual correlation between the theory of dimensional diagnostics and the psychodynamic pursuit of individually unique understandings of etiology: "dimensional diagnostics does not expend its energy on correctly assigning symptoms of illness into predetermined categories, for it is not primarily disease-oriented, but instead symptom-, process- and pathogenesis-oriented." It takes "single phenomena as its starting point, inquiring into their origins and into the pathoplastic significance of the factors conditioning them."[42]

Of course, medicine is largely understood as the practice of diagnosing and treating *diseases* that exist as definite entities and not as standard deviations from some healthy norm. Biological psychiatry's embrace of this framework is perhaps its proudest accomplishment. In her monograph *Of Two Minds*, medical ethnographer Tanya Luhrmann explores this defining tendency among biological psychiatrists: "Sometimes they talk about mental anguish as if it were cardiac disease: you treat it with medication, rest, and advice about the right way to eat and live."[43] In order to protect psychiatry's role as a biomedical enterprise, psychiatric patients would, indeed, have to suffer from *diseases*: "There was nothing explicitly psychiatric about

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[41] Musalek, M., & Scheibenbogen, O. (2008). From categorical to dimensional: Deficiency-oriented versus person-centred diagnostics. *European Archives of Psychiatry and Clinical Neuroscience, 258*, 18-21.
[42] Ibid, p. 19.
[43] Luhrmann, TM. (2000). *Of Two Minds*, p. 6.

dynamic psychiatry; nonmedical and medical professionals alike were equally able to learn and practice it."[44]

The theories of both psychodynamics and dimensional diagnostics blur the boundaries of "illness," such that anyone and everyone may, at some point, be psychiatrically ill. Psychodynamics, in its purest form, treats each patient as though he suffers from his own unique illness. In a personal communication with Dr. Allen Frances, Chair of the 1994 DSM-IV Task Force, he cited a literary text to express the uniqueness of each individual case of psychiatric illness: "The analogy I like to use is Anna Karenina: all happy families are happy in the same way, and every unhappy family is unhappy in its own way." Mental illness, from the most proximate perspective, may be unique to every case. Of course, the very nature of classification directly clashes with this notion. Psychiatry, like the rest of modern biomedicine, must abide by a clear and definitive nosology, in which illnesses, or "disorders," can be defined and segregated into definitive diagnostic headings, in order to do research, evaluate psychopharmacology and facilitate communication among practitioners.

3. Descriptive Psychiatry: Symptoms, Biology and Discrete Kinds

Mainstream American psychiatry and psychodynamics ultimately parted ways with the 1980 publication of the DSM's Third Edition (DSM-III). Dynamic psychiatry pledged to emphasize "life experiences and the role of socioenvironmental factors."[45] It fostered a conceptual emphasis on the psychiatrist's interpretative skills and hypotheses regarding the etiology of *this* patient's illness. But "life experiences"

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[44] Mayes, R. & Horowitz, AV. (2005). DSM-III and the revolution in the classification of mental illness. *Journal of the History of the Behavioral Sciences, 41*(3), 249-267.

[45] Grob, G. (1991). *From Asylum to Community*, p. 4.

and "socioenvironmental factors" are not criteria that can be easily listed in an official nomenclature. In order to become "scientific," psychiatry would have to create *reliable* diagnoses: diagnostic names that two psychiatrists would readily agree to apply to a given patient. As Hyman notes, "The foundation of diagnostic agreement is a shared classification system that contains diagnoses that can be applied reliably, meaning that different raters can achieve diagnostic agreement a high percentage of the time."[46] The DSM-III architects would soon declare that "reliability [is] the cornerstone of scientific method and essential to scientific diagnosis."[47] In order to achieve this scientific reliability, American psychiatry would recycle a 19th century approach to the classification of psychiatric disorders: *descriptive psychiatry*.

In descriptive psychiatry, mental disorders have distinct phenomenological signatures that delineate them from other mental disorders, and from normality. Its founding father, German psychiatrist Emil Kraepelin (1856-1926), known for shrewd and precise observation, worked with thousands of psychiatric inpatients suffering from severe mental illness. He was not concerned with everyday "neuroses," as many psychodynamic and psychoanalytic practitioners were later. And unlike psychodynamic theory, Kraepelin's descriptive psychiatry makes few direct claims for the causality, or etiology, of mental illness.

The Kraepelinian tradition of descriptive psychiatry still thrives today. The DSM currently employs a *categorical approach* in which patients are understood in binary terms: they either have mental illness or they do not. The introduction to the

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[46] Hyman, SE. (2010). The diagnosis of mental disorders: The problem of reification. *Annual Review of Clinical Psychology, 6*, 155-179. p. 5.

[47] Galatzer-Levy, IR., & Galatzer-Levy, RM. (2007). The revolution in psychiatric diagnosis: problems at the foundations. *Perspectives in Biology and Medicine, 50*(2), 161-180.

DSM-IV-TR summarizes the field's embrace of this descriptive methodology at the expense of etiological speculations—"There have been two fundamental approaches to formulating systems of psychiatric classification: etiological and descriptive…the etiological basis for most psychiatric conditions remains elusive [and]…For this reason, a descriptive approach to classification has proved to be of greater utility."[48] By focusing on systematized observation and "descriptive phenomenology,"[49] the recent DSMs segregate, name and classify mental disorders based on "explicit diagnostic criteria." In other words, shrewd and precise description of the symptoms is the fundamental unit of the *descriptive* approach. The formation of "explicit criteria" represented a mechanism through which the "cut-and-dry" mentality of mental illness would be fostered within contemporary American psychiatry. This symbolized an important biomedical departure from the "dynamic formulations" and "extended descriptions" that often characterized psychodynamic diagnosis.[50]

In DSM-I, a "depressive reaction" was characterized as follows: "The anxiety in this reaction is allayed, and hence partially relieved, by depression and self-depreciation. The reaction is precipitated by a current situation, frequently by some loss sustained by the patient, and is often associated with a feeling of guilt for past failures or deeds. The degree of the reaction in such cases is dependent upon the intensity of the patient's ambivalent feeling toward his loss (love, possession) as well

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[48] First, M., & Pincus, HA. (2000). Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition, Text Revision. Arlington, VA: American Psychiatric Association.

[49] Lacy, T., & Hughes, JD. (2006). A neural systems-based neurobiology and neuropsychiatry course: integrating biology, psychodynamics, and psychology in the psychiatric curriculum. *Academic Psychiatry, 30*, 410-415.

[50] Galatzer-Levy et al. (2007). The revolution in psychiatric diagnosis. p. 152.

as upon the realistic circumstances of the loss."[51] This may now be contrasted with the "explicit diagnostic criteria" used in DSM-IV-TR to determine a diagnosis of a "major depressive episode." Five of nine potential symptoms must be present in order to make a determination of a major depressive episode. Each of these five must have been present "during the same 2-week period and represent a change from previous functioning." Practitioners can choose from a list of symptoms, from which the following five have been derived:[52]

> (1) depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). **Note:** In children and adolescents, can be irritable mood.
> (2) Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)
> (3) Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. **Note:** In children, consider failure to make expected weight gains.
> (4) Insomnia or hypersomnia nearly every day.
> (5) Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

There are four more specific criteria, after which the description is further expanded with categories from "B" through "E." It is curious that, in order to qualify as having suffered from a "major depressive episode," patients need only meet five of the nine possible criteria, suggesting that two individuals who share only a single common symptom may be given the same diagnostic label. Despite this problematic aspect of contemporary psychiatric diagnosis, the DSM-III structure does, in fact, leave little room for a clinician's subjective interpretation. And this was, after all, its most important aim: "Explicit definitions provide, if not a guarantee, at least an indication

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[51] DSM-I. (1952), p. 33-34.
[52] First, M., & Tasman, A. (2004). *DSM-IV-TR: Diagnosis, Etiology, and Treatment*. West Sussex, UK: John Wiley & Sons, Ltd. p. 739.

of adequate reliability, and they make it clear what meaning is being ascribed to the diagnostic terms employed."[53]

The descriptive, "*neo*-Kraepelinian" methodology has been deemed the field's "tough-minded" approach to mental illness.[54] Although explicit diagnostic cut-off points have since been argued to be completely arbitrary,[55] DSM-III has still been acclaimed as the force that made psychiatric diagnoses reliable. Still, the recent uncovering of diagnostic overlap between categories and the plethora of comorbidity[56] in psychiatric diagnosis has raised concerns about the *validity* of the DSM's diagnostic categories.

4. Psychiatric Diagnosis: Reliability versus Validity

DSM-III's emphasis on diagnostic reliability would soon prompt many psychiatric critics to claim that it had sought reliability at the expense of diagnostic *validity*.[57] In a recent review, Hyman articulated the profound difference between the "reliability" and "validity" of psychiatric diagnosis. While a valid diagnosis is one that "picks out a 'natural kind' based on etiology or pathophysiology," diagnostic reliability means "two observers will reach the same diagnosis with high probability for a given patient examined at approximately the same time."[58] If a valid diagnosis

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[53] Kendell, R., & Jablensky, A. (2003). Distinguishing between the validity and utility of psychiatric diagnoses. *The American Journal of Psychiatry, 160*, 4-12.

[54] Guze, SB. (1970). The need for toughmindedness in psychiatric thinking. *Southern Medical Journal, 63*(6), 662-671.

[55] Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 13.

[56] Comorbidity refers to the presence or diagnostic determination of more than one mental disorder within a given individual.

[57] Klerman, G., Vaillant, GE., Spitzer, RL., & Michels, R. (1984). A Debate on DSM-III. *The American Journal of Psychiatry, 141*(4), 539-553. p. 542.

[58] Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 4.

is one that describes causal etiology, then psychodynamics was the last psychiatric discipline oriented toward such diagnoses—albeit a psychogenic form of validity, rather than biological. The psychodynamic search for validity is what biological psychiatry had wholly rejected. A recent NIMH manifesto states, "In the diagnosis of mental disorders when all we had were subjective complaints…a diagnostic system limited to clinical presentation could confer reliability and consistency but not validity."[59] This is perhaps the greatest irony of the title "biological" psychiatry: its formative nosology, DSM-III, in an important sense, was not "validated" through biological science.

The notion of a "natural kind" of psychiatric illness may be epistemologically contentious. In personal communication, Hyman explained, "I used the term [validity] in a polemical way…I don't really think that complex biological entities like diseases or disorders will even be tidy natural kinds but clusters of pathophysiology and symptoms with close family resemblances."[60] Alas, diagnostic validity may simply be a goal to shoot for in order to enhance treatment options, as it is very possible that truly valid diagnoses may not exist in psychiatric medicine: As Hyman noted, "I think RDoCs plus genetics are the best current tools to approach validity—and then there will be more questions and tools." This appears to be a modest and deferential understanding of the complexity of the task at hand. Unfortunately, such deference may only represent a new wave of psychiatric

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[59] National Insitute of Mental Health. (2010). NIMH Research Domain Criteria (RDoC). 2011, from http://www.nimh.nih.gov/research-funding/nimh-research-domain-criteria-rdoc.shtml

[60] Hyman, SE. (2011, March 20). [Personal Communication].

perspectives, emerging in opposition to the dogmatism that has often pervaded contemporary psychiatric thought.[61]

The architects of DSM-III had hoped that future "scientific discovery would elucidate…etiology and pathogenesis using the powerful new methods of neuroscience, imaging, and genetics." This "ambitious program," however, has since suffered a "disappointing fate."[62] Still, psychiatric researchers and clinicians would use and conceive of DSM-III categories as though they referred to "real disease entities." Why? In the most simplistic sense, the answer lies in an important observation, most keenly articulated by British philosopher John Stuart Mill: "The tendency has always been strong to believe that whatever received a name must be an entity or being, having an independent existence of its own."[63]

5. The Reification of Mental Disorders

In the introduction to the "text revised" edition of DSM-IV (DSM-IV-TR), released in 2000, the authors insert an important preliminary disclaimer: "there is no assumption that each category of mental disorder is a completely discrete entity with absolute boundaries dividing it from other mental disorders or from no mental disorder."[64] The current DSM does not catalogue "disorders" that have been observed to exist "in nature." It was generated as a tool that would focus solely on observable aspects of illness in order to swiftly reverse the unreliability of dynamic diagnosis and the stagnation of fundable research. In personal communication, Dr. Allen Frances

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[61] Ghaemi, NS. (2003). *Concepts of Psychiatry*, p. 4.
[62] Frances, A. (2010), DSM in philosophyland. p. 4.
[63] Quoted in Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 2.
[64] First, M., & Pincus, HA. (2000). *DSM-IV-TR*. p. xxxi.

illuminated the critical, and perhaps most valid perspective on the nature of contemporary psychiatric disorders:

> The disorders in the DSM are constructs…and they are useful heuristics that are wonderful for communication in clinical work and research, education, forensics, etc. But they are not, in any simple way, going to give us the gene for schizophrenia or the pathogenesis for schizophrenia, because schizophrenia doesn't exist in Nature, it is just the way we have assorted the information about the way certain people behave.[65]

Despite the DSM's editorial warning, Frances and other voices in academic psychiatry[66] are now revealing the ways in which these disorder "heuristics" have come to take the form of real, biological disease entities.[67]

DSM-III has been lauded as the textual embodiment of the field's great paradigm shift, from that of the pre-scientific to the *scientific*.[68] But the scientific status awarded to DSM-III may have also incurred a critical reifying property of a "scientific paradigm." As philosopher of science Thomas Kuhn explained in *The Structure of Scientific Revolutions*, "one of the things a scientific community acquires with a paradigm is a criterion for choosing problems that, while the paradigm is taken for granted, can be assumed to have solutions. To a great extent these are the only problems that the community will admit as scientific or encourage its members to undertake."[69] DSM-III disorders became the criterion for choosing problems for psychiatry to investigate. And, despite the ebbing of etiological pursuits in psychiatric research, post-DSM-III investigators may have conflated the *reliability* of their

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[65] Frances, A. (2011, February 28). [Personal Communication].
[66] Luhrmann, T. M. (2000). *Of Two Minds.*
[67] Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 1.
[68] Klerman, G. (1990). Paradigm shifts in USA psychiatric epidemiology since World War II. *Social Psychiatry and Psychiatric Epidemiology, 25*, 27-32.
[69] Kuhn, TS. (1996). *The Structure of Scientific Revolutions*. p. 37.

constructs with its *validity*. Dr. Hyman has recently referred to this process as "the reification of mental disorders."[70]

As Tanya Luhrmann observed in her studies of psychiatric residency throughout the 1980s and 1990s, "because the disease model of illness is reinforced by the cognitive experience of psychiatric training in the hospital, the inherent ambiguity of psychiatric diagnosis can rapidly disappear."[71] The "disease model," indeed, serves to buttress contemporary notions of biomedical authority.

An enduring concern and source of professional insecurity within psychiatric medicine stems from the notion that "formulating an etiological diagnostic hypothesis is a fundamental part of almost every medical encounter," and "without an etiological, or biomedical, diagnosis, many would argue that treatment choice will not be rational…"[72] This has led to recent claims that psychiatry currently occupies the diagnostic position "that most of medicine was in 200 years ago," defining "most of its disorders by their syndromes" rather than by their biological etiology or pathophysiology.[73] Still, the DSM's brief epistemic disclaimer may be no match for the empirical authority often claimed within the realm of biomedicine: "The mere fact that a diagnostic concept is listed in an official nomenclature and provided with a precise, complex definition tends to encourage this insidious reification."[74]

Now, neuroscience and genetics are providing compelling evidence that these "disorders" based purely on analysis of symptoms have failed to "carve nature at its

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[70] Hyman, SE. (2010), The diagnosis of mental disorders: the problem of reification. p.1.
[71] Luhrmann, T. M. (2000). *Of Two Minds*, p. 45.
[72] GJ. Dinant, F. B., CC Butler. (2007). The necessary shift from diagnostic to prognostic research. *BMC Family Practice, 8*(53).
[73] Kendell, R. & Jablensky, A. (2003). Distinguishing between validity and utility. p. 9.
[74] Ibid, p. 5.

joints." This research into the biological correlates of many important DSM disorders has produced results that threaten to invalidate their diagnostic segregation.[75] American psychiatry has had to wait over three decades for evidence suggesting that it has, in fact, drawn many of its categorical lines in the wrong places. Both the trend of reification and the field's decreasing faith in the validity of its diagnoses are emblematic of its greater epistemic inability to define what it is that it actually treats.

6. *Mental Disorder* and Epistemological Ambiguity

Below the diagnostic surface, the conceptual and scientific ground upon which psychiatric medicine stands is not firm enough to support the claim that mental disorders, as we currently define them, are natural kinds of "entities" in the world. Most psychiatric practitioners engaged in these conceptual debates now recognize this reality. But in the field's recent history, contrasting psychiatric communities have each presented different epistemic perspectives to explain the character of DSM "disorders." As Frances has outlined, three critical psychiatric dispositions can best be viewed through the lenses of three umpires in a game of baseball:

> First Umpire: "There are balls and there are strikes and I call them as they are."
>
> Second Umpire: "There are balls and there are strikes and I call them as I see them."
>
> Third Umpire: "There are no balls and there are no strikes until I call them."[76]

The First Umpire, as Frances claims, represents the architects of DSM-III. They fashioned a nosological framework that presented "disorders" in an assertive,

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[75] Cuthbert, BN, & Insel, TR. (2010). Toward new approaches to psychotic disorders: the NIMH research domain criteria project. *Schizophrenia Bulletin, 36*(6), 1061-1062.

[76] Frances, A. (2010). DSM in philosophyland. p. 3.

clear-cut and "tough-minded" manner. Balls and strikes, or mental illnesses, *exist*, and the names we give them refer to "real entities." The Second Umpire maintains a wide range of middle-ground possibilities. This umpire agrees that mental illness likely "exists in nature," but that this true nature has not yet and may never be wholly discovered. In 21st century American psychiatry, "The Second Umpire rules."[77]

The Third Umpire is, for the most part, an outlaw. Thomas Szasz, R.D. Laing and Erving Goffman represented a wave of 1960s *antipsychiatrists*, who contended, in short, that mental illness does not represent any kind of disease at all. To these radical thinkers, mental illness describes nothing more than a "stigmatizing label" that is "applied to persons whose behavior annoys or offends others."[78] Szasz and the antipsychiatry movement represented an extreme, although insightful and influential perspective against which biological psychiatry would have to battle to save face for the American practice.

The fact that psychiatric nosology lists heuristics rather than "actual diseases" is a reflection of both the field's scientific adolescence, and its deeper, epistemic uncertainty regarding the true meaning of "mental disorder." Professionals in academic psychiatry have noted that *mental disorder* is a medical concept "so amorphous, protean, and heterogeneous that it inherently defies definition."[79] As Frances has admitted, "I have read dozens of definitions of mental disorder (and helped to write one) and I can't say that any have the slightest value whatever."[80] The enduring problems inherent to psychiatric diagnosis have now left the field with

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[77] Frances, A. (2010). DSM in philosophyland. p. 72.
[78] Szasz, T. (1974). *The Myth of Mental Illness*. New York, NY: Harper & Row. p. 267.
[79] Frances, A. (2010). DSM in philosophyland. p. 5.
[80] Ibid, p. 5.

arguably archaic disorder definitions and a classification system that does not easily allow the inclusion of emerging findings in the biological sciences. The defining hope of the new NIMH RDoC project is to establish such a framework that is wholly grounded in biological knowledge and unconcerned with the sticky enterprise of medical diagnosis.

Chapter II

The NIMH Research Domain Criteria (RDoC) Project
A Pluralist Framework for Psychiatric Methodology

Recent developments in genomics, as well as molecular, cellular and systems neuroscience have all yielded novel data that implicate particular brain circuits and genetic factors in certain psychopathological states. Some of the risk genes for psychotic disorders have recently been linked to both schizophrenia and bipolar disorder – a finding that challenges the fundamental dichotomy between the two that was established over a century ago.[81] On the neuroscientific level, similar neural circuitry has been implicated in contemporary conceptions of depression and Post-Traumatic Stress Disorder (PTSD).[82] Findings such as these illustrate the scientific inadequacies of current diagnostic categories for mental illness. Indeed, the DSM has not only served as a tool for clinicians to diagnose patients, but it has also actively directed the course of psychiatric research: grant proposals are often framed to investigate the genetic or neurobiological character of a given DSM disorder.

The development of the RDoC project has been galvanized largely by the growing skepticism and wariness regarding the "validity" of DSM classifications. In the RDoC manifesto, NIMH explains that the project will follow three guiding principles, "all diverging from current diagnostic approaches."[83] First, "RDoC is

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[81] Craddock, N., & Owen, MJ. (2007). Rethinking psychosis: the disadvantages of a dichotomous classification now outweigh the advantages. *World Psychiatry, 6*, 84-91.

[82] National Insitute of Mental Health. (2010). NIMH Research Domain Criteria (RDoC). 2011, from http://www.nimh.nih.gov/research-funding/nimh-research-domain-criteria-rdoc.shtml

[83] Ibid.

conceived as a dimensional system (reflecting, e.g., circuit-level measurements, behavioral activity, etc) spanning the range from normal to abnormal." They analogize this form of "dimensionality" to "dimensions like hypertension or cholesterolemia in other areas of medicine," noting that RDoC will incur "both the problem and advantage of defining cutpoints for the definition and extent of pathology – e.g., mild, moderate, and severe."

Their second guiding principle states that their project "is agnostic about current disorder categories. The intent is to generate classifications stemming from basic behavioral neuroscience." In opposition to the "top-down" manner in which DSMs have been constructed, RDoC is designed as a "bottom-up" approach to psychopathology research: "Rather than starting with an illness definition and seeking its neurobiological underpinnings, RDoC begins with current understandings of behavior-brain relationships and links them to clinical phenomena." The third and final guiding principle, although brief and simple, may represent the element of the RDoC most pertinent to this analysis: "RDoC will use several different levels of analysis in defining constructs for study (e.g., imaging, physiological activity, behavior, and self-reports of symptoms). The hope, here, is to create "a system that encompasses various levels in one framework."[84]

The structure of the RDoC project is that of a *quantitative matrix* into which all persons – "psychopathological" or not – can be fit. Transcending the boundaries of "pathology" and "normality," and constructing a dimensional approach both seem to parallel the dynamic, non-biochemical conception of psychiatric illness. RDoC's dimensional approach frames the condition of each person, for research purposes, as

[84] NIMH Research Domain Criteria (RDoC). http://www.nimh.nih.gov

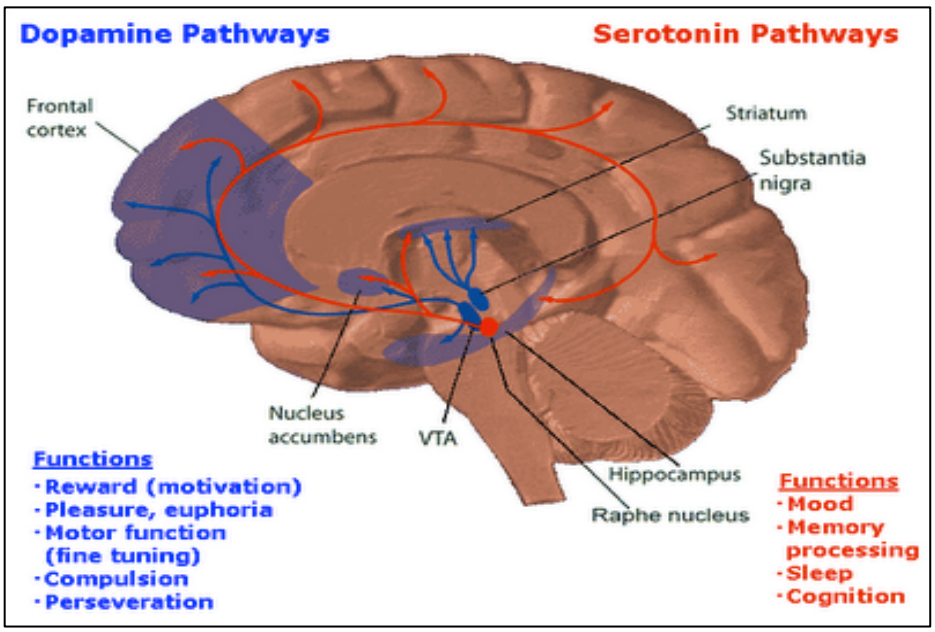
existing along a continuum across which thresholds of "pathology" may be later determined by clinical application.

The RDoC matrix has both an x and a y-axis. The new RDoC *constructs*, along the y-axis, represent general domains of human mental functioning, such as cognition, social processes, and negative or positive affect. Each of these constructs is to be analyzed at six different levels of investigation: genes, molecules, cells, circuits, behavior, and self-reports. Although both axes are equally important, it is the measure along the x-axis—the different "units of analysis"—that is the representative element of the pluralistic lens through which "questions" (y-axis constructs) may be filtered.

	DRAFT RESEARCH DOMAIN CRITERIA MATRIX					
	----------		UNITS OF ANALYSIS		----------	
DOMAINS/CONSTRUCTS	Genes	Molecules	Cells	Circuits	Behavior	Self-Reports
Negative Valence Systems						
Fear/extinction						
Stress/Distress						
Aggression						
Positive Valence Systems						
Reward Seeking						
Reward/Habit Learning						
Cognitive Systems						
Attention						
Perception						
Working Memory						
Declarative memory						
Language behavior						
Cognitive (effortful) control						
Systems for Social Processes						
Imitation, theory of mind						
Social dominance						
Facial expression identification						
Attachment/separation fear						
Self-representation areas						
Arousal/Regulatory Systems						
Arousal & regulation (multiple)						
Resting state activity						

Figure 2

Four of these six explanatory lenses ("units of analysis") constitute different levels of biological assessment, grounding this conceptual framework forcefully within the sphere of the natural sciences. Moreover, in the RDoC manifesto, these NIMH authorities note, "[Neural] circuits represent the core aspect of these classes of variables – both because they are central to the various biological and behavioral levels of analysis, and because they are used to constrain the number of constructs that are defined."[85] Each of the biological and environmental variables that factor into processes of mental illness converge, in the eyes of these researchers, on neural circuits: small or large groups of interconnected neurons that appear to be associated with specific mental or behavioral processes. Neural circuits range from "just a few neurons in a simple animal to trillions of neural interconnections in [human] brains," and incorporate both anatomical and physiological considerations.[86] Below is an image of two known neural circuits, or "pathways" in the human brain (Figure 3).



[85] NIMH Research Domain Criteria (RDoC). http://www.nimh.nih.gov

[86] Cozolino, L. (2010). *The Neuroscience of Psychotherapy: Healing the Social Brain* (2nd ed.). New York, NY: W. W Norton & Company.

Figure 3: An example of two pathways of neural circuitry, defined by (1) their projections to different regions of the brain, (2) the primary signaling neurotransmitter (dopamine and serotonin) used in each pathway, and (3) the cognitive, behavioral or affective functions associated with stimulation of each pathway.[87]

As explained by members of the RDoC workgroup, the hope is to "deconstruct currently defined higher order clusters of complex behaviors…into intermediate functions that are not themselves clinical symptoms."[88] In turn, this conceptual framework should allow researchers to "understand the relationship of higher order 'criterion' symptoms to lower order causal networks that include cognition, emotion, hormones, neural circuits, and their molecular pathways and structures." This may be the means through which RDoC does, in fact, embody a "reductionist" approach to mental illness. It will break mental illness up into smaller and "simpler" subcomponents to understand illness "piece-by-piece." But here, it is important to understand the very ways in which RDoC *is* reductionist, and the critical ways in which it *is not*.

The RDoC manifesto does not include an explicit statement of the project's philosophical stance. The NIMH workgroup's sole allusion to RDoC's conceptual framework may be found in one of the few articles yet to be published on the initiative: "Most researchers agree that causal influences are multidirectional across levels (e.g., across genes, molecules, cellular systems, neural circuits, and behavior), leading some to consider 'explanatory pluralism'…as an alternative to

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[87] National Institute on Drug Abuse. (2011). Addiction Science: From Molecules to Managed Care. Retrieved April 4, 2011, from http://drugabuse.gov/pubs/teaching/Teaching6/Teaching3.html

[88] Sanislow, CA., Pine, DS., Quinn, KJ., Kozak, MJ., Garvey, MA., Heinssen, RK., Wang, PS. & Cuthbert, BN. (2010). Developing constructs for psychopathology research: research domain criteria. *Journal of Abnormal Psychology, 119*(4), 631-639. 3

reductionism."[89] Although this statement represents the extent to which NIMH publications directly explore the conceptual basis of this project, the investigation here maintains that philosophy is a vital component of psychiatric medicine. It was the influential German psychiatrist Karl Jaspers (1883-1969) who long ago embraced the philosophy of psychiatry. Jaspers fought for pluralism within the profession or, at the very least, a philosophical consciousness among psychiatric professionals: "Many a psychiatrist has said that he did not want to burden himself with a philosophy...but the exclusion of philosophy would…be disastrous for psychiatry."[90] It is in this spirit that the present section examines RDoC's philosophical implications and hopes to position it on firm conceptual grounds.

1. Concepts of Pluralism and Reductionism

The most philosophically extreme form of "reduction" is the *ontological* kind. O*ntological reduction* is the notion that everything in our world may, ultimately, be "reduced" to physics; that all explanations must be sought "in terms of the laws of physics."[91] This philosophical form of reduction bears no relevance to this discussion of the lenses through which mental illness may be viewed—it is too far removed from the current understandings of even the most ardent biological reductionist. What *is* of concern here is better understood as the debate between *methodological/explanatory reduction* and *methodological/explanatory pluralism.*

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[89] Sanislow et al. (2010). Developing constructs for psychopathology research. p. 2.
[90] Jaspers, K. (1963). *General Psychopathology*. Chicago, IL: The University of Chicago Press. p. 769.
[91] Vreese et al. (2010). Explanatory pluralism in the medical sciences. p. 372.

Specifically, the methodological and explanatory framework known as *biochemical reduction* is considered "the most important form of reduction in the biomedical sciences."[92] It frames "the explanation of diseases or 'inappropriate' behavior" in terms of "a pharmacological response (chemicals are used to influence the biochemical processes in the human body), rather than a social or psychological remedy." Although this perspective is rooted in the biomedical treatment of specific disease entities, biochemical reduction represents at least part of the search for "big, simple explanations" of mental disorders.[93] These hopes were based on the expectation that absolute, "divine" answers would be provided by neurotransmitters and psychopharmacology.

Methodological reductionism requires that "diseases…be explained by reference to the constitutive components of their bearers."[94] More simply, in order to understand any given whole, one must parse it into smaller, presumably more manageable parts. But "disease" is currently a loaded term in the science of psychiatric medicine. The RDoC project is not looking to uncover "diseases," per se. It hopes, rather, to reveal "mechanisms of psychopathology."

In 2006, Cory Wright and William Bechtel published "Mechanisms and psychological explanation," in which they explore the tendency among scientists of brain and mind to refer to "mechanisms" when seeking explanatory variables.[95] Of particular importance is their discussion of "reduction" within psychological

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[92] Vreese et al. (2010). Explanatory pluralism in the medical sciences. p. 382.
[93] Kendler, K. S. (2005). Toward a philosophical framework for psychiatry. *Journal of American Psychiatry, 162*(3), 433-440.
[94] Vreese et al. (2010). Explanatory pluralism in the medical sciences. p. 372.
[95] Wright, C., & Bechtel, W. (2006). Mechanisms and psychological explanation. *Handbook of the Philosophy of Science, 12*, 31-79.

explanation. They contend that, when the researcher seeks to explain a mechanism, his methods are both reductionist and non-reductionist. On the one hand, he may appeal to "increasingly finer-grain component operations and parts in explaining the activity of a mechanism."[96] This is an approach that RDoC embraces in its hope to deconstruct *mental illnesses* into subcomponents that may be measured to reveal pieces of information regarding the nature of a psychiatric whole.

Under these parameters of "reduction," RDoC indeed endorses a *methodological* form of reduction. But it is also important to recognize that *this* form of reduction is meant to exist more as a *means* to an end, rather than the end in and of itself. A relevant anecdote expresses this understanding of reduction's place in science. Dr. Eric Kandel, an avid student of Freudian psychoanalysis turned Nobel Prize winning molecular neuroscientist, has made critical contributions to the discovery of the cellular mechanisms of learning and memory. Kandel had always idolized Freud, and now, after uncovering these mechanisms, he writes adamantly about the necessity to integrate neuroscience and psychoanalysis. In his autobiography, he reveals that he had followed his intuition "that the road to a real understanding of mind must pass through the cellular pathways of the brain."[97] *Pass through, but not end in.*

This leads to the specific manner in which the RDoC project is *not* reductionist: "explanations at a lower level do not replace, sequester, or exclusively preside over the refinement of higher-level explanations."[98] This is the critical point.

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[96] Wright, C., & Bechtel, W. (2006). Mechanisms and psychological explanation. p. 55.
[97] Kandel, E. (2006). *In Search of Memory: The Emergence of a New Science of Mind*. New York, NY: W. W. Norton & Company. p. 429.
[98] Wright, C., & Bechtel, W. (2006). Mechanisms and psychological explanation. p. 55.

The RDoC project aims to reveal "mechanisms of psychopathology." And, as Wright and Bechtel note, "Rather than serving to reduce one level to another, mechanisms bridge levels." Each of the levels of explanation—genetic, molecular, cellular, circuits, behavior and *subjective* self-reports—will hopefully be bridged together by the relevant "questions" of RDoC's *constructed* domains. These constructs, located on the matrix's y-axis, simply represent hypothesized faculties of human mental functioning. In other words, they outline the different questions whose answers will be sought at each different explanatory level. The specific manner in which these constructs have been selected and parsed is an important issue for future investigation—and one that NIMH suggests is open to proposals for change.[99]

To bring home the reductionism-pluralism debate, it is instructive to review the writings of the influential philosopher of science, John Dupré. In his 1993 monograph, *The Disorder of Things*, Dupré succinctly described pluralism and its most critical defining features: "first, in opposition to an essentialist doctrine of natural kinds, pluralism [is] the claim that there are many equally legitimate ways of dividing the world into kinds…and second, in opposition to reductionism, pluralism [insists] on the equal reality and causal efficacy of objects both large and small."[100]

In these terms, does the RDoC project then fall into the category of reductionism, given its heightened emphasis on neural circuits over other "levels"? In this interpretation of both Dupré's description and the conceptual framework of the RDoC project, the answer depends entirely upon the future actions of RDoC actors. Specifically, naming the level of neural circuits as the "core aspect" does not directly

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[99] NIMH Research Domain Criteria (RDoC). http://www.nimh.nih.gov

[100] Dupré, J. (1993). *The Disorder of Things*. Cambridge, MA: Harvard University Press. p. 6-7.

imply that their place in the causal chain is superior to that of all other levels of analysis. Dupré suggests that pluralism is contingent on the attribution of "equal reality and causal efficacy" to each explanatory perspective. Members of the RDoC workgroup note "that causal influences are multidirectional across levels."[101] Whether an equal amount of causal power is assigned to each level can only be determined once RDoC-based research is underway.

Returning from the domain of philosophical jargon, the RDoC initiative, for its most important intents and purposes, *is pluralistic*. In approaching any question about psychopathology, the RDoC first insist that one define the level at which he will seek his answer. This insistence pays conceptual homage to the view of Karl Jaspers, who urged psychiatry not to succumb "to any one approach as exclusively valid."[102] RDoC *does* simply replace DSM constructs with their own constructs created in light of contemporary research paradigms. This shift in "the questions" to be asked reflects the demand to move away from current DSM listings that differentiate "acute stress disorder" and "generalized anxiety disorder" to new constructs that represent "broad domains of function," like "cognition" and "negative emotionality."[103] These constructs suggest that symptomatically different "anxiety disorders" that have been split by historical accretion may not reflect the underlying pathophysiology.

For purposes here, the redefining of pertinent constructs is not the critical element of this initiative and its pluralistic importance. Rather, it is the recognition

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[101] Sanislow, et al., (2010). Developing constructs for psychopathology research. p. 3.
[102] Jaspers, K. (1963). *General Psychopathology*, p. 747.
[103] Insel et al. (2010). Research domain criteria (RDoC): toward a new classification framework. p. 749.

that each question deemed "relevant" (e.g. "anxiety") must be asked at every recognized level of analysis. NIMH states that each level is critical: "from genetic, molecular, and cellular levels…to the circuit-level…and on to the level of the individual, family environment, and social context…all of these levels are seen as affecting both the biology and psychology of mental illness."[104] Investigation at any level of analysis requires a specific set of methods that is tailored to the level in question. This is "the basic viewpoint of pluralism:" "that multiple independent methods are necessary in the understanding and treatment of mental illness; no single method is sufficient."[105] Confirming this in a discussion of the meaning of "mental disorder," Ronald Pies provides a model description of this specific form of pluralism: "*Pluralism allows for, but does not require, biologically-based criteria for specific instantiations of brain-mediated disease*."[106]

To invoke the terminology of William James, the RDoC project will not search for an "all-form" of mental illness. Genes, neurons and every level up to the subjective character of first-person experience comprise the "each-forms" of mental illness understandings. The pharmacological recalibration of a biochemical imbalance represented a closed and reductive theory. Each of these new levels of explanation may exist "distributively," "only strung-along, not rounded in and closed." The necessity to initiate the RDoC project may represent psychiatry's recognition that the

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[104] Insel et al. (2010). Research domain criteria (RDoC): toward a new classification framework. p. 749.
[105] Ghaemi, NS. *The Concepts of Psychiatry*, p. 15.
[106] Pies, R. (2010). The Ideal and the Real: How Does Psychiatry Escape The DSM-5 "Fly-bottle"? *Bulletin of the Association for the Advancement of Philosophy & Psychiatry, 17*(2), p. 20.

world of mental illness is far from a reality that can be entirely comprehended through any law-like theories.

To find which explanatory perspectives this framework will hope to integrate, one can start with the field's two most embattled paradigms of thought. Psychodynamics, in theory, endows a patient with a fundamental sense of uniqueness and individuality. Biological psychiatry provides the field with the biomedical authority it needs in order to handle the wholly "diseased" reality of severe mental illness. RDoC's biological yet pluralistic structure may provide both the personalized lens implicit within the dimensional approach, as well as a "tough-minded" emphasis on biological observables so vital to the psychiatric science.

Alas, those psychiatrists who hold firmly to mentalistic or non-biological paradigms of mental illness will likely be left out in the cold. But, through the eyes of Nassir Ghaemi, these advocates, including many psychoanalytic practitioners, represent a group that is as dogmatic and immoderate as the biological reductionists.[107] Some have suggested that the modern American age represents a world of deeply engrained biological citizenship and selves.[108] The principal paradigm of pharmacological treatment in contemporary American psychiatry certainly affirms the essentiality of the biological domain. But in response to this embrace of biological and reductionist realities, the RDoC project may represent the first step toward psychiatry's renewed explicit appreciation for each patient's individuality, while at the same time, making itself a "more scientific" practice.

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[107] Ghaemi, NS. (2003). *The Concepts of Psychiatry*. p. 299.
[108] Rose, N. & Novas, C. (2003). Biological Citizenship. *Global Anthropology*.

Of course, the initiation of the RDoC project is not just a product of contemporary scientific perspectives, but is also a result of 20th century historical accretion. As such, the next chapter delves more deeply into the contemporary evolution of the field's two warring paradigms, and how they have come to occupy currently antithetical poles. A pivotal mechanism through which the last psychiatric revolution made the field "more scientific" was the differentiation of many discrete disorder entities. Although some took them to reflect Nature's true classifications of psychiatric disorders, contemporary psychiatric actors tend to reject many of these manmade delineations. The limitations of human classification schemes provide an important historical lesson. In *On The Origin of Species,* Sir Charles Darwin writes that, in his eyes, a "species" should, in fact, be understood in a mindset similar to that maintained by Dr. Frances' Second or even Third Umpire: "I look at the term species as one arbitrarily given, for the sake of convenience, to a set of individuals closely resembling each other…."[109]

[109] Darwin, C. (1861). *On The Origin of Species*, p. 66.

Chapter III

A Selective History of American Psychiatry
The Urge to Classify and The Desire to Know

Reliability: two observers will reach the same diagnosis with high probability for a given patient examined at approximately the same time.

Validity: a diagnosis picks out a "natural kind" based on etiology or pathophysiology.[110]

The history of American psychiatry illustrates the timeless hope for *valid* understandings of psychopathology, and the scientific, social and philosophical issues that have curbed these aspirations. In 2010, Thomas Insel, Director of NIMH, reaffirmed one underlying difficulty that has plagued psychiatric research and practice: "History shows that predictable problems arise with early, descriptive diagnostic systems designed without an accurate understanding of pathophysiology."[111] The current nosology of psychiatric disorders does not catalogue "disorders" that exist in nature; rather, it is a tool that provides useful heuristics for both psychiatric researchers and clinicians.

This taxonomic style was inaugurated with the 1980 publication of the Third Edition of the DSM. DSM-III became a tool, not just to help psychiatric clinicians make diagnoses, but also to promote psychiatric research into the scientific (biological) reality of DSM-III constructs. In this light, science provided a conceptual framework for the clinician to utilize. But this science made a critical decision when it began to operate within the diagnostic framework itself. A recent history of

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[110] Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 4.
[111] Insel et al. (2010). Research domain criteria (RDoC): toward a new classification framework. p. 748.

American psychiatry may illuminate the far-reaching scientific and clinical consequences generated by biological enthusiasm and the hope that mental diseases exist "out there," waiting to be discovered.

This chapter explores American psychiatry's recent history, elucidating the manner in which fluctuations between paradigms of brain versus those of mind served to shape the current dichotomous state of psychiatric research and practice. This analysis reveals two seminal historical developments that contributed to the field's segregated evolution. The descriptive approach to psychiatric research and nosology, championed by the German psychiatrist Emil Kraepelin (1856-1926), represents the lens through which modern American psychiatry currently conceptualizes mental illness. Subsequently, the horrific, illness-inducing realities of World War II proved to Army psychiatrists that mental illness is not a discrete disease entity, but is rather a dynamic state that we all, at some point, may experience. But prior to both of these contrasting paradigms, the field seemed to combine two fundamental claims, one from each respective school of thought: it embraced a somatic model of illness (biological psychiatry), and made etiological claims (psychodynamics).

1. American Psychiatry's Early Years: Somaticism and the "Black Box"

Psychiatric medicine's greatest hope is that it will one day uncover the etiologies of mental illness. Of course, this hope is still one for the distant future. For much of its history, psychiatric medicine has operated in the absence of both sound etiological understandings and comprehensive nosological texts that could guide diagnosis and research. 19th century American medicine did not abide by the rigid

biomedical standards imposed today, and "the therapeutic consequences of a mistaken diagnosis were deemed relatively trivial."[112] Indeed, "physicians did not allow their admitted ignorance to impede their therapeutic ambitions." Much like American psychiatry today, "a physician's capacity to treat a disease did not require that he comprehend its pathology and etiology."[113]

The mystery of brain function and dysfunction placed etiological considerations at the nexus of mind and environment. Most late 19th and early 20th century psychiatrists "believed that mental illnesses were precipitated by a combination of psychological and environmental etiological facts that were mediated by the constitution or predisposition of the individual."[114] Intriguingly, though the *etiology* of mental illness was placed at the intersection of mind and environment, its existence or manifestation was considered to be *mediated* by the individual's "constitution or predisposition"—a likely allusion to the unknown biological and genetic underpinnings waiting to be uncovered. This constitution could not be observed directly and was to be understood by interpreting the patient's phenomenological experience. Prior to substantial contributions from science and its agenda to systematize the various "forms" of mental disorder, this holistic concept of illness "represented both an act of faith and a starting assumption."[115]

For much of the 19th century, American psychiatry did not concern itself with the notion of an organized nosology. As one psychiatric official exclaimed, "What

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[112] Caplan, E. (1998). *Mind Games: American Culture and the Birth of Psychotherapy*. Berkeley, CA: University of California Press. p 46.
[113] Ibid, p. 46.
[114] Grob, G. (1991-a). Origins of DSM-I: A study in appearance and reality. *The American Journal of Psychiatry, 148*(4), 421-431.
[115] Ibid, p. 422.

kind of classification system could possibly encompass the innumerable and protean forms of abnormal behavior?"[116] Holistic concepts viewed mental illnesses as "indistinguishable from other physical illnesses," occurring "when false impressions were conveyed to the mind because the brain or other sensory organs had been impaired." These practitioners "were acutely aware of the formidable barriers that blocked the development of all-encompassing systems." As such, "their nosologies tended to be general and fluid, and judgments about individual patients represented pragmatic choices that had few practical consequences."[117]

In light of the limited biological knowledge available at the time, 19th century psychiatrists maintained an eclectic approach to diagnosing mental illness, relying largely on "speculations" of somatic etiologies. This notion is evinced in the mid-19th century concepts of *neurasthenia* and *railway spine*: psychosomatic disorders that were conceptualized within the somatic frameworks of American medicine. In fact, these early perceptions of psychobiological diseases wholly embraced pathological explanations rooted in biology, despite a scientific ignorance of both biology and etiology.

In *Mind Games: American Culture and the Birth of Psychotherapy*, Eric Caplan recounts the speculative assertions made about the nature of these "diseases." Made famous by a New York neurologist, George Miller Beard, "neurasthenia was held to be a culturally and hereditarily derived disease," for which Beard "made a considerable effort to establish a legitimate pathological foundation." Beard, like many psychiatric voices to follow, contended that his diagnosis would, in time, be

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[116] Grob, G. (1991-a). Origins of DSM-I. p. 422.
[117] Ibid, p. 422.

confirmed by "microscopical" and "chemical" postmortem examinations. Of course, the pathophysiology of this "disease" "would remain a black box."[118]

The vague and speculative etiological framing of neurasthenia represented one of American psychiatry's first scientific and taxonomic problems. This diagnosis came to represent a "nosological dumping-ground for everything that [was] not something else."[119] Psychiatry would have to accept its adolescent position within the greater historical development of modern science, as no *valid* scientific estimations of biological causality could yet be determined. Because of its inability to demonstrate a relation between anatomical changes and behavior, its first, and to this day, only "scientific" program for taxonomizing mental illness came from the scrupulous cataloguing of observable symptoms.

2. The Origins of Descriptive Psychiatry

Working within the conceptual confines created by this lack of etiological knowledge, Emil Kraepelin (1856-1926) developed contemporary psychiatry's first paradigmatic classification of *reliable* disorder entities. In a recent review of Kraepelin's work and intellectual life, Kenneth Kendler and Assen Jablensky note that "more than any other individual, Emil Kraepelin shaped the way we see the world of psychiatric syndromes."[120] Kraepelin, a student of the famed medical doctor and psychologist Wilhelm Wundt, applied his training in experimental psychology to the investigation of the psychopathology of severely ill psychiatric patients. Kendler

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[118] Caplan, E. (1998). *Mind Games*. p. 37.
[119] Ibid, p. 41.
[120] Kendler, KS. & Jablensky, A. (2010). Kraepelin's concept of psychiatric illness. *Psychological Medicine, Sep 1*, 1-8. p. 1.

and Jablensky paint a portrait of an insightful and calculating scholar who had inherited a scientific practice in classificatory disarray. In an 1887 inaugural speech, Kraepelin proposed a pure empiricist philosophy and program for psychiatric classification. He begins with a review of the contemporary state of the psychiatric "science," claiming, "Our science has not arrived at a consensus on even its most fundamental principles… Every one of countless attempts at classification in the history of our science has involved some intellectual manipulation and violation of the bare empirical evidence…"[121]

Admitting psychiatry's non-scientific practices, Kraepelin moved to set an agenda for establishing a systematized approach to the understanding of psychopathology. Kraepelin believed that he and his colleagues could "derive real hope that in the not too distant future," the psychiatric science would be "able to escape the influence of theoretical speculation and fight its way towards sober observation and registration of the facts." This, they hoped, would soon lead to the formation of a "clinical science of mental disorders."[122]

Kraepelin here enunciated a principal and enduring goal of psychiatric medicine: ascendance to a scientific identity akin to that of its medical counterparts. Much of Kraepelin's career was spent amassing clinical findings from thousands of severely mentally ill patients whom he had treated at his clinic in Heidelberg, Germany. A believer in mental disorders as *natural kinds*, Kraepelin held "that the principle requisite in the knowledge of mental disease was an accurate definition of

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[121] Kendler, KS. & Jablensky, A. (2010). Kraepelin's concept of psychiatric illness. p. 2.
[122] Ibid, p. 2.

the separate disease processes and the search for disease entities."[123] He ultimately proposed the transformative distinction between the two 'organic' psychoses, *dementia praecox* (now schizophrenia) and manic-depressive illness (now bipolar disorder) in terms of their eventual outcome—a dichotomy that is still maintained in contemporary psychiatric nosology.

But in his pursuit of a psychiatric science, Kraepelin enacted the agenda forecasted in this investigation's title quote by Charles Darwin. He claimed that the path to a "clinical science of mental disorders" must "doubtless lead first to the most extensive differentiation of individual observations possible." He maintained that psychiatry must construct "an intensive monographic treatment of all those small variations and intermediate forms that today…are subsumed undifferentiated under the excessively large and therefore meaningless and blurred categories."[124]

Kraepelin's call for an "intensive monographic treatment" of all "small variations" between individual patients should not be overlooked. This intent highlights a concern for individual differences; but the form of such differences is one of scientific empiricism. To Kraepelin, individual uniqueness was not some subjective state impervious to science's classificatory attempts. It was rather a *fact* of human life that could, as such, be mapped into functional groupings of variations and similarities. In this light, the subjective character of the experience of mental illness did not seem to hinder Kraepelin's hope for a biomedical brand of psychiatry. For

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[123] Veith, I. (1957). Psychiatric nosology: From Hippocrates to Kraepelin. *The American Journal of Psychiatry, 114*(5), 385-391.

[124] Kendler, KS. & Jablensky, A. (2010), Kraepelin's concept of psychiatric illness. p. 2.

Kraepelin, mental illness almost always referred to psychosis, which in his eyes, could only be viewed rationally as a "natural disease process."[125]

Despite Kraepelin's observational and classificatory brilliance, many psychiatric historians maintain that his statistical analyses fall short of a deep, individualistic appreciation of the mental problems of *each patient*. In an account of psychiatry's early scientific history, Gerald Grob notes that in "dealing with a large mass of data, [Kraepelin] sorted out everything that individuals had in common, omitting what he regarded as purely personal data."[126] As passionate and influential as he was, Kraepelin's scientific, rather than personalized lens on mental illness, caused the diversion of his attention "away from the unique circumstances of individuals toward more general and presumably universal disease entities." In so doing, "he was simply emulating a distinct trend in medical thinking in general."[127] The Kraepelinian search for general scientific principles of psychopathological states contrasted pivotally with an historically essential, though largely forgotten approach within American psychiatry: *Meyerian psychobiology*.

3. Meyerian Psychobiology and the Seeds of a Biological Pluralism

Kraepelin's ideas have had a profound impact on contemporary conceptions of psychiatric illness. But in historical perspective, it is Adolf Meyer (1866-1950) who may have been "the most prominent and influential American psychiatrist of the first half of the twentieth century."[128] His psychodynamic approach owed a debt to his

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[125] Kendler, KS. & Jablensky, A. (2010), Kraepelin's concept of psychiatric illness. p. 2.
[126] Grob, G. (1991-a). Origins of DSM-I. p. 423.
[127] Ibid, p. 423.
[128] Scull, A., & Schulkin, J. (2009). Psychobiology, psychiatry, and psychoanalysis: The

near contemporary, Sigmund Freud, the father of psychoanalysis. Meyer's brand of genetic-dynamic psychiatry was one of the field's first conceptual schemes that attempted to blend life experiences of the individual with physiological and biological data. Psychiatrist D.B. Double notes that, like Lipowski's theory described earlier, "Meyer's dynamic psychology sought an integration of mind and brain as a way of dealing with the philosophical dilemma of the mind–body problem."[129] Meyer emphasized each patient as the sufferer of his or her own unique brand of "illness," establishing his practice as the clinical antithesis to the Kraepelinian approach. As Grob notes, "Meyer had never been fond of Kraepelinian nosological psychiatry, given his belief that the life history of the individual was the most important element in the etiology of mental disorders."[130]

Meyer's career became devoted to what he dubbed the *psychobiological* model of mental illness. General laws would not suffice in understanding each individual's particular pathology. As Andrew Scull and Jay Schulkin explained, Meyer's "psychiatric papers…were programmatic rather than substantive, and they were written in a notoriously dense and impenetrable prose."[131] This was partially reflective of Meyer's idiographic focus, which, incidentally, fostered a rather pluralistic and inclusionary philosophy: "Faced by the bewildering complexities of an array of disorders whose aetiology and treatment remained largely a matter of guesswork and improvisation, Meyer's notion of psychobiology provided an elastic

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intersecting careers of Adolf Meyer, Phyllis Greenacre, and Curt Richter. *Medical History, 53*, 5-36. p. 5.

[129] Double, DB. (2007-a). Eclecticism and Adolf Meyer's functional understanding of mental illness. *Philosophy, Psychiatry, & Psychology, 14*(4), 355-358. p. 356.

[130] Grob, G. (1991-a). Origins of DSM-I. p. 426.

[131] Scull, A., & Schulkin, J. (2009). Psychobiology, psychiatry, and psychoanalysis. p. 11.

overarching framework within which a whole array of hypotheses and interventions could be accommodated."[132] Indeed, the dynamic emphasis of Meyer's psychobiological theory guided the language and structure of the First Edition of the DSM, in which "most disorders were conceptualized as individual 'reactions' and, in many cases, the expression of one's character. From [this] perspective, each psychiatric disorder as manifest in an individual patient is relatively unique."[133]

Karl Menninger later recounted the historic battle between the concepts of Meyer and those of Kraepelin: "Two systems developed in American psychiatry side by side—the specific entity concept with which Kraepelin worked and the unitary concept which Meyer developed. The former prevailed. Each worker considered his to be a natural classification, the other an artificial one."[134] Meyer's dynamic orientation toward the causal complexity of mental illness undoubtedly restricted the use of his model in subsequent nosological schemes. For Meyer, patients did not so much suffer from *diseases* as they did personal *reactions* to uniquely experienced stressors—a notion that, for both nosological and biomedical purposes would soon become wholly unsatisfactory. As Tanya Luhrmann observed, in the eyes of the modern biomedical psychiatrist, "what is wrong with a patient is that the patient has a disease, and being a good psychiatrist involves seeing the patient in terms of the disease."[135]

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[132] Scull, A., & Schulkin, J. (2009). Psychobiology, psychiatry, and psychoanalysis. p. 11.
[133] Zachar, P., & Kendler, KS. (2007). Psychiatric disorders: A conceptual taxonomy. *The American Journal of Psychiatry, 164*, 557-565. p. 559.
[134] Menninger, K., Ellenberger, H., Pruyser, P., & Mayman, M. (1958). The unitary concept of mental illness. *Bulletin of the Menninger Clinic, 22*(1), 4-12. p. 8.
[135] Luhrmann, TM. (2000). *Of Two Minds*, p. 83.

But before psychiatry's disease orientation would be reintegrated into mainstream American practice, a radically different form of thought would dominate the scene for most of the 20th century. In alignment with the dynamic and eclectic morals of Meyerian psychobiology, lessons learned by Army psychiatrists during World War II would directly challenge Kraepelin's rigid categorical framework and push psychodynamic psychiatry to the forefront of post-War American culture.

4. World War II and the Rise of Psychodynamics

The behaviors of traumatized soldiers during the War provided compelling evidence for the belief that some mental illness could be precipitated by exposure to environmental stressors.[136] This realization was soon accompanied by psychiatric efforts toward prevention of mental illness and preemptive care: Army psychiatrists discovered "that early and purposeful treatment in noninstitutional settings produced favorable outcomes." This belief "became the basis for claims after 1945 that early identification of symptoms and treatment in community settings could prevent the onset of more serious mental illnesses…"[137]

Exposure to intense combat situations revealed too clearly the impact of environmental circumstances on mental health and illness. The fact that "normal persons can become ill if exposed to severe-enough trauma" suggested that the "boundary between the mentally well and the mentally ill is fluid."[138] This nebulous outlook challenged aspirations for a biomedical classificatory system, in which mental illness exists as a distinct and unquestionable *disease entity*. To the

[136] Grob, G. (1991-a). Origins of DSM-I. p. 422.
[137] Ibid, p. 427.
[138] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 400.

psychodynamic practitioner, the dearth of biomedical knowledge related to psychiatry suggested that "mental disturbances" could not "be called diseases in the conventional medical sense."[139] Indeed, a categorical conception of disease entities was incompatible with the beliefs of psychodynamicists; for them, mental wellbeing simply did not exist on such a rigid axis.

The emphasis on psychodynamics and psychoanalysis in the First Edition of the DSM reflected the shifted locus of American psychiatric treatment. In 1940, roughly 67% of all members of the APA worked in public hospitals, treating individuals with severe, debilitating mental illness. By 1956, of the approximately 10,000 APA members in total, only 17% were employed in such hospitals. This integration of psychiatric practice into the community was paralleled by a general surge in psychiatric interest among medical doctors. In 1946, there were a total of 155 psychiatric residency programs in the United States. A decade later, this number had doubled, and the number of American psychiatric residents had increased four-fold.[140]

The War's demand for psychiatric training in treating war neuroses and psychosomatic disorders was palpable. Professionals trained and employed in institutional settings, treating individuals with severe, 'organic' mental illness, were not well equipped to restore functionality in neurotic soldiers. It is not a coincidence that Kraepelin, with his precise nosology, dealt largely with "psychotics"—schizophrenia and bipolar disorder—whereas the mid-20th century psychodynamicists dealt mostly with "neurotics"—anxiety, depression and PTSD. Psychodynamic and psychoanalytic psychiatrists were "better trained to deal with war neuroses than their

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[139] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 402.
[140] Grob, G. (1991-a). Origins of DSM-I. p. 426.

institutional brethren" and, given the War's great demand for an organized psychiatric infrastructure, "they quickly moved into leadership positions and played key roles in military training programs for psychiatrists."[141]

The psychosocial maladjustment seen in soldiers during World War II provided physicians with the intriguing hope for uncovering psychological etiologies. In the most obvious sense, the mental illness of most, if not all soldiers was *caused* by their experiences at war. In Menninger's 1963 monograph *The Vital Balance: The Life Process in Mental Health and Illness*, he succinctly asked a pivotal question: "What is behind the symptom?"[142] In this book, Menninger presented his *unitary concept* of mental illness, which stood in direct contrast to the categorical splitting of descriptive, Kraepelinian thought. As psychiatric historian Mitchell Wilson notes, "The discrete psychiatric syndromes about which Kraepelin wrote were conceptualized by Menninger as reducible to one basic psychosocial process: the failure of the suffering individual to adapt to his or her environment."[143] Unfortunately, the psychodynamic embrace of psychogenic etiologies and each patient's unique complexity represented, in a real sense, a means of forfeiting the field's status as a medical science.

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[141] Grob, G. (1991-a). Origins of DSM-I. p. 427.
[142] Menninger, K. (1963). *The Vital Balance*, p. 325.
[143] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 400.

5. Post-War Psychodynamics and the Stagnation of the Psychiatric Science

With a broadened conception of mental illness, psychodynamic psychiatrists extended their services into previously uncharted elements of the social sphere, including child rearing, elementary education and the "organizational functioning of business and industry."[144] Throughout the 1940's and 1950's, a body of prominent psychiatrists known as the Group for the Advancement of Psychiatry (GAP) encouraged social activism among psychiatric professionals. In 1949, the newly formed National Institute of Mental Health (NIMH) allotted the vast majority of its funding to psychologists and social scientists conducting research projects that utilized the psychosocial model of mental illness.[145]

These post-war perspectives remained for a long time at the forefront of the psychiatric profession. But an essential, clinically minded tenet of the psychodynamic philosophy ultimately led to its downfall. Influential proponents of these dynamic techniques repeatedly refused to make categorical distinctions between the mentally well and the mentally ill, holding that "such a demarcation was secondary to elucidating the psychological meanings that lie 'behind' the symptomatic picture."[146] Still, if practitioners were to ever agree on their patients' analyses, an organized, straightforward nosology would have to be created.

The psychodynamic formulation of DSM-I, published in 1952, provided broad descriptions of psychiatric conditions, but left much room for clinicians' subjective interpretations. It referred to disorders as "reactions," deeply implicating

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[144] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 401.
[145] Houts, A. (2000). Fifty years of psychiatric nomenclature: Reflections on the 1943 War Department technical bulletin, medical 203. *Journal of Clinical Psychology, 56*(7), 935-967.
[146] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 402.

environmental stressors in the mental illness process. Diagnostic listings were adjectives, not nouns. "Schizophrenia" was not an entity: it was a form of "reactive" behavior. This psychodynamic embrace of non-scientific, psychic fluidity soon made the field susceptible to crippling criticisms from two very different groups: psychiatric scientists, and proponents of *the antipsychiatry movement*.

One of the preeminent voices of antipsychiatry, Dr. Thomas Szasz, published numerous accounts of his theory, but they may be summed up in the title of his 1961 monograph: *The Myth of Mental Illness.* Although writing in the heyday of psychodynamic practice, Szasz's critique of psychiatric medicine is also applicable to the Kraepelinian approach established over a half-century earlier. In Szasz's words, "[Kraepelin] was interested in man, but was not interested in the patient as an individual."[147] Szasz was not critiquing one psychiatric model in particular, but rather attacking the very constructed nature of "mental illness" more generally. His perspectives suggested that Kraepelin, and all aspiring psychiatric nosologists, viewed themselves as constituting the standards of "normality" with which the behavior of patients was compared.[148] In this light, mental illness is no more than an intolerable amount of behavioral or cognitive deviation from a desired societal norm.

In the antipsychiatrist assault, psychodynamic practices were seen as too loose and ill defined, and descriptive categories for mental disorders turned "eccentric" humans into deviants and societal liabilities. Mitchell Wilson describes the antipsychiatrists' dual-edged assault: "If the boundary between normal and abnormal is fluid (as the psychosocial model suggests), then psychiatric diagnoses must be

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[147] Szasz, TS. (1957). The problem of psychiatric nosology. *The American Journal of Psychiatry, 114*, 405-413. p. 407.
[148] Ibid, p. 407.

arbitrary." As for the disease-minded, "psychiatric labels subject people to stigmatizing practices such as hospitalization and employment discrimination."[149]

Prior to the 1960s, "most clients of dynamic psychiatry paid for their therapy as an out-of-pocket expense" and, as such, "therapists were not generally accountable to third parties."[150] Even when third parties were involved, insurance groups such as Aetna and Blue Cross fully reimbursed treatment for psychiatric illness, as they did with other medical illnesses. But by the mid-1970s, Aetna had imposed more stringent parameters on the psychiatric treatment they covered (e.g., a reduction to no more than twenty outpatient visits and a maximum of forty days in inpatient hospitals per year).

In 1975 Blue Cross Vice-President Robert J. Laur stated, "Compared to other types of [medical] services there is less clarity and uniformity of terminology concerning mental diagnoses, treatment modalities, and types of facilities providing care." He initiated a direct assault on the inherent subjectivity of psychiatric illness and, by extension, psychodynamic practice in general: "One dimension of this problem arises from the latent or private nature of many services; only the patient and the therapist have direct knowledge of what services were provided and why."[151]

In a field "grounded in mental, first-person experience,"[152] psychodynamic psychiatry's most pertinent hurdle became the unmanageable complexity and variability of each individual psychiatric patient. By 1970, psychodynamic psychiatry, once considered a humanistic and personalized approach to mental health

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[149] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 402.
[150] Mayes, R. & Horowitz, AV. (2005). DSM-III and the revolution in classification. p. 253.
[151] Wilson, (1993). DSM-III and the transformation of American psychiatry, as cited from *Psychiatric News*, Sept 2, 1977, p. 18.
[152] Kendler, KS. (2005). Toward a philosophical structure for psychiatry. p. 433.

and illness, was being re-conceptualized by many as a "soft-headed" form of "pseudo" psychiatry.[153] The incongruity between individualized conceptions of "illness" and "scientific diagnosis" marked the beginning of a long dormant period for notions of etiology, dimensionality and a psychiatric continuum. At a time when biological understandings of psychopathological nuances were nowhere near the horizon, psychiatric researchers and critical societal forces were unwilling, and perhaps unable, to progress within the psychodynamic framework.

Health insurers and the Federal Government had both perceived psychodynamic psychiatry to be a "voracious consumer of resources and insurance dollars" and contended that its methods of assessment were "too fluid and unstandardized."[154] American psychiatry had to become accountable for its practices. Alan Stone, President of the American Psychiatric Association (APA) during the 1980 publication of DSM-III, contended that psychodynamic psychiatrists had been on "a mission to change the world," and in the process, "brought the profession to the edge of extinction."[155] Psychiatry's status as a biomedical enterprise would hinge on its ability to enlarge its focus beyond individual uniqueness. It would have to form a common language that linked symptomatic commonalities between individuals in a "scientific" fashion. As Thomas Kuhn had recently observed, in the transition between scientific paradigms, a "new paradigm implies a new and more rigid definition of the field."[156] In this light, clarity and diagnostic rigidity would have to

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[153] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 402.
[154] Ibid, p. 403.
[155] Ibid, p. 402.
[156] Kuhn, TS. (1996). *The Structure of Scientific Revolutions*, p. 19.

become staples of a new, scientific psychiatry. Indeed, the time had come for "tough-mindedness in psychiatric thinking."[157]

6. DSM-III and the Remodeling of American Psychiatry

Throughout the 1960s, while the majority of the psychiatric community was invested in clinical work, psychoanalysis, and social psychiatry, the Department of Psychiatry at Washington University in St. Louis worked toward a different goal. Beginning in 1970, this group, led by researchers Eli Robins, John P. Feighner, and Samuel B. Guze, published a series of criteria-based methodologies for the classification of mental disorders. Their goal was to establish concrete sets of "explicit diagnostic criteria" for "known" mental illnesses. The 1972 publication of the "Feighner criteria" aggregated clinical findings for fourteen psychiatric disorders that yielded consistent diagnostic reliability. This publication would subsequently become the most cited paper in the psychiatric literature throughout all of the 1970s and into the 1980s.[158] The establishment of explicit diagnostic criteria would serve not only as a testament to the scientific and medical status of American psychiatry, but also "as a weapon that could repel psychiatry's cultural challengers."[159]

In 1974, the APA elected Columbia University psychiatrist Robert Spitzer to bring standardization to the field's diagnostic practices. Spitzer had been a key figure in the removal of homosexuality from DSM-II and was considered to be both a tough-

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[157] Guze, SB. (1970). The need for toughmindedness in psychiatric thinking. p. 662.
[158] Blashfield, R. (1984). *The classification of psychopathology: Neo-Kraepelinian and quantitative approaches.* New York: Plenum Publishing Corporation
[159] Decker, HS. (2010). The past and the future: what constitutes a mental illness. *Bulletin of the Association for the Advancement of Philosophy & Psychiatry, 17*(2), 23-26.

minded proponent for the streamlining of psychiatric assessment and a skeptic of psychiatry's "over-expansion" into the American community.

Building on essential tenets of the Feighner criteria, the 1978 Research Diagnostic Criteria (RDC), of which Spitzer himself was the primary author, described the kind of classificatory research that was promised to yield diagnostic reliability in psychiatry. The authors established five crucial "phases" of psychiatric research: clinical description, laboratory studies, delimitation from other disorders, follow-up studies and family studies. They used each of these phases to then outline sixteen types of mental disorders[160] (some of which could then be subdivided, e.g., "depression" and "mania" as separate types of "primary affective disorders").

Working in collaboration with the Washington University group, Dr. Spitzer recalled feeling as though these researchers were "kindred spirits," all determined to bring order and clarity to an "unscientific" American psychiatry: "Both Spitzer and his colleagues at Washington University rejected the overly inclusive psychodynamic model because it did not lend itself to reliable diagnoses, thereby impeding a crucial step in the ultimate validation of diagnostic categories."[161] This scientific vanguard of research psychiatrists took the reins of the profession's future direction; their goal was to trim the fat of psychodynamic vagaries and legitimize the field within the biomedical community.

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[160] Primary Affective Disorders (i.e. Depression, Mania), Secondary Affective Disorders, Schizophrenia, Anxiety Neurosis, Obsessive Compulsive Neurosis, Phobic Neurosis, Hysteria, Antisocial Personality Disorder, Alcoholism, Drug Dependence, Mental Retardation, Organic Brain Syndrome, Homosexuality, Transsexualism, Anorexia Nervosa, Undiagnosed Psychiatric Illness

[161] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 404.

7. Clinical Pushback to the DSM-III Philosophy

The progression toward psychiatry's "scientific" legitimacy, in its most hopeful form, describes the realization of biological etiologies for major mental disorders. But the science of psychiatry was (and still is) lacking such knowledge. For the field to avoid professional "extinction," it had to establish *some* epistemological authority over the mental domain. Society would not wait for the field to find both reliable *and* 'valid' diagnoses. As such, the profession set its sights on establishing inter-rater diagnostic reliability as the key component of empirical scientific knowledge. An excerpt from the minutes of the first meeting of the Task Force on Nomenclature and Statistics demonstrates the DSM-III assault on etiological considerations and the psychogenic implications of categories of "functional" illness: "Functional is no longer a suitable designation for a group of conditions—schizophrenias and affective disorders—which are no longer seen as purely psychogenic."[162] They agreed that terms like "psychosis" and "neurosis" could be "useful possibly as adjectives, but not as classificatory principles. The term psychosis has become vague in usage…[and] neurosis, a theoretical etiologic term, suggests a more or less steady state, which does not adequately categorize what we now see…"[163]

The DSM-III task force hoped that the elimination of 'speculative' appeals to mental illness etiologies would "stimulate appreciation, among psychiatrists, of the distinction between the known and the assumed."[164] As such, it became critically

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[162] Wilson, M. (1993). DSM-III and the transformation of American psychiatry, as cited from DSM-III Task Force minutes. p. 405.
[163] Ibid, p. 405.
[164] Ibid, p. 405.

important to employ precise and comprehensive description in outlining what was "known." Specificity, it seems, was the name of the scientific game. This descriptive focus resulted in the splitting of diagnostic constructs into narrower and increasingly differentiated forms. Indeed, the Task Force for DSM-III asserted that, "mental disorder should be defined narrowly rather than broadly."[165] In Darwinian terms, the impressive "amount of difference" in the various psychiatric "forms" would reinforce the tendency of Task Force members to "make many species."

Despite the perceived revolutionary power offered by DSM-III, many eminent psychiatrists without known proclivities for psychodynamics versus nosological rigidity spoke out against this scientific program. One such physician, Dr. Henry Pinsker, was a clinician and himself a member of the Task Force that guided the development of DSM-III. Shortly after the first task force meeting, Dr. Pinsker bemoaned this new direction of psychiatry being led by an insular group of research investigators. He exclaimed, "I believe that many of what we now call disorders are really but symptoms. There is a terrible sense of shame among psychiatrists, always wanting to show that our diagnoses are as good as the scientific ones used in real medicine…[The task force] has been unanimous that mental disorder should be defined narrowly…"[166]

Although Spitzer and his colleagues were fixated on the development of a scientific nosology of mental illnesses, others were not convinced that the field was ready for such a move. For some, this development delegitimized clinical and psychodynamic 'knowledge' as scientifically unsound. In particular, a liaison

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[165] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 405.
[166] Ibid, p. 405.

committee, composed of several clinicians who were involved in APA politics, was designated to submit progress reports on DSM-III developments. In its reports, the liaison committee claimed that the task force "openly ignored 'evidence' garnered through years of clinical practice which did not constitute 'proof' according to the rigid canons of the scientific method…"[167] Skeptical of the restrictive structure of DSM-III, the liaison committee made an important suggestion: They requested that the manual be used for research purposes only. Their suggestion was ultimately ignored.

Published in 1980, DSM-III listed 265 diagnostic categories. It represented a revolution in psychiatry as a medical, data-driven practice. Yet, as psychiatric practitioner George Vaillant noted, it may have sacrificed "diagnostic validity on the altar of diagnostic reliability."[168] Its creation was not the product of burgeoning advance in biological research; it represented the "efforts of research-oriented psychiatrists who wanted to standardize diagnostic criteria and focus attention on the symptoms of mental disorders, rather than on their underlying causes."[169] A compelling demonstration of this *conceptual*, rather than "scientific" shift is illustrated in the reclassification of schizophrenia from DSM-II to DSM-III. The DSM-II description of "Schizophrenia, simple type" is perfectly indicative of the lack of specificity that seemed to plague the psychodynamic perspective:

> This psychosis is characterized chiefly by a slow and insidious reduction of external attachments and interests and by apathy and indifference leading to impoverishment of interpersonal relations, mental deterioration, and adjustment on a lower level of functioning. In general, the condition is less dramatically psychotic than are the hebephrenic, catatonic, and paranoid types of

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[167] Wilson, M. (1993). DSM-III and the transformation of American psychiatry. p. 406.
[168] Klerman et al. (1984). A Debate on DSM-III. p. 542.
[169] Mayes, R. & Horowitz, AV. (2005). DSM-III and the revolution in classification. p. 265.

> schizophrenia. Also, it contrasts with schizoid personality, in which there is little or no progression of the disorder.[170]

This may now be compared with the more specific and inelastic definition of schizophrenia included in DSM-III:

> A. At least one of the following during the phase of the illness:
> 1. bizarre delusions (content is patently absurd and has *no* possible basis in fact), such as delusions of being controlled, thought broadcasting, thought insertion, or thought withdrawal
> 2. somatic, grandiose, religious, nihilistic, or other delusions without persecutory or healous content
> 3. delusions with persecutory or jealous content if accompanied by hallucinations of any type
> 4. auditory hallucinations in which either a voice keeps up a running commentary on the individual's behavior or thoughts, or two or more voices converse with each other.
> 5. Auditory hallucinations on several occasions with content of more than one or two words, having no apparent relation to depression or elation
> 6. Incoherence, marked loosening of associations, markedly illogical thinking, or marked poverty of speech if associated with at least one of the following:
> a. Blunted, flat, or inappropriate affect
> b. Delusions or hallucinations
> c. Catatonic or other grossly disorganized behavior

This is only part "A" of a six part (A-F) definition of schizophrenia. In her extensive account of this historical evolution, ethnographer Tanya Luhrmann notes, "However manipulative one can accuse the task force of being, there is no question that two psychiatrists were more likely to use the same labels to describe the same patient when they were using *DSM III* than when using *DSM II*."[171]

In the end, the process of psychiatry's professionalization became a force larger than any individual—clinician or researcher. In fact, Samuel Guze, a key member of the Washington University psychiatric vanguard, had published a 1974 textbook entitled *Psychiatric Diagnosis*, in which he included only twelve diagnoses. David Healy's *The Psychopharmacologists III* provides a telling anecdote from Guze

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[170] Committee on Nomenclature and Statistics, (1968). Diagnostic and Statistical Manual of Mental Disorders. Washington, D.C.: American Psychiatric Association. p. 33.

[171] Luhrmann, TM. (2000). *Of Two Minds*, p. 231.

as he describes his experience at one of the meetings of the DSM-III Task Force. Guze remembers saying to his colleagues, "perhaps we should urge that, until there [have] been at least two long-term follow-up studies from different institutions with similar results, we shouldn't give the entity a status in DSM-III." Of course, "The alternative was to have a lot of undiagnosed cases." He had argued that the Task Force should develop "a way of subcategorizing undiagnosed patients in which the label would indicate what the diagnostic problem was"—a plan of action that, as Guze had explained, "would put us on a stronger scientific basis and it would constantly remind psychiatrists of our ignorance and what kinds of questions needed to be studied…"[172]

The Task Force's response to Guze's proposals was wholly unfavorable. He remembers, "The answer that I was given was that they said we have enough trouble getting the legitimacy of psychiatric problems accepted by our colleagues, insurance companies and other agencies. If we do what you are proposing, which makes sense to us scientifically, we think that not only will we weaken what we are trying to do but we will give the insurance companies an excuse not to pay us."[173] American psychiatry was in a different place back then. Its most immediate concern throughout the 1970s was combating the social, political and economic pressures that beset the profession. It could no longer accept a situation in which those receiving psychiatric care were not provided with a diagnostic label. But as Guze points out, withholding labels for the sake of judicious science, ironically, would not solve psychiatry's quasi-

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[172] Healy, D. (2000). *The Psychopharmacologists III*. New York, NY: Oxford University Press. p. 407.
[173] Ibid, p. 407.

scientific status in America. The standardization of psychiatric research and practice, in this case, was the essence of the field's great "scientific" leap forward.

Five years after the release of DSM-III, Ronald Bayer and Robert Spitzer published a history of the controversy of "neurosis, psychodynamics, and DSM-III." In their account, these authors proudly reaffirmed their previous decisions: "[We] believed that the large body of etiological evidence put forth by those committed to a psychodynamic perspective could not serve as the basis for defining the diagnostic classes in *DSM-III*." In a moment of scientific irony, they admitted, "psychiatry simply did not yet know with certainty the causes of…the maladies it attempted to treat and study…" Of course, the subsequent reification of psychiatric disorders suggests that much of psychiatric research and practice expressed certainty in treating disorder heuristics as though they were real, biological entities.

The irony of DSM-III was its attempt to formulate a "biomedical" set of criteria for the classification of psychiatric disorders at a time when psychiatry lacked much biological knowledge. Rather than claiming that American psychiatry became "more scientific" with the development of DSM-III, it may be more apt to understand it as a trade of individualized appeals to 'speculative' etiologies for a new, more *reliable* brand of diagnosis. As Tanya Luhrmann recounts, "All of a sudden, there was a sharp, clean dividing line between mental health and illness. And that line was thought to be determined by science."[174] Amidst the wave of criteria sets established throughout the 1970s by the Washington University vanguard, one of their very first publications provides a critical and largely overlooked reminder of the incomplete nature of their scientific system.

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[174] Luhrmann, T. M. (2000). *Of Two Minds.* p 228.

Well before the biochemical confidence of the post-DSM-III era took form, two critical members of the Washington University Department of Psychiatry, Eli Robins and Samuel Guze, published a 1970 article that, like each of its counterparts, outlined necessary criteria for establishing reliable diagnoses. In a sense of terminological irony, they entitled it "Establishment of diagnostic *validity* in psychiatric illness." But in describing this particular set of criteria for the future of schizophrenia diagnosis, Robins and Guze critically acknowledge the field's scientific and epistemic shortcomings. They note in their conclusion, "Even though at this time laboratory studies have not contributed reliably to the diagnosis of schizophrenia, without such reliable laboratory studies a…satisfactory classification of schizophrenia may not be possible despite the refinements of clinical and family studies…a fully validated diagnostic classification will…also require reliable laboratory studies."[175] These are the laboratory studies, conducted over the last 40 years, which have most recently prompted NIMH to call for a deconstruction of current disorder definitions with the RDoC initiative.

There has been little debate: "The essential tenet of [the DSM-III] paradigm was that psychiatry was the specialty of medicine, concerned with mental disorders and their scientific understanding…"[176] Those psychiatric professionals who recognized the field's need for a biomedical paradigm lauded DSM-III as a monumental demonstration of psychiatry's ability to "determine [its] own destiny"

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[175] Robins, E., & Guze, SB. (1970). Establishment of diagnostic validity in psychiatric illness: Its application to schizophrenia. *The American Journal of Psychiatry, 126*(7), 983-987.

[176] Klerman, G. (1990). Paradigm shifts in USA psychiatric epidemiology. p. 29.

and secure "its medical identity and its commitment to scientific medicine."[177] But other eminent voices in the field warned that the this new "scientific" nosology was "parochial…reductionistic …adynamic…"[178]

8. Post-DSM-III: Neo-Kraepelinian Dominance and Emerging Skepticism

With the revolution that DSM-III represented, the scientific paradigm had prevailed in psychiatry. Although etiology and pathophysiology are important contributors to biomedical science, their understanding, in the case of modern psychiatry, was not necessary for the field's biomedical legitimization. Pharmacological specificity endowed the descriptive, neo-Kraepelinian approach with ostensibly genuine biological validation. Lithium was effective in treating bipolar disorder, and chlorpromazine was effective for schizophrenia—the two diagnostic cornerstones of Kraepelin's dichotomy of organic psychoses. Later, benzodiazepines would revolutionize the treatment of anxiety disorders and selective serotonin reuptake inhibitors (SSRIs) would transform the management of depression. Indeed, "although psychopharmacology and descriptive psychiatry are not logically linked, they became allies."[179] Insurance companies reinforced these trends by reimbursing for brief psychiatric sessions targeted toward pharmacotherapy, but not for lengthy psychotherapy sessions. A recent *New York Times* article quotes a 68-year-old psychiatrist recounting his forced transition from his years as a psychotherapist to his more recent position as a mere dispenser of psychopharmaceuticals: "I had to train

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[177] Klerman et al. (1984). A Debate on DSM-III. p. 539.
[178] Ibid, p. 542.
[179] Galatzer-Levy et al. (2007). The revolution in psychiatric diagnosis. p. 166.

myself not to get too interested in [my patient's] problems, and not to get sidetracked trying to be a semi-therapist."[180]

These are the unfortunate medical and economic ramifications of the early hype over pharmaceutical interventions and the biomedical treatment of *brain.* Indeed, chemical imbalance theories had been fostered through the chemical "restoration" of function in previously psychotic individuals. Similarly, the dissociable pharmacological efficacy of drugs like SSRI's for depression and benzodiazepines for anxiety galvanized a reductionist, chemical approach to mental illness—a perspective still promoted in a modern pharmacological culture.[181] If the drug-induced potentiation of serotonin in the brain is effective for the treatment of depression, perhaps a depleted baseline level of serotonin *causes* depression. This is an element of the biological reductionism that much of psychiatric medicine came to endorse after DSM-III and the neo-Kraepelinian disease orientation. Psychiatric researchers reified the constructs that they had developed for psychiatric clinicians. But in time, basic research in genomics and the neurosciences would lend a helping hand to psychopathology research and suggest a reevaluation of paradigms established in the wake of DSM-III.

NIMH Director Insel contends that the 1990's, proclaimed by Congress to be the "Decade of the Brain," marked the beginning of the end for the conceptual distinction between mind and brain in psychiatric research: "The advent of structural

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[180] Harris, G. (2011). Talk Doesn't Pay, So Psychiatry Turns Instead to Drug Therapy. *The New York Times*. Retrieved from http://www.nytimes.com/2011/03/06/health/policy/06doctors.html?pagewanted=1&_r=1&emc=eta1

[181] Lacasse, J., & Leo, J. (2005). Serotonin and depression: A disconnect between the advertisements and the scientific literature. *PLoS Medicine, 2*(12), 1211-1216.

and functional neuroimaging, as well as more sophisticated behavioral neurophysiologic research" helped to shed light on "previously inaccessible mental events, such as decision making, moral judgments, and consciousness…"[182] Consequently, modern neuroscience and genetics have helped overturn previous hypotheses that were generated in the wake of DSM-III, DSM-IV and the excitement over psychopharmaceutical efficacy.

Insel looks back on these recent theories as though they represent the simple-minded dark ages of psychiatric thinking: "Previous biological hypotheses posited that depression and schizophrenia were due to a chemical imbalance, as if an overall deficit in serotonin or increase in dopamine could explain these illnesses."[183] Now, there has been a shift, still within the biological realm, in which "neuroimaging helped to open up the black box of the brain so that these disorders, for the first time, could be studied as disorders of neural systems and not simply as a lack of the requisite medication or an altered amount of a single neurotransmitter."[184]

Neuroscience has begun to clarify the biological lens of mental illness that had previously (and often incorrectly) been provided by effective pharmacological agents. The clusters of psychiatric symptoms that appear to aggregate in Nature have not aligned well with the underlying neurobiology (or pathophysiology) that gives rise to them. What appears to be the same neurobiological state of pathology can confer different contemporary disorder entities. Despite the neo-Kraepelinians' adamant scientific efforts, the neuroscientific study of certain DSM disorders has yielded little "clear correspondence…between clusters of complex clinical symptoms and

[182] Insel, TR. (2009). Disruptive insights in psychiatry. p. 701.
[183] Ibid, p. 701.
[184] Ibid, p. 701.

dysregulated neurobiological systems."[185] In particular, contemporary scientific research is beginning to question the fundamental Kraepelinian dichotomy of the two "organic" psychoses—schizophrenia and bipolar disorder.

In 2007, Nick Craddock and Michael Owen reviewed contemporary genetic and neurobiological findings regarding the Kraepelinian model for descriptive classification of once perceived "discrete disorder entities." They affirm, "There is now an overwhelming body of research data that challenge the validity of the dichotomous classification."[186] They allude to the importance of practical knowledge, in which "any psychiatrist with experience of functional psychotic illness knows that many patients do not have disorders that conform to either prototypical dichotomous category."[187] Moreover, they even suggest that DSM-III's most influential accomplishment may have, in fact, been largely a myth: "Many individuals receive one diagnosis at one time or from one team and the alternative diagnosis at a different time or from another team. This clinical reality is supported by formal studies of symptom profiles that have typically failed to find a clear discontinuity between the clinical features of the two categories."[188]

These authors include key findings from family studies, twin studies, linkage studies of schizophrenia and bipolar disorder, schizoaffective disorder, and genetic association studies. They note that recent family studies have demonstrated that there is a "non-trivial degree of familial co-aggregation between schizophrenia and bipolar illness." They reference a twin study that demonstrated "an overlap in the genetic

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[185] Sanislow et al. (2010). Developing constructs for psychopathology research. p. 1.
[186] Craddock, N., & Owen, MJ. (2007). Rethinking psychosis. p. 85.
[187] Ibid, p. 85.
[188] Ibid, p. 85.

susceptibility to mania and schizophrenia." Whole-genome linkage studies of schizophrenia and bipolar disorder have revealed chromosomal regions common to both disorders, and specific genes "have been identified whose variation appears to confer risk to both schizophrenia and bipolar disorder."[189]

To add insult to injury, recent studies suggest that the dissociable efficacy of psychotropic medications for schizophrenia versus bipolar disorder, in fact, "do not respect diagnostic boundaries."[190] The descriptive, "atheoretical" system initiated with DSM-III appears to have led American psychiatry down a path that is increasingly considered to be biologically and etiologically flawed. Descriptive psychiatry has, of course, greatly aided the clinician with reliable diagnostic constructs. But the DSM-III liaison committee's unheeded suggestion that the nosology be used only for research purposes could have potentially clarified DSM-III's shortcomings sooner, perhaps minimizing the need for psychiatric research to reify its "disorders."

9. The Need for Change: A Program for *Re*constructing Mental Illness

The publication of DSM-IV in 1994 advanced the descriptive, classificatory traditions of Kraepelin, Spitzer and DSM-III, but did not notably improve the predominant nosological framework. In a 1990 letter to the editor of the "Archives of General Psychiatry," psychiatrist Mark Zimmerman questioned the planned release of DSM-IV so soon after the 1987 revision of DSM-III (DSM-III-R). He contended that, even before the publication of DSM-III, studies had been "warranted for those

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[189] Craddock, N., & Owen, MJ. (2007). Rethinking psychosis. p. 85.
[190] Ibid, p. 88.

diagnoses that had already been operationalized in the Research Diagnostic Criteria or the Washington University criteria."[191] He claimed that these studies "found that the new definitions were no more valid or reliable than the old." Here arises a critical incongruity between continually-evolving psychiatric research and the more static diagnostic categories of psychiatric clinicians: "Present-day researchers are thus left with the task of drawing conclusions from literature spanning many years and based on diagnostic criteria that are no longer fashionable."[192]

In his account of the reification of mental disorders, Steven Hyman cites one such hindrance in the advancement of contemporary schizophrenia research. Conceptions of mental disorders, including schizophrenia, may be constantly evolving: "The DSM-IV makes no mention of the cognitive symptoms of schizophrenia because the criteria were based on older conceptions that focused largely on positive symptoms and noncognitive negative symptoms."[193] The need for a static and consistent nomenclature has the potential to limit the rate at which new discoveries and understandings may be made.

Hyman recounts, "Given the status of the DSM-IV criteria as the community consensus, the U.S. Food and Drug Administration (FDA) held that it could not, by itself, recognize the cognitive symptoms of schizophrenia as an indication for the development and approval of new treatments."[194] The stringent classificatory framework of DSM-III and DSM-IV stemmed from sets of diagnostic criteria that were based on top-down analysis, in which commonly held symptoms were either

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[191] Zimmerman, M. (1990). Is DSM-IV needed at all? *Archives of General Psychiatry, 47*(10), 974-976. p. 974.
[192] Ibid, p. 974.
[193] Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 3.
[194] Ibid, p. 4.

presumed or hoped to be indicative of the causal biological processes that lay underneath. In the process of incorporating biochemical therapies and assimilating into the biomedical community, psychiatry was paradoxically employing this top-down, descriptive approach, which serves to maintain its epistemic segregation from other, etiologically valid arenas of medicine.

Now, the "epistemic blinders" of reified constructs have left a flourishing science of brain with outdated and "incompatible" understandings of psychopathology. Advances in biomedical technology promise to provide the tools necessary for constructing biologically sound conceptions of mental illness—a promise, admittedly, still largely unfulfilled. As psychiatric nosology encounters its second epistemic tipping-point in less than forty years, "the most useful modifications will be those that invite scientists to move beyond currently reified diagnoses in order to provide the information that will lead, ultimately, to a valid classification."[195] The NIMH RDoC project hopes to embody psychopathologists' acceptance of this challenge. As Frances sees it, "The new NIMH RDOC project is a useful departure to a less procrustean approach, but it will be many years (decades?) before we will know whether it will be any more successful."[196]

The current DSM Task Force hopes to rebalance the field's prior classificatory overzealousness, reintegrating the dimensional philosophies first proposed by American psychodynamics (though still asserting a need for "clear thresholds" of "pathology"). This shift, they believe, will foreshadow psychiatry's next stage, in which "mental disorder syndromes will…be redefined to reflect more

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[195] Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 17.
[196] Frances, A. (2010). Second umpires everywhere. *Bulletin of the Association for the Advancement of Philosophy & Psychiatry, 17*(2), p. 14.

useful diagnostic categories ('to carve nature at its joints') as well as dimensional discontinuities between disorders and clear thresholds between pathology and normality."[197]

These are undoubtedly ambitious predictions. These members of the APA note that their immediate task is "to set a framework for an evolution of our diagnostic system that can advance our clinical practice and facilitate ongoing testing of the diagnostic criteria that are intended to be scientific hypotheses, rather than inerrant Biblical scripture."[198] This Task Force has decided "that one of the major—if not *the* major—differences between DSM-IV and DSM-5 will be the more prominent use of dimensional measures in DSM-5."[199]

While the DSM will soon include dimensional diagnoses, easing the "have it or not" dichotomy of mental illness, RDoC signifies the beginning of what could be a laborious journey to uncover, more fully, what is "behind the symptom." In his account of psychiatry's reified understandings of mental illness, Hyman's conclusion encapsulates perfectly the historical and scientific circumstances that have led to the RDoC initiative: "Epidemiology, genetics, psychology, and neuroscience have not been kind to the DSM-IV categories, nor have these reified categories been kind to science. The DSM-III was a brilliant advance that prioritized inter-rater reliability; now it is time to move on."[200]

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[197] Regier, D., Narrow, WE., Kuhl, EA, & Kupfer, DJ. (2010). *The Conceptual Evolution of DSM-5*. Washington, DC: American Psychiatric Publishing. p. xxvii.
[198] Ibid, p. xxvii.
[199] Ibid, p. xxvii.
[200] Hyman, SE. (2010). The diagnosis of mental disorders: the problem of reification. p. 19.

Chapter IV

Scientific Middle Grounds
Eliminating "Reductionist" Dichotomies

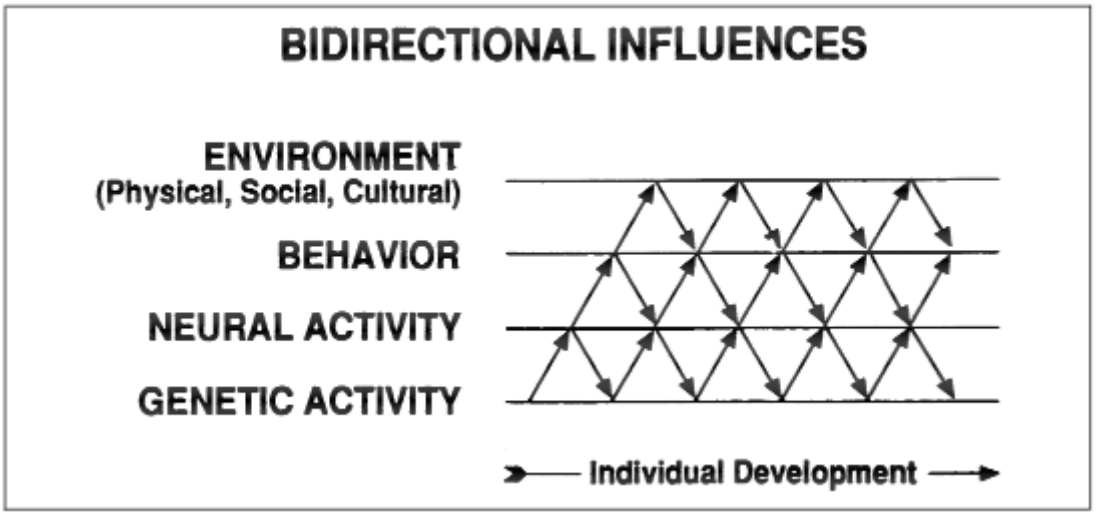

Figure 4[201]

In psychodynamics, the causal nexus of mental illness is placed between the complex interactions of mind and environment. In the reductionist form of biological psychiatry, the most "valid" explanations of mental illness can be found at the level of biochemistry, molecular biology or molecular genetics. While psychodynamics may be seen as a system that emphasizes *nurture* (environment), biological psychiatry seems to embrace the deterministic importance of *nature* (genes). In its new strategic plan, NIMH clearly explains its view that this distinction no longer holds:

> In the past, the debate has been between nature (genetics) and nurture (environment) as causes of mental disorders. Today we recognize the complex interplay between nature and nurture by asking: how does experience interact with biological susceptibility to increase risk or resilience?[202]

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[201] Gottlieb, G. (2000). Environmental and behavioral influences on gene activity. *Current Directions in Psychological Science, 9*(3), 93-97.

[202] National Institute of Mental Health. (2008). *The National Institute of Mental Health strategic plan.* p. 6.

One usable definition of this term "resilience" understands it as "the capacity to recover quickly from difficulties [or] toughness."[203] This conception readily suggests reference to experiential stressors and personal "reactions:" terms that, for 1970s psychiatric researchers, were largely taboo.

This chapter frames modern perspectives on 21st century scientific evidence as a modest balance of essential psychodynamic and biological principles. While modern psychopathology research often maintains a biological slant—or, at the least, a "neuro" prefix—pivotal figures in these fields now recognize the complex interplay among genes, brains, minds and environment. Today, predominant trends of scientific inquiry seem to unite biological measurement (biological psychiatry) with person-environment interactions (psychodynamics). These trends shape a professional acknowledgement of mental illness' dynamic complexity and may, as such, help form a more modest and less polarized conception of illness. Of course, due to both historical and scientific contingencies, such efforts were not always possible. A brief return to the conceptual climate of 1970s American psychiatry may better frame the "then-and-now" of this conceptual and scientific progression. Again, for pre-DSM-III revolutionaries, concepts like "experience" and "resilience" were professionally problematic and represented immediate targets for a terminological overhaul.

Dr. Samuel Guze, President of the Washington University Medical Center from 1971-1989 (and Chief of Psychiatry from '75-'89) wrote his own series of professional manuals entitled *Psychiatric Diagnosis*. In the Third Edition, published in 1984, Guze and coauthor Donald Goodwin call for a reinterpretation of the

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[203] Oxford Dictionaries. (2011). Oxford University Press .http://oxforddictionaries.com/view/entry/m_en_us1427610#m_en_us1427610

diagnostic dichotomy between "reactive" (mild) and "endogenous" (severe) depression: "controversy persists about the validity of [the reactive-endogenous] distinction. An alternative which avoids inference about cause is the classification of affective disorders as *primary* or *secondary*."[204]

In their particular diagnostic style, Guze, the Washington University vanguard and ultimately DSM-III went to great lengths to cut all terminological ties to notions of person-environment interactions. This was not, itself, an effort to reduce the dynamic and complex process of mental illness to a sort of "organic disease." It was rather a diagnostic and scientific necessity of the time. For Guze and his colleagues, there was simply "no way to evaluate the importance of precipitating events in [psychiatric] illness."[205] Today, scientific tools and methods designed to investigate the interaction among genes, biology and environment abound.

Framed here are three critical contemporary efforts to bridge either gene-environment or brain-mind divides that, in turn, can each serve as a conceptual emblem of a new scientific middle ground between dynamic and biomedical principles. The recognition of such middle grounds may allow psychopathology researchers to endow contrasting methods and explanatory lenses with equal, pluralistic importance. Specifically, the emerging field of *epigenetics*, the concept of *endophenotypes,* and recent efforts to link psychotherapy and neuroscience, may each serve to demonstrate the blending of previously isolated disciplines. And of course, each of these exciting fields is still in its infancy, underscoring Dr. Frances' key

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[204] Goodwin, D., & Guze, SB. (1984). *Psychiatric Diagnosis* (3rd ed.). New York, NY: Oxford University Press. p. 6.

[205] Ibid, p. 7.

assertion of psychiatry's current state: "we are earlier in the game than we had hoped we were."

1. Turning Against Biochemical Dogma

Traditional conceptions of genes, molecules and biochemistry often invoke "the central dogma" of molecular biology. This reductionist doctrine is grounded in the belief "that 'information' flows from the genes to the structure of the proteins" and that genes entirely mold these structures "through the formula DNA → RNA → protein."[206] This is a unidirectional interpretation of biological systems, in which "a set of master genes activates the DNA necessary to produce the appropriate proteins that the organism needs during development."[207] In this view, first proposed in 1958 by molecular biologist, Francis Crick, "the genome is not seen as part of the holistic, bidirectional developmental-physiological system of the organism." This perspective holds not only that the genome is unresponsive to superordinate levels within the biological system, but also that it is not "responsive to influences from outside the organism, such as stimuli or signals from the external environment."[208]

Eminent voices in contemporary psychiatry and neuroscience now hope to overturn this dogma. Specifically, Eric Kandel has recently claimed that a social scientist's fear of materializing the mental realm stems, in part, from his misapprehension that the biologist is not concerned with environmental factors. Indeed, within the biological community, some have gone so far as to profess,

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[206] Gottlieb, G. (2000). Environmental and behavioral influences on gene activity. p. 93.
[207] Ibid, p. 94.
[208] Ibid, p. 94.

"Biologists have long accepted that genes, the environment and interactions between them affect behavioral variation."[209] At least in psychiatry's case, this acceptance may have been slightly delayed.

2. Epigenetics, Endophenotypes and Bridging Reductive Divides

The term "epigenetics" refers to the notion that there exist "signals from the internal and external environment" that can work to influence lower levels, specifically to "activate DNA to produce the appropriate proteins." Kandel describes the misconception that there exists some "set of master genes" sequestered from environment and experience. He differentiates between the *template function* of genes, which is very stable and "is not regulated by social experience of any sort," and the *transcriptional function of genes,* which give rise to the epigenetic, bidirectional functions of genetic code. He notes, "the regulation of [transcriptional] gene expression by social factors makes all bodily functions, including all functions of the brain, susceptible to social influences." Kandel even goes so far as to infer that "these socially influenced alterations are transmitted culturally…[leading] to a new kind of evolution: cultural evolution."[210]

In a recent paper, Kandel outlines five important principles that, he believes, constitute the modern biologist's understanding of the "relationship of mind to

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[209] Robinson, G. (2004). Beyond nature and nurture. *American Association for the Advancement of Science, 304*, 397-399.

[210] Kandel, ER. (1998). A new intellectual framework for psychiatry. *The American Journal of Psychiatry, 155*, 457-469.

brain."[211] Here, his fourth principle establishes a critical conceptual bridge between the most extreme levels of psychopathological explanation:

> Principle 4. Alterations in gene expression induced by learning give rise to changes in patterns of neuronal connections. These changes not only contribute to the biological basis of individuality but presumably are responsible for initiating and maintaining abnormalities of behavior that are induced by social contingencies.

In Kandel's view, as well as that of leading NIMH figures, the nature-nurture dichotomy appears increasingly invalid. Biological life systematizes the causal interactions that occur at multiple "levels," both internal and external to the organism. The complexity of this system minimizes the room for "valid" dogmatic doctrines. Of course, while science may insist upon the incomplete puzzle of psychopathological understanding, psychiatric medicine has not been so quick to acquiesce, as it still retains a professional divide between psychodynamic appeals to mind and the biological consideration of brain and genes.[212]

Beyond the conceptual, historical and economic roots of this dichotomy, further evidence of this bifurcated trend may be found in a contemporary treatment paradigm in which psychiatric patients receive care from two primary caregivers: a psychotherapist to treat "mind" and a psychopharmacologist to treat "brain."[213] This segregation of modern practice can appear to represent a "symbolic meaning to all parties of a tacit endorsement of Cartesian dualism." This system "potentially

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[211] Kandel, ER. (1998). A new intellectual framework for psychiatry. p. 460.
[212] Luhrmann, T. M. (2000). *Of Two Minds.*
[213] Gabbard, GO., & Kay, J. (2001). The fate of integrated treatment: whatever happened to the biopsychosocial psychiatrist. *The American Journal of Psychiatry, 158*, 1956-1963.

fragments the patient into a 'brain' and a 'mind'" and, as such, can shape the conceptual understandings that practitioners come to form. [214]

The molecular biologist may be satisfied to abide by his reductionist framework that readily isolates his discipline from others. But, as Z.J. Lipowski had urged, psychiatry must demand more of itself. And this demand may be met, first and foremost, by an enthusiastic acceptance of a multidimensional human system that is best understood through a combination of interdisciplinary lenses: "It is in the nature of our field that we need to deal with the most complex aspects of human biology, aspects which cut across a number of scientific disciplines and can be approached from diametrically different vantage points."[215] Two particular domains that have often been diametrically opposed are those of human genetics and human behavior. Incidentally, *endophenotypes* refer to a 21st century conceptual lens through which these domains of the micro (genes) and the macro (behaviors) may be bridged.

Endophenotypes are designed to represent intermediate, and potentially causal middle grounds between genes, brain and environment. They have been described as "quantifiable components in the genes-to-behaviors pathways" that are "distinct from psychiatric symptoms" and, as such, may well "make genetic and biological studies of etiologies for disease categories more manageable."[216] This concept provides a new strategic tool in neuropsychiatric research. Yet, the manner in which it has been used from one study to the next "varies considerably."[217] NIMH RDoC advocates

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[214] Gabbard, GO., & Kay, J. (2001). The fate of integrated treatment. p. 1959.
[215] Lipowski, ZJ. (1989). Psychiatry: mindless or brainless, both or neither? p. 5.
[216] Gould, T., & Gottesman, II. (2006). Psychiatric endophenotypes and the development of valid animal models. *Genes, Brain and Behavior, 5*, 113-119.
[217] Insel, TR., & Cuthbert, BN. (2009). Endophenotypes: bridging genomic complexity and disorder heterogeneity. *Biological Psychiatry, 66*, 988-989.

Thomas Insel and Bruce Cuthbert write that "in some articles, endophenotypes are defined as specific measures in particular response systems…[while] in other reports, endophenotypes are themselves broad constructs, such as neurocognitive deficits or personality traits, that could well be deconstructed further into their own subendophenotypes."[218]

Although the concept itself is still vague and scientifically complex, its very creation demonstrates two critical features of contemporary psychiatric thinking: a pragmatic will to better understand mental illness, and a modest appreciation of its causal complexity. Recent investigators argue that the emergence of the endophenotype concept is due, in part, to an "appreciation for the complex relationships between genes and behavior."[219] They make the bold though increasingly common claim that, within the current diagnostic system, "disease heterogeneity is often guaranteed, rather than simplified." Endophenotype research occupies a wide-open scientific expanse where researchers hope that critical discoveries will be waiting. They nevertheless seem to embrace the complex task of discerning biological etiologies and recognize the need for interdisciplinary investigation: "An endophenotype may be neurophysiological, biochemical, endocrinological, neuroanatomical, cognitive, or neuropsychological (including configured self-report data) in nature."[220]

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[218] Insel, TR., & Cuthbert, BN. (2009). Endophenotypes. p. 988.
[219] Gould, T., & Gottesman, II. (2006). Psychiatric endophenotypes. p. 113.
[220] Gottesman, I., & Gould, TD. (2003). The endophenotype concept in psychiatry: Etymology and strategic intentions. *The American Journal of Psychiatry, 160*, 636-645.

3. Methodological Reduction: A Means to an End

It is still critical to note that this concept—breaking down mental illness into measurable components, like endophenotypes—may embody the practice of methodological reduction. Amidst all of this reduction bashing, an important point must be rearticulated: methodological reduction can be an important part of scientific investigation. In personal communication, Steven Hyman affirmed this contention: "Reductionism as a strategy is often critical. Those who have studied mental illnesses holistically have failed because they are too complicated. Those who declare success when they reduce mood regulation to serotonin levels are marketers (or self-deceived) but not scientists."[221] Neither of these two extremes, in Hyman's view, can wield sufficient explanatory power. In this perspective, science must occupy the murky epistemic zone where mental illness exists only as a puzzle with many different and obscure pieces.

The brand of reduction that Hyman describes is grounded in the contention "that efficient research should dissect higher order phenomena into their constitutive components at the lower order."[222] In biomedicine, before a reduction to physics, there is likely to come a reduction to genes and molecules, the smallest known "biologically relevant" units of analysis. Epistemic reductionists—the First Umpires of psychiatric philosophy—may very well have endorsed both methodological and philosophical reductions. The embrace of pharmacological therapy likely stems from an explanatory hope for the *ultimately* molecular nature of mental illness.

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[221] Hyman, S. (2011, March 20). [Personal Communication].
[222] Vreese et al. (2010). Explanatory pluralism in the medical sciences. p. 372.

Methodological reduction does not imply an epistemic reduction. Rather, methodological reduction can reveal fundamental, "simplistic" elements of bigger questions and open them up to subsequent explorations of their greater complexity. In this way, reduction can suggest an acknowledgment of the elusive and potentially unsolvable nature of the "big picture" question by itself. Neuroscience and psychiatry are not without their own demonstration of this reality. To illustrate an important instance of the "means-to-an-end" role of methodological reduction, we can return to the life and career of Eric Kandel, whose efforts to "simplify" can function within an explanatory framework of greater pluralistic complexity.

In 2000, Dr. Kandel won the Nobel Prize in Physiology or Medicine for his discovery regarding the molecular mechanisms involved in simple learning in the *Aplysia californica* sea slug. As a young Jewish American who emigrated from Vienna during the Nazi occupation, Kandel cultivated an enduring interest in the inner workings of the mind and human psyche. In his autobiography *In Search of Memory: The Emergence of a New Science of Mind*, he recalls an early medical school meeting with a mentor in which he had expressed his "naïve" optimism for uncovering the biological basis of Freudian conceptions of mind. In response to this grandiose aspiration, his mentor explained that the "hope of understanding the biological basis of Freud's structural theory of mind was far beyond the grasp of contemporary brain science," and suggested that in order to understand the mind, "we needed to look at the brain one cell at a time."[223]

Kandel's initial response was one of demoralization: "One cell at a time! How could one address psychoanalytic questions about the unconscious motivation of

[223] Kandel, ER. (2006). *In Search of Memory*. p. 55.

behavior, or the action of our conscious life, by studying the brain on the level of single nerve cells?"[224] Kandel would, nevertheless, soon heed this advice. He began a career of laboratory work devoted to the investigation of molecular changes in the strength of single synapses within the sea slug Aplysia during "simple learning tasks." In recognition of his groundbreaking demonstration of changes in synaptic strength, Kandel has since been credited with the discovery of the molecular mechanisms of learning and memory.

Noting Kandel's occupational transitions may serve as a vital emblem of psychiatry's evolving perspectives. First struck by the psychic complexity of the human mind and consciousness, Kandel soon recognized the need for refining his goals toward a more tenable and "simplified" investigation of learning and memory. Science was not yet ready to support his ambitious bridging project. But once Kandel had discovered the answers to this simplified puzzle, he was again ready to broaden his scope back to his first wish of bridging neurobiology and psychoanalysis.

In 1998, two years before receiving the Nobel Prize, Kandel published a hopeful theory for the modern integration of brain and mind. In "A new intellectual framework for psychiatry," he declared that the purpose of his argument was "to emphasize that the professional requirements for future psychiatrists will demand a greater knowledge of the structure and functioning of the brain." Kandel hoped that his piece would demonstrate "that the unique domain which psychiatry occupies within academic medicine, the analysis of the interaction between social and biological determinants of behavior, can best be studied by also having a full

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[224] Kandel, ER. (2006). *In Search of Memory*. p. 55.

understanding of the biological components of behavior."[225] For Kandel, reduction, it seems, may have been simply a means to an end.

In his argument for the recycling of Freudian concepts, Kandel draws upon recent insights into functions of *implicit memory* and *procedural memory*: segregated constructs of different, *nonconscious* neurobiological systems that exhibit the capacity for learning and memory void of conscious recognition or recall. He outlines five essential principles that constitute "the current thinking of biologists about the relationship of mind to brain." Here, his fifth principle demonstrates an essential, non-reductive perspective on epigenetic interactions and the complex molding of psychic realities. Specifically, he speaks of the "scientifically valid" changes incurred by the practice of psychotherapy:

> Principle 5. Insofar as psychotherapy or counseling is effective and produces long-term changes in behavior, it presumably does so through learning, by producing changes in gene expression that alter the strength of synaptic connections and structural changes that alter the anatomical pattern of interconnections between nerve cells of the brain. As the resolution of brain imaging increases, it should eventually permit quantitative evaluation of the outcome of psychotherapy.[226]

4. Neuroscience and Psychodynamics

Central to Kandel's conceptual program for the future of psychiatric practice was the use of neuroscientific knowledge to inform and learn from the psychotherapeutic process. Kandel is determined to appeal to epigenetics and the integrality of environment and experience in order to address a fundamental problem within contemporary American psychiatric practice: "Medical students realize that insofar as the teaching of psychiatry is often based primarily on doing psychotherapy,

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[225] Kandel, ER. (1998). A new intellectual framework for psychiatry. p. 457.
[226] Ibid, p. 460.

a major component of psychiatry as it is now taught does not require a medical education."[227] In this statement, it appears as though Kandel is appealing to an assertion similarly made by Robins and Guze nearly 30 years before: At a time when psychiatry was plagued by "tendermindedness," "only a great deal of careful, sophisticated, toughminded research [was] likely to improve the situation."[228]

As historically situated psychiatric figures, neo-Kraepelinians largely forfeited the "nonmedical" practice of psychotherapy to foster the field's pharmacological assimilation into biomedicine. By bringing biology to psychotherapy, Kandel now hopes that the interest of medical students will be reinvigorated by a paradigmatic shift toward a sort of "neuro-psychodynamic" revolution. It has, in fact, become increasingly clear in recent years that "psychotherapy can produce significant changes in brain activity."[229] In 2009, Mario Beauregard reviewed this growing literature in hopes of demonstrating the effect of mind on brain activity. Beauregard draws from a diverse range of neuroimaging studies that include tests of the effect of psychotherapy in patients suffering from obsessive-compulsive disorder (OCD), panic disorder, unipolar major depressive disorder and spider phobia. In summation of these findings, he concludes, "the subjective nature and the intentional content of mental processes significantly influence the various levels of brain functioning (e.g. molecular, cellular, neural circuits) and brain plasticity."[230]

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[227] Kandel, ER. (1998). A new intellectual framework for psychiatry. p. 467.
[228] Guze, SB. (1970). The need for toughmindedness in psychiatric thinking .671
[229] Beauregard, M. (2009). Effect of mind on brain activity: evidence from neuroimaging studies of psychotherapy and placebo effect. *Nordic Journal of Psychiatry, 63*(1), 5-16.
[230] Ibid, p. 5.

As Kandel notes, the reputation of psychotherapy has largely been damaged from without, due to "the emergence of pharmacotherapy, and the economic impact of managed care."[231] These transformative elements played an integral role in reshaping the American psychiatric landscape. As Tanya Luhrmann had observed, "Most psychodynamic psychiatrists perceived psychotherapy as a delicate relationship whose impact depended on the intimacy of the patient's trust and the doctor's intuition, and as manifestly not the sort of thing that could be measured in quantifiable units."[232] And, as insurance companies have come to view it, psychotherapy's inherent subjectivity does not jibe well with the financial necessities of the industry.

But in fact, in an important 2001 review, Glen Gabbard and Jerald Kay investigated the presumption that covering only a patient's medication management is most cost-effective. They note that "managed care companies may argue on economic grounds that it is cheaper for a psychiatrist to see the patient for a 15-minute medication management appointment three or four times."[233] Rather than covering the psychiatrist's expenses for concurrent psychotherapy, insurance companies more readily reimburse therapy when delivered by a psychologist or social worker. This policy, which has, in fact, been argued to be less cost effective,[234] implicates the industry in the upholding of a brain-mind dichotomy in American psychiatric treatment. Because of the subjective and unreliable nature of the psychotherapeutic

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[231] Kandel, E. (1999). Biology and the future of psychoanalysis: A new intellectual framework for psychiatry revisited. *The American Journal of Psychiatry, 156*, 505-524. p. 521.
[232] Luhrmann, T. M. (2000). *Of Two Minds.* p. 234.
[233] Gabbard, G., & Kay, J. (2001). The fate of integrated treatment. p. 1959.
[234] Dewan, M. (1999). Are psychiatrists cost-effective? An analysis of integrated versus split treatment. *The American Journal of Psychiatry, 156*, 324-326.

practice, managed care slowly but surely eliminated it from much of contemporary psychiatric medicine.

But now, members of the RDoC workgroup suggest a prospect for the future in which psychiatry can finally reclaim fundamental tenets established well before concerns for *reliable* diagnosis. That is, the RDoC initiative may represent the first "critical steps in identifying new treatments and, perhaps even more importantly, personalizing treatments…"[235] And equally important is NIMH's pluralistic appreciation for both biological and psychological forms of treatment: RDoC advocates hope that their project "will support enhanced development of new pharmacological and *psychosocial* interventions…"[236]

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[235] Sanislow et al. (2010). Developing constructs for psychopathology research. p. 8
[236] NIMH Research Domain Criteria (RDoC). http://www.nimh.nih.gov

Chapter V

Modest Pluralism
A New Philosophical Structure for American Psychiatry

In homage to Darwin's perception of species and individual difference, American psychiatry may now have the chance to "make up [its] own mind…at the expense of admitting much variation." This variation may come in three different flavors. It starts with the recognition that mental disorders "once considered unitary based on clinical presentation have been shown to be heterogeneous."[237] The RDoC will also dimensionalize a psychiatric spectrum, renouncing categorical delineations and looking for "individual differences in brain function."[238] All of this may one day inform "personalized treatments" that uphold the unique "constitution" of each individual over the observable "class" to which he or she may belong. And in the end, the most important element of a new admission to "much variation" may lie in the embrace of *mental illness* as a concept that defies simplistic explanations.

In the field's recent history, the hope for a *psychiatric science* may have, at times, been conflated with the pursuit of a *scientific diagnosis*. As Frances recalls, "DSM-III…promoted the victory of biological psychiatry over the psychological and social models."[239] This victory led psychiatric professionals to present their new biological model "with a realist, reductionist flourish that would have done umpire #1

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[237] Insel et al. (2010). Research domain criteria (RDoC): toward a new classification framework. p. 748.
[238] Sanislow et al. (2010). Developing constructs for psychopathology research. p. 6.
[239] Frances, A. (2010). DSM in philosophyland. p. 4.

proud." For post-DSM-III psychiatrists, "mental disorders were real entities that existed 'out there.'"[240]

Now, the psychopathology researchers of NIMH recognize that simplifying mental illness may not be the answer, perhaps solely because "psychopathology refused to cooperate with the reductionist program."[241] In a new, 21st century psychiatry, the most influential statements about mental illness may be those that can reasonably account for each factor that contributes to its overall complexity: mental "disorders involve causal processes that act both at micro levels and macro levels, that act within and outside of the individual, and that involve processes best understood from biological, psychological, and sociocultural perspectives."[242] In confronting its own explanatory infancy, the field may well benefit from a responsive skepticism. As Lipowski had observed, those who maintain a more critical attitude toward "dogmatic belief systems" are "more likely to adopt an open-minded yet skeptical stance towards one-sided viewpoints in psychiatry."[243] Even if psychiatry's causally complex "disorders" exist "out there," it may be clear that *discovering* them may not be so easy.

The RDoC initiative possesses two critical features that could work in its favor. It abandons the historically problematic search for "accurate diagnoses"—a pursuit that has yielded nosologies that are, in the words of Dr. Frances, "*result of*

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[240] Frances, A. (2010). DSM in philosophyland. p. 4.
[241] Frances, A. (2010). An appreciation and dissent. *Bulletin of the Association for the Advancement of Philosophy & Psychiatry, 17*(2), p. 8-9.
[242] Kendler, KS. (2008). Explanatory Models for Psychiatric Illness. *The American Journal of Psychiatry, 165*, 695-702. p. 695.
[243] Lipowski, ZJ (1989). Psychiatry: Mindless or Brainless, Both or Neither?

messy historical accretion."[244] And, more central to this investigation, the structure of the RDoC suggests its position to frame pursuits of "validity," first and foremost, within a clearly defined explanatory focus. The RDoC may represent modern psychiatry's most ambitious program for operationalizing a methodological pluralist system. This is not to say, however, that the explanatory notion of pluralism itself is new. In fact, calls for an explanatory pluralistic approach to mental illness have deep historical roots.

In 1913, the German psychiatrist, Dr. Karl Jaspers, published his epic 900-page monograph on *General Psychopathology*, in which he explained what he saw to be the necessary approach to psychiatric medicine:

> Instead of forcing the subject-matter into a strait-jacket of systematic theory, I try to discriminate between the different research methods, points of view and various approaches, so as to bring them into clearer focus and show the diversity of psychopathological studies. No theory or viewpoint is ignored. I try to grasp each different view of the whole and give it place according to its significance and limitations.[245]

A century after Jaspers' call for pluralism, modern voices now feel the need to decry the "strait-jacket" of causal theories pushed by both psychiatric medicine and the pharmaceutical industry. In his book *Blaming the Brain: The Truth About Drugs and Mental Health*, Elliot Valenstein describes how, as recently as 1998, "Brain chemistry [was] believed to be not only the cause of mental disorders, but also the explanation of the normal variations in personality and behavior."[246]

At previous historical moments, psychiatry's lack of a powerful "systematic theory" has served to discredit its position within the biomedical community. Now,

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[244] Frances, A. (2011, February 28). [Personal Communication].
[245] Jaspers, K. (1963). *General Psychopathology*. p. 41.
[246] Valenstein, E. (1998). *Blaming the Brain: The Truth About Drugs and Mental Health*. New York, NY: The Free Press.

psychiatric medicine resides at the forefront of 21st century biomedicine or, at least, at the forefront of the American public consciousness. This notion may be partly corroborated by figures suggesting that, between 2001-2007, "patients spent $123 billion on psychotropic drugs," and "in 2005, doctors wrote 31 million prescriptions for antidepressants," making them, at the time, the most prescribed drugs in the United States.[247] Biological psychiatry used pharmacology to help mold a discipline in which physicians could treat "their patients' organic diseases."[248] Pharmacology may have, in this light, served as a sort of "faux" biological science, with practitioners inferring biochemical causation from pharmacological effect.

This illustration is perhaps more unsettling when considering the notion that "Parent members of the current families of drugs were discovered serendipitously."[249] In a rather extreme sense, psychiatrists have allowed good fortune to drop in their lap a pharmacological crutch for simplifying mental illness. But as many contemporary researchers contend, an over-reliance on this crutch has, in turn, left the field epistemologically overextended. This is an important place for the RDoC to step in. The RDoC is constructed under the presumption that no one's illness will be readily "reduced" or wholly accounted-for through a singular explanatory perspective. What Frances likes about the RDoC, as he had phrased it, is the "interdisciplinary muscle behind it." This muscle may be the most important feature of explanatory and methodological pluralism in a 21st century American psychiatry.

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[247] Leo, J. & Lacasse, JR. (2007). The media and the chemical imbalance theory of depression. *Society, 45*, 35-45.
[248] Ibid, p. 36.
[249] Frances, A. (2011, February 28). [Personal Communication].

1. 21st Century Psychiatry: A Time for Anti-Reductionism

The very antithetical nature of psychodynamic and biological theories implies that endorsing one will likely come at the expense of the other. Menninger made a concerted effort to push for pluralism within psychodynamics, claiming that psychodynamic students were taught "to make observations at all levels, and to learn to think in polydimensional terms in regard to integration."[250] But this, again, was an ambitious and perhaps largely theoretical contention. It carried much more weight as a proclamation of what psychodynamic psychiatry could be rather than what it actually seemed to have been. There nevertheless seems to be a theme, as Menninger, too, at times doubted the "scientific validity" of the psychodynamic faith.

Throughout history, figures like William James, Adolf Meyer, Karl Jaspers and Karl Menninger all seemed to maintain both a critical skepticism toward monistic, dogmatic or reductive theories, and an expressed affinity for explanatory pluralism. Jaspers believed that "a human being can never be completely understood by a single method of knowledge."[251] In a similar vein of explanatory and methodological moderation, Adolf Meyer's perspective "avoids a dichotomized understanding of the relationship between mind and brain." Despite its biological foundation, Meyer's theory of psychobiology maintained that "even psychotic disorders should be understood in psychosocial terms, rather than reduced to brain abnormalities."[252] While the notion of a pluralistic approach to mental illness has been proposed before, the RDoC project may represent a collaborative instantiation of

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[250] Menninger et al. (1958). The unitary concept of mental illness. p. 7.
[251] Ghaemi, NS. (2003). *The Concepts of Psychiatry*, p. 40.
[252] Double, DB. (2007). Adolf Meyer's psychobiology and the challenge for biomedicine. *Philosophy, Psychiatry, & Psychology, 14*(4), 331-339.

both an explanatory and methodological pluralism in the modern scientific era. This, of course, may only be possible if psychiatry can pragmatically loosen its embrace of polarized ways of thinking.

To demonstrate the current appeal and potential gravity of this ongoing shift, this section calls on the voice of one of psychiatry's prime biological reductionists-turned-explanatory pluralist: Dr. Kenneth Kendler. Kendler may be American psychiatry's preeminent psychiatric geneticist, and has been recognized as the leading scientist in the discovery of the genetic correlates of schizophrenia, anxiety and depression.[253] In an essay published in 2002, Kendler affirmed his placement at the biological end of the psychodynamic-biological axis: "The focus of my professional career has been the study of the genetics of psychiatric and substance-use disorders."[254] More recently, however, Kendler has published several papers that attempt to situate psychiatry on sturdier philosophical grounds. He is used here as an emblem of the potential transition emerging on the horizon of American psychiatry. In personal communication, Allen Frances had alluded to the shift of many researchers who made their names in studies at the biologic reductionist end of the spectrum, like Kendler and Kandel, to a new and more modest perspective on psychiatric illness:

> I think this kind of simple-minded biological reductionism, which was mainstream in psychiatry 30 years ago, is restricted to some people who are kind of naïve epistemologically…the bulk of your hardcore biological researchers I don't think would adhere to it now…[they] would not be Umpire Ones anymore.

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[253] Margulis, L., & Punset, E. (2007). *Mind, Life, and Universe: Conversations with Great Scientists of our Time*. White River Junction, VT: Chelsea Green Publishing Company. p. 111.

[254] Clayton, et al. (2002). *Science and the spiritual quest.* p. 32.

> People who were very strongly proposing the biological model, I think have seen the light—they realize we are earlier in the game than we had hoped we were.[255]

In light of Dr. Kendler's professional esteem and personal trajectory through the field, his recent philosophical framework for the future of American psychiatry represents a critical perspective in understanding the profession's current transitional state. Indeed, the RDoC workgroup cited his 2005 paper, *Toward a philosophical structure for psychiatry*, in outlining their program's conceptual approach.[256] This paper presents a basis upon which psychiatry can shift from a dogmatic assumption of biological reductionism to a humble embrace of *explanatory pluralism*.

2. "*Toward a New Philosophical Structure for Psychiatry*"

Kendler outlines critical psychiatric concepts that practitioners and researchers must accept in order to embrace the pluralistic causal complexity of each case of mental illness: "A comprehensive etiological understanding of psychiatric disorders will require the integration of multiple explanatory perspectives."[257]

Kendler believes that American psychiatry currently maintains a "naïve" assumption that "biological, psychological, and cultural factors each independently affect risk."[258] His new conceptual framework attempts to engage two pivotal questions: "how do mind and brain interrelate, and how can [psychiatry] integrate the multiple explanatory perspectives of psychiatric illness?"[259] Kendler presents several propositions that can aid in psychiatry's embrace of explanatory pluralism over

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[255] Frances, A. (2011, February 28). [Personal Communication].
[256] Sanislow et al. (2010). Developing constructs for psychopathology research. p. 3.
[257] Kendler, KS. (2008). Explanatory models for psychiatric illness. p. 700.
[258] Kendler, KS. (2005). Toward a philosophical structure for psychiatry. p. 436.
[259] Ibid, p. 433.

biological reductionism, "or other unimodal perspectives on psychiatric illness," including psychodynamic theory and "radical mentalistic accounts."

1. *"…a long clinical tradition and much empirical evidence of increasing methodological rigor point to the importance of first-person mental processes in the etiology of psychiatric disorders."*

Kendler asserts, as his first conceptual proposition, that "psychiatry is irrevocably grounded in mental, first person experiences." In his view, the field's divided understandings of first-person subjectivity may be pitched as a debate between "entities" and "agents." While those occupying the "entity" camp maintain that psychiatric disorders are "things people get," the "agents" conception of illness insists that psychiatric disorders are "inseparable from an individual's personal subjective makeup."[260] The "entity" group would likely be filled with Frances' First Umpires—psychiatrists who maintain that psychiatric disorders are objectively discoverable "things" that are largely "the same from case to case." Those who conceive of psychiatric illnesses as "agents" would likely occupy the Second Umpire position. They would contend that these diseases are currently "unknowable" and, as such, would tend "to focus on persons more than on patients."[261] Of course, the analogy is not perfect: Frances' Three Umpires situation is more of an epistemological game, whereas "agents" and "entities" may refer more to the ontological nature of illness. Nevertheless, it is fairly clear which groups within psychiatric history would represent the "agentic" view, and which would likely voice the "entity" view.

In line with the conceptual history outlined in Chapter Two, Kendler recaps,

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[260] Zachar, P., & Kendler, KS. (2007). psychiatric disorders: A conceptual taxonomy. p. 559.
[261] Ibid, p. 559.

"The entity viewpoint has become ascendant in American psychiatry since the publication of DSM-III." The field's pharmacological anchor has fueled a reductionist reasoning in which mental disorders are entities susceptible to scientific delineation and, as such, are sufficiently treated via scientific (pharmacological) therapies. This has led to the education of many American psychiatric residents who have "limited capacity for critical neuropsychiatric thinking and whose idea of psychiatric biology is equated with the relatively narrow field of psychopharmacology."[262]

In contrast, DSM-I, Meyerian psychobiology and Menninger's psychodynamic theory each maintained the "agentic" view, in which disorders were "reactions" that served as "the expression of one's character."[263] If psychiatry is irrevocably grounded in first person, subjective experience, it must embrace what has been referred to as the "irreducible subjectivity of consciousness."[264] As his argument progresses, Kendler appears to align more with an agentic view, in which the processes of psychiatric illness are not dissociable from the first-person experience of reality.

To drive home the importance of considering subjective experience, Kendler can simply point to any one of a number of emotional states—he chooses *humiliation* as an illustration. As Kendler sees it, humiliation is a subjective mental construct that is intimately tied to major psychiatric disorders like depression and generalized anxiety disorder. Of course, "Humiliation and loss are classical, subjective, first-person experiences that humans can recognize in themselves and in others." This point leads Kendler into his critical argument for an explanatory lens that is

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[262] Lacy, T. & Hughes, JD. (2006). A neural systems-based neurobiology. p. 410.
[263] Zachar, P., & Kendler, KS. (2007). Psychiatric disorders: A conceptual taxonomy. p. 559.
[264] Gabbard, GO., & Kay, J. (2001). The fate of integrated treatment. p. 1959.

appropriately adjusted to the problem at hand: "Although humiliation is ultimately expressed in the brain, this does not mean that the basic neurobiological level is necessarily the most efficient level at which to observe humiliation." One might even claim that explaining humiliation by pointing to a brain scan may carry very little explanatory power.

2. *...a large body of descriptive literature shows convincingly that cultural processes affect psychiatric illness.*

In 1991, Kendler served as primary author of a study entitled, "The genetic epidemiology of bulimia nervosa." Now, much like Eric Kandel's proposition of "cultural evolution," Kendler cites the recent rise in rates of bulimia in non-Western countries and its positive correlation with the degree of contact with Western culture. As Kendler notes, studies have recently demonstrated "a substantial rise in eating disorder pathology in adolescent girls after the introduction of television and the associated intense exposure to Western ideals about body image."[265] Kendler's career, it seems, like the greater psychiatric science, has evolved from the most microscopic units of analysis to an open appreciation for multi-level causal complexity.

Although the cultural factor seems evident, the question of whether these findings support the agentic or entity view of mental illness is not entirely clear. On the one hand, "entity" thinkers "typically view individuals as *vehicles* for pathological syndromes."[266] In this light, the cultural conditioning of a rise in bulimia may, indeed, confirm these individuals as bodies that a "pathological agent" may invade. At the same time, Kendler restates the agentic view: "A person is an agent. Agents are

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[265] Kendler, KS. (2005). Toward a philosophical structure for psychiatry. p. 436.
[266] Zachar, P. & Kendler, KS. (2007). Psychiatric disorders: A conceptual taxonomy. p. 559.

dynamic. They have purposes and intentions that make them unique."[267] People who become bulimic by watching perception-warping television shows could readily be considered intentional agents with their own personal "affinity for" a thin appearance.

Regardless of whether the participants in these studies possessed some sort of predisposition, vulnerability, or "organic disease," their illness, as Kendler frames it, is provoked predominantly by cultural and environmental factors. Kendler uses this as a critical means of distinguishing biological *acceptance* from biological *enthusiasm*. The latter looks to the brain for both a pathological signature, as well as pathological causality. The former perspective, however, recognizes the brain's central role as a sort of "pathological nucleus," at which causal factors may ultimately converge: "While culture ultimately exists as belief systems in the brains of individual members of a cultural group, it is unlikely that cultural forces that shape psychopathology can be efficiently understood at the level of basic brain biology."[268] All mental processes, including mental illness, may be seen as inalienably biological processes. It is not the content of this statement that is necessarily problematic, but rather our "tendency to exaggerate its significance."[269]

Kendler's third proposition is devoted to an explicit confirmation of inferences that one may readily draw from his two previous assertions:

> 3. *...in addition to neurobiological and genetic risk factors, a full etiological understanding of at least some psychiatric disorders will require consideration of psychological and cultural factors.*

Like Kandel, Kendler hopes to shatter the simplistic misconceptions of popular genetic understanding. The critical point is to realize that even insights into the

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[267] Zachar, P. & Kendler, KS. (2007). Psychiatric disorders: A conceptual taxonomy. p. 559.
[268] Kendler, KS. (2005). Toward a philosophical structure for psychiatry. p. 436.
[269] Ibid, p. 434.

neurobiological character of a given pathological state do not necessarily provide enough explanatory power to "fully understand it." He claims, "A bottom-up hard reductionist approach to psychiatric illness will be futile if basic neurobiological risk factors are frequently modified by higher-order processes, including environmental, psychological, and cultural experiences." Regardless of whether one conceptualizes mental illness as a discrete disease entity or a series of pathological reactions, Kendler believes that no one can deny the dynamic nature of psychopathological states: "The actions of basic biological risk factors for psychiatric illness are modified by forces acting at higher levels of abstraction."[270] In this light, etiology does not reside simply in the physiology of the brain—it is unavoidably molded by external psychological, social and cultural factors.

4. *...biological reductionists assume that neurobiological risk factors for psychiatric disorders operate through physiological "inside-the-skin" pathways.*

Risk factors, or causal variables, are by no means confined to internal biological mechanisms. Kendler cites the notion that genetic risk factors for major depression "increase the probability of interpersonal and marital difficulties," which are, themselves, "known risk factors for depression." Even if causal variables "originate" from within, the inherent nature of psychiatric illness as a problem of behavioral consequence may draw the analogy of an open wound: regardless of how it was formed, its raw exposure leaves it susceptible to infection and deterioration. This example pertains less to the need for explanatory pluralism and more to the recognition of a possible looping system between "entity" and "agentic" views of illness, in which causality at one level can reverberate and spread to other levels. The

[270] Kendler, KS. (2005). Toward a philosophical structure for psychiatry. p. 437.

internal, "entity" structure of biological systems is complicated. When intertwined with the valid conception of "agentic" influences, simplistic reduction hardly seems a feasible option.

> 5. *...hard reductive models in science strive for clear "one-to-one" relationships between basic processes and outcome variables. Such simple relationships are not plausible for psychiatric illnesses.*

This notion speaks to the logic employed in formulating "chemical imbalance theory." Biological psychiatrists often simplistically deduced that a biochemical recalibration of neurotransmitters could map "one-to-one" with the therapeutic resolution of psychiatric illness. In only a short matter of time, what was once an appealing explanatory option has turned into a largely abandoned, colloquial theory. 21st century authorities look back at the scientific application of "chemical imbalance theory" to major disorders like depression and schizophrenia, and scoff at the presumption that "an overall deficit in serotonin or increase in dopamine could explain these illnesses."[271] Indeed, the psychiatric and pharmaceutical promotion of these theories has had damaging effects beyond the realm of scientific research. Doctors, in fact, now often hear patients "parroting this idea by referring to themselves as having a chemical imbalance."[272]

At this point, Kendler seems to reject the over-simplification of biological reduction with a culminating allusion to the mind-body problem.

> 6. *...biological systems generally and mind-body systems more specifically have goals and generate processes to address these goals, such as the maintenance of blood pressure or self-esteem and the acquisition of food, sexual partners, or status.*

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[271] Insel, TR. (2009). Disruptive insights. p. 701.

[272] Kramer, TAM. (2002, January 18). Endogenous versus exogenous: still not the issue. *Medscape, 4*(1), Retrieved from http://www.medscape.com

In other words, all humans, ill or not, possess *intentionality*: we are capable of exhibiting acts that are directed toward some goal. Brains can be divided into subregions, then neuronal ensembles, then monosynaptic connections, all the way down to the molecular, genetic and biochemical interactions constantly taking place. Yet, depending on the question, a reduction in the hope of epistemic certainty may lead only to "a loss of explanatory power."[273] The key, as Wright and Bechtel argue, is to bridge explanatory divides. This, in Kendler's eyes, is the form of *integrative pluralism*: the assumption that "single-level analyses will lead to only partial answers," necessitating psychiatrists to "cross borders between different etiological frameworks or levels of explanation." [274]

3. The New Psychiatric Science: An Anti-Kuhnian Endeavor?

At the end of a long list of critical propositions, Kendler poses a conceptual direction for 21st century American psychiatry: "*Psychiatry needs to move from a prescientific 'battle of paradigms' toward a more mature approach that embraces complexity along with empirically rigorous and pluralistic explanatory models.*" In stating such a claim, Kendler admittedly takes on the powerful theory developed by philosopher of science, Thomas Kuhn.

In the introduction to his groundbreaking monograph, *The Structure of Scientific Revolutions*, Kuhn argues, "Competition between segments of the scientific community is the only historical process that ever…results in the rejection of one

[273] Kendler, KS. (2005). Toward a philosophical structure for psychiatry. p. 437.
[274] Ibid, p. 437.

previously accepted theory or in the adoption of another."[275] This is, in fact, the path that 20th century psychiatry had followed to a tee. Champions of the biological paradigm posed their scientific criteria in opposition to the older, psychodynamic theory and prompted its large-scale professional rejection. Kendler, indeed, recognizes the value and insights of Kuhn's theory: "I recall too many sterile arguments between psychoanalysts, social psychiatrists, and biological psychiatrists in the late 1970s to lightly dismiss Kuhn's contention of the incommensurability of different theoretical perspectives."[276] Nevertheless, the battle of paradigms and the requisite success of only one would be, to Kendler, an ill-advised concession for psychiatry to make. In a "paradigm" of methodological pluralism, psychiatry would have to hold each segment of the "scientific community" in equally high regard. In Kendler's view, "explanatory pluralism might form the substrate of…*a shared paradigm*."

The biological reductionist appraises scientific validity by assessing "how far down it goes on the causal chain." While Kendler admits that this "zeitgeist" is tempting, it should be resisted. His concluding remarks may, in fact, summarize the outlook that several eras of psychiatric medicine had failed to embrace. Kendler hopes for "the scientific maturation of psychiatry." This maturation, in his eyes, will require the field to move "beyond the clumsy and outdated baggage left…by Cartesian dualism," without thereby rejecting its "fundamental roots within the mental and psychosocial spheres or succumb[ing] to the temptations of simplistic

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[275] Kuhn, TS. (1996). *The Structure of Scientific Revolutions.* p. 8.
[276] Kendler, KS. (2005). Toward a philosophical structure for psychiatry. p. 438.

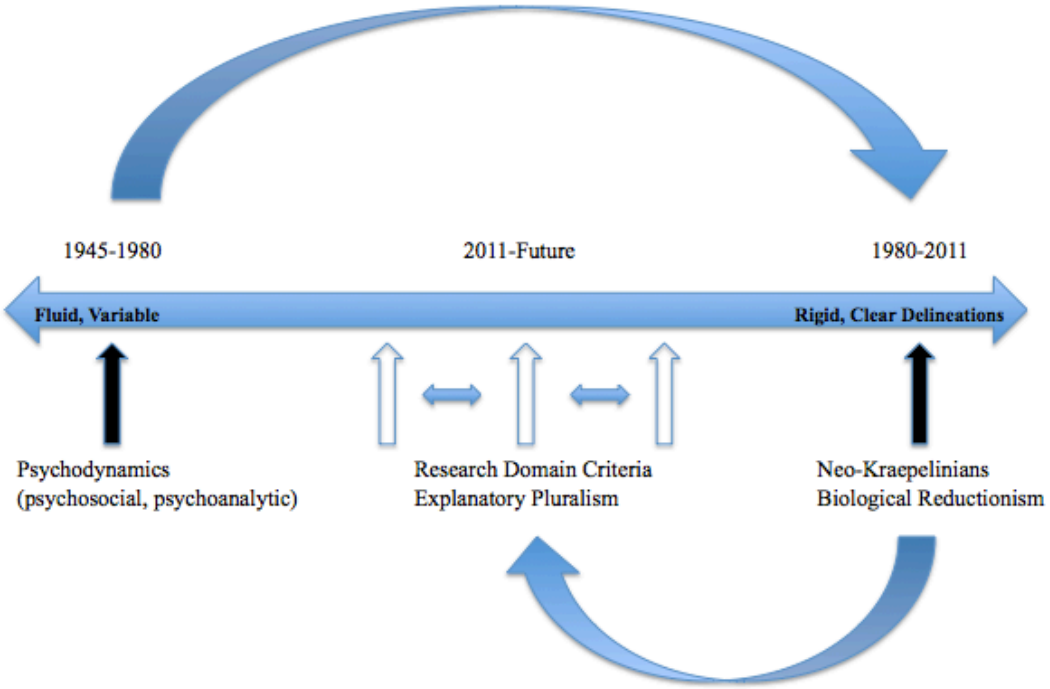
reductionist models."[277] In his final comment, Kendler describes his hopes for the future of psychiatry:

> *Psychiatric disorders are, by their nature, complex multilevel phenomena. We need to keep our heads clear about their stunning complexity and realize, with humility, that their full understanding will require the rigorous integration of multiple disciplines and perspectives.*

[277] Ibid, p. 439.

Concluding Remarks

A Spectrum of American Psychiatric Philosophies



Over 25 years ago, Thomas Szasz—perhaps psychiatry's most ardent critic—both accurately and cynically described the field's trajectory. To make his claims, Szasz employed familiar terminology: "Once again in their history, psychiatrists are at a crossroads: they can choose to be mindless and lose their distinction from neurology; or they can choose to be brainless…and lose their distinction from nonmedical counselors. But they cannot continue to go both ways."[278] As American

[278] Szasz, T. (1985). Psychiatry: rhetoric and reality. *Lancet, 2*(8457), 711-712.

psychiatry moves forward into what may be a new age of *modest pluralism*, psychiatric leaders, like Kendler, hope to prove Szasz wrong. But in order to achieve true explanatory pluralism, psychiatry must embrace *both* modesty *and* plurality. To this end, Allen Frances provides an important reminder: "The more we have learned in the past 30 years, the more we have discovered that we are much earlier in the game of understanding than we had ever imagined."[279]

Genes, molecules, neurons, circuits, behavior and subjective first person experience are all but portions of the "absolute" reality of mental illness. Pluralism *implies this*, just as it implies that the "absolute" may never be reached. William James embraced this reality: "Pragmatically interpreted, pluralism…means only that the sundry parts of reality *may be externally related*...Things are 'with' one another in many ways, but nothing includes everything, or dominates over everything. The word 'and' trails along after every sentence. Something always escapes."[280]

Indeed, we may only hope that the RDoC project will someday lead to new and revolutionary treatments for mental illness. But as James believed, exact, finite or absolute truths should not be expected. As psychopathology researchers work together to finally "make up their own minds" they may, in the end, still have to admit "much variation."

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[279] Frances, A. (2011, February 28). [Personal Communication].
[280] James, W. (1977). *A Pluralistic Universe*. p. 145.

Afterword

One sluggish spring afternoon, I walked, as I had so many times before, into the bathroom of Olin Memorial Library, shoeless, and presenting a rather haggard demeanor. As I opened the door, I encountered an elderly man who quickly noticed my odd and informal presentation.

"Are you a senior?" he asks.

I politely respond that I am.

"Are you writing a thesis?"

I nod affirmatively.

Turning to face me more squarely: "On what?" he asks.

What a range of possible responses: I could recite the convoluted explanation I had delivered to so many of my peers, or I could more simply provide the cursory, abridged version (we were, after all, in the bathroom):

"The future of American psychiatry," I reply.

"Ah!" he exclaims. "So…is it going to be pharmacological or psychosocial?"

"Yes," was my answer.

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