

# Natural Psychology

by Steve Spiegel

## Contents

	<a href="#"><u>Introduction</u></a>	2
Section One	<a href="#"><u>Natural Psychology</u></a>	5
Section Two	<a href="#"><u>“Mental Health”</u></a>	11
	<a href="#"><u>Conclusion</u></a>	25
Appendix A —	<a href="#"><u>Neo-Dualism and Human Psychology</u></a>	28
Appendix B —	<a href="#"><u>The Natural Science of Human Psychology</u></a>	31
Appendix C —	<a href="#"><u>Associative Thinking</u></a>	38
Appendix D —	<a href="#"><u>The Neurophysiology of Thinking</u></a>	43
Appendix E —	<a href="#"><u>Motivation Theory</u></a>	46
Appendix F —	<a href="#"><u>Motivated-Thinking and the Function of Experience</u></a>	51
Appendix G —	<a href="#"><u>Current Psychology Theory</u></a>	58
Appendix H —	<a href="#"><u>“Mental Disorders”</u></a>	69
Appendix I —	<a href="#"><u>Therapy</u></a>	79
	<a href="#"><u>References</u></a>	88

Disclaimer: the material contained herein is intended for educational purposes only and should not substitute for professional medical advice.

## Introduction

Natural Psychology is a comprehensive new paradigm of human psychology including rational consciousness and “mental disorders” based on pure natural science theory. Natural Psychology advocates true natural science theory that seeks and admires simplicity in contrast to our cultural science that admires complexity. Consistently, natural science theory understands behavior as motivated towards species survival while our cultural science rejects this motivation as crass and insulting our morality. Natural Psychology respects human intelligence and human morality and depends on them to understand human psychology. This thesis implores consideration of accepted natural science theory to understand human psychology and thereafter use this knowledge to promote the altruism that significantly defines our species. Based on pure natural science theory, this thesis revives a classic thinking theory that’s been popular periodically throughout history and has never been disproved. Natural Psychology may not be the self-knowledge philosophers seek but it’s true self-knowledge that the community needs.

Natural Psychology is a comprehensive new paradigm of human psychology based on associationism — associative thinking. However, unlike past iterations of associative thinking, Natural Psychology also advocates a natural science motivation theory that directs the mental process and empirical science support. Natural Psychology explains associative thinking in conjunction with accepted natural science motivation theory based on a radically different perspective of accepted science theory and elemental empirical neuroscience. This thesis challenges current psychology theory and cultural expectations that happiness is the only natural mental state and that sadness is an unnatural mental state regardless of lived experiences. While current theory never states this hypothesis outright, it’s fundamental to popular psychology/psychiatry theory. Most people feel defensive about their failure to achieve this unrealistic expectation of constant cheerfulness and suffer self-criticism in silence. In contrast to popular theory, Natural Psychology explains sadness as a natural reaction to sad experiences (distressful and/or depressing experiences) supported by pure natural science theory. Consistently and astonishingly, Natural Psychology is based on breakthrough foundational science theory that unifies eastern natural science with western neuroscience. This thesis identifies and resolves scientific anomalies (inconsistencies) supporting the current psychology/psychiatry paradigm — contradictions of the most basic principles of the sciences that inform it — contradictions of “Physiology-101.” Philosophers of science and logicians advocate that fundamental science principles are critically important guidelines, and that contradictions of

fundamental principles render a theory “unscientific.” This thesis explains human psychology with a new psychology paradigm based on accepted science theory; no new research is proposed nor necessary.

This treatise is presented with a simple format of two short sections and a conclusion. The first section explains Natural Psychology; it revives the classical thinking theory of “Associative Thinking” in conjunction with accepted natural science motivation theory. Associative thinking has been a popular thinking theory periodically throughout history, was central to the Age of Enlightenment, and has never been disproved. In this new iteration of associative thinking, the classical thinking theory is proposed in tandem with an accepted natural science motivation theory that gives it direction. Natural Psychology is a comprehensive explanation of behavior and experience that unifies the essence of all current schools of psychological thought: structural, functional, biological, physiological, behavioral, evolutionary, psychodynamic, humanistic, sociocultural and cognitive. Thereafter, Section Two follows a unified theory of human psychology with a comprehensive explanation of “mental health” and “mental disorders.” The second section is a unified explanation of psychological problems that explains human suffering and will thereby significantly reduce it. This is the foundation for a better understanding of popular therapy programs as explained in an appendix. The conclusion emphasizes the difficulty of making a classical paradigm shift in understanding human psychology and the extraordinary value to the community of transitioning to a new paradigm based on more scientific truth.

This short treatise includes supportive appendixes that are presented separately to avoid large digressions distracting from the main thesis. The appendixes further explain the scientific support for Natural Psychology, explain popular psychology theory, explain popular theories of “mental disorders”, and critique popular therapy programs. Appendix A is a general discussion of the pseudoscientific foundation of popular psychology theory and its neo-dualism; it addresses our philosophy of “mind.” Consistently, Appendix B explains a real natural science foundation for human psychology while addressing critical scientific contradictions and failings of the current psychology/psychiatry paradigm. Following accepted science principles is critically important for understanding the empirical neuroscience of human psychology and the misdirection of current theory. Appendix B is foundational neuroscience theory that unifies eastern natural science with western natural science and neuroscience; it deserves separate consideration. Appendix C explains the classical thinking theory of “associationism” and how it can explain rational consciousness, cognition and “mental disorders” based on empirical neuroscience (observable and verifiable). Following an explanation of thinking theory, Appendix D further explains the

neuroscience of thinking for readers with a more extensive background in the life sciences. Some readers may want to skip Appendix D and move directly to Appendix E that addresses the human motivation that directs our thinking process. This appendix is critically important for a basic understanding of associative thinking; it's the other half of the binary (neuro)science of motivated-thinking. Appendix E explains the motivation for (associative) thinking and behavior based on empirical science (observable and verifiable). Appendix E is natural science theory: it explains human nature and the motivation that seeks species survival. Thereafter, understanding the binary neuroscience of motivated-thinking promotes an appreciation for the greater importance of unique individual experience and personal life histories in Appendix F. This appendix describes how our motivation and thinking neurophysiology are impacted by individual experience to a much greater extent than currently understood. Consistently, Appendix F disputes behavioral genetics ("genetic determinism") and challenges the science that supports it. Consistent with our natural motivation, this appendix further explains how human nature directs behavior towards species survival with broad adaptability to environmental change. Thereafter, appendix G explains popular psychology theories from the perspective of the new paradigm of Natural Psychology. This appendix provides a unified explanation of popular theories about learning, cognition and memory; states of consciousness, perception and intelligence; and personality, language, and social psychology. After explaining popular theories of psychology from the perspective of the new paradigm of Natural Psychology, Appendix H explains popular theories of "mental disorders." This appendix provides a unified explanation of popular theories about "anxiety disorders", "eating disorders", "substance-abuse disorders", "mood disorders", "somatoform disorders", "dissociative disorders", "personality disorders", and "schizophrenia spectrum disorders." Consistently, understanding "mental illness" promotes a substantially better understanding of therapy for individuals and the community as described in Appendix I.

Natural Psychology is *elegant* biological and physiological psychology based on associative thinking that's supported by basic empirical neuroscience and accepted science theory. Although paradigm shifts are difficult, self-knowledge will enlighten and energize a renaissance of advances in community health care and the human social condition!

## Section I

### Natural Psychology

Psychology/psychiatry theory is a classical paradigm: it's a complete world view supported by terms with interrelated connotations and contexts that reinforce the status quo. Consistently, it's difficult to recognize a false assumption of a paradigm from within the paradigm. The arduous effort to understand human psychology continues a legacy of problematic foundational neuroscience theory (see Appendix B and Appendix B); parsimony (the most basic principle of science) and falsifiability (the most basic principle of the philosophy of science) are rarely considerations. Psychology/psychiatry theory is a classical paradigm comprised of a massive quantity of complex, ambiguous, disjointed concepts that makes it difficult to summarize and therefore difficult to challenge. Popular theory describes an ambiguous neo-rational thinking process motivated by an ambiguous combination of virtue and self-interest based on an ambiguous combination of genetic and environmental influences. In contrast, Natural Psychology explains human psychology based on a radically different perspective of elemental empirical neuroscience and accepted science theory.

Natural Psychology is a parsimonious new paradigm of human psychology (including rational consciousness and "mental disorders") based on reconsidering the fundamental debate about thinking theory during the founding of modern psychology. Modern psychology was founded on two competing thinking theories; unfortunately, psychologists slowly migrated to one thinking theory without disproving or integrating the second theory. The thinking theory of neo-rationalism was advocated by Rationalists during the founding of psychology; this less orthodox advocacy of a rational mental principle is the legacy of rationalist philosophers. *However, lost to current thinking theory is the advocacy of the Associationists who challenged the Rationalists.* The Associationists proposed rationality based on associative thinking; they were the legacy of classical British empiricists and ancient Greek philosophers. Associationists argued that rationality is a process of associating (connecting) all known elements of a subject to arrive at sound judgment ("good sense"). But Associationists advocated associative thinking without a motivation theory to direct the process and make psychology understandable. Natural Psychology now advocates accepted natural science motivation theory that explains associative thinking and thereby human psychology supported by accepted science theory and elemental empirical neuroscience.

Early Associationists including Pavlov and Skinner *proved* associative thinking with the

stimulus-response of behavior conditioning but the politics of neo-rationalism and the lack of a motivation theory trumped science. Repetitions of a stimulus/response cannot evidence learning theory since learning is defined as the “modification of knowledge or behavior” and repetitions of a stimulus/response do not exemplify any change in either. After a stimulus/response is learned, repetitions exemplify and prove (associative) thinking by definition. But associative thinking lacks the appeal of a rational thinking principle and is difficult to understand without understanding our natural motivation.

The critical debate about thinking theory remained in a stalemate between Associationists and Rationalists until the focus of psychology shifted to behavior and behavior theory. As the debate about thinking theory lost context to a focus on behavior theory (that’s based on associative thinking), a neo-rational mental principle gradually became accepted thinking theory. Associative thinking epitomizes lost knowledge<sup>1</sup> that has been forgotten because it lost relevance rather than being disproved.<sup>2,3</sup> Natural Psychology is breakthrough theory that explains associative thinking and the motivation that directs it based on a different perspective of accepted science theory and empirical neuroscience. More importantly, understanding motivated-thinking is the key to understanding all human psychology and this self-knowledge will revolutionize our health care system as well as our social and political fabric!

Human psychology is explained by the binary neuroscience of substantially common motivation neurophysiology impacting substantially common thinking neurophysiology as substantially a function of personal experience. Consistent with the advocacy of Associationists, founding behaviorists, classical British empiricists, and ancient Greek philosophers; all thinking is associative thinking including rational consciousness and thinking that is neither rational nor conscious. Natural Psychology is pure natural science motivation theory as well as associative thinking theory; consistent with the accepted natural science motivation for psychology, humans are motivated to “seek emotional well-being.”<sup>4,5,6,7</sup> Human psychology is understandable in terms of motivated-thinking; the cerebral cortex is nervous tissue structured for thinking while the limbic system is nervous tissue structured for motivation. Natural Psychology is also true biology theory; consistent with a biological understanding of living organisms, *the natural motivation neurophysiology of the limbic system seeks the electrical brain energy of life.*

Humans are sensing organisms (through the limbic system) as well as thinking organisms (through the cerebral cortex); the limbic system senses strong brain energy as attractive and weak brain energy as aversive. Our natural motivation directs (associative) thinking to seek the greatest electrical brain energy of life produced by the strongest associative thought. Since lived

experiences associated with neurophysiological energy during formative years are generally experiences of social support, *behavior is generally conditioned to seek emotional well-being* from social affirmation and support. Conversely, since lived experiences associated with neurophysiological deficits during formative years are generally experiences of isolation and a lack of social support, *behavior is generally conditioned to avoid emotional suffering* from isolation and social rejection. Associative thinking and common lived experiences especially during infancy explain the accepted natural science motivation to seek emotional well-being. Humans feel emotions physically although it's difficult to understand from the context of the current psychology paradigm and difficult to recognize unless emotions are extreme. *The empirical neuroscience of motivated-thinking explains how the brain generally seeks the strongest associative thought and behavior generally seeks emotional well-being generally based on individual experience.*

With an understanding of our natural motivation and how it impacts associative thinking based significantly on personal experience, human psychology becomes logically understandable. Since behavior is a product of associative thinking, behavior patterns are substantially habitual; "personality" traits generally describe recognizable patterns of habitual behaviors. Since behavior seeks well-being and communicating with others typically promotes well-being, humans generally seek language skills. Since behavior seeks emotional well-being, humans seek fair treatment for themselves and typically for others by extension (by association). More generally, since behavior seeks well-being based on experience, common experiences produce common behaviors. Behaviors common to individuals (currently attributed to "instincts"), cultures (currently attributed to "cultural psychology") and families (currently attributed to "family pedigree") are produced by experiences common to individuals, cultures and families respectively. Associative thinking impacted by our natural motivation and individual experience produces all thinking and behavior.

Natural Psychology unifies the essence of popular perspectives of psychology: 1) structural psychology, 2) functional psychology, 3) biological psychology, 4) physiological psychology, 5) behavioral psychology, 6) evolutionary psychology, 7) psychodynamic psychology, 8) humanistic psychology, 9) cognitive psychology, and 10) sociocultural psychology. First, this thesis is structural psychology, but instead of investigating theorized brain mechanisms supporting current psychology theory, it identifies the anatomy of thinking (Appendix D) and motivation (Appendix E) — empirical brain structures. Second, this thesis is functional

psychology, but instead of investigating theorized brain mechanisms supporting current psychology theory, it identifies the neurophysiology of thinking and motivation (again, Appendix D and Appendix E respectively). Third, this thesis is biological psychology, but instead of investigating obscure cellular and molecular biology supporting current psychology theory, it explains empirical tissue (neuro)biology consistent with how physiologists explain all other organs of the body (Appendix B). Conventional biological psychology seeks to integrate brain biology into a philosophy of “mind”; this is pseudo biology by definition (Appendixes A and B). Consistently, sociobiology makes abstractions from theoretical biology without reference to accepted empirical neurobiology.<sup>8,9</sup> Fourth, this thesis is physiological psychology, but instead of investigating obscure cellular and molecular neurophysiology supporting current psychology theory, it explains psychology with empirical whole-tissue neurophysiology consistent with the philosophy of physiology (Appendix B). Fifth, this thesis is behavioral psychology, but instead of contorting behavior science to conform to current psychology theory, it explains all behavior as substantially conditioned through associative thinking (Appendixes C and D). Sixth, this thesis is evolutionary psychology, but instead of theorizing about the survival adaptability of theorized brain mechanisms, it explains our adaptability to environmental change with accepted brain science (Appendixes E and F). This appendix explains how seeking well-being substantially as a function of environmental experience promotes adaptability to varying and changing environments. Seventh, this thesis is psychodynamic psychology while advocating that traumatic experiences are often unavailable for recall and that their memory is often retrievable through techniques based on associative thinking. Psychodynamic “states of consciousness” and the impact of traumatic experiences on memory are specifically explained in Appendix G that addresses popular psychology theory. Eighth, this thesis is humanistic psychology while explaining our common humanity and how it fosters a natural drive for more fairness in an increasingly humanistic world (Appendix G). Ninth, this thesis is cognitive psychology, but instead of theorizing about complex neo-rational information processing mechanisms, it explains the brain science of cognition based on the binary science of motivated-thinking. Lastly, this thesis is sociocultural psychology, but instead of focusing solely on abstract group dynamics, it explains how cultural experiences produce cultural behaviors (Appendix G). Natural Psychology is a comprehensive, unified theory of structural psychology, functional psychology, biological psychology, physiological psychology, behavioral psychology, psychodynamic psychology, humanistic psychology, cognitive psychology, and sociocultural psychology.

This section provides an intentionally brief outline of Natural Psychology to promote



coherency while deferring substantial support to the appendixes. Appendix A explains a true science foundation for human psychology separate from cultural philosophy: it discusses natural science theory separate from our cultural neo-dualism. Appendix B follows by identifying and resolving anomalies of current foundational neuroscience theory; this appendix advocates the historic unification of western natural science and neuroscience with eastern natural science. Appendix C is a further explanation of associative thinking followed by Appendix D that explains the anatomy and physiology of the cerebral cortex and how it produces associative thinking. The motivation for thinking is further explained in Appendix E; this appendix explains the anatomy and physiology of the limbic system and how it affects (associative) thinking. Appendix E also explains motivation theory in terms of evolutionary theory. Thereafter, Appendix F explains how our natural motivation impacts associative thinking to seek the strongest associative thought and directs behavior to seek emotional well-being as substantially a function of individual experience. Since Appendix F describes how our motivation and thinking neurophysiology are impacted by individual experience, this appendix disputes behavioral genetics (genetic determinism) and challenges the science that supports it. Consistent with natural science theory, this appendix also explains how human nature directs behavior towards species survival with broad adaptability to environmental change. After appendixes address thinking, motivation, and individual experience; Appendix G explains popular psychology theories from the perspective of the new paradigm of Natural Psychology. Appendix G provides a unified explanation of popular theories about learning, cognition and memory; states of consciousness, perception and intelligence; and personality, language and social psychology. This section provides an outline of Natural Psychology that's substantially explained in the appendixes.

Natural Psychology explains human psychology with the elegant science of associative thinking; it's a comprehensive new paradigm of biological and physiological psychology based on basic, accepted neuroscience — observable, verifiable and falsifiable. In contrast to ambiguous popular theory, Natural Psychology is a parsimonious explanation of human psychology: the brain generally seeks the strongest associative thought and behavior generally seeks well-being generally as a function of personal experience. The impact of motivation on thinking expresses the magnificently simple principles of human nature espoused by eastern natural science and our most eminent western natural scientists as explained in Appendix B. Appendix B should be considered separately; it's a historic breakthrough in foundational neuroscience theory that unifies the divided natural sciences.

Although our motivation to seek emotional well-being may seem crass and produce some

repugnant behaviors, anti-social behaviors do not define our humanity; human nature is glorious in totality. Natural Psychology may seem mechanistic and dehumanizing from the context of the current psychology paradigm but it describes majestic brain processes that promote advanced mental acuity and increasingly altruistic behavior (“Would not a rose by any other name smell as sweet?”). Natural Psychology explains our humanity; it’s critical theory for understanding the human social condition and reducing emotional suffering in the community (reducing "mental disorders"). Understanding our natural psychology will initiate a better sense of community that will promote increased social justice for all. Understanding our natural psychology will also initiate an exciting new era of scientific discoveries in a multitude of fields beyond medicine — an age of enlightenment bringing hope and energy to the community!

## Section II

### “Mental Health”

Behavior seeks well-being based substantially on personal experience; *comforting, affirming experiences promote emotional well-being (“mental health”) while sad experiences (distressful and/or depressing experiences) promote natural emotional suffering that’s pathologized as a “mental disorder” or “mental illness.”* Natural Psychology advocates that “mental disorders” pathologize natural *sadness* (social, economic and spiritual distress) and other natural “problems in living.” Humans are sensing organisms as well as thinking organisms; we physically feel happiness and sadness from happy and sad experiences especially when experiences and related emotions are intense. When Thomas Szasz published “The Myth of Mental Illness”<sup>10</sup>, “mental health” and “mental illness” were oxymorons: a philosophy of “mind” could not have (physical) “health.” In response to this logical criticism, medical science simply redefined “health” to include a philosophy of “mind” without explaining what it could mean for a *philosophy* to have “health.” The current psychology/psychiatry paradigm pathologizes naturally painful sadness (natural emotional suffering) with the myth of “mental illness” that’s predominately accepted by the community as the “Medical Model” of “mental disorders” (or more accurately criticized as the “Disease Model” of emotional suffering). Popular “mental health” theory describes “mental disorders” as a function of a “genetic predisposition” — a genetic weakness for resolving environmental stressors. The *medical model* of “mental disorders” is a classical paradigm wherein terms have interrelated definitions and connotations that support its erroneous philosophical narrative. The terms “mental disorder”, “mental illness” and “abnormal psychology” are misnomers; they erroneously connote malfunctioning brain physiology. The medical model pathologizes sadness regardless of how sad the personal experience or life circumstances (distressful and/or depressing); it focuses on problematic behaviors while generally discounting problematic environments.

Humans are sensing (feeling) organisms as well as thinking organisms; emotional suffering is the painful feeling of sadness (anxiety and/or depression) based significantly on sad experiences. Emotional suffering from distressful experiences is painful and extreme emotional suffering from extremely distressful experiences is intolerably painful. Based on associative thinking, emotional pain is sensed similar to physical pain except that emotional pain is rarely identified with a source while physical pain is predominately identified with a source. Emotional suffering is motivation to avoid distressful experiences and extreme emotional pain is strong

motivation to avoid extremely distressful experiences.

It's unfortunate that the distressful experiences that cause anxiety and related emotional suffering are often difficult to remedy; hopelessness about achieving emotional well-being causes depression. Painful anxiety related to distressful experiences causes depression when solutions seem distant or unachievable. When relief from distressful experiences seems distant or hopeless, depression minimally reduces painful anxiety by slowing the thinking process. Depression describes a broad range of expressions of hopelessness from a common reaction to minor relationship problems to the painful hopelessness expressed in "catatonic schizophrenia." Consistently, anxiety and depression are the two most common psychological complaints<sup>11,12</sup> and often occur simultaneously.<sup>13,14,15,16,17</sup>

Besides generally pathologizing sadness, the medical model also discounts the role of physical health in promoting "mental health." It's problematic that the medical model also discounts "mental health" problems naturally caused by the physical health problems of poor nutrition, fatigue, food allergies, sickness and environmental toxins. Consistently, homelessness generally causes painful emotional suffering from related poor nourishment and poor sleep habits.

Current psychology theory pathologizes painful sadness while discounting traumatic environments; unfortunately, advocating Pollyanna and a fairy tale world of goodness and fairness provides cover for abusers. A world of goodness and fairness is a noble goal but it doesn't currently exist and advocating otherwise harms the community. This is about our humanity: whether sadness is the natural expression of sad experiences or whether sadness is a disease. The medical model pathologizes the natural sadness expressed in anxiety and depression, and often non-conforming, non-productive and/or disruptive behaviors. While many "mental disorders" are merely "eccentric", most describe counterproductive coping styles that generally seek short-term relief of emotional suffering (pain) while generally inadvertently causing long-term problems. Emotional sufferers often seek any minimal relief from their emotional pain through coping behaviors generally deemed "disabling" — counterproductive. Broadly construed, most counterproductive coping styles are understandable as *compulsions* — behaviors associated with well-being that become problematic.<sup>18</sup> Compulsions (broadly construed) describe a multitude of behaviors that are strongly associated with emotional well-being from personal experience but thereafter become behaviors problematic based on their intensity and/or frequency. Understanding compulsions as behaviors associated with emotional well-being is obscured by the difficulty of understanding the wide range of personal experience. Even compulsive self-harm is understandable as promoting a minimal increase in emotional well-being

from “adverse childhood experiences” that associate unusual social support with injury.

The medical model erroneously implies that the environmental stressors causing “mental disorders” are similar enough within the community to focus on problematic individual responses rather than problematic experiences and environments. Popular theory advocates the harmful, illogical narrative that sadness is unnatural regardless of traumatic personal experiences and traumatic life circumstances. Consistently, “mental disorders” pathologize sadness in support of existing social structures and the privileges, greed and inflated self-images of community leaders. Humans generally seek social status (admiration and respect); the medical model pathologizes the natural emotional suffering of those with low social status and other “problems in living.” The World Health Organization (WHO) supports medical schools in pathologizing sadness by defining “mental health” as “emotional well-being” and thereby implying that “emotional suffering” lacks “health” — is pathological.<sup>19</sup>

The medical model projects the altruistic culture of medical schools onto the broader culture but it’s harmful to discount the brutal reality of traumas and the traumatic environments of the less fortunate. Medical school culture is radically different than the cultures of the marginalized and disenfranchised; many sub-cultures at the bottom of our “social pecking order” are abusive environments. “Mental health care” practitioners generally experience an “attribution bias”; this makes it difficult for them to understand the more problematic experiences of their clients. While life can deal harsh blows at the “top of the heap”, life for the marginalized and disenfranchised is mostly harsh blows at the bottom of our social pecking order. The medical model harms the community when focusing on problematic behaviors and ignoring the context of subjective histories and often continuing traumatic environments. Popular theory denies our humanity: distressful experiences naturally promote anxiety, depressing experiences naturally promote depression, and sad experiences naturally promote sadness. Current theory obscures trauma from child abuse, bullying, the “sorrow of war”, discrimination, poverty and sexual assault when advocating “recovery” without addressing and somehow resolving traumatic injustice. Current theory is trauma denial when advocating that social welfare problems are medical problems, and obscuring social welfare remedies. In reality, people are often self-centered and hurtful; this creates traumatic environments that are difficult to understand from the perspective of the benevolent cultural atmosphere of medical schools.

One’s own life experiences can be difficult to understand; it is infinitely more difficult to understand the personal history and life circumstances of others especially those living in unfamiliar environments. Unfortunately, emotional suffering can cause related (physical) health

problems (including sleep deprivation) that exasperate emotional suffering. The predominance of emotional suffering is not an “overreaction to normal stressors”; it’s proportionate to the distressfulness of personal histories and personal life circumstances.<sup>20,21</sup> Painful sadness is not a disease; all emotions are natural expressions of lived experience.

Emotional suffering is a natural expression of distressful experiences; documentaries of natural catastrophes and human cruelty testify to these expressions of our humanity.<sup>22,23</sup> In contrast, “post-traumatic stress disorder” pathologizes behaviors expressing emotional suffering from traumatic experiences; it supports existing social structures by implying that traumatic experiences are anomalies within the context of an otherwise friendly and supportive environment. PTSD advocates that some reactions to stress are biological malfunctions based substantially on being considered both irrational and “antisocial.” This is a culturally accepted bias against antisocial behavior: irrational prosocial behavior is considered normal while irrational antisocial behavior is considered a biological malfunction — a “mental disorder.” When popular theory advocates that “‘mental disorders’ are a pathological overreaction to normal stressors”, it’s generally obscuring/discounting the reality of most traumatic experiences and traumatic environments. Unfortunately, current “mental health” theory advocates a Pollyanna spin to reality that discounts the prevalence and severity of traumatic environments, as well as the general level of emotional suffering in the community.

Psychology theory supports the medical model of social welfare problems with the vulnerability-stress model (the diathesis-stress model) of “mental disorders.” This popular psychology model advocates that “mental disorders” are produced by a combination of social and genetic factors; it describes stressors in the environment affecting a nativist predisposition to psychological problems. Consistently, the popular bio-psycho-social model of mental distress similarly contends that “mental disorders” are caused by a combination of biological, psychological and social-environmental factors. The bio-psycho-social model appears inclusive but the pseudo biology of the medical model trumps the “soft” science of psychology and its social-environmental factors. Popular psychology theory ultimately defers its most fundamental theory to the faux biology of the medical model and its pathologizing of sadness (natural social, economic and/or spiritual distress).

The medical model pathologizes sadness (natural social, economic and/or spiritual distress) and other natural problems in living based on: 1) pseudoscience, 2) discounting the distressfulness of traumatic experiences, 3) misunderstanding emotions, 4) erroneous

assumptions about the mental process, 5) its association with medical science, 6) theorized chemical imbalances, 7) theorized brain volume pathology, 8) the influence of Big Pharma money, and 9) hypothetical constructs from behavioral genetics.

First, the medical model pathologizes natural emotional suffering based on philosophy — a philosophy of “mind” (see Appendix A) and contradictions of the most fundamental principle of the sciences that informs it (see Appendix B). Popular neuroscience investigations are illogical when they *assume* complexity and fail to consider simple binary neuroscience consistent with eastern natural science. Popular neuroscience investigations also contradict the *philosophy of (general) science* and a *philosophy of natural science* when assuming complex principles and failing to consider simple binary neuroscience. Moreover, popular neuroscience investigations contradict the *philosophy of natural science* and the *philosophy of biology* when they drift from a singular focus on the physical (material) world and address a philosophy of “mind.” Furthermore, popular neuroscience investigations contradict the *philosophy of physiology* when they fail to consider an overview (the “big picture”) of the whole-tissue physiology of the brain — whole-tissue neurophysiology. Physiologists explain all other organs with whole-tissue physiology; neurophysiologists should consider whole-tissue neurophysiology. Current neuroscience investigations lack validity (scientific truth) by contradicting basic logic and the philosophy of the sciences that informs them; this is a critical failing since all science emanates from foundational principles.

Second, the medical model pathologizes natural emotional suffering based on generally discounting the distressfulness of traumatic experiences including those at the bottom of “our social pecking order.” Popular theory denies our humanity when it advocates that it’s unnatural to feel distress from personally distressful experiences and from the cruel and unjust experiences of the marginalized and disenfranchised. Current theory advocates unnatural constant cheerfulness; it pathologizes natural emotional suffering and discounts the distressful experiences and environments that produce it.<sup>24</sup> Current theory “gaslights” emotional sufferers by advocating that they are overreacting to “normal stressors” or stressful “events” (Appendix H). Describing stressors as “events” obscures the subjectivity of distressful experiences and the reality of the personal histories of some of the least fortunate members of the community.

Third, the medical model pathologizes natural emotional suffering based on understanding emotions intellectually rather than as physical feelings directly related to positive and negative experiences. Euro-American culture erroneously considers emotions to be intellectual judgments about experiences rather than physical sensations related to positive and negative experiences.

Consistently, there are two kinds of emotions: positive feelings of emotional well-being related to happy experiences and negative feelings of emotional suffering (distress) related to sad experiences. Happiness from positive experiences of emotional well-being *feels* good and sadness from negative experiences of emotional suffering *feels* bad. Distressful experiences cause emotional suffering that is directly related to the degree of distressfulness of the experiences; extremely distressful experiences naturally cause extremely painful emotional suffering — emotional pain. Emotional pain and physical pain are sensed similarly by the brain based on associative thinking and learned associations of physiological deficits. The painfulness of extreme emotional suffering can be constant, commanding and excruciating (similar to extended physical torture). Emotional pain is pain; emotional pain can be as strong as the extreme physical pain caused by a police Taser and thereby nullify its intended effect. The main difference between the brain's perception of physical pain and emotional pain is that emotional pain is without an easily identifiable source; it also subsides substantially slower. It is unfortunate for emotional sufferers that popular psychology theory intellectualizes emotions because their painfulness is vastly unappreciated. It is sad that emotional pain can be overwhelming, and occasionally promote suicide when other options for relief seem distant or hopeless. In contrast to popular theory, emotions are physical sensations directly related to personal experiences of happiness and sadness.

Fourth, the medical model pathologizes natural emotional suffering based on the erroneous assumption of a complex, neo-rational thinking principle; it focuses on the irrationality of the presentation of sadness. Human rationality is a source of species' pride regardless of substantial prosocial behavior being irrational and accepted as such. It is illogical that irrational thoughts and behaviors are a widely accepted part of "normal" psychology but are a defining feature of "abnormal psychology." Popular theory doesn't acknowledge irrationality being the foundational principle of "mental disorders" because of the abundance of irrational thoughts and behaviors that are accepted in prosocial behavior. Nevertheless, popular theory illogically considers expressions of painful emotional suffering and other natural problems in living to be pathological based on presentations deemed irrational.

Fifth, the medical model pathologizes natural sadness based on the legitimacy of medical science and the assumption that medical science is advocating pure natural science theory. Medical science is the Holy Grail of cultural knowledge about health based on the assumption of its pure natural science foundation. Most "mental health" professions defer their most basic theory to medical science based on its purported *hard science* of biology and physiology. But medical science promotes pseudo biology and pseudo physiology while not exclusively



addressing the physical (material) world of natural science. Moreover, the Disease Model pathologizes natural emotional suffering based on medical sounding labels for DSM categories. Popular theory typically labels categories of theorized disorders with Greek or Latin terms and thereafter uses the medical sounding terms to imply scientific insight.<sup>25</sup> For example, the medical model describes bedwetting as “enuresis” (a Greek term for urinating) and thereafter implies medical science insight when describing bedwetting as caused by *enuresis* — *urinating*. The medical model brutalizes the community with its harmful philosophical narrative; medical schools are ultimately responsible for this calamity by accrediting this toxic philosophy as science — as medical science.

Sixth, the medical model pathologizes natural emotional suffering based on the continued advocacy of the “chemical imbalance theory” after it has been widely discredited by eminent neuroscientists. A chemical imbalance would be the logical cause of a “mental disorder” if sadness was pathological but the chemical imbalance theory has been widely rejected by leading scientists in the field. Most eminent neuroscientists now reject the chemical imbalance theory as scientifically unsupportable.<sup>26,27,28,29,30</sup> Moreover, a correlation between serotonin or dopamine and a specific “mental disorder” is illogical since these neurochemicals function too generally to produce specific behaviors. Furthermore, the Disease Model is substantially supported by correlations when science logic advocates that “correlation doesn’t prove causation.” While eminent neuroscientists slowly retreat from the chemical imbalance theory, it is still widely promoted. It is unethical for medical school psychiatry to permit its legitimacy to be defended by the chemical imbalance theory after it has been generally discredited by eminent psychiatrists.

Seventh, the medical model pathologizes natural emotional suffering based on slowly transitioning from the discredited chemical imbalance theory to the erroneous “brain volume reduction theory.”<sup>36</sup> The brain volume reduction theory describes a pathological correlation between reduced brain volume and people diagnosed with “serious, chronic ‘mental disorders.’” However, *correlation doesn’t prove causation*; atrophy from disuse better explains this correlation. Extreme depression and heavy sedation reduce thinking (nervous tissue activity) and thereby causes nervous tissue atrophy consistent with any other underutilized tissue of the body. Depression describes slowed brain activity during periods of low motivation from hopelessness; long-term depression can reduce brain activity to nervous tissue atrophy. Similar to depression, heavy neuroleptic drug therapies also slow brain activity and cause nervous tissue atrophy at younger ages. Popular medical science theories about brain volume reduction causing “mental disorders” support cultural expectations but are without structural and functional neuroscience support.

Eighth, the medical model pathologizes natural emotional suffering based on the powerful financial interests of the pharmaceutical industry.<sup>31,32,33,34,35</sup> Pathologizing emotional suffering provides a broad base of clients for pharmaceutical drugs; this creates a strong vested interest for Big Pharma, and academics and doctors it employs for research and marketing. It is naive to believe that anyone is impartial towards someone generously giving them money, and Big Pharma has bottomless pockets. The lesson of doctors and scientists advocating the health benefits of smoking cigarettes should be a continual reminder of the power of money to skew science. Big Pharma money has also corrupted scientific journals to permit hiding unsupportive trials and writing research articles credited to academics and professionals. The current lack of scientific transparency in “scientific” journals is staggering and can only be understood in terms of financial corruption.<sup>62,37,38,39</sup>

Ninth, the medical model pathologizes natural emotional suffering based on the support of the complex and obscure hypothetical constructs of behavioral genetics (and behavioral determinism). The recondite, obscure investigations of behavioral genetics lack structural and functional neuroscience support for current theory. Cultural expectations and the pseudoscientific embrace of complexity drive behavioral genetics but it has not provided empirical scientific support for any of its hypotheses (and never will). Behavioral genetics as well as medical school psychiatry expect the emergence of scientific support for their founding principles but their founding principles remain false and scientifically unsupportable (Appendix B) .

The medical model pathologizes sadness (natural social, economic and/or spiritual distress) and other natural problems in living based on: 1) pseudoscience, 2) discounting the distressfulness of traumatic experiences, 3) misunderstanding emotions, 4) erroneous assumptions about the mental process, 5) its association with medical science, 6) theorized chemical imbalances, 7) theorized brain volume pathology, 8) the influence of Big Pharma money, and 9) hypothetical constructs from behavioral genetics.

The American Psychiatric Association (APA) pathologizes emotional suffering and other natural problems in living through their “bible” — the Diagnostic and Statistical Manual of Mental Disorders (DSM).<sup>40</sup> The DSM obscures its scientific illegitimacy through obfuscating. The incoherent DSM-5 definition of a “mental disorder” exemplifies the anti-science of deception: “A mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotional regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning.” The long APA history of obfuscated doublespeak obscures the first phrase of the definition that clearly defines a “mental

disorder” as a “syndrome.” Decades of muddled usage has normalized the absurdity of this definition. Since a syndrome is “a pattern of symptoms characteristic of a disease”, the DSM-5 defines a “mental disorder” as symptoms of a disease rather than a disease itself. Real medical sciences define diseases in terms of biological malfunctioning rather than a pattern of symptoms; patterns of symptoms cannot define a disease. Syndromes reference a pathology; they cannot define one. Defining “mental disorders” as “syndromes” makes them *pathological symptoms of nothing*; this is biological (medical) nonsense. The APA defines a “mental disorder” as symptoms of a disease and reifies the symptoms into a pseudo disease; this is a “social construct” based on circular reasoning. It is medical nonsense for a social judgment about symptoms to define a disease; the DSM lacks legitimacy.<sup>41,42,43,44,45</sup>

The APA published the first DSM in 1952 to wrestle control of psychiatric diagnoses from the military after WWII; it was based on now discredited Freudian theory. Its pseudoscientific foundation was immediately challenged by critics including Thomas Szasz; Szasz is generally credited with initiating the “antipsychiatry” movement with the publication of his landmark book, *The Myth of Mental Illness*.<sup>10</sup> Szasz considered “mental illness” to be a metaphor since a philosophy of “mind” cannot have physical health nor physical illness. He argued that psychiatry pathologizes natural “problems in living” as a means of social control over political dissent. In 1968, the APA published the DSM-II to deflect mounting criticism, but it failed to reduce criticism from an increasingly popular existential perspective of “mental disorders” proposed by R.D. Laing.<sup>46</sup> Laing explained the emotional suffering expressed in “mental disorders” as an “existential crisis.” In 1971, the International Society for Ethical Psychiatry and Psychology was established by academics and professionals to further challenge the legitimacy of the medical model of emotional suffering. Concurrently, pathologizing homosexuality became an increasing political problem for psychiatry; the APA voted to remove it from the DSM to reduce criticism. This was not an anti-science medical process; real diseases are not political, and accepted or rejected through a popular vote. Nevertheless, by 1980, medical school psychiatry’s foundation on Freudian theory was eroding its credibility so the APA published the DSM-III with a radical change in philosophy; medical school psychiatry doubled-down on the “disease card.” Again by committee vote, the DSM-III suddenly changed most diagnoses from social welfare problems described as “neuroses” to biological problems — medical problems.

With the publication of the DSM-III, medical schools moved from “Freudian Psychiatry” that lacked credibility to the illogic of “Biological Psychiatry” and its “medical model” of “mental disorders.” It was shockingly unethical for the APA to promote credibility through the misnomer “biological psychiatry” and equally unethical for medical schools to lend legitimacy to the pseudo

science. “Biological psychiatry” is self-contradictory: *biology is a natural science, a natural science can only investigate the physical (material) world by definition, and unlike neurology, medical school psychiatry investigates a philosophy of “mind.”* Nevertheless, redefining itself as “biological” greatly improved psychiatry’s credibility with the general public. The pharmaceutical industry joined psychiatry in celebrating the expanded disease narrative; it opened a whole new vista of profits for them. But the expanded medical model was met with a barrage of criticism for pathologizing natural emotions and behaviors, and for a manual with terrible reliability (diagnostic consistency).<sup>47,48,49</sup> In 1994, the APA published the DSM-IV to deflect ongoing criticism by adding a “clinical significance” criterion in order to better rebuff critics; it thereby rejected all criticism by non-clinician a priori. But tagging non-clinician critics as ill-informed did not stem the tide of criticism. In 2000, the APA published the DSM-IV-TR to deflect the criticism from the failure of the Decade of the Brain (the 1990’s) to provide any biological support for “biological psychiatry” and its narrative. The DSM-IV-TR added a five-part “axial” structure for different perspectives of “mental disorders” but the added complexity only increased validity and reliability problems; it was removed in the following edition. In 2013 the APA published the latest edition of the DSM (the DSM-5) that again redefined numerous categories to make the manual more politically correct (including “schizophrenia spectrum disorder” and “autism spectrum disorder”). However, the newly expanded definition of “pathological grief” is so illogical that it alone should render the new DSM invalid. Limiting “normal” grief that includes the death of a child or spouse to two weeks is patently absurd; the DSM blatantly lacks validity.

There are numerous other common criticisms of the failure of the DSM to be a legitimate medical manual besides its lack of validity and reliability. Common criticisms of the DSM include:

- 1) The DSM classifies symptoms of "mental disorders" without proposing causation or treatment;
- 2) The DSM pathologizes emotional suffering and other natural problems in living while discounting or ignoring personal histories — personal life circumstances. Critics chastise the medical model for “relegating personal histories to ‘triggers’ of an underlying genetic time bomb”;
- 3) The DSM focuses on categorizing behavior patterns while discounting the more critical issue of the intensity of emotional suffering;<sup>50,51</sup>
- 4) The DSM discounts or ignores the powerful influence of massive pharmaceutical industry resources;<sup>31,32,33,34,35</sup>
- 5) The DSM describes symptoms of emotional suffering with ambiguous boundaries that allow wide flexibility including catch-all categories. The DSM diagnostic categories are unscientifically flexible so they can conform to personal histories and personal histories can be adjusted to conform to diagnostic categories;
- 6) The DSM ignores how common symptoms like sleeplessness describe many diagnostic categories; this promotes added ambiguity that further erodes reliability;
- 7) The DSM discounts

the stigmatizing affect of its medical model labels and how they become self-fulfilling prophecies; and 8) the DSM ignores its substantial Euro-American cultural focus and the politics of categories that change with cultural attitudes through APA voting. The first three criticisms are critical failings; each individually should render the DSM more harmful than valuable. While these eight criticisms of the DSM are important, they pale in comparison to its lack of validity in describing "mental disorders."<sup>41,42,,43,44,45</sup>

Pathologizing painful sadness (social, economic and spiritual distress) is generally harmful — counterproductive; it's harmful to treat social welfare problems as pathological — as medical problems. It is unfortunate that the medical model dominates care for emotional suffering because it generally worsens outcomes by: 1) gaslighting, 2) stigmatizing, 3) promoting drug abuse, and 4) promoting coercion.

First, the medical model worsens outcomes by gaslighting emotional sufferers; it denies the reality of sadness from distressful experiences especially traumatic experiences and traumatic environments. It's difficult to imagine worse "mental abuse" than convincing someone that their natural emotional suffering is instead a mythical disease. It's generally difficult to improve life circumstances under the best of conditions but becomes nearly impossible when convinced that social welfare problems are instead medical problems. Popular theory doubles-down on gaslighting emotional sufferers when advocating "anosognosia" — that the refusal to accept a mythical diagnosis is an additional symptom of a medical problem.

Second, the medical model worsens outcomes for emotional sufferers by falsely stigmatizing sufferers as having a malfunctioning brain; this is one of our society's worse social stigmas. This erroneous stigma causes increased problems with social relationships as well as employment, child custody, insurance premiums, and control of medical and legal matters. "Mental disorders" are misnomers that unfairly promote stigma in the community.

Third, the medical model worsens outcomes by promoting drug abuse through mislabeling psychiatric drugs as medicines. It is unconscionable that medical school psychiatry permits the chemical imbalance theory to promote legitimacy for its drug therapies long after eminent neuroscientists have abandoned the theory.<sup>26,27,28,29,30</sup> Psychotropic drugs may have short-term value in relieving symptoms of mental distress to better address causation (especially with sleep deprivation) but long-term psychotropic drug use is generally counterproductive. Long-term psychotropic drug use causes distressful side effects including physical fatigue and a decrease in mental acuity (especially in heavier doses); these are additional obstacles to solving social welfare problems. (Note: psychotropic drugs are addictive and withdrawal can be dangerous; a

medical professional should be consulted before changing a drug therapy program.)

Fourth, the medical model worsens outcomes by promoting coercion; coercive practices may occasionally save lives but far more often cost lives especially through suicides. Incarceration in a mental institution, coerced drugging, and coerced ECT “treatments” are extremely distressful experiences that typically cause substantial additional emotional suffering. Coercive “mental health” practices are harmful violations of the UN Universal Declaration of Human Rights,<sup>52</sup> the UN Convention on the Rights of Persons with Disabilities treaty,<sup>53</sup> and the UN Working Group on Arbitrary Detention.<sup>54</sup> Coercive “mental health” practices are terrifying and rightfully the subject of horror films because they are *horrifying*. Coercive “treatments” cause substantial harm to the community; they are typically the *opposite* of therapeutic.

The medical model obscures potential solutions to distressful experiences and distressful life circumstances by pathologizing natural social welfare problems (natural emotions and behaviors). Current theory harms the community by gaslighting, stigmatizing, promoting drug abuse and promoting harmful violations of human rights.

The lack of validity of the DSM-5 is increasingly challenged by a multitude of eminent psychiatrists (including those at the Mad in America website<sup>55</sup>) and organizations including the National Institute of Mental Health,<sup>56</sup> the British Psychological Association,<sup>57</sup> and the Critical Psychiatry Network.<sup>58</sup> The publication of the new DSM also initiated several books that articulately critique its scientific failings.<sup>59,41,38,60</sup> Moreover, the British Psychological Association now advocates the challenging narrative of the Power Threat Meaning Network;<sup>57</sup> it’s a framework that describes emotional suffering and other natural problems in living as natural survival mechanisms. The medical model is losing support because it lacks scientific truth. Consistently, medical school psychiatry is understood by an “antipsychiatry” movement as a means of social control by delegitimizing the social and/or political dissent of the marginalized and disenfranchised. The World Health Organization supports the medical model in delegitimizing political dissent when defining “mental health” in terms of supporting existing social structures: “a state of well-being whereby individuals recognize their abilities, are able to cope with the normal stresses of life, work productively and fruitfully, and make a contribution to their communities.”<sup>19</sup> Pathologizing sadness (regardless of traumatic experiences and environments) denies our humanity while serving to delegitimize criticism of social and economic injustice. Current psychology/psychiatry theory harms the community by pathologizing social welfare problems.

In contrast to the current psychology/psychiatry paradigm, Natural Psychology advocates

the “Social Welfare Model” that describes sadness as natural psychology directly related to distressful and/or depressing experiences. The *Social Welfare Model* advocates that sad experiences naturally promote sadness: distressful experiences naturally promote anxiety and depressing experiences naturally promote depression. The Social Welfare Model explains most “mental disorders” as natural emotional suffering from sad personal experiences or behaviors that express the sadness. An aversion to sad experiences is learned during infancy through their association with physiological deficits; experiences of loneliness, abandonment and social rejection are learned associations of physiological deficits. Anxiety is the feeling of mental distress — emotional suffering; it’s the physical sensation of negative emotions directly related to distressful experiences. Negative emotions of sadness (anxiety and depression) are directly related to the distressfulness of related experiences.

Emotional suffering motivates behavior to seek less distressful experiences while emotional pain is strong motivation to avoid extremely distressful experiences. The main differences between the sensation of extreme emotional pain and extreme physical pain is that physical pain is understood more directly related to a physical source and usually subsides more rapidly. Few are aware of the similarities between physical and emotional pain because our culture defines pain related to a location outside the brain and emotional pain is pain from within. The Social Welfare Model explains emotional suffering better than the “medical model” of “mental disorders” that’s better described as the Disease Model of natural emotional suffering.

The current psychology/psychiatry paradigm pathologizes symptoms of painful emotional suffering and non-conforming, non-productive and/or disruptive behaviors based on cultural politics and the “social construction of science”; it lacks biological validity. Current theory is confused by emotional suffering based on an assumption of a neo-rational mental principle rather than associative thinking. Current theory also wrongly understands emotions intellectually rather than physically — as “feelings” of physical sensations. The DSM may be a publication of imposing size and complexity but it is based on pseudo science and circular reasoning that’s obscured by obfuscated verbosity. A Pollyanna World is not a real world; traumatic experiences and traumatic environments cause anxiety and depression — sadness. Gaslighting and stigmatizing emotional sufferers by pathologizing sadness substantially increases emotional suffering. Promoting drug abuse by mislabeling psychiatric drugs as medicine is also harmful but probably less harmful than “treating” sadness with coercion. The medical model harms the community by addressing social welfare problems as medical problems and leaving most people feeling isolated and confused about their natural feelings of sadness.

Natural Psychology's social welfare model is a parsimonious new paradigm that explains "mental disorders" with accepted science theory and accepted empirical neuroscience. Humans are sensing (feeling) organisms as well as thinking organisms; emotional suffering is the painful sensation of sadness (anxiety and depression) based significantly on sad experiences. Extremely distressful experiences cause emotional pain similar to extreme, unrelenting physical pain. "Mental disorders" express the anxiety of distressful experiences; when solutions seem distant or hopelessness, the mental process slows (with "depression") to reduce painful thinking. Coping behaviors often seek (short-term) relief from emotional pain at the expense of long-term solutions. Understanding "mental disorders" as pathologizing social welfare problems is vitally important for improving the human social condition; pathologizing sadness is inhumanely cruel. For further information about "mental disorders", Appendix H explains popular theories about them from the perspective of the new paradigm of Natural Psychology. Appendix H provides a unified explanation of popular theories about "anxiety disorders", "eating disorders", "substance-abuse disorders", "mood disorders", "somatoform disorders", "dissociative disorders", "personality disorders", and "schizophrenia spectrum disorders." Lastly, understanding "mental illness" promotes a substantially better understanding of therapy for individuals and the community as described in Appendix I.

Medical science and society will greatly benefit from understanding human suffering: emotional suffering is the natural response to distressful experiences and emotional pain is the natural response to extremely distressful experiences. This is our humanity. Medical schools are ultimately responsible for the calamity of the medical model by accrediting and thereby legitimizing its philosophy of "mind" as a medical "science." The medical model is consistent with cultural expectations but inconsistent with accepted natural science theory. Unfortunately, medical schools have a long, ingrained history of support for psychiatry's social construct; it will take courage for medical schools to accept the traditional harm of psychiatry's narrative. However, embracing scientific truth over medical tradition will catapult medical science into an exciting new era of radically improved health care!



## Conclusion

Natural Psychology explains human psychology with a comprehensive new paradigm based on the binary science of motivated-thinking, accepted science theory and accepted empirical neuroscience. The binary science of motivated-thinking explains all thinking: nervous tissue structured for motivation substantially impacts nervous tissue structured for thinking as substantially a function of personal experience. As a function of individual experience, the mental process generally seeks the strongest associative thought while behavior generally seeks well-being. Although associative thinking has been accepted thinking theory periodically throughout history, it's been difficult to understand without understanding the motivation that directs it. Humans are sensing organisms as well as thinking organisms; emotions are *feelings* — physical sensations directly related to experience. Humans feel emotions especially extreme happiness and extreme sadness (anxiety and depression). Consistently, there are two types of emotions: positive emotions of happiness express affirming experiences of emotional well-being and negative emotions of sadness express the distressful experiences of emotional suffering.

During infancy, humans learn to seek emotional well-being from experiences associated with physiological energy and conversely learn to avoid emotional suffering from experiences associated with physiological energy deficits. Emotional pain and physical pain are sensed similarly; extreme emotional suffering is as painful as any real (physical) disease. Emotional trauma is sensed similar to physical trauma but it's much less understood. Human psychology is substantially a function of experience: distressful experiences naturally cause anxiety, depressing experiences naturally cause depression, and sad experiences naturally cause sadness. In contrast to popular theory that pathologizes sadness, sadness is a painful, natural reaction to sad experiences (distressful and/or depressing experiences); this is our humanity.

Natural Psychology explains human psychology as seeking emotional well-being; “mental disorders” express emotional suffering (the failure to achieve emotional well-being). The medical model harms the community by pathologizing painful sadness especially related to traumatic experiences and traumatic environments. “Mental disorders” pathologize social welfare problems; unfortunately, this provides cover for a broad range of social abuses. “Mental disorders” express naturally painful sadness (the emotional suffering of social, economic and/or spiritual distress) and other natural “problems in living.” Our culture has a long tradition of pathologizing sadness; medical schools are ultimately responsible for this calamity by accrediting and thereby legitimizing a harmful philosophy as science. “Mental disorders” pathologize natural emotional suffering and non-conforming, non-productive and/or disruptive behaviors.

Natural Psychology is a comprehensive new paradigm that unifies the basic principles of the five most popular theories of human psychology: 1) structural psychology, 2) functional psychology, 3) psychoanalytic psychology, 4) behavioral psychology, and 5) humanistic psychology. First, this thesis is *structural psychology*; it explains thinking and motivation in terms of the anatomy of the cerebral cortex and the limbic system respectively (the anatomy [structure] of thinking nervous tissue and motivating nervous tissue respectively). Second, this thesis is *functional psychology*; it explains human psychology in terms of the function of motivation neurophysiology impacting thinking neurophysiology based significantly on individual experience (Appendix F). Third, this thesis is *psychoanalytical psychology* when advocating that traumatic experiences are often unavailable for recall and that associative thinking can assist the recall of traumatic experiences (Appendix G). Fourth, this thesis is *behavioral psychology*; it explains behavior conditioning as a microcosm of our mental process and promotes therapy based on conditioning experiences that neutralize emotional suffering and promote emotional well-being (Appendix C and Appendix I). Fifth, this thesis is *humanistic psychology* in explaining our common humanity (common neurophysiology) and how it increasingly fosters cooperation, civility, fellowship and altruism. Natural Psychology is a unified theory of structural psychology, functional psychology, psychoanalytic psychology, behavioral psychology and humanistic psychology. (Note: Appendix A through Appendix F explain the real science and neuroscience of human psychology.)

The medical model advocates Pollyanna theory; it significantly discounts the prevalence and severity of human suffering from distressful experiences, traumas and traumatic environments. Environments are often abusive when people have power over others without transparency; the “attribution bias” often promotes feelings of personal labor being underappreciated and can promote corruption without transparency. Power corrupts; humans are engaged in a natural struggle for more social, economic and political justice (and better stewardship of Mother Earth) to challenge greed, elitism and class privilege. The medical model advocates cultural expectations that support cultural leaders in pathologizing sadness in support of established social and political structures.

There is natural grandeur in the simple, majestic mental process of motivated-thinking regardless of substantial repugnant behavior. Natural Psychology is breakthrough natural science theory that unifies western natural science and neuroscience with eastern natural science

— with binary science. Natural Psychology explains human psychology by solving the scientific anomalies of the current psychology/psychiatry paradigm through a radically different perspective of accepted science theory and empirical neuroscience. In our grand and noble effort to understand brain science, scientists should follow accepted natural science theory. This treatise is a paradigm shift that may be difficult to understand from the context of the established paradigm that embraces complexity, but it's parsimonious science that deserves consideration. Understanding human psychology will initiate an exciting new era of scientific discovery in medical science as medical schools recommit to natural science and a more segregated appreciation for philosophy and theology. Scientific truth is empowering; Natural Psychology explains how our common humanity increasingly seeks justice and emotional support for all.

Natural Psychology implores the reader to suspend belief in a massive quantity of complex, ambiguous, disjointed support for the complex popular psychology paradigm, and instead consider the elegance of binary science. Societies won't abandon the concepts of "free will" and "personal responsibility" just because our mental process seems more mechanistic; instead, societies will integrate these concepts into our social fabrics. Self-knowledge will better enable societies to respect the truth about our common humanity as well as our unique individuality. The community will build more just and transparent judicial systems and social structures to provide more opportunity for all to flourish with autonomy while promoting increased social justice and stewardship of Mother Earth. Our confidence is rightly placed in *transparency* created by the community because united we stand strong. Self-knowledge will energize an exciting new era of health care, intellectual and moral enlightenment, and a radical improvement in the human social condition!

## Appendix A

### Neo-Dualism and Human Psychology

Natural Psychology explains human psychology with true natural science theory separate from philosophy (or theology); it challenges the philosophical neo-dualism of the popular psychology/ psychiatry paradigm. Classical dualism advocated that a *theological* soul distinct from the brain directed behavior through divine intervention; neo-dualism advocates that a *philosophical* “mind” distinct from the brain directs behavior. The popular “bio-psycho-social” theory of psychology advocates the dualism of a philosophical “mind” that mediates between brain biology and social (environmental) experiences. An abstract “mind” is a widely accepted “social construct” in our culture, but it is philosophy, not science. Cultural expectations promote the reification of a philosophy of “mind” into a physical entity and a subject of “scientific” investigation but this is not *real* science. A philosophical concept of “mind” cannot metamorphose into a physical entity and a subject of “hard science” — natural science. Social sciences investigate social behavior but no science can investigate a philosophy — a philosophy of “mind.”

Consistent with our culture, psychiatry’s medical model pathologizes natural emotions and behaviors through the “reification” of the “mind” — considering abstract, philosophical concepts to be concrete, physical entities. Current psychology/psychiatry theory considers the “mind” to have “health” (“mental health”) and sickness (“mental illness”) consistent with physical entities through the “fallacy of reification.” The fallacy of reification is also known as the “fallacy of abstraction”, the “fallacy of false concreteness”, the “fallacy of misplaced concreteness”, and the “fallacy of false certainty.” The fallacy of reification is the illogic (pseudo science) of giving physical qualities to philosophical, abstract concepts — the fallacy of treating a hypothetical construct as a concrete entity. The medical model reifies natural emotional suffering and natural problems in living into physical entities and the subject of medical “science.” “The mind is what the brain does” is a popular adage that attempts to reify the actions of the brain into an (physical) entity separate from the brain. Current theory reifies natural emotional suffering and other natural problems in living into mythical diseases that are defined and explained solely by their symptoms. In contrast to neurology that addresses the physical brain, psychiatry addresses a reified philosophy of “mind.” Since a philosophy cannot metamorphose into a science, the medical model is pseudo science based on reification and the circular reasoning of neo-dualism.

Although classical dualism is theological and neo-dualism is philosophical, neither are science and both vilify human nature. Popular psychology theory generally disparages human

nature as primitive and base. However, it should be an obvious bias against human nature to ascribe philosophical origins to socially admirable behaviors while ascribing natural origins to socially repugnant behaviors. Current natural science theory vilifies nature with a perspective of nature as “red in tooth and claw.” Consistently, the 1999 Bantam Books’ cover of *The Origin of Species* was a painting of hell by Hieronymus Bosch. Moreover, current evolutionary psychology theory redefines altruism as non-altruistic — as promoting the selfish self-interest of “reciprocal positive returns.” The current vilification of human nature is consistent with a history of evolutionary theory being co-opted to support unconscionable theories of social exploitation including social Darwinism, eugenics and forced sterilization. The unscientific vilification of human nature is a fundamental problem for popular psychology theory as it only imagines human nature as negative — base, selfish and antisocial.<sup>66,67,68,69</sup>

Evolutionary psychology, sociobiology and human behavioral ecology erroneously seek to explain our culturally accepted philosophy of “mind” with evolutionary theory. Evolutionary psychology leads this abomination of natural science theory with its complex, abstract theory.<sup>70,71,72,73</sup> Evolutionary psychology vilifies human nature by simply identifying behaviors it considers primitive (undesirable or anti-social behaviors considered previously more common) and tagging them as human nature. Evolutionary psychology drifts from evolutionary theory (and logic) as it conflates our natural motivation to seek species survival with a motivation for individual survival, cell survival, and even gene survival.<sup>74</sup> Moreover, evolutionary psychology theory is disconnected from empirical neuroscience; it makes no connection. Sociobiology also makes abstractions from natural science theory without reference to accepted empirical neurobiology.<sup>8,9</sup> Evolutionary psychology, sociobiology and human behavioral ecology make innumerable assumptions in their efforts to integrate a philosophy of “mind” into biology and natural science theory; this makes their theories non-falsifiable pseudo science.

In contrast to the current vilification of human nature, Charles Darwin describes all behavior as human nature in *The Descent of Man*; Darwin was a self-described naturalist who embraced nature.<sup>75,76</sup> Although Darwin advocated that the fittest will survive and pass along their genes, he did not describe the fittest as the most aggressive and brutal. Darwin advocated for the value of altruism and cooperation for species survival and especially alluded to the value of cooperation for homo sapiens.<sup>77</sup> Eminent Evolutionary Biologist E.O. Wilson is also famous for advocating that human nature is based strongly on cooperation.<sup>78</sup> Consistent with Darwin and Wilson, eminent naturalist Stephen Gould describes all human behavior as natural in *The Mismeasure of Man*.<sup>79</sup>

Neo-dualism often describes psychological factors as distinct from biological factors with

the analogy of the difference between computer software and computer hardware, but the analogy is ill-conceived. This analogy ignores the fundamental principle of computers operating through binary science and instead focuses on details of computer production. Besides ignoring the operating system, there are numerous other fallacies in how AI currently models the brain with computers. First, brains learn (by growing neural connections) while computers are externally programmed. Second, the brain is malleable, growing and changing while computers are fixed systems. Third, neural connections vary widely with a variety of neurotransmitters while computers have a single switching mechanism. Fourth, neural circuits of the brain work in parallel while computer circuits work serially (inline). Lastly, computer software/hardware has no direct relationship with known brain anatomy — especially the difference between the cerebral cortex and limbic system. There are numerous problems with how neuroscientists currently model the brain with computers but the biggest problem is ignoring its simple binary operating principle.

The neo-dualism of the “mind” is philosophy that obscures a natural science understanding of human psychology. Natural Psychology challenges the legitimacy of the medical model and its philosophy of “mind” as pseudo natural science by definition since it doesn’t address the natural, physical (material) world. Vilifying human nature is truth denial. In contrast, Natural Psychology explains human psychology as human nature based on basic empirical neuroscience. Although significant behavior is repugnant and reprehensible, these behaviors do not define human nature or the human capacity for fairness and justice. Human nature is glorious in totality; our common humanity naturally promotes increasing altruism. Natural Psychology is a comprehensive theory of human psychology based on accepted science theory and empirical neuroscience void of social construction.

(Note: Natural Psychology is a comprehensive natural science explanation of human psychology that addresses philosophical and theological intrusions into natural science theory. However, since Natural Psychology is a natural science explanation of human psychology and natural science only addresses the physical, material world, it does not address nor can it preclude theological or philosophical explanations.)

## Appendix B

### The Natural Science of Human Psychology

In *The Structure of Scientific Revolutions*, eminent philosopher of science Thomas Kuhn describes the difficulty of understanding social influences that skew science theory.<sup>80</sup> Popular neuroscience theory is a classical paradigm; it's a complete world view supported by terms with interrelated connotations and contexts that reinforce the status quo. Scientific paradigms are homogeneous; they're complete world views supported by terms with interrelated connotations and contexts that reinforce the status quo. Hence, it's difficult to recognize a false assumption of a paradigm from within the paradigm. In the arduous challenge (and valiant effort) to understand neuroscience, it is far easier to theorize about pathological symptoms than to theorize about theoretical problems underlying the established paradigm. Eminent philosopher of science Karl Popper understood the difficulty of identifying false assumptions when he advocated the accepted Philosophy of Science principle of "falsifiability."<sup>81</sup> The philosophy of science advocates that real science theories can be differentiated from ad hoc theories by *falsifying* them — explaining how to disprove them. The process of describing how to disprove a theory identifies assumptions that are potential sources of error. Although current neuroscience research is an admirable endeavor, foundational neuroscience theory has not been falsified to identify underlying assumptions for critical consideration.

This thesis contends that falsifying the current neuroscience paradigm identifies a new direction for our philosophy of natural science as well as physiology theory. First, the philosophy (the most fundamental principle) of natural science advocates that our environment is best understood with a singular focus on the physical (material) world, but there is a second philosophy. Besides the philosophy of natural science that defines the science, there is also a philosophical divide that roughly separates "east" and "west." Eastern natural science *assumes* eloquently simple principles of nature including human nature; in contrast, western natural science predominately *assumes* admirably complex principles of nature including neuroscience. Eastern natural science advocates the beautifully simple binary science of "yin and yang" while western neuroscience assumes that the brain is "the most complex machine in the universe."<sup>82,83</sup> Western scientists predominately ignore (or disparage) eastern natural science as elevating stereotypical gender roles, but it's fundamentally binary science. *It's unscientific to ignore binary neuroscience while eastern natural science advocates it and while neuroscientists model the brain with computers that operate through binary science.*

Besides considering the elegance of binary science, popular neuroscience investigations should also reconsider their neurophysiology theory. The popular focus on molecular neurophysiology logically follows an admirable history of successes in addressing disease pathologies, but fundamental physiology theory lights a new direction. *Neurophysiologists should consider whole-tissue neurophysiology consistent with how physiologists explain every other organ of the body with four kinds of whole body tissues (muscle tissue, connective tissues [bones, teeth], epithelial tissues [skin, veins] and nervous tissue).* Addressing whole-tissue physiology may initially seem abstract from the perspective of western neuroscience, but it's basic, accepted physiology theory. Scientific logic, the philosophy of science and the philosophy of natural science beg for consideration of beautifully simple binary neuroscience while the philosophy of physiology begs for consideration of *whole-tissue* neuroscience. Hence, the philosophy of informing sciences implores consideration of *binary whole-tissue neuroscience* to understand neuroscience and numerous neurodegenerative diseases.

This thesis advocates eloquently simple brain functions based on elemental, accepted science theory. While the beauty of the binary neuroscience of human nature may be difficult to understand based on a cultural assumption of admirably complex brain functions, there is tremendous social value in scientific truth. The following sections advocate that current neuroscience research: 1) *contradicts basic science logic* when it assumes complex neuroscience principles and ignores simple binary science, 2) *contradicts the philosophy of science* when it assumes complex neuroscience principles and ignores simple binary science, 3) *contradicts the philosophy of natural science* when it assumes complex neuroscience principles and ignores simple binary science, and 4) *contradicts the philosophy of physiology* when it ignores whole-tissue neurophysiology. The philosophy of a science is the science's most fundamental principle; it defines and frames a science with an unprovable underlying assumption. An anomaly of the philosophy of a science corrupts all of the science that is built upon it; as information technologists advocate, "garbage in, garbage out."<sup>84-A,84-B,85</sup> Basic science logic and accepted science tenets implore consideration of beautifully simple *binary (whole) tissue neuroscience* to understand neuroscience and numerous degenerative diseases.

First, *popular neuroscience research contradicts basic science logic while continuing a long tradition of assuming complex brain principles while brain principles are unknown; full stop.* Moreover, *popular neuroscience research continues to contradict basic science logic when assuming complex brain principles while modeling the brain with computers that operate through simple binary science; again, full stop.* It may appear that simple brain principles would be



obvious to scholars but appearances are often deceiving. It is extremely difficult to reverse-engineer a system that produces a complex product based on a simple principle, especially when the simple principle is not sought. One hundred trillion neural connections produce complex thinking and complex behavior but do not prove a complex brain principle. In contrast to the common *assumption* of complex brain principles,<sup>82,83</sup> scientific logic demands consideration of gloriously simple binary neuroscience to understand neuroscience and numerous neurodegenerative diseases.

Second, besides contradicting scientific logic, current neuroscience research also continues to *contradict the philosophy of science* while *assuming* complex brain principles and ignoring simple binary neuroscience. All science theory is based on the principle of *parsimony* — Occam’s razor: “All other things being equal, simpler theories are better science”, or more accurately, “Fewer assumptions make better science.” Unfortunately, accepted neuroscience investigations are comfortable with increasing complexity and a related increase in unidentified assumptions; parsimony and falsifiability are not considerations. Popular neuroscience research contradicts the philosophy of science while embracing our cultural pride in human complexity and failing to consider simple binary neuroscience. Regardless of a long, painful history of oversimplification in science, the philosophy of science implores consideration of binary neuroscience to understand neuroscience theory and numerous neurodegenerative diseases.

Third, besides contradicting scientific logic and the philosophy of science, current neuroscience research also *contradicts a philosophy of natural science* while *assuming* complex brain principles and ignoring simple binary neuroscience. The philosophy of natural science advocates that our environment is best understood with a singular focus on the natural (physical, material) world, but there is a secondary philosophy of natural science. The secondary philosophy of natural science divides scientists between the *assumption* of simple principles consistent with eastern natural science and the *assumption* of complex principles consistent with western neuroscientists. Eastern natural science advocates nature and neuroscience based on the simple binary science of yin and yang. In contrast, western natural science theory is divided between the predominance of natural scientists (and neuroscientists) and leading natural scientists. Although the majority of neuroscientists assume complex neuroscience principles consistent with cultural expectations, our most eminent western natural scientists advocate simple principles consistent with eastern natural science. *Our leading natural scientists (Einstein, Brian Greene, Steven Weinberg, Walter Lewin) advocate that human nature is based*

*on eloquently simple principles hidden beneath an appearance of complexity.*<sup>86,87,88</sup> Eminent western natural scientists deviate from the mainstream by contending that simple principles produce the complex manifestations of the natural world including human nature. Leading western natural scientists imply that neuroscientists should investigate human nature as a function simple principles — binary neuroscience well beyond binary neurons. Natural science theory implores consideration of simple principles of binary neuroscience to understand neuroscience and numerous neurodegenerative diseases.

Fourth, besides contradicting basic science logic, the philosophy of science, and the philosophy of natural science in ignoring binary neuroscience; current neuroscience research also contradicts *the philosophy of physiology*. While failing to consider simple binary neuroscience, popular neuroscience research also contradicts the philosophy of physiology while addressing organizational levels of the body. The philosophy of physiology begs for consideration of simple principles of whole-tissue neurophysiology to understand brain science while current neuroscience investigations focus on complex principles of molecular neurophysiology (including genetics). Investigating molecular neuroscience has produced significant advances in understanding human pathologies but molecular physiology cannot currently explain any organ functions. Molecular neurophysiological investigations are *inconsistent* with how the philosophy of physiology explains every other organ of the body with “whole-tissue physiology.”

The philosophy of physiology explains organisms at different organizational levels of the body with each organizational level explaining the entire organism. *The body is completely comprised of body systems, and also completely comprised of body tissues, and similarly completely comprised of cells, as well as completely comprised of molecules; physiology investigates the body in “layers” or “generations” of information.*<sup>89,90,91</sup> Anatomy and physiology texts investigate humans at different organizational levels of descending sizes and ascending complexity: body systems, body tissues, cells, and molecules. Physiology texts explain organs with body systems (“organ systems”), explain body systems (including organs) with body tissue physiology, explain tissue physiology with cellular physiology, and explain cellular physiology (theoretically) with molecular physiology. The philosophy of physiology completely explains organisms at different organizational levels and explains organs with the organizational levels of body systems (organ systems) and body tissues. Considering the interaction of entire (nervous) tissues to understand brain science may seem abstract from within the prevailing paradigm but the philosophy of physiology implores the focus.

Accepted physiology theory investigates organisms at different organizational levels of the body and can explain the function of all organs at the largest level — the level of body systems. Physiology theory describes neuroscience at the organizational level of body systems as the “nervous system” and can explain the brain and nervous system with basic natural science theory. Natural scientists can explain brain science at the organizational level of the nervous systems as follows: *the brain receives information about the environment through the peripheral nervous system, processes the information, and sends related information back through the peripheral nervous system to affect behavior towards species survival.* This overview of brain functions is similar to how physiologists explain every other organ and organ system; this is a natural science explanation of brain functions at the body systems level. Physiology theory investigates the human organism at different organizational levels and can explain all organs (including the brain) at the largest organizational level of body systems.

Besides explaining all organs at the organizational level of body systems, physiologists can explain all organs besides the brain at the level of body tissues. Physiologists explain all other organs with an overview of the function of four kinds of whole body tissues: muscle tissues, connective tissues (including teeth, bones), epithelial tissues (including skin, veins), and nervous tissues. For example, after explaining the heart at the organizational level of body systems (as a pump that shoots nourishment and draws waste), physiologists explain the function of the heart with the increased specifics of entire-tissue physiology. Physiologists explain the heart with the interaction of whole tissues as follows: 1) *whole muscle tissues* create the general structure of a pump while flexed muscle tissues push nourishment throughout the body and pull waste, 2) *nervous tissues* create a periodic electric spark to flex heart muscle tissues to action, 3) *connective tissues* create valves in the pump structure to produce directional flow, and 4) *epithelial tissues* encase muscle tissues and create pipes to carry nourishment and retrieve waste. Physiologists explain all organs besides the brain with a “big picture” perspective of entire body tissues (and their interactions) that is more detailed than the organizational level of body systems that also completely explains the function of organs.

But instead of addressing whole-tissue neurophysiology consistent with the philosophy of physiology (the “big picture” of nervous tissue physiology), neuroscience research instead promotes what it describes as “systems neuroscience.” “Systems neuroscience” *assumes* that the brain is functioning through a multitude of smaller interacting brain systems and only investigates nervous tissue under this assumption. Hence, systems neuroscience ignores how the philosophy of physiology explains all other organs with the organizational levels of body

systems and tissue physiology. Popular *systems neuroscience* theory investigates a complex, micro focus on nervous tissue neurophysiology that obscures a macro focus on whole body tissues (and their interactions) that explains all other organs. Current neuroscience theory doesn't understand the brain at the tissue level of organization because it seeks a complex theory of systems neuroscience rather than a simple theory of whole nervous tissue interaction. Seeking a macro focus of whole nervous tissues may seem abstract from the perspective of the current paradigm but science theory implores the focus.

While physiologists explain all organs with body systems and all organs besides the brain with (whole) body tissues, they are unable to explain any organ at the cellular or molecular organizational levels. *Molecular pathology* explains cellular pathology and thereby tissue and organ pathology but *molecular physiology* cannot yet explain cellular physiology. Moreover, cellular physiology cannot skip a generation of information to directly explain the function any organ of the body; cellular physiology can only reference tissue physiology that explains organs. Fortunately, scientists understand enough about cellular neurophysiology to explain tissue neurophysiology and thereby the function of the brain. Investigating molecular neuroscience to understand brain functions is analogous to investigating the molecular structure of steel in an effort to understand the function of an automobile engine. Molecular physiology theoretically explains cellular physiology, but with a basic understanding of cellular neurophysiology, molecular neurophysiology is superfluous for understanding tissue neurophysiology and thereby brain science. Investigating molecular neurophysiology to understand brain science contradicts the philosophy of physiology that explains organs with the physiology of whole body tissues.

Popular neuroscience research should theorize about "whole-tissue neurophysiology" as well as binary neuroscience to understand brain science.

Science logic and accepted science principles implore consideration of eloquently simple *binary neuroscience as well as (whole) tissue neuroscience* to understand brain science and numerous neurodegenerative diseases. Scientific logic dictates that the tenets of a science are the most important guidelines to follow for any science; everything emanates from foundational principles. Unfortunately, the distinguished endeavor to understand neuroscience is hindered by critical, long-established misdirection at the foundation of accepted science theory.

Popular neuroscience research continues to contradict basic scientific logic and the philosophy of science, the philosophy of natural science and the philosophy of physiology. It is illogical (unscientific) for popular neuroscience theory to ignore magnificently simple binary science when: 1) brain principles are unknown while science theory seeks simple principles, 2)

eminent western natural scientists advocate simple brain principles, 3) eastern natural science advocates binary science, and 4) neuroscientists model the brain with computers that operate through binary science. Besides ignoring binary neuroscience, it's also unscientific for conventional neuroscience theory to ignore the physiology of whole nervous tissues (and their interaction) consistent with how physiology explains all other organs. Science logic and the tenets of informing sciences implore consideration of *binary whole-tissue neuroscience* to understand neuroscience theory and numerous neurodegenerative diseases.

*Since neuroscientists have a general understanding of tissue neuroanatomy and cellular neurophysiology, they have all the information necessary to understand tissue neurophysiology and (binary) brain science. Neuroscientists should consider the binary neuroscience of "motivated-thinking" to understand brain science wherein the thinking process is separate from the motivation that directs it. Consistently, neuroscientists should consider whether a set of nervous tissues structured for motivation (the limbic system) impacts a set of nervous tissues structured for thinking (the cerebral cortex).*

In the grand and noble effort to understand brain science, scientists should follow accepted natural science theory. This treatise is a paradigm shift that may be difficult to understand from the context of the established paradigm that embraces complexity but it is parsimonious science based on elemental, accepted science theory. Natural Psychology implores the reader to suspend belief in a massive quantity of complex, ambiguous and fragmented support for cultural expectations, and instead consider the elegance of binary science. This thesis implores a reverence for the truth of natural science that can revolutionize health care and greatly improve the human social condition.

## **Appendix C**

### **Associative Thinking**

Consistent with scientific logic and the philosophy of the sciences that inform it, human psychology is explained by the empirical neuroscience of motivated-thinking. It is critically important to understand thinking theory separate from motivation theory to understand the binary science of motivated-thinking and thereby human psychology. Basic empirical neuroscience now proves that the Associationists who founded modern psychology with the Rationalists were correct: our rationality is produced by associative thinking. In contrast to current thinking theories that include motivation, associative thinking is a more basic concept of thinking wherein the thinking process is separate from the motivation that directs it. Popular thinking theory correctly identifies “connectionist neural networks” as the thinking neurophysiology of the cerebral cortex but contorts this empirical neuroscience to adapt to an assumed neo-rational mental principle. In contrast to physiological theory that implores consideration of whole nervous tissues and their interactions, the popular thinking theory of “parallel distributed processing” (PDP) of *connectionist neural networks* focuses on a micro perspective. Popular PDP theory is a micro perspective of nervous tissue physiology that theorizes about a complex neo-rational mental mechanism that processes “nodes” (units) of information or partial information “chunks.” In contrast, associative thinking is explained by a macro perspective of the general flow of neural communication through connectionist neural networks of the cerebral cortex. An overview of nervous tissue physiology explains all thinking as associative thinking including rational consciousness and thinking that is neither rational nor conscious.

Associative thinking describes the connection of simultaneously occurring sensory stimuli and ideas; each thought is the strongest association of the previous thought and sensory stimuli. Associative thinking gloriously produces rationality by associating all information pertinent to a subject. Although humans are rightly proud of their rationality, science doesn’t prove a mental principle of rationality. Consistently, theorists rarely profess a neo-rational mental principle because substantial thinking is accepted as irrational. Although associative thinking is accepted learning theory and memory theory (thinking for the future and about the past), associative thinking is less conspicuous when addressing the present — with cognition. It is difficult to quantify the associative thinking of normal daily life including the substantially habituated behavior that exemplifies associated thinking.

Associative thinking is often apparent through introspection about the source of surprising

thoughts that seem to appear from “out of the blue.” Unexpected thoughts that seem spontaneous are often conspicuously understandable as the strongest association of the previous thought or sensory stimuli (location, color, smell, person, activity, etc.). Consistently, when specific music is the background of an emotional experience, hearing the same music after an intervening period prompts strong associated memories and emotions. Exploring the source of surprising thoughts exposes the connection between thoughts — the associative thinking underlying all thinking and behavior.

Associative thinking may appear crass and mechanistic from the context of our current psychology paradigm but it’s glorious in producing our rational consciousness and increasingly altruistic behavior.

In contrast to popular thinking theory, associative thinking is: 1) explained by basic empirical neuroscience, 2) proven by behavior conditioning, 3) advocated by classical philosophers, and 4) supported by disproving a neo-rational mental principle.

First, elementary empirical neuroscience explains associative thinking as the foundation of all thinking. Consistent with physiology theory, a macro perspective (the “big picture”) of the whole nervous tissue of the cerebral cortex explains thinking — associative thinking. The entire nervous tissue of the cerebral cortex is thinking anatomy (structured for thinking) and the flow of neural communication through the cerebral cortex is thinking physiology. (Technically, the cerebral cortex is a set of two whole tissues [two “hemispheres”] but the two halves function similarly and are therefore addressed hereinafter as a single tissue). Associative thinking is explained by the common, general flow of neural communication through common neural networks of the nervous tissue of the cerebral cortex. The “primary” senses of touch, sight and sound are channeled through the cerebral cortex to substantially produce thinking; the “secondary” senses of taste and smell are channeled through the limbic system to affect (influence) thinking. (Note: this thesis only addresses the five major senses; the author can address more minor senses upon request.) The primary senses of touch, sight and sound create a general understanding of the environment while the secondary senses of smell and taste affect judgments about environmental information. Connectionist neural networks connect (associate) primary sensory information in the “*association area*” (technical terminology) of the posterior cerebral cortex and thereafter connect more complex associations (complex thoughts) in the *association area* of the frontal cerebral cortex. Technical neuroscience nomenclature labels half of the posterior cerebral cortex and most of the frontal cerebral cortex as “association areas”; this label should be considered literally. The primary senses of touch, sight and sound enter the

posterior cerebral cortex from different peripheral areas of the posterior lobe and are connected in the central, *association area*. The primary sense of touch enters the posterior lobe from the frontal peripheral, the sense of sound enters from the lateral peripheral, and the sense of sight enters from the posterior peripheral. Connecting (associating) the primary senses of touch, sight and sound in the central posterior lobe (while influenced by the secondary senses of smell and taste) is the foundation of associative thinking. Neural information that is connected in the *association area* of the posterior lobe is thereafter channeled forward into the *association area* of the frontal lobe. More complex interconnections (associations) in the association area of the frontal lobe produces complex thoughts and complex behaviors — more complex associative thinking. Popular theory correctly identifies connectionist neural networks but seeks to adapt them to a complex neo-rational principle (while failing to consider whole tissues that explain all other organs). The connectionist neural networks of the cerebral cortex is thinking anatomy and the general flow of neural communication through the cerebral cortex is thinking physiology (thinking neurophysiology). Consistent with the fundamental principles of physiology, the tissue neurophysiology that explains associative thinking is explained by the cumulative effect of cellular neurophysiology. The tissue neurophysiology of connectionist neural networks is explained by the cumulative effect of the cellular neurophysiology of “cellular thinking” — neurons “communicating at their synapses.” Cellular neurophysiology may eventually be further explained by molecular neurophysiology but scientists currently understand cellular physiology well enough to understanding the tissue neurophysiology that explains thinking. Consistent with physiology theory that explains organs with a macro perspective of tissue physiology, the general flow of neural communication through the cerebral cortex explains thinking — associative thinking. The neuroscience of thinking is further explained in Appendix B.

Second, behavior science proves associative thinking with the empirical science of behavior conditioning as advocated by Ivan Pavlov, Edward Thorndike, John Watson and BF Skinner. Early behaviorists were Associationists; they advocated associative thinking for all thinking before it was relegated to learning theory and later memory theory. Pavlov was an Associationist who proved *associative thinking* through his research with dogs (his dogs deserve more respect and solemn appreciation for their contribution to science). Classical behavior conditioning proves that thinking is based on a mental process of association when repeatedly demonstrating a conditioned response. The repetition of stimulus/response exemplifies thinking rather than learning; it cannot exemplify repeated learning since there is no change in knowledge or behavior (the definition of learning). Classical behavior conditioning demonstrates associative thinking when a conditioned stimulus occurs immediately preceding (or simultaneously with) an



unconditioned stimulus and thereby becomes demonstrably associated with it. Consistently, conditioned stimuli are generalized based on associative thinking; neutral stimuli can be associated with conditioned stimuli for “second-order” conditioning. The empirical behavior science of behavior conditioning proves that all thinking is associative thinking including rational consciousness and “mental disorders.”

Third, associative thinking is supported by a long, storied history of philosopher advocates. Psychology was founded by Associationists (led by David Hartley, James Mill, John Stuart Mill, and Alexander Bain) who challenged Rationalists with *associationism*. Psychology’s founding Associationists were the legacy of seventeenth and eighteenth century *classical British empiricists*. Associative thinking was advocated by empiricists John Locke in his *Essay*, Bishop Berkeley in his *New Theory of Vision*, and David Hume in *An Inquiry Concerning Human Understanding*.<sup>92-A</sup> Classical British empiricists revived a thinking theory of associationism from early Greek philosophers. Plato was the first to advocate associative thinking in *Phaedo*; Aristotle followed Plato with numerous discussions of associative thinking.<sup>92</sup> Unfortunately, associative thinking failed to maintain popularity as psychology’s focus shifted from thinking theory to behavior theory and advocates failed to explain the motivation that directs our thinking process. Understanding the motivation for associative thinking is critically important for understanding the mental process and challenging the cultural appeal of a neo-rational mental principle.

Fourth, associative thinking is supported by the disproof of a neo-rational mental process based on evidence from eye cataract patients by esteemed neurologist J.Z. Young. Young studied adult patients who had been blind since birth and were thereafter given sight with the development of eye cataract surgery in the 1930’s.<sup>92-B</sup> These adults were unable to *rationaly* interpret their new visual information; they could not understand any visual information from the context of their previously unsighted world. The patients struggled with the tedious process of integrating new visual information into a complete world view where visual information had no relationship. As years passed, the patients remained unable to *rationaly* interpret the most fundamental visual information; they remained unable to differentiate between a square, a triangle and a circle. Consistently, the cataract patients were unable to rationally identify the relative size of visual objects; they could not *rationalize* whether a yardstick was longer than a twelve-inch ruler. The answers to these simple questions were only painfully obvious for this population upon touching the objects. Since (associative) learning is cumulative, it was far more difficult and time consuming for these adults to learn about their new visual world than for children to learn the same information. Young documented the frustrations of the cataract patients with their difficulty in integrating newly acquired visual information into their previously unsighted

world; there was no *rational* connection. Other investigations of adults who gained eyesight after living blind similarly chronicle the inability to rationalize the meaning of basic visual stimuli.<sup>93</sup>

Consistently, famed neurologist Oliver Sacks described a case study of a man who gained sight after living blind: "He saw, but what he saw had no coherence...The most 'obvious' connections, usually and logically (rationally) obvious, had to be learned."<sup>94</sup> The inability to rationalize even the most basic visual information disproves a neo-rational mental principle.

Associative thinking is: 1) explained by basic empirical neurophysiology, 2) proven by behavior conditioning, 3) advocated by classical philosophers, and 4) supported by disproving a neo-rational mental principle.

Human psychology is understandable through the binary science of motivated-thinking. Associative thinking explains all thinking; it not only explains cognition, rationality and consciousness, but also explains thinking that is neither cognitive, rational nor conscious. In contrast to popular thinking theory, associative thinking is: 1) explained by elemental empirical neuroscience (that's addressed further in Appendix D), 2) proven by behavior conditioning, 3) advocated by classical philosophers, and 4) supported by the disproof of a neo-rational mental principle. Classical British empiricism exhilarated the Age of Enlightenment with associative thinking advocacy; substantially increased self-knowledge will again infuse vitality into the community. Associative thinking may initially seem crass and dehumanizing but our thinking process is gloriously motivated towards rationality, self-consciousness and increasingly humanistic behavior.

## Appendix D

### The Neurophysiology of Thinking

Consistent with our physiological understanding of all other organs of the body (as explained in Appendix B), the brain and its function are explained by the physiology of body systems and whole body tissues. In terms of body systems, physiology describes the brain as processing sensory information about the environment and sending related information to affect behavior towards species survival. The whole nervous tissue of the cerebral cortex is structured for thinking and the general flow of neural communication through this nervous tissue is thinking neurophysiology. (Technically, the cerebral cortex is a set of identical hemispheres that function similarly and are therefore addressed hereinafter as a single tissue).

Substantially common human genetics create substantially common areas of “white matter” and “gray matter” in the cerebral cortex that create substantially common human thinking. White matter has longer myelinated axons that channel neural communication in a genetically predetermined direction while gray matter has shorter, mostly unmyelinated axons that are substantially non-directional. Genetics promote the fixed directional nature of white matter (as well as common fissures and ventricles) that creates substantially common thinking patterns for humans. In contrast, connectionist networks of gray matter in *association areas* of the cerebral cortex create unique neural connections based on learning. Learning is a physical process of neurons growing dendrite to connect to other neurons; this is evidenced by empirical observations of environmentally deprived humans having significantly fewer dendrite connections. The brain seeks the energy of the strongest thought and forges new paths for new thoughts in the process of learning. Learning from unique personal experience produces unique individual thinking from unique neural interconnections of gray matter in *association areas* of the cerebral cortex especially in the frontal lobe.

Neural networks connect (associate) primary sensory information about the environment in the central, *association area* (a technical terminology) of the posterior cerebral cortex. Thereafter, neural information is channeled forward from the posterior lobe into the frontal cerebral cortex to produce more complex connections (associations) in the general, *association area* of the frontal lobe. Most of the frontal lobe is appropriately labeled as the “association area.” Thinking in the *association area* of the frontal lobe produces complex thoughts and can affect behavior by channeling neural information into the peripheral nervous system to the muscular system. While learning from unique personal experience creates unique individual thinking,

substantially common anatomy and physiology create thinking that is similar enough to enable communication between humans. The neurophysiology of the cerebral cortex explains associative thinking and how it produces behavior; this neuroscience is empirical — observable, verifiable and falsifiable.

The common flow of neural communication through connectionist neural networks of the nervous tissue of the cerebral cortex is empirical neuroscience that can be described in more detail. “Primary” sensory information about touch, sight and sound is channeled into the cerebral cortex while “secondary” sensory information about smells and tastes are channeled into the limbic system. “Primary” neural information about touch, sight and sound are directed to different peripheral areas of the posterior cerebral cortex; connecting (associating) these senses creates a basic understanding of the environment. “Secondary” sensory information supports primary sensory information by channeling information about the desirability or undesirability of tastes and smells into the limbic system to affect motivation that in turn affects our understanding of our environment. Primary sensory information flows into the *sensory cortexes* at the peripheral of the posterior cerebral cortex: 1) information about touch from the somatosensory system is directed through the brainstem and the somatic sensory cortex (posterior of the central fissure) to the superior cerebral cortex, 2) visual information flows through the optic nerve to the visual cortex at the posterior of the cerebral cortex, and 3) auditory information is directed to the auditory cortex at the lateral sides of the cerebral cortex. Primary sensory information is thereafter channeled (by white matter) from the sensory cortexes at the peripheral of the posterior cerebral cortex to the central, *association area* of the posterior cerebral cortex. The less-directional gray matter of the *association area* in the central posterior cerebral cortex learns about the environment by interconnecting (*associating*) primary sensory information while influenced by secondary sensory information. Learning about the environment is a process of physically connecting (associating) sensory information. Thereafter, common neural pathways direct sensory information from the *association area* of the posterior cerebral cortex forward into the *association area* in the central anterior cerebral cortex. The frontal lobe is substantially an *association area*; less-directional gray matter creates more complex interconnections for more complex learning and complex thinking. Complex patterns of neural interconnections in the *association area* of the frontal lobe that produce cognition, rationality and consciousness are often described as “executive functions.” Besides producing cognition, neural connectionist networks in the frontal lobe produce behavior when neural information is directed into the motor cortex (anterior of the central fissure) at the superior cerebral cortex. Neural information directed into the motor cortex is channeled by white matter to the peripheral nervous system to stimulate muscles to affect

behavior. The empirical neuroscience of the common flow of neural communication through the cerebral cortex explains (associative) thinking while the neuroscience of learning from experience explains unique individual thinking and behavior.

Physiological theory describes tissue physiology as the cumulative effect of cellular physiology; thus thinking at the level of body tissues is explained by the cumulative effect of “cellular thinking.” The tissue neurophysiology of connectionist neural networks is explained by the cumulative effect of cellular thinking — of neurons “communicating” chemically at their synapses. Cellular thinking (neuron cells communicating at their synapses) explains tissue thinking (connectionist neural networks) that explains the associative thinking of the brain; molecular physiology is superfluous to understanding the process.

Understanding the empirical neuroscience of the general flow of neural communication through the cerebral cortex explains current mysteries surrounding physical trauma to different areas of the brain. Physical trauma to Wernicke's Area generally causes a loss of language comprehension because this area is directly in the path of the general flow of auditory information from the auditory cortex to the *association area* of the cerebral cortex. Consistently, physical trauma to Broca's Area generally causes a loss of speech motor skills because this area is directly in the path of neural information into the area of the motor cortex that affects the muscles of the mouth. Since the brain is a living organ that learns from individual experience, the exact location of these functions varies slightly between individuals. Consistently, since the brain is a living organ that learns from experience, some rehabilitation is possible by forging new pathways that bypass areas damaged by trauma.

The structure (anatomy) and function (physiology) of the nervous tissue of the cerebral cortex explains thinking — associative thinking. Complex associations in the association area of the frontal lobe can create complex thoughts including rational consciousness; complex associations in the frontal lobe can also create complex behaviors as evidenced by some artistic and athletic performances. This basic empirical neuroscience is obscured by the established paradigm of a complex neo-rational mental principle and efforts to support it. The advanced technology of brain scans is often used to philosophize about a complex, abstract mental process,<sup>95</sup> but less advanced technology evidences thinking neurophysiology. Rational consciousness and all thinking that is neither rational nor conscious is associative thinking that is explained by basic empirical neuroscience — observable, verifiable and falsifiable.

## Appendix E

### Motivation Theory

Human psychology is understandable in terms of the binary science of motivated-thinking: the cerebral cortex is nervous tissue structured for thinking and the limbic system is nervous tissue structured for motivation. Natural psychology advocates pure natural science theory and supports the accepted natural science motivation theory: natural science theory advocates that human psychology seeks emotional well-being for species survival.<sup>96,97,98,99</sup> Natural Psychology also advocates true biology theory; consistent with a biological understanding of living organisms, *the natural motivation neurophysiology of the limbic system seeks the electrical brain energy of life*. Humans are sensing organisms (through the limbic system) as well as thinking organisms (through the cerebral cortex); the limbic system senses strong brain energy as attractive and weak brain energy as aversive. Consistently, our natural motivation directs (associative) thinking to seek the greatest electrical brain energy of life produced by the strongest associative thought. Since lived experiences associated with neurophysiological energy during formative years are generally experiences of social support, *behavior is generally conditioned to seek emotional well-being* from social affirmation and support. Conversely, since lived experiences associated with neurophysiological deficits during formative years are generally experiences of isolation and a lack of social support, *behavior is generally conditioned to avoid emotional suffering* from social isolation and rejection. Associative thinking and common lived experiences especially during infancy explain our accepted natural science motivation to seek emotional well-being.

Our biological motivation seeks the greatest electrical brain energy of life produced by the strongest associative thought from either the previous thought or from sensory stimuli. Although the cerebral cortex constantly receives stimuli from the senses, seeking the energy of the strongest associative thought fosters selective attention. Unless a “train of thought” is distracted by significant sensory input, consecutive associative thoughts share substantial common neuron firings. “Long-term potentiation” (the propensity of a fired neuron cell to fire again more easily) generally promotes coherency in a train of thoughts.<sup>100</sup>

The motivation for the brain to seek the energy of the strongest associative thought explains the motivation for behavior to seek emotional well-being. Behavior seeks neurophysiological energy during infancy; the experiences generally associated with increased neurophysiological energy during infancy are the foundation of feelings of emotional well-being. During infancy, neurophysiological energy is produced by satisfying basic physiological needs for

health and survival including nourishment, hydration and rest. Infant experiences associated with increased neurophysiological energy are learned as desirable experiences; they generally teach the desirability of a friendly environment of comforting human contact, affection and social support. As the brain learns from experience based on associative thinking, it seeks emotional well-being consistent with how it sought physiological health during infancy. Conversely, infant experiences associated with physiological deficiencies from rough touch, poor nutrition, dehydration, fatigue and physical sickness are learned as undesirable. Formative experiences associated with physiological deficits teach aversion to physical trauma and a hostile environment of loneliness, abandonment and social rejection. As the brain learns from experience, it avoids social rejection consistent with how it avoided physiological suffering during infancy. Humans seek emotional well-being based on learned associations with physiological energy during formative years and avoid emotional suffering based on learned associations with physiological deficits during formative years. Consistent with traditional natural science theory, our natural motivation directs behavior to seek emotional well-being.

Behavior is motivated to seek emotional well-being and avoid emotional suffering; emotions are the physical sensations of achieving or failing to achieve our natural motivation. Humans are sensing organisms as well as thinking organisms; humans *feel* happiness from happy experiences and *feel* sadness from sad experiences. Consistently, there are two kinds of emotions: positive emotions of well-being and negative emotions of emotional suffering. The physical sensations of emotions are difficult to understand within the context of the current paradigm that understands emotions intellectually. Although proponents of meditation describe a physical sensation of happiness (energy running up and down the spine),<sup>101</sup> the warm feelings of extreme happiness can be rare and are rarely recognized within the current paradigm. Conversely, pain is a strong motivator for behavior: emotional pain (suffering) is a strong motivator for avoiding distressful experiences. Unfortunately, the aversive feelings of extreme sadness are a continual pain that is difficult to imagine for those who haven't experienced it.

Most popular motivation theories are generally consistent with our natural motivation to seek emotional well-being although popular theories contort themselves to conform to a complex, neo-rational mental principle. Popular motivation theories of *instinct theory*, *drive reduction theory*, *arousal theory*, and *incentive theory* combine biological, emotional and cognitive factors in various ways to support the current psychology/psychiatry paradigm. The fact that none of these popular motivation theories are comprehensive should discount the specific value of each. The *drive reduction theory* has the most truth since it is based on our accepted natural science motivation of a "biological requirement for well-being."<sup>102</sup> The *Cannon-Bard theory* of emotions

supports the human motivation of seeking emotional well-being while focusing on the activation of the endocrine system. There is also some truth to the *somatic theory* of emotions whereby physical responses foster associated emotions (consistent with associative thinking). Abraham Maslow proposed the classic motivation theory of seeking *self-actualization* but this motivation is generally specific to western cultures; it excludes the general eastern cultural motivation of seeking *collectivism*. “Seeking well-being” is a more fundamental explanation of motivation that explains the motivation for both eastern and western cultures.

Our natural motivation directs associative thinking to seek the strongest thought and directs behavior to seek well-being with emotions that are *feelings* — related physical sensations.

Our motivation to seek the strongest associative thought and emotional well-being are further explained by: 1) empirical neuroscience, 2) empirical behavior science, and 3) evolutionary theory.

First, consistent with how physiologists explain all other organs of the body with whole-tissue physiology, our natural motivation is explained by *whole-tissue neurophysiology*. The role of the limbic system in human motivation is generally accepted but theorists erroneously attempt to contort motivation theory into the context of the popular psychology paradigm. (Technically, the limbic system is a set of identical structures that function similarly and are therefore addressed hereinafter as a single tissue). The nervous tissue of the limbic system (the interior of the forebrain) is the anatomy of motivation and its function is motivation neurophysiology. The limbic system is comprised of two different pairs of dead-end nervous tissues with two different motivation functions. First, the dead-end structure of the thalamus and the hypothalamus manage the endocrine system that motivates behavior and directs body operation with hormones. The endocrine system rewards behaviors and experiences associated with well-being with hormones like endorphins that the brain senses as attractive (desirable). The endocrine system also motivates behavior to avoid experiences associated with distress by accelerating brain activity for species survival with stress hormones like epinephrine that the brain senses as aversive (undesirable). Second, the dead-end structure of the hippocampus and amygdala stagnates the flow of neural communication and thereby make this pair of nervous tissues especially sensitive to their levels of neurophysiological energy. The stagnating structure of the nervous tissues of the hippocampus and amygdala promote a sensitivity to the cumulative, general neurophysiological energy level of the brain — an organism’s life energy. Most of the motivation that drives the thinking process is derived from the increased sensitivity to neurophysiological energy within the limbic system.



Consistent with physiology theory, neurophysiological motivation at the tissue level is explained by the cumulative effect of neurophysiological motivation at the cellular level — “cellular motivation.” The motivation for the hippocampus and amygdala to seek the greatest energy of life is explained by the cumulative effect of the neuronal motivation to seek energy (and avoid a lack of energy). Neuronal motivation is explained by the unique ability of the neuron cell to sense its own physical condition and to seek homeostasis — cellular health. Neuron cells are sensitive but the neurons of the hippocampus and amygdala are especially sensitive based on the dead-end structure of this nervous tissue. It is widely accepted that neuron cells are motivated to seek homeostasis — a resting potential; homeostasis is a balanced, positive physical cell state without physical cell deficits. However, if neuron cells only sought homeostasis, humans would seek inactivity and sleep; neuron cells also seek the “energy of life” — the electrical spark of an action potential. Neuron cells seek the energy of electrical firings as well as the health of a resting potential; only the imbalance between the two potentials is sensed as aversive. Consistent with physiology theory, the motivation for the nervous tissue of the limbic system to seek neurophysiological energy is explained by the cumulative effect of the neuron cell motivation to seek neurophysiological energy.

The hippocampus and amygdala are “barometers” that sense the overall neuro-physiological energy of the brain and thereby the organism; damaging them damages our motivation. Damaging the hippocampus (shaped like a ram’s horn) reduces its ability to sense neurophysiological energy and thereby reduces emotions that motivate behavior. The amygdala (shaped like a bulb at the end of a tube) is more sensitive to neurophysiological energy than the hippocampus; damage to this structure is more problematic. Damage to the amygdala nearly eliminates the sensitivity to neurophysiological energy and thereby nearly eliminates emotions — the motivation for behavior. Since people remember experiences that have importance in their lives and forget mundane experiences, damage to the hippocampus and especially to the amygdala destroys the motivation necessary to create new memories. The hippocampus and amygdala provide the motivation for behavior and for creating memories; current theory embraces complexity (to absurdity?) when theorizing about memories stored within these cells.

Second, besides empirical neurophysiology explaining motivation, behavior science evidences the motivation for behavior to seek well-being as the motivation for all conditioned behavior. In behavior science, “unconditioned stimuli” are accepted as *natural* motivation that direct subjects to seek emotional well-being and avoid emotional suffering. Classical conditioning demonstrates behavior seeking emotional well-being with motivations common to humans while operant conditioning demonstrates behavior seeking emotional well-being specific to individuals.

Since behavior seeks well-being, an “external reward” ceases to have the desired affect when it causes distressful feelings of being manipulated. Although behaviorism theory is becoming increasingly complex to conform to a neo-rational mental principle,<sup>103</sup> the motivation for all behavior conditioning describes our natural motivation to seek emotional well-being.

Third, the behavior motivation to seek emotional well-being not only explains behavior science, it also explains evolutionary theory — the motivation to seek species survival. Seeking well-being is the underlying motivation for seeking the requisites for species survival: individual survival past puberty, engaging in reproductive sexual behavior and promoting the lives of offspring. Similarly, current evolutionary psychology theories about “social reasoning”, “probability reasoning”, “risk assessment”, “principles of generalization”, “attitudes about violence”, “attitudes about parenting decisions”, and “reasoning about groups” are all explained by the underlying motivation to seek emotional well-being. Moreover, as a function of individual experience, our natural motivation to seek well-being promotes behavior broadly adaptable to different and changing environments. Humans are sensing organisms as well as thinking organisms; emotional suffering (emotional pain) is a strong, natural motivator for behavior to seek well-being. Seeking emotional well-being fosters our evolutionary goal of seeking *species* survival; it’s unfortunate that it can compromise *individual* physical survival under unfortunate circumstances. The behavior motivation to seek emotional well-being explains evolutionary theory with accepted natural science theory.

Besides explaining our natural motivation to seek emotional well-being based on associative thinking, Natural Psychology explains behavior motivation with empirical neuroscience, empirical behavior science, and evolutionary theory.

Accepted natural science theory correctly advocates that human motivation seeks emotional well-being; a new perspective of accepted neuroscience now explains this natural motivation. Human psychology is explained by the binary neuroscience of motivated-thinking; the limbic system is nervous tissue structured for motivation and the cerebral cortex is nervous tissue structure for thinking (associative thinking). The motivation to seek emotional well-being may challenge cultural expectations but it’s majestic how our natural motivation promotes rational cognition, self-consciousness and increasingly altruistic behavior.

## Appendix F

### Motivated-Thinking and the Function of Experience

Natural Psychology explains human psychology with the binary (neuro)science of motivated-thinking that's significantly a function of unique individual experience. Substantially common motivation neurophysiology impacts substantially common thinking neurophysiology based substantially on personal experience. Thinking is motivated to seek the energy of the strongest associative thought (to promote life) and behavior is motivated to seek emotional well-being based on the critical importance of personal experience. Natural Psychology is a paradigm shift from assuming substantially common experiences affecting substantially unique neurophysiology to substantially unique experiences affecting substantially common neurophysiology.

This thesis seeks suspension of disbelief in substantially common neurophysiology to consider a new psychology paradigm based on accepted science theory and empirical neuroscience. In contrast to popular theory, our common binary neurophysiology of motivated-thinking creates a substantial "blank slate" (tabula rasa) for learning from experience. Although Steven Pinker is famous for challenging the blank slate theory, he fails to consider general neurophysiological structures when he concedes that "something in the mind must be innate."<sup>104</sup> The role of individual experience in human psychology is obscured by the difficulty in understanding the wide range of personal experiences. People have little understanding of the personal histories and life circumstances of others. Current psychological theory uses the term "event" to falsely describe common experiences; this may be useful in discussing a population but is misleading in understanding individual psychology. Personal lived experience creates a subjective perspective of any event; personal experience is singular. Unfortunately, understanding this critically important challenge to behavioral genetics will be difficult for scholars who define themselves in terms of a nativist intellect. Natural Psychology is a comprehensive new paradigm that explains our admirable human psychology as a function of experience; it's based on empirical science — observable, verifiable and falsifiable.

Behavior seeks well-being through associative thinking as a function of experience; to the extent that we have common experiences, we have common behaviors. Common human experiences produce common behaviors that are erroneously described as innate "instincts." Based on the common motivation to seek emotional well-being and common formative experiences, humans have: an interest in novelty, a desire to explore and manipulate objects, an

impulse to play, and cognitive skills of interpreting gestures, identifying faces and acquiring language. Similar to common individual experiences, common cultural experiences produce common behaviors that differ between cultures as documented by cultural psychology and the sociocultural model of psychology.<sup>105,106,107,108</sup> The different behavioral goals of individualism for western cultures and collectivism for eastern cultures are explained as a function of cultural experience. Attachment behaviors and separation anxiety also differ widely as a function of cultural experience.<sup>109</sup> Moreover, depression varies widely as a function of cultural experience from under 3% in some areas of Spain to 30% in some areas of Zimbabwe.<sup>108,110,111</sup> Consistently, varying degrees of cultural civility and equity account for the wide difference of social welfare experienced by different cultures.<sup>112,113,114</sup> Besides common individual and cultural experiences producing common individual and cultural behaviors, common familial experiences often produce common familial behaviors that have been erroneously attributed to family genes. Family pedigree studies are unable to disentangle the difference between familial experiential influences and familial genetic influences.<sup>115</sup>

Science theory and basic empirical neuroscience explain human psychology as a function of motivated-thinking based substantially on individual experience.

Popular behavioral genetics is disproved by the laws of inheritance and “schizophrenia spectrum disorder” that doesn’t “breed true.”<sup>116,117</sup> People experiencing “schizophrenia spectrum disorder” have less than a twenty percent reproduction rate compared to the general population. Based on the laws of inheritance, if “schizophrenia” had a genetic component, it should “breed out” after a few generations.

Moreover, investigating the function of any other organ of the body based on genetic research would be considered absurdly complex and difficult. Only an embrace of complexity and a strong confirmation bias could support claims of a genetic cause for specific behaviors. Behavior is a function of experience; behavioral genetics supports the current psychology/ psychiatry paradigm without structural and functional neuroscience validity.

The classical “nature vs. nurture debate” purports to address the relative function of genetics and experience in producing behavior but there are many problems inherent in the framework of this debate. Cultural expectations (a “confirmation bias”) for both genetic and environmental causation for behavior obscure the illogic of investigating *influences* that affect an *unknown* brain process. Conventional neuroscience theory has lost touch with parsimony (science): it would be difficult to “isolate the variables” of a *known* brain process but it’s

impossible know and thereafter isolate the variables of an *unknown* brain process.

The “nature vs. nurture” debate is also flawed because it’s impossible to quantify the effect of nurturing influences on behavior; each child experiences the family nexus differently. Moreover, the “nurture” category that is intended to quantify experiences of emotional well-being is not inclusive; caregiver nurturing is not the only experience that affects emotional well-being. Although the devastating effect of a lack of caregiver nurturing is documented in studies of abusive parenting, prison ward nurseries, and orphanages; these are not the only types of environmental experiences that promote emotional well-being. Besides nurturing experiences between a child and caregiver, children suffer emotionally when they witness their caregiver suffer or otherwise experience a hostile environment or hostile peer experience. It is impossible to quantify nurturing experiences and wrong to limit nurturing experiences to experiences between children and their caregivers.

The “nature vs. nurture debate” is further flawed because it’s impossible to quantify genetic influences on behavior. The critical difference between the genetics of unique neurophysiology and the genetics of common neurophysiology is lost when the “nature” argument can claim both positions. Moreover, proposing a *multitude* of genes influencing an *unknown* mental process makes behavioral genetics impossible to disentangle and falsify.<sup>115</sup>

The “nature versus nurture debate” supports cultural expectations for both genetic and environmental causation for behavior based on a strong confirmation bias obscuring the scientific failings of this debate.

*Linkage studies* and *twin studies* are the two main types of false support for behavioral genetics and genetic determinism; they’re based on a strong confirmation bias, poor scientific methodology, and a lack of healthy scientific skepticism. *Linkage studies* of specific genes to specific behaviors regularly make the news because they support cultural expectations but the significant failure to replicate these studies has been rarely editorialized.<sup>118,119,120,121</sup> For example, the New York Times reported different genes causing *schizophrenia disorder* in different studies in 1988, 1997, 2002, 2006, and 2008 but failed to editorialize these contradictions and lack of replication.<sup>122</sup> Genetic causation for crime, “IQ”, “ADHD”, “bipolar disorder” and “schizophrenia spectrum disorder” have been articulately challenged<sup>123,124,125,126</sup>, as well as breakfast eating patterns,<sup>127</sup> perfectionism,<sup>128</sup> coffee and tea preferences,<sup>129</sup> loneliness,<sup>130,131</sup> and political choices.<sup>132</sup> Moreover, linkage studies fail to address the gender based nature of most “mental disorders.”<sup>133</sup> The failure to replicate studies that support behavioral genetics has been a disparaging problem for many eminent geneticists.<sup>134,135,136</sup> A strong confirmation bias trumps science in linkage studies

while falsifiability is never a consideration; an unfathomable number of assumptions separate linkage studies and behavioral genetics from real science.

Twin studies are considered stronger evidence supporting behavioral genetics than linkage studies but a strong confirmation bias again trumps science.<sup>137</sup> A confirmation bias promotes a cultural fascination with twin studies that make coincidences among twin behaviors immune to standard scientific methodology.<sup>138</sup> Twin studies often support cultural expectations with open-ended searches for coincidental similarities — “fishing trips”; they ignore the basic scientific methodology of stating a hypothesis and *thereafter* testing it. Fascinating coincidences in case studies of identical twins are embraced as legitimate scientific support for behavioral genetics regardless of case studies generally being considered weak scientific support.<sup>139</sup> Twin studies typically focus on the difference between the behavior of “identical twins” (monozygotic twins with similar genes) and “fraternal twins” (dizygotic twins with different genes) while assuming similar environments — similar experiences. Most twin studies are founded on the “equal environment assumption” (EEA) which falsely asserts that identical twins experience equal (similar) environments.<sup>140,141</sup> It is wrong to conflate the environments of identical and fraternal twins; the EEA fails to adjust for common experiences based on a common physical appearance, common age, and common sex. More importantly, it is wrong to believe that the relationship *between* identical twins and fraternal twins is not significantly different and does not create a significantly different environment for them. Twins are a major influence on each other; it is significant that identical twins typically expect and seek similar behaviors while fraternal twins typically expect and seek dissimilar behaviors.

The largest and most comprehensive twin study support for behavioral genetics is based on the scientific illegitimacy of the equal environment assumption (EEA).<sup>142</sup> Hilker and his colleagues cross-referenced over 30,000 pairs of twins using the nationwide Danish Twin Register (a record of all twins born in Denmark since 1870) and the Danish Psychiatric Central Research Register. The Danish study supported behavioral genetics by comparing the different rates of “mental disorders” between identical and fraternal twins based on the false EEA and generous contact between twins during formative years. Identical twins generally seek similar behaviors while fraternal twins generally seek to differentiate themselves; any contact between identical twins during formative years negates the ability to test the hypothesis. As information technologists advocate, “garbage in, garbage out.”<sup>6,7</sup>

Fuller Torrey’s study of “schizophrenia spectrum disorder” and “bi-polar disorder” is another frequently sighted “scientific” study supporting behavioral genetics with poor scientific methodology and the false EEA.<sup>143</sup> A strong confirmation bias in support of Torrey’s thesis again

promotes pseudo scientific methodology; subject DSM diagnoses and subject recollections of childhood illnesses (and behaviors) were all subjectively interpreted. Torrey's study fails the common scientific standard of a double-blind study. The summarizing philosophic narrative between genetic, virological, and developmental perspectives is pure speculation based on supposition; it doesn't proximate science. This study was poorly designed and based on the false EEA.

Linkage studies and twin studies support behavioral genetics based on the false "equal environment assumption" and a strong confirmation bias; these studies lack standard scientific methodology and a healthy scientific skepticism.

"Reared-apart identical twins studies" are the hallmark of support for behavioral genetics but these rare studies are plagued by a stronger confirmation bias and a greater lack of healthy scientific skepticism. The premise is logical: since identical twins share similar genes, similar "character (behaviors) traits" or "mental disorders" of identical twins reared apart (in different environments) must be attributable to their common genes. But "the devil is in the details"; the historic importance of these rare studies obscures the "science." Studies of reared-apart identical twins lack the standard science methodology of double-blinded studies, acceptable sample sizes, scientific transparency and any measure of healthy scientific skepticism.<sup>145</sup>

The most famous reared-apart-identical-twins study is the Minnesota Study of Twins Reared Apart.<sup>147</sup> A newspaper article instigated this research;<sup>148</sup> the "public interest" article described an amazing list of coincidences in the lives of reunited identical twins — the "Jim Twins." Bouchard used the publicity of the Jim Twins as a springboard to investigate identical twins that were separated at birth; but finding identical twins separated at birth like the Jim Twins proved problematic. *In contrast to the title and the legend of this critically important study, few subject twins were reared apart.* Astonishingly, twins were described as "reared apart" if they spent any part of their childhood in different homes. Subject twins were not actually "reared apart" — lacking contact during formative years; most twins had substantial contact during formative years and in adulthood before the study. The definition of "reared apart" is extremely misleading (or dishonest) if the subjects are not reared apart whereby environmental factors are isolated as implied. As documented and thereafter discounted in the study, twins frequently lived together for years before their separation and typically reunited for years after their separation and before the research.<sup>149</sup> This seems fraudulent; the common understanding of reared-apart twin research depends upon twins not having contact after birth and before the study (or at least before adulthood) since identical twins strongly influence each other. Our culture generally

assumes common “character traits” for identical twins and identical twins generally embrace this common assumption; any contact between twins nullifies the hypothesis. Furthermore, it is unscientific for Bouchard to omit the data of numerous pairs of twins originally introduced in the study without explanation.<sup>150</sup> Although the study provides details of the significant contact between twins, most information about research methodology is veiled in the anti-science of secrecy. Nevertheless, the confirmation bias that drove the study is evidenced by the self-aggrandizing tone of the conclusion that attests to expectations of celebrity status for the research and researchers. The twins of the Minnesota Study of Twins Reared Apart were not reared apart; it is astonishing that this deception passes for science.

An early Danish-American adoption study of “schizophrenia spectrum disorder” was the first classic study that supports behavioral genetics with a pseudoscientific investigation of identical twins reared apart.<sup>151</sup> Seymour Kety and his colleagues located biological parents of adopted children with “schizophrenia” to correlate rates between them.<sup>152</sup> In contrast to the legend, this study shows no biological connection between the rates of “schizophrenia spectrum disorder” for biological parents and their adopted children. The conclusion draws support from a statistical link between half-siblings on one side of a family; this is an absurd manipulation of data from a small sampling. Only an unusually strong confirmation bias could consider such an obscure connection as scientific support for behavioral genetics.<sup>126,151,153</sup>

Studies of reared-apart identical twins are the “holy grail” of support for behavioral genetics based on the logic of their premise, but their execution has no legitimacy. These studies contradict standard scientific methodology based on an unusually strong confirmation bias among both researchers and identical twins. Reared-apart identical twin studies lack double-blinded studies, acceptable sample sizes, scientific transparency, and any “healthy scientific skepticism”; more importantly, they’re not addressing identical twins that are actually “reared apart.”

Human psychology is explained by motivation neurophysiology impacting thinking neurophysiology as substantially a function of unique individual experience. Consistently, human nature is extremely adaptive to environmental change. In contrast, behavioral genetics lacks structural and functional neuroscience support when advocating a complex, nativist neo-rational brain principle. Self-knowledge will greatly improve the human condition. Societies will redefine “intellect” to adapt to the scientific truth about our mental process and the wide range of the human experience. Societies will also redefine “free will” and “personal responsibility” to reflect more truth and the human ability to affect our perception of our world and our experiences. Our common humanity is slowly producing an increasingly intellectual and moral world;<sup>154</sup> an exciting



new age of self-awareness and scientific discovery will significantly hasten this process.

## Appendix G

### Current Psychology Theory

Natural Psychology explains human psychology with the binary science of motivated-thinking: *the mental process substantially seeks the strongest associative thought and behavior substantially seeks well-being as substantially a function of unique personal experience*. The first section of this appendix explains popular psychology theories about learning, cognition and memory in terms of associative thinking for the future, the present and the past respectively. The second section of this appendix explains states of consciousness, perception, and intelligence based on understanding all thinking as seeking the strongest associative thought. The third section of this appendix explains personality, language and social psychology consistent with all behavior predominately seeking well-being through associative thinking as predominately a function of experience. Natural Psychology explains complex and abstract psychology theories with a unified, comprehensive new psychology paradigm.

Popular thinking theories about *learning, cognition and memory* are understandable in terms of associative thinking for the future and about the present and the past respectively.

Popular *learning theory* generally accepts associative thinking but erroneously attempts to adapt it to cultural expectations for a complex neo-rational mental principle. Behavior science proves that learning is a function of associative thinking with behavior conditioning as explained in Section I and Appendix B. Learning is produced by forging new physical interconnections between neurons in association areas of the cerebral cortex as a function of experience. The recent neuroscience focus on neuroplasticity describes the physical changes to the brain from learning.<sup>155</sup> Current learning theory correctly advocates “connectionist neural networks” in a “parallel distributed processing model” (PDP) but erroneously attempts to adapt PDP to an innate neo-rational mental principle. Popular learning theories of “observational learning” and “modeling” substantially affirm learning based on associative thinking. In contrast, popular behavior science theories of an “orienting response”, “habituation” and “sensitization” attempt to adapt behavior science and associative thinking to a complex neo-rational mental principle. Consistently, behavior science fails to understand behavior reinforcement when reinforcers don’t promote personal well-being. “External reinforcers” are often confusing and thereby counterproductive for toddlers and preschoolers; for older children and adults, reinforcers are counterproductive when they are perceived as manipulative.<sup>156</sup> More generally, popular learning

theory is problematic in advocating mythical innate learning mechanisms; this reduces critical respect for autonomy and a subjective concept of emotional well-being as well as learning “readiness.”

Children are motivated to learn to promote emotional well-being consistent with all behavior; if instruction does not have *personal* relevance, children do not learn. Moreover, it is problematic for childhood learning that any below-average pace of development at any time may be pathologized. Since 1980 when autism was first prevalent enough to be introduced in the DSM, the popular focus on childhood learning theory has become increasingly problematic for children. Prior to 1980, *young children predominately learned through modeling and independent exploration*; they generally played independently while their parents worked in and outside the home (unless they assisted with work). The culture of previous generations of parents was far more separated from the culture of children with children expected to “be seen and not heard”; learning instruction was more generally reserved for school. Early childhood learning was far less competitive while there were substantially greater career opportunities in the community. *Since 1980, learning theory developed with a problematic emphasis on early learning instruction.* Children are naturally motivated to explore their world to promote emotional well-being but do not have an innate learning mechanism that values all information others deem interesting or valuable. Infants, toddlers and young children have difficulty motivating themselves to learn with information that lacks relevancy in their lives; excessive teaching is counterproductive. Moreover, excessive corrections during learning teach infants, toddlers and young children to doubt their own judgment; this causes significant learning problems at any age. Furthermore, since focus is a key element of learning, increasingly stressful learning environments are problematically distracting; children sense stressful environments as more important to understand than educational materials. Childhood learning is becoming more problematic with excessive instruction, excessive correction and stressful environments.

Unfortunately, “Autism Spectrum Disorder” has become a raging epidemic since learning environments have become more stressful (consistent with increased stress throughout the community) and job markets tightened. The CDC advocated that the rate of autism at 1:2500 in 1980 when it was first included in the DSM and psychology became more focused on learning theory and childhood instruction.<sup>157-A,157-B,157-C</sup> As the level of stress increased in the community and childhood psychology promoted the idea of an “innate learning mechanism” over respect for childhood autonomy, the incidence of autism exploded. In 2000, the CDC “corrected” the rate of autism to 1:150<sup>158</sup> based on a “better definition” (of a spectrum), “better guidelines”, and “better statistics.” But the level of stress in the community continued to increase and related CDC

statistics continue to increase radically; “autism spectrum disorder” was more recently documented at 1:36 (from 2020 CDC statistics).<sup>158</sup> Consistently, the rate of autism differs radically between states (between California and Missouri)<sup>159</sup> as a function of cultural stress. This nearly 8,000% increase in the rate of autism documents a raging epidemic light-years beyond broader definitions and better reporting that’s been the perennial argument for rejecting CDC statistics.<sup>144,145,146</sup> (It should be noted that poor physical health also inhibits learning; unfortunately, the general health of children is deteriorating from environmental toxins, sedative life styles, and food of decreasing nutritional value). Unfortunately, this crisis in childhood learning is largely obscured by an Anti-vaxxer movement that associates autism with vaccines and thereby makes doctors defensive about their treasured vaccines to the detriment of autism research. The calamity of the autism epidemic is a direct result of learning theory shifting from predominately modeling and autonomous exploration to excessive instruction and correction in stressful environments. Our culture has become significantly more stressful and unhealthy while popular learning theory about an innate learning mechanism is tragically misdirecting parents’ best intentions.

Popular *cognition theory* (and thinking theory) about reasoning, problem-solving and decision-making is explained with the more fundamental and encompassing thinking theory of associationism. Jean Piaget’s classic cognitive theory simply describes common age-related experiences that fostered well-being for Euro-American culture during his era as nativist (innate).<sup>160</sup> A multitude of popular new cognition theories have been proposed but their sheer numbers and lack of comprehensiveness should discount their individual value. Human reasoning, problem-solving and decision-making describe the glorious process of associating broadly relevant neural information about a subject to attain the most inclusive answer for “sound judgment” and “good sense.” In contrast, popular cognition theory attempts to explain cultural expectations for a complex neo-rational mental principle without structural and functional neuroscience support. Popular cognitive theory philosophizes about a complex, ambiguous, *neo-rational* mental process that “interprets” environmental stimuli after “encoding”, “storing”, and “decoding” information. But popular descriptions of “biologically based mechanisms” are only hypothetical constructs; they do not identify a structural and functional process — empirical neuroscience. Consistently, the popular cognitive theory of “parallel distributive processing” seeks to adapt the empirical neuroscience of connectionist neural networks to an erroneous philosophy of a complex neo-rationalism mental principle. Popular cognitive theories seek to understand a complex, ambiguous mental principle of neo-rationalism; in contrast, associative thinking explains cognition and all thinking with elemental empirical neuroscience.

Cognition problems exemplified by most dementia Alzheimer's disease typically express the sadness (emotional suffering) of seniors from distressful experiences and environments, and from decreasing physical strength and energy. Current dementia and Alzheimer's disease theory *assumes* symptoms are biological failings but real natural science theory advocates that age related "problems with living" cause problematic stress for seniors. Seniors are facing their mortality and death — something younger members of the community are generally too fearful to face. Aging is substantially about slowly losing energy; basic tasks that promote physical wellness become more difficult as well as most behaviors that make life enjoyable. Pathologizing sadness and depression is a problem throughout our culture; ageism generally makes this substantially worse for seniors. Ageism promotes the misconception that seniors hardly notice their surroundings (or deserve poor environments as a just reflection of their enterprise) and are therefore less impacted than others by sad, depressing environments. Ageism obscures concern for how sad some environments are for many of our seniors. In contrast, natural science theory contends that distressful and depressing experiences naturally promote anxiety and depression regardless of genes; sad experiences naturally promote sadness. While "super agers" (centenarians with good cognition) naturally express low stress, Alzheimer's symptoms naturally express stress. It can be difficult to care for seniors, but they have a human right to a decent environment — and to express anxiety or depression from distressful and/or depressing experiences without forced sedation.

Popular *memory theory* generally accepts associative thinking while erroneously attempting to adapt it to cultural expectations for a complex neo-rational mental principle (similar to learning theory). The "parallel distributed processing" (PDP) model correctly identifies the empirical neuroscience of memory (consistent with all thinking) but erroneously seeks to adapt PDP to a complex neo-rational principle. Popular "context-dependent memory theory", "state dependent theory", "mood-congruent theory", and "encoding specificity principle theory" correctly describe recall enhanced by various methods that rely on associative thinking. The most popular method of promoting recall is "mnemonics"; it establishes a chain of stronger intermediate associations to promote recall. The mnemonics method of "loci" was developed by ancient Greeks to promote recall by connecting associative thoughts with physical locations as intermediary links. Current memory theories of "sensory memory", "short-term memory" and "long-term memory", "declarative memory" and "procedural memory" seek to describe memory in terms of a neo-rational mental process. These popular memory theories about "encoding", "storage" and "retrieval" are socially constructed in support of a neo-rational mental principle but are without structural and functional neuroscience support. In contrast, associative thinking

explains all thinking; humans recall previous thoughts and experiences when they're the strongest associative thought. Thoughts associated with strong emotions (both emotional well-being and emotional suffering) develop stronger neural pathways through the cerebral cortex and are thereby easier to recall; conversely, thoughts about mundane experiences have weaker connections and are difficult to recall. However, extremely traumatic experiences are often unavailable for recall when the strongest associative thought is about the fear, pain and panic of the experience rather than orienting details that promote recall. Recall based on associative thinking is evidenced when music that was the background of an emotional experience is heard again after an intervening period; it prompts recall of the experience and related emotions. Consistently, Marcel Proust became famous for his description of the rush of memories and emotions produced by the taste of a food that was *associated* with an emotionally strong childhood experience.<sup>161</sup>

Dementia and Alzheimer's memory problems are usually caused by increasing stress and decreasing energy; it's problematic for senior health care that current medical science theory pathologizes this natural process. Stress is a natural problem for memory since memory depends upon whether information was important enough to remember to "make a memory" and is important enough to recall. Decreasing energy is another problem for memory; many issues become mundane and not worthy of recall when old and tired. Failing to recall mundane experiences is normal; it's not a biological failing. Distress from age-related social welfare problems (including guilt about unresolved behaviors and anxiety about unresolved traumas, managing personal physical needs with decreasing energy, addressing increasing health problems, and addressing the death of friends and loss of friendships) naturally obscures other thoughts. Here again, the cultural promotion of a Pollyanna perspective of society obscures the natural stress of life for many elderly members of the community; ageism makes this problem substantially worse. Ageism is a real problem for the elderly; most other members of society can't imagine living with the problems that the elderly endure. Unfortunately, pathologizing age-related memory problems causes substantially increased stress that worsens recall. Problems with physical needs, personal health, and other age-related social welfare problems are stressful distractions that naturally cause memory problems for many seniors.

All thinking is associative thinking regardless of whether it's for future thoughts (learning) or about present thoughts (cognition and thinking) or previous thoughts (memory). While scientists generally accept associative thinking for learning and memory, associative thinking explains all thinking. In contrast to popular thinking theories that lacks structural and functional neuroscience support, Natural Psychology explains learning, cognition and memory with

accepted empirical neuroscience.

Consistent with learning, cognition and memory; thinking theories about *states of consciousness, perception, and intelligence* are also explained by associative thinking.

Popular *states of consciousness* theory attempts to explain cultural expectations about a complex neo-rational mental principle (without structural and functional neuroscience support); in contrast, Natural Psychology explains states of consciousness consistent with mainstream medical science. Medical science describes the mental states of consciousness, semi-consciousness and unconsciousness as a function of the quantity of sensory information entering the brain. Consistent with medical science, consciousness describes sufficient information from the senses to create orientation to the environment and self-awareness. Human mental acuity is a subject of species' pride for good reason: our intellectual achievements are astounding; no other species approximates our intellectual achievements including our self-awareness. Consciousness can be elevated by the sympathetic nervous system that has evolved to foster survival during threats; stress hormones temporarily increase sensory stimuli and neurophysiological energy. Conversely, fatigue and physical sickness reduce neurophysiological energy and thereby lower the level of consciousness.

Consistent with medical science, semi-consciousness describes reduced information entering the brain during deep relaxation and sleep. Meditation, acupuncture and hypnosis are relaxation techniques that can approach semi-consciousness. Sleep promotes abstract associative thinking (dreams) because it lacks sufficient sensory information for orienting to the environment; associative thinking becomes too abstract for recall during deeper sleep. The "stages" of sleep arbitrarily categorize degrees of reduced sensory information received by the brain.

Consistent with medical science, unconsciousness describes a greater restriction of sensory information to the brain during comas; comas evolved to promote deep physical rest to aid recovery from trauma. Consistently, anesthesia causes unconsciousness by restricting the flow of sensory stimuli to the brain. The unconscious mental state of a coma is physical and real; this contrasts Freud's philosophy of repressed memories as "subconscious." Freud developed the theory of the "subconscious" to explain traumatic experiences that are often unavailable for recall because their painfulness is a stronger association than orienting details. Different "states of consciousness" have also been ascribed to mind-altering drugs that affect brain operation but this description is socially constructed philosophy rather than (medical) science. In contrast to erroneous psychology theory, "consciousness", "semi-consciousness" and "unconsciousness" are

explained by associative thinking and by the medical science focus on the quantity of information entering the brain.

Popular *perception theory* attempts to explain cultural expectations about a complex neo-rational mental principle but lacks structural and functional neuroscience support. Perceptual contradictions (illusions) are captivating because they directly belie assumptions about a neo-rational mental principle, but are readily explained by associative thinking; they are associative thoughts that conspicuously defy rationality. A multitude of illusions are entertaining because they contradict our understanding of our rationality but are easily explained as unusual, well-established associations.<sup>61,82</sup> “Parallel distributive processing” (PDP) in perception theory describes connectionist neural networks while erroneously attempting to adapt this empirical neuroscience to a neo-rational mental principle. “Visual perception”, “principles of organization”, “principles of components”, “depth perception”, “motion perception” and “perceptual constancies” attempt to explain unusual associative thoughts with popular neo-rationalism. Consistently, “synesthesia” is readily explained with associative thinking: sensory information from one sense has unusually strong associations with another sense based on unique individual experience.

But understanding perception theory has far more value than explaining illusions and “synesthesia”; associative thinking can also explain the critically important *perception of pain*. Pain perception is learned from *physiological energy deficits during infancy; over time, pain is a negative sensation (feeling) that becomes increasingly associated with emotional suffering*. Hence there is a wide variation of pain reported about similar injuries based on unique individual experience.<sup>162-A</sup> Fortunate life experiences with little distress or physical injury generally promotes a greater perception of pain than experiences of substantial distress and injury. High “pain tolerance” generally expresses substantial experiences of physical or emotional pain; this can be an unfortunate source of pride for some people. Consistently, some members of non-western cultures don’t experience pain from rituals that would cause excruciating pain to most others.<sup>162-B</sup> Moreover, the astonishing occurrences of “pain epidemics”<sup>163</sup> are similarly explained by the perception of pain as a function of experience and associative thinking: common experiences promote common pain. Furthermore, since pain is substantially psychosomatic, amputees can naturally experience “phantom limb pain” (a “pain illusion”). *Pain is an expression of emotional distress as much as an expression of neural stimulation (and is occasionally only an expression of emotional distress)*.<sup>164</sup> But pain is painful regardless of the source; the pain of a pain epidemic or a phantom limb is the same sensation as any other pain. *Understanding pain and further research based on understanding pain will promote a revolutionary change in health care across a wide range of medical fields including rheumatology (especially with Fibromyalgia)*.



Besides improving health care through understanding pain perception, understanding muscle weakness perception will also revolutionize health care. Consistent with pain perception, muscle weakness perception is also substantially a function of negative emotions. Thus, *amyotrophic lateral sclerosis (ALS) muscle weakness perception is explained and treated by understanding it as an expression of stress (emotional suffering) rather than a pathology.*<sup>165</sup> ALS expresses stress related to muscular activity; it can be treated with reduced stress.<sup>165</sup>

There are a multitude of popular perception theories whose sheer numbers and lack of comprehensiveness should discount their individual value. In contrast, associative thinking readily explains perception contradictions and the more critically important perception of pain and muscle weakness.

Popular *intelligence theory* supports cultural expectations for an innate neo-rational mental principle but it lacks structural and functional neuroscience support. Current intelligence theories describe levels of mental acuity that typically remain relatively consistent over a lifetime, and tag them as innate. More environmental stimuli, an unconflicted focus and more motivation produce better mental functioning. Conversely, minimal environmental stimuli during formative years produces intellectual disabilities documented in studies of early American orphanages<sup>166-A</sup> and Romanian orphanages in the 1990's.<sup>166-B</sup> Since the quality of environmental stimuli has improved over the last couple centuries, mental acuity and IQ scores have also improved<sup>167</sup>; this contradicts a genetic basis for intelligence. Intelligence tests also play to the cultural biases of test creators so they have traditionally expressed systemic racism. Intelligence tests are biased tests that address the rate of thinking and knowledge about subjects, but do not address the quality of thinking. Many of the most "intelligent" people in the community cause society the most harm; intelligence does not address the "quality of character."

Consistent with other psychology theories, popular intelligence theory is problematic in attempting to adapt associative thinking to innate neo-rational mental mechanisms. Current intelligence theory harms the community when pathologizing substantial natural thinking problems caused by stress. There are a multitude of popular intelligence theories whose sheer numbers and lack of comprehensiveness should discount their individual value. In contrast to popular theory that assumes innate intelligence, intelligence (mental acuity) is generally a function of motivation, focus, and environmental stimuli especially during formative years. Natural Psychology explains intelligence with associative thinking and elemental empirical neuroscience.

Popular thinking theories about states of consciousness, perception and intelligence support cultural expectations for a nativist, complex neo-rational mental principle but lack structural and functional neuroscience support. In contrast, Natural Psychology explains all

thinking as a function of associative thinking based on empirical neuroscience.

Besides explaining popular psychology theories about thinking, Natural Psychology also explains popular theories about behavior. *Personality theory, language theory and social psychology* are behaviors that are understandable consistent with all behavior: they seek well-being based on associative thinking from unique personal experience.

Popular *personality theory* attempts to explain cultural expectations for a complex, nativist neo-rational mental principle but lack structural and functional neuroscience support. In contrast, personality is explained by habitual behavior patterns that seek well-being based on associative thinking. Since learning is cumulative, habitual behavior patterns that create a “personality” are learned early in life and are typically slow to change significantly over time. Carl Rogers advocated a classic personality theory that describes the behavior motivation of seeking well-being in terms of “self-actualization.” Seeking the well-being of “self-actualization” is a common motivation based on western cultural experiences but ignores the common motivation of eastern cultures to seek well-being through “collectivism” (“communalism”). Abraham Maslow proposed another classic western personality theory in terms of a “hierarchy of needs”; again, he simply described common age-related social goals that typically fostered well-being for Euro-American culture during his era.<sup>168</sup> Consistently, Erik Erikson proposed a classic personality theory in terms of common age-related social experiences that typically fostered well-being for Euro-American culture during his era.<sup>169</sup> Classic personality theories are ad hoc descriptions of behavior motivation without an understanding of behavior motivation. Subsequently, several new personality theories including the “cognitive-effective personality system”, the “five factor model” and the “16-PF model” attempt to explain personality based on a neo-rational mental principle but are without structural and functional neuroscience support. Freud, Rogers, Maslow, Erikson and others describe personality theory based on western culture and an imagined neo-rational mental principle while ignoring eastern cultures. The multitude of popular personality theories should discount their individual value; in contrast, personality is explained by habitual behavior patterns that seek well-being based on associative thinking.

Popular *language theory* attempts to make language consistent with cultural expectations for a complex neo-rational mental principle but lacks structural and functional neuroscience support. In contrast, Natural Psychology explains language consistent with all other behaviors that seek well-being based on associative thinking. People learn language to communicate with others because communicating typically promotes well-being. Conversely, people have difficulty learning language or using language when it doesn’t promote well-being. Toddlers do not need

an innate “language acquisition devise” to understand and communicate through language; it’s an abstract concept without structural and functional neuroscience support. “Syntax” is learned through associations that vary depending on the language and culture; consistently, the embattled “linguistic relativity hypothesis” describes how language shapes the way that we think.<sup>170</sup> There are few better examples of “language shaping thought” than defining “emotional well-being” as “mental health” and thereby creating a cultural assumption that “emotional suffering” must be a *health problem* (rather than a *social* problem). Noam Chomsky’s rejection of language as a function of behavior conditioning is based on erroneously assuming a nativist concept of well-being. The multitude of popular language theories and their lack of comprehensiveness should discount their individual value. In contrast, our behavior motivation to seek well-being as a function of experience explains language consistent with all behavior that seeks well-being based on experience.

Popular *social psychology theory* attempts to explain social psychology consistent with cultural expectations for an innate, complex neo-rational mental principle but lacks structural and functional neuroscience support. In contrast, Natural Psychology explains social psychology consistent with all behavior; it seeks well-being through associative thinking as predominately a function of personal experience. Since humans seek emotional well-being, we generally like familiarity.<sup>171</sup> Since fairness typically promotes well-being, people generally dislike hypocrisy and feel “cognitive dissonance” when their behavior does not match their ideals. There are a wide range of behaviors that promote well-emotional well-being as a function of a wide range of personal experience. Humans generally seek the emotional well-being of social support and affirmation promoted through conformity to social norms that fosters reciprocal social support. Hence, *risk-taking* is understandable as seeking emotional well-being for some youthful sub-cultures through a cavalier attitude about danger. *Sociocultural psychology* describes the wide variation of cultural norms that promote well-being based on associative thinking as a function of experience — cultural experience. While ethnocentricity generally fosters the well-being of social support, it can also foster prejudice against outliers as a function of some lived experiences. Unfortunately, physical dominance over others can similarly be a conditioned association of well-being that reduces negative emotions of powerlessness. Although some cultures produce significantly more altruism than others,<sup>172</sup> human experience increasingly fosters empathetic and altruistic behaviors. The multitude of popular social psychology theories and their lack of comprehensiveness should discount their individual value; in contrast, seeking well-being as a function of experience explains social psychology.

Popular behavior theories about personality, language and social psychology support

cultural expectations for a neo-rational mental principle but lack structural and functional neuroscience support. In contrast, Natural Psychology explains personality, language and social psychology consistent with all behavior that generally seeks emotional well-being generally through associative thinking based generally on unique individual experience.

Natural Psychology is a comprehensive theory of thinking and behavior: the mental process substantially seeks the strongest associative thought and behavior substantially seeks well-being as substantially a function of singular individual experience. Natural Psychology is a unified explanation of popular theories about human psychology including learning, cognition and memory; states of consciousness, perception and intelligence; and personality, language and social psychology. Self-knowledge has rightfully been a human goal; it will channel a brighter future for the community.

## Appendix H

### “Mental Disorders”

“Mental disorders” pathologize natural, painful sadness (social, economic and/or spiritual distress) and other natural “problems in living.” The medical model of “mental disorders” discounts the severity and impact of traumatic experiences and environments as it pathologizes natural expressions of emotional suffering. It generally considers sadness pathological while promoting a Pollyanna perspective of our social fabric. Humans are sensing organisms as well as thinking organisms; the brain senses emotional suffering as painful similar to physical pain. Current theory understands emotions intellectually rather than physically and therefore doesn’t understand the painfulness of emotional suffering; a disease cannot be more painful than extreme emotional distress. Sadness is the natural physiology of sad experiences; it expresses our humanity rather than a brain malfunction, “mental illness” or “mental disorder.” Anxiety is the natural reaction to distressful experiences, depression is the natural reaction to depressing experiences, and sadness is the natural reaction to sad experiences; emotions are natural feelings about experiences. The medical model pathologizes painful expressions of sadness (anxiety and depression) and non-conforming, non-productive and/or disruptive behaviors. Non-conforming, non-productive and/or disruptive behaviors can include simple eccentricity but are often problematic coping styles. The medical model frequently pathologizes behaviors that seek short-term relief from emotional suffering; it fails to appreciate the painfulness of emotional suffering and the related desperation for relief. Broadly construed, *compulsions are behaviors strongly associated with well-being from lived experience that are counterproductive based on their problematic frequency and/or intensity.* “Mental disorders” pathologize painful sadness (emotional suffering) and other natural problems in living (predominately compulsions, broadly construed).

In 1980, the DSM-III reinvented its foundational theory from erroneous Freudian theory to philosophical “biological psychiatry” that pathologizes social welfare problems with the “medical model.” In contrast, Natural Psychology is a unified explanation of common DSM “mental disorders.” The first section of this appendix addresses “problems in living” related to anxiety; it includes “anxiety disorders” (“general anxiety disorder”, “phobic disorder”, “panic disorder”, and “obsessive-compulsive disorder”), “eating disorders” and “substance use disorders.” The second section of this appendix addresses problems in living related to depression: it includes the “mood disorders” of “major depressive disorder”, “dysthymic disorder”, “bipolar disorder”, and

“cyclothymic disorder.” The third section of this appendix addresses several specific types of problems in living: “somatic symptom disorder” (“conversion disorder”, “hypochondriasis disorder”, “somatization disorder”, and “pain disorder”), “dissociative disorders” (“dissociative amnesia/fugue” and “dissociative identity disorder”) and “personality disorders.” This appendix concludes with a section that addresses “schizophrenia spectrum disorders.”

Broadly construed, the anxiety “disorders” of “general anxiety disorder”, “phobic disorder”, “panic disorder” and “obsessive-compulsive disorder” describe presented symptoms of anxiety from distressful experiences.

“General anxiety disorder” pathologizes presented symptoms of nonspecific anxiety. Humans are sensing organisms as well as thinking organisms; anxiety is the *feeling* of aversion directly related to distressful experiences. The painfulness of anxiety evolved as strong motivation for behavior to avoid distressful experiences that can threaten species survival. Anxiety describes the emotion of distress; in contrast to popular theory that intellectualizes emotions, emotions are feelings and anxiety “disorders” express the *physical* painfulness of emotional suffering. Psychology defines anxiety as an “apprehensive anticipation of future danger or misfortune”; this expresses the fear of continued emotional suffering but not its painfulness. Popular theory pathologizes anxiety as disproportionate to stressful “events” but the term “event” erroneously implies a common perspective. Natural Psychology explains all anxiety as natural and proportionate to uniquely distressful personal histories and distressful life circumstance. Anxiety is a natural emotion that is directly proportional to the distressfulness of personal experience. Unfortunately, it is difficult to imagine the experiences of the less fortunate in the community and emotional pain greater than has been personally experienced. Broadly construed, “general anxiety disorder” pathologizes general presented symptoms of anxiety from distressful experiences.

“Phobic disorder” pathologizes presented anxiety caused by specific distressful experiences contrasting “general anxiety disorder” that describes anxiety caused by generally distressful experiences. “Social anxiety disorder” and “agoraphobia” are two common expressions of social anxiety pathologized as “phobic disorders.” “Social anxiety disorder” generally pathologizes anxiety about social interaction where people feel vulnerable to personal attacks. “Agoraphobia” similarly pathologizes anxiety about social interaction but in the context of being away from a more comforting home environment — a familiar, more controlled environment. Most other “phobic disorders” pathologize specific fears typically learned through traumatic experiences during childhood (that are often unavailable for recall). Phobias are as

numerous as the number of unique personal experiences that can be associated with extreme emotional distress.<sup>173</sup> Atypical lived experience can produce a traumatic fear of anything including books (“bibliophobia”), snow (“chionophobia”), and flowers (“anthophobia”).

“Panic disorder” pathologizes a sudden onset of painful anxiety caused by “triggers” — experiences strongly associated with emotional suffering. “Panic attacks” are frightening and debilitating based on the current paradigm that considers anxiety pathologically irrational; in contrast, associative thinking readily explains this sudden, natural onset of anxiety.

“Obsessive-compulsive disorder” pathologizes obsessive thoughts and compulsive behaviors (broadly construed). Thoughts about emotional suffering or imagined solutions to the pain become obsessive when their frequency or intensity become problematic. The subjects of obsessive thoughts are as numerous as the number of traumatic experiences that can cause emotional suffering or provide imagined relief. Music obsessions are relatively common; “earworms” describe comforting songs or tunes that become distressing from “running through a person’s mind” with problematic frequency. While obsessions describe thinking fixated on either emotional suffering or relief from the suffering, compulsions describe behaviors with a problematically strong association with emotional well-being. Compulsive behaviors are behaviors strongly associated with well-being that become problematic (counterproductive or disabling) based on their frequency and/or intensity. Compulsive behaviors are sought to relieve emotional suffering with such frequency and/or intensity that they become counterproductive or disabling. Compulsive behaviors are as numerous as the number of problematic behaviors that can be strongly associated with emotional well-being especially during childhood. Ritual behaviors are common compulsions; control of personal space, orderliness and predictability can promote increased emotional well-being to counter feelings of powerlessness. Compulsive cleaning and hand washing, compulsive hoarding, compulsive checking of door locks and important papers, compulsive sex (“sexual addiction”), compulsive yelling in public (“Tourette’s syndrome”), compulsive mimicking of other’s statements (“echolalia”), compulsive working (“workaholism”), compulsive shopping (“shopaholism”), compulsive gambling, compulsive gaming (“video game addiction”), compulsive exercising, compulsive stealing (“kleptomania”), compulsive fire setting (“pyromania”), compulsive avoidance of sidewalk cracks and compulsive violence are all behaviors strongly associated with well-being from unique individual experience (especially during formative years). Compulsive behaviors are increasingly attractive in direct proportion to the strength of their association with emotional well-being and to the intensity of emotional suffering. Conversely, compulsive behaviors are avoided in direct proportion to the likelihood of negative consequences and the perceived distressfulness of the consequences. People

generally conceal the severity of compulsive behaviors since unwanted attention and social criticism cause distress. Current theory pathologizes compulsions in terms of a malfunctioning “impulse control mechanism” but this advocacy of a neo-rational mental principle lacks structural and functional neuroscience support. The wide range of obsessions and compulsions are perplexing within the context of the current paradigm that supports a neo-rational mental principle, but readily explained with associative thinking.

Popular psychology theory narrowly defines compulsive behaviors; broadening the definition promotes a unified explanation of a wide range of problematic behaviors including “eating disorders.” Broadly construed, “eating disorders” are compulsive behaviors — counterproductive or disabling behaviors strongly associated with emotional well-being from unique personal experience. Compulsive eating (“eating disorder”) describes emotional well-being strongly associated with eating, compulsive dieting (“anorexia nervosa”) describes emotional well-being strongly associated with dieting (and/or being slim), and compulsive eating while compulsively dieting (“bulimia nervosa”) describes emotional well-being strongly associated with both. Since people avoid social criticism, the fatigue and physical sickness caused by “eating disorders” are typically concealed or their severity denied. It is unfortunate that fatigue and physical sickness from eating and dieting compulsions cause additional distress that can promote a downward cycle of worsening health problems.

Consistently, “substance use disorders” are explained as compulsions — problematic behaviors strongly associated with well-being from unique personal experience. In contrast to current theory that separately pathologizes eleven different types of abused substances, the following unified explanation of compulsive substance abuse describes the common thread. Popular theory describes “addictive” behaviors as “hijacking” the “reward-reinforcement pathway” but this advocacy of a neo-rational mental process is without structural and functional neuroscience support. Abused substances are generally neurotoxins that initially promote emotional well-being followed by a physical energy drain from the body’s effort to rid itself of the toxin. Substance use becomes substance abuse when the frequency or intensity of substance usage becomes problematic or when substances are illegal (or otherwise socially unacceptable). Substance abuse is promoted by a drug’s physically desirable brain sensations as well as emotional well-being fostered by related positive social experiences. Caffeine and nicotine are stimulant drugs that are widely accepted for adults; youthful consumption generally has additional positive associations of “coming of age.” Stimulant drugs temporarily increase physical energy and related emotional well-being; hence, stimulates like ADHD drugs and tobacco generally have a calming effect. Conversely, alcohol is a socially-accepted depressant drug that causes reduced



physical exertion and a related increase in brain energy; increased brain energy is experienced as increased emotional well-being. Alcohol intoxication can foster a more confident disposition (“liquid courage”); the self-confidence of intoxication can also promote an “angry drunk” about feeling intimidated when sober. Opiate drugs produce an extremely desirable physical effect on the brain; consistently, opioid addiction has increased dramatically since doctors made opiate prescriptions more common. Unfortunately, drug use typically becomes a cycle of abuse when fatigue and sickness from consumption motivate seeking short-term relief from more toxins. Compulsive substance abuse causes substantial physical sickness that is typically concealed or discounted to deflect social criticism. “Substance use disorders” are perplexing to the current paradigm; in contrast, seeking well-being through associative thinking from individual experience explains the wide range of compulsive behaviors.

The “anxiety disorders” of “general anxiety disorder”, “phobic disorder”, “panic disorder” and “obsessive-compulsive disorder” are perplexing to the current paradigm; in contrast, understanding thinking as associative and behavior as seeking well-being explains anxiety and the wide range of anxiety “disorders.” Consistently, broadening the definition of compulsions explains “eating disorders” and “substance abuse disorders.”

Broadly construed, “mood disorders” focus on natural responses to anxiety — both increased and reduced motivation. Distressful experiences produce anxiety that evolved to increase motivation for behavior to avoid distressful experiences and thereby promote survival. Unfortunately, the anxiety of distressful experiences is pathologized as the “mood disorders” of “hyperactivity” and “mania.” Over the last several decades, increasingly distressful childhood experiences are naturally promoting increasing stress and motivation in children that popular theory pathologizes as “hyperactivity disorder” and “attention deficit disorder.” Moreover, natural childhood energy especially when bored and promoting classroom disruption is often similarly pathologized. Consistently, the hyperactivity that desperately seeks to resolve painful depression is pathologized as “mania.” The desperation of “mania” to reduce emotional pain explains behavior that is often frantic, dangerous and poorly conceived. “Mania” is explained as desperate hopefulness for relief from the painfulness of extreme depression.

“Mood disorders” describe naturally increased and decreased motivation; painful anxiety is naturally suppressed with “depression” when options for relief appear distant, unavailable or unachievable. Depression expresses hopelessness; it is a natural process of slowing the speed of thinking when thinking is painful and solutions appear remote or unachievable. In contrast to popular theory that pathologizes depression while discounting depressing experiences,

depressing experiences naturally cause depression.<sup>174,175</sup> Depression fosters “a loss of interest in usual activities” when usual activities cease providing emotional well-being — the motivation for behavior. Depression causes fatigue because it’s reduced motivation for behavior making behavior difficult; popular theory pathologizes the natural fatigue of depression as “chronic fatigue syndrome.” Popular theory including Aaron Beck’s cognitive theory erroneously describes depression as disproportionate to lived experience because current theory has little appreciation for the lived experiences of the least fortunate. Unfortunately, popular depression theory provides cover for a wide range of abusers and abusive environments that naturally promote depression. “Major depressive disorder” and “dysthymic disorder” describe different degrees of depression consistent with current theory that focuses on details that differentiate emotional suffering and pathologizes them separately.

Broadly construed, “bipolar disorder” and “cyclothymic disorder” describe different degrees of pathologized behaviors that alternate between the natural moods of hopeless depression and the desperate hopefulness of “mania.”

Broadly construed, Natural Psychology explains different problems in living beyond those directly expressing anxiety and depression: “sleep disorders”, “somatic symptom disorders”, “dissociative disorder”, and “personality disorders.”

“Sleep disorders” often pathologize natural problems with rejuvenating sleep. The natural anxiety of emotional suffering causes an inability to relax — a necessary element of sleep; this natural neurobiology is pathologized by popular theory as “insomnia disorder.” Conversely, the hopelessness of depression causes a lack of motivation that promotes fatigue, decreased activity and sleep; this is pathologized by popular theory as “hypersomnia disorder.” During depression, extra sleep may also be considered desirable for preserving energy until options for relief avail themselves. “Nightmare disorder” and “sleep terror disorder” pathologize distressful thoughts during different stages of sleep. Nightmares describe emotional suffering during lighter sleep when dream imagery is more available for recall; “night terrors” occur during deeper sleep when thinking is more abstract and rarely available for recall. “Night terrors” often occur during physical sickness when illness causes substantial emotional suffering and deep sleep. Lastly, “narcolepsy” describes a rapid onset of relaxation and sleep at undesirable times; it’s triggered by experiences atypically associated with extreme relaxation from atypical individual experience. Associative thinking explains natural problems with sleep that are pathologized by popular theory.

“Somatic symptom disorders” pathologize natural physical sensations misinterpreted as symptoms of pathology because they are associated with emotional suffering; emotional distress

and suffering often promote health concerns. “Hypochondriasis disorder” and “somatization disorder” describe different degrees of fear about health — a natural source of concern especially for those experiencing misfortune. “Body dysmorphic disorder” describes an obsessive fear of body defects whereby a normal physical attribute (while probably not admired) becomes the focus of an obsession. Consistently, “conversion disorders” like “aphasia” and “visual agnosia” generally describe obsessive fears about deafness or blindness that are stronger (associative) thoughts than sensory information about sight and sound respectively. “Pain disorder” is similar to “hypochondriasis disorder” and “somatization disorder” whereby fear becomes associated with normal physical sensations; *physical sensations are perceived as painful when feared*. Consistently, any physical sensation can be perceived as problematic when under stress and distress; “somatic symptom disorder” predominately describes natural physical sensations perceived as a symptom of a pathology. Occasionally, “somatic symptom disorders” can be a subconscious strategy for reducing emotional suffering by eliciting sympathy or avoiding feared experiences (“conversion disorders”). In contrast to popular theory that is perplexed by “somatic symptom disorders”, Natural Psychology explains them with associative thinking from personal experience.

“Dissociative disorders” pathologize dissociation from distressful thoughts and experiences in a subconscious effort to distance oneself from them. People generally distance themselves (dissociate) from their undesirable thoughts and behaviors; “dissociative disorders” pathologize dissociative thoughts that are more extreme in response to more extreme undesirable thoughts and behaviors. “Psychogenic amnesia” pathologizes disassociation from an intensely painful experience or life circumstance. Although “anterograde amnesia” (the inability to form new memories) can be caused by physical trauma to the hippocampus or amygdala, most amnesia describes thoughts and experiences too painful for recall. The painfulness of extremely traumatic experiences is often the strongest associative thought to the exclusion of orienting details about the experience; this causes problems with recall. Consistently, amnesia is selective; behaviors that promote well-being like the general life skills of language, driving, or personal hygiene are rarely lost to amnesia. Consistently, “psychogenic fugue” pathologizes a flight to avoid an intolerably painful social environment consistent with all behavior that seeks emotional well-being. Consistently, “dissociative identity disorder” describes different social schemas that seek relief from different types of traumatic environments. Hence Frank Putnam’s “trauma-dissociation theory” is correct in describing new personalities occurring in response to severe stress; this contrasts most trauma theory that discounts the distressfulness of traumatic environments. Although “dissociative disorders” are perplexing to current theory, Natural

Psychology provides a unified explanation based on the mental process seeking the strongest associative thought and behavior seeking well-being based on (distressful) personal experience.

Consistent with all behavior, personality traits seek emotional well-being starting in formative years and thereafter becoming habitual. Since learning is cumulative and behavior is habitual, problematic “personality traits” typically originate in childhood and are habitual and therefore difficult to change. “Personality disorders” pathologize habitual behavior patterns deemed undesirable or “antisocial”; they pathologize non-conforming, non-productive and/or disruptive behaviors in support of existing social structures. “Personality disorders” often express a social welfare problem pathologized as a medical problem.

Besides explaining “mental disorders” that express natural anxiety and depression, Natural Psychology also explains “sleep disorders”, “somatic symptom disorders”, “dissociative disorder”, and “personality disorders.”

“*Schizophrenia spectrum disorder*” pathologizes the most extreme sadness (emotional pain) from the most traumatic experiences and environments; it expresses the most extreme anxiety and depression (and resulting problems with mental acuity). “Schizophrenia spectrum disorder” is often identified with late adolescence because the transition from dependent child to independent adult can be unusually difficult. This transition is especially difficult when learned expectations for adulthood are not supported by the environment or by the skills required for achieving expectations. However, the intense emotional suffering expressed in “schizophrenia” can occur anytime extreme misfortune causes extreme, painful emotional suffering.

The behaviors categorized in “schizophrenia spectrum disorder” become understandable when considering extreme emotional suffering as based on associative thinking from traumatic experiences and environments. The delusions of schizophrenia generally express a history of intensely distressful personal experiences that promote false inferences about the environment.<sup>176,177</sup> Intensely distressful experiences explain the “delusions of persecution” (paranoia), “self-condemnation delusions”, and “grandiose delusions.” “Paranoid delusions” express a natural defensiveness about the source of extreme misfortune; they often emanate from being the target of cruel childhood “jokes” and other *real* conspiracies. We do not live in a Pollyanna world of universal kindness and goodness. “Self-critical delusions” express intense self-criticism about the cause of extreme misfortune in support of learned socialization that predominately blames individuals for their distressful experiences. “Grandiose delusions” seek a self-image that can resolve an intensely painful emotional crisis when there are no better options and emotional pain dominates attention to the exclusion of critical thinking. Consistently, the

theory of “inappropriate affect” is understandable with an appreciation of the perspective of someone experiencing extreme misfortune. An “inappropriate affect” becomes logical when appreciating that it is natural for people experiencing extreme misfortune to feel sad (jealous) when considering others experiencing good fortune. Conversely, people experiencing extreme misfortune typically feel isolated in their misery and are naturally comforted (happy) to hear about others similarly experiencing misfortune (“misery loves company”).

Natural Psychology also explains the delusions of hallucinations; consistent with all thoughts, hallucinations are the strongest associative thoughts to the previous thought or sensory stimuli. Hallucinations generally describe how extreme emotional suffering can dominate thinking as well as sensory information that orients to “consensus reality.” This understanding of hallucinations is promoted by Euro-American culture; many cultures are far more accepting of hallucinations. Auditory hallucinations are *dissociated* “sub-vocalizations” that are often intended to motivate behavior to seek emotional well-being through self “motivational” criticism.<sup>178</sup> Consistently, visual hallucinations generally describe extreme emotional suffering (or physical sickness) affecting the perception of the environment and “consensus reality” (in Euro-American culture). Over time, auditory and visual hallucinations can become more familiar and therefore promoted by less suffering. Hallucinations are considered a natural response to physical pain (torture or extreme fatigue or sickness) but they are a pathologized response to emotional pain. Besides hallucinations produced by drugs, auditory and visual hallucinations are typically abstract associations of emotional suffering.

Until the latest DSM was published in 2013, “schizophrenia spectrum disorder” was divided into four sub-types: 1) “paranoid schizophrenia disorder”, 2) “disorganized schizophrenia disorder”, 3) “catatonic schizophrenia disorder”, and 4) “undifferentiated schizophrenia disorder.” First, “paranoid schizophrenia disorder” pathologized intense emotional suffering when presented symptoms predominately described an extreme defensiveness about the cause of the suffering. Second, “disorganized schizophrenia disorder” pathologized intense emotional suffering when presented symptoms predominately described the natural failure to maintain a train of thought while distracted by emotional suffering. Third, “catatonic schizophrenia disorder” pathologized intense emotional suffering when presented symptoms of motionlessness or stereotyped movements expressed extreme depression; people naturally become socially withdrawn when their social interactions cause distress. “Catatonia”, “loss of volition”, “poverty of speech” and the “blunted” affect are all natural expressions of extreme depression. Consistently, people experiencing extreme emotional suffering naturally have a “poverty of speech” when they are unable to express themselves, do not believe that anyone can understand them, and/or do not

believe that anyone cares what they say. Fourth, “undifferentiated schizophrenia disorder” pathologized intense emotional suffering when presented symptoms did not predominately express paranoia, disorganized thinking or depression. The new DSM-5 removed these four previous categories of “schizophrenia spectrum disorder” because overlapping boundaries caused substantial problems with reliability (consistent diagnoses). There is no scientific support for understanding “schizophrenia spectrum disorder” as a disease.<sup>179,180</sup>

“Schizophrenia spectrum disorder” pathologizes the most extreme anxiety and depression from the most traumatic experiences and environments.

Behavior naturally seeks emotional well-being as a function of personal experience; “mental disorders” predominately express natural emotional suffering — social welfare problems. “Mental disorders” express social, economic and/or spiritual distress and other natural problems in living including coping styles deemed disabling (non-conforming, non-productive and/or disruptive). The medical model erroneously contends that sadness is unnatural regardless of traumatic experiences and traumatic environments. Consistently, it discounts the severity of traumatic experiences and traumatic environments in support of existing social and economic structures. Popular theory ostensibly advocates Pollyanna and a fairy tale world of goodness and fairness; unfortunately, it serves to control dissent of the marginalized and disenfranchised.

Broadly construed, anxiety expresses the painfulness of emotional suffering from distressful experiences that is often suppressed with depression when solutions seem distant or non-existent. Strategies intended to reduce emotional suffering often include compulsive behaviors — behaviors strongly associated with emotional well-being from individual experience that are deemed problematic or counterproductive. Natural Psychology explains all popular theories about “mental disorders” with a unified, comprehensive new paradigm of human psychology based on accepted science theory and accepted empirical neuroscience. Emotional suffering is the natural expression of distressful experiences. Embracing our humanity and understanding “mental disorders” as social welfare problems will revolutionize health care and promote a more egalitarian and altruistic society.

## Appendix I

### Therapy

“Therapy” will drastically improve when “mental disorders” are understood as social welfare problems — painful sadness (natural social, economic and/or spiritual distress) and other natural “problems in living.” “Mental disorders” express distressful experiences and related anxiety; consistently, they are alleviated by reducing distressful experiences and/or increasing experiences of emotional well-being. Emotional well-being is promoted by positive experiences of affirmation and support, and avoiding distressful experiences of hostile people and hostile environments. While much emotional suffering can be caused by interpersonal problems, most emotional suffering is caused by traumatic environments of social and economic injustice. Moreover, physical health deficits also cause sadness and social welfare problems. Traumatic experiences and/or traumatic environments naturally cause emotional suffering; sadness is aversive and extreme sadness is as painful as any physical trauma or real pathology. By pathologizing sadness, the medical model gaslights those experiencing traumatic experiences and environments and provides cover for their abusers. Abuse victims are rightfully intimidated by a system that advocates genetic factors are contributing to emotional suffering.

It is affirming and thereby therapeutic for emotional sufferers to understand “mental disorders” as natural expressions of traumatic experiences and traumatic environments. Consistently, increased social and economic justice is the best “therapy” for alleviating most “mental disorders” (social welfare problems); full stop. Less emphasis on social status and more equality will similarly promote better “mental health” for the community (reduced social welfare problems); again, full stop.

It is typically difficult work to counter a personal history of social welfare injustices; a sense of agency and empowerment are critically important for success. Assistance with social, economic and/or spiritual distress is generally valuable when provided by supportive people who promote agency, empowerment and self-advocacy. Supportive assistance from others can provide important feedback about the environment; a good counselor replicates a good friend while a poorly matched counselor cannot provide acceptable service. Counselors should also provide information about public assistance resources that can promote a healthy lifestyle (physical health). Unfortunately, a positive relationship between a therapist and a client is difficult within the context of the popular Disease Model of emotional suffering. It is difficult for a therapist

to empathize with a client's plight and provide good counseling while erroneously believing that a client's problems are pathological rather than social. Conversely, emotional sufferers who have experienced unusual misfortune often have difficulty accepting advice from counselors who appear lucky in life and therefore arrogant. Empathy and transparent social support are critical for a therapeutic environment; a positive relationship between client and counselor is more important than professional techniques.<sup>181,182</sup> Understanding "mental disorders" as social welfare problems is the foundation of a radical improvement in "therapy."

Popular therapies should be reevaluated from a perspective of reducing social welfare problems (and promoting physical health). Currently popular therapy programs include: 1) physical & health therapy, 2) counter-trauma therapy, 3) relaxation therapy, 4) relationship therapy, 5) positive thinking therapy, 6) experiential therapy, 7) spiritual and existential therapy, 8) behavior therapy, 9) occupational therapy, 10) psychoanalytic therapy, 11) Open Dialogue Therapy, 12) pharmacological therapy, 13) electro-convulsive therapy (ECT), and 14) court ordered therapy.

First, physical & health therapy correctly advocates that improving physical health promotes a related improvement in "mental health" — emotional well-being (social welfare). Physical health and fitness foster physical energy and related associations of well-being; conversely, physical sickness and fatigue express reduced brain energy that promotes emotional distress. Hence, a nutritional diet of moderate size, good hydration, plenty of restful sleep, protection from adverse weather, plenty of exercise and a physically safe environment promote emotional well-being. Conversely, nutritional deficits, food allergens and toxins, dehydration, disruptive sleep environments, exposure to the elements and inactivity promote emotional suffering. Improved (physical) health promotes improved emotional well-being.

Second, counter-trauma therapy advocates countering, neutralizing or confronting traumas to increase emotional well-being (social welfare). Counter-trauma therapy considers traumas to cause most mental distress; traumas are herein generally defined as experiences of hostile, distressful environments rather than distressful experiences of otherwise friendly environments. Understanding "mental disorders" as natural emotional suffering from traumatic experiences promotes therapies based on countering the traumas. Countering trauma often centers on confronting the cause of the trauma, preventing others from experiencing similar trauma, or comforting those who have experienced similar trauma. Thus a rape victim might consider advocating for offender prevention programs, campaigning for stronger laws against rape, or volunteering at a rape hotline. Consistently, a victim of "adverse childhood experiences"



(ACE) might consider advocating for parenting programs, campaigning for stronger laws against child abuse, or volunteering to be a Big Brother or Big Sister. Traumatic guilt from misdeeds is reduced by actions that make a person deserving of forgiveness; assisting people hurt by a similar type of transgression through community service reduces guilt. Traumatic social and economic injustice is countered by social and political activism; community service is also valuable for more generally countering trauma.

Third, relaxation therapy (broadly construed) promotes increased emotional well-being. Relaxation therapy is a natural form of therapy that reduces stress and increases emotional well-being; based on learned associations, it's impossible to be emotionally agitated while physically relaxed. Relaxation reduces the energy expended for muscular movement and thereby increases neurophysiological energy levels in the brain; this increased neurological vitality is a therapeutic association of emotional well-being. Consistently, different forms of relaxation therapy from hot mineral baths to meditation have been popular in different cultures for thousands of years. Broadly construed, relaxation therapy includes progressive muscle relaxation and deep breathing techniques, massages, saunas and sweat lodges, spas and hot baths, meditation, yoga and tai chi, acupuncture, and hypnosis. Relaxation therapy is frequently included in psychology texts as the main method of stress reduction but should be considered more generally therapeutic. Sleep is relaxation that similarly promotes increased emotional well-being; increased emotional well-being during sleep promotes increased comfort in addressing personal problems through dreams. Dreaming is associative thinking with looser connections from a reduced orientation to the environment; increased emotional well-being during sleep enables dreams (and nightmares) to better address emotional suffering. Dreams including nightmares can be interpreted (understood) as similes and metaphors based on associative thinking. Relaxation promotes emotional well-being; relaxation therapies are naturally effective in temporarily reducing emotional suffering (albeit slightly).

Fourth, relationship therapy promotes emotional well-being through the natural affirmation of fellowship — social relationships; social relationships can produce affirming support based on our common humanity. Collaborating with people who are confronting similar types of distressful experiences is generally difficult and time-consuming but generally promotes an affirming, “therapeutic” natural bond. The social affirmation of positive relationships through peer groups, community service and volunteerism, school and work, recreational and political activities, and religious organizations is therapeutic. Consistent with the natural affirmation of fellowship that is generally therapeutic,<sup>183</sup> animal companionship can also promote natural affirmation and emotional support.

Fifth, positive thinking therapies like Cognitive Behavioral Therapy promote methods for increased positive thinking that promotes increased emotional well-being (“mental health”). Cognitive behavior therapy generally promotes emotional well-being with mindfulness towards a personal affirmation and gratitude for one’s blessings. Although most emotional sufferers resent the repetition of the theme of positive thinking, “counting one’s blessings” promotes emotional well-being. Consistent with the central theme of most self-help books, positive thinking promotes positive thoughts, experiences and memories; conversely, negative thinking promotes negative thoughts, experiences and memories (“we find what we’re looking for”). A positive disposition includes being kind to oneself and less self-critical of perceived shortcomings; self-acceptance is vitally important for improving emotional well-being. Cognitive Behavioral Therapy (CBT) is currently the most popular therapeutic alternative to drug therapy and the leading advocate of positive thinking. CBT provides valuable strategies for promoting positive thinking (including visualizing positive change) and for reducing self-defeating behavior patterns and triggers.<sup>184,185,186</sup> CBT may also assist with strategies for improving social relationships (including tips on being supportive without imposing) and overcoming attachments to abusers. Narrative Therapy is also valuable *positive thinking therapy*; it exposes injustices underlying negative self-images in a process of “rewriting the narrative.” Consistently, social service organizations may assist with strategies to improve social and/or employment skills for increased emotional well-being. Consistent with positive thinking, there is often therapeutic value in forgiveness.<sup>187</sup> Forgiving the human frailty of those who have transgressed against us reduces the satisfaction for transgressors and the harmful impact of a transgression. Forgiving doesn’t mean forgetting; painfully distressful experiences provide motivation for countering distressful experiences when properly channeled. Moreover, positive thinking is promoted by environmental associations of emotional well-being through affirming music and other entertainment, pleasant aromas and a comforting personal environment. Positive thinking therapies include: Dialectical Behavior Therapy, the Wellness Recovery Action Plan program, Peter Breggin’s Empathetic Therapy, Emotional CPR, Well-being therapy, Human Givens Therapy, Positive therapy, Humanistic Therapy, and Paul Gilbert’s Compassion Focused Therapy. Family therapy is a valuable form of positive thinking therapy for conflict resolution within families similar to Couples Therapy being valuable for conflict resolution between partners. Consistently, Group Therapy is productive when it reduces feelings of isolation, abandonment and social rejection that are associated with emotional suffering. It is unfortunate that people generally feel isolated when suffering emotionally; this obscures the reality of multitudes of people similarly suffering. However, Group Therapy for criminal behaviors can be counterproductive; society wants some behaviors to be

associated with social isolation and rejection. Positive thinking therapies may be difficult for emotional sufferers to embrace since their experiences haven't been positive but it's easier to find something that is sought.

Sixth, experiential therapy is valuable in creating experiences that are most likely to eventually create increased emotional well-being (social welfare). Behavior habits that promote experiences of emotional well-being (happiness) include fostering personal interests and hobbies, social recreation, creative arts including dance, and time spent emerged in a comforting environment (especially a natural environment). A habit that promotes well-being often plays to personal strengths or strengthens personal weaknesses. Charitable work and work to increase personal efficacy (including peer education) may be valuable if mental distress makes fostering an enjoyable experience temporarily repugnant.

Seventh, spiritual therapies promote a comforting meaning and purpose to life that increases emotional well-being. Humanity has natural motivation and purpose in promoting species survival through improved social and political relationships and better stewardship of Mother Earth. Besides the therapeutic value of a natural spiritualism, many people find therapeutic value in a philosophical purpose to life through *existential therapy*. Consistently, a theological purpose to life beyond a philosophical or our natural purpose (and beyond the scope of natural science) is frequently therapeutic in promoting emotional well-being — “mental health.” Believing in a spiritual purpose to life promotes emotional well-being regardless of whether the spiritual purpose is natural, philosophical or theological.

Eighth, behavior therapy will substantially increase in value as a therapeutic tool with an understanding of associative thinking and behavior conditioning. Behavior therapies can be therapeutic in creating habits that promote emotional well-being and neutralize distressful experiences. Consistently, exposure therapy and systematic desensitization therapy are behavior therapies that reduce phobias (specific fears) by adding new associations of well-being (familiarity and harmlessness) to counter feared consequences. Thus the exposure therapy of “confrontation” and “imagination” (including virtual realities) reduce the distressfulness of a phobia by adding comforting associative thoughts to counter it. Systematic desensitization therapy is a similar process of behavior conditioning through successive steps. Besides conditioning behavior to reduce phobias, behavior therapy can also reduce undesirable behaviors with aversion therapy — associating distressful experiences with problematic (“compulsive”) behaviors to reduce their desirability. Unfortunately, behavior conditioning is not a magic pill; it has traditionally lacked the intensity and duration necessary to counter compulsive behaviors. Behavior conditioning will increase in value as a therapeutic tool when people understand how they can condition a

therapeutic improvement in their emotional well-being.

Ninth, occupational therapy is valuable in promoting better management of the personal business of living; reducing personal problems promotes increased social welfare. Emotional suffering often distracts attention from taking care of the personal business that promotes physical health and emotional well-being. Organizing and expediting personal tasks and creating a routine to daily life is generally therapeutic, as well as creating a more comforting, productive personal environment. A personal schedule should include time for creating scenarios in advance that promote better outcomes for “triggers.” For those who have been deep in the “mental health care” system, the Wellness Recovery Action Plan wisely advocates an advanced crisis plan including a legal Advanced Medical Directive. A legal Advanced Medical Directive Plan can promote an increased sense of empowerment when feeling powerless within the “system.” The Substance Abuse and Mental Health Services Administration should assist upon request.

Tenth, psychoanalytic therapy is valuable in utilizing techniques based on associative thinking to identify traumatic experiences previously unavailable for recall so they can be countered. It's unfortunate that the therapeutic value of psychoanalysis' ability to identify “subconscious” traumas is belied by the false, underlying Freudian narrative. Art therapy, drama therapy and free-association therapy are valuable in using associative thinking to gain valuable insights into traumatic experiences. Projective tests like the Rorschach Test and Thematic Apperception Test also use associative thinking to gain insights into the cause of emotional suffering. Similarly, dream analysis has therapeutic value when exposing hidden fears and the latent content of dreams and nightmares through the associated dream imagery of similes and metaphors. However, while psychoanalytic therapy may be valuable in identifying the cause of emotional suffering, it has difficulty resolving the issues it exposes. Actions that neutralize traumatic experiences are therapeutic; in contrast, self-absorption with personal injustices without acting to counter them is rarely therapeutic.<sup>188</sup>

Eleventh, Open Dialogue therapy is valuable addressing an “emotional crisis” as more of a social welfare problem than a pathology. Classic Open Dialogue therapy provides respectful, empathetic emotional support; it promotes transparency and honesty while addressing personal problems and options for solutions.<sup>189,190</sup> With classic Open Dialogue, “mental health” professionals from different fields visit a person suffering an emotional crisis in their own environment and openly investigate the experiences that are causing the suffering. While seeking to engage clients in addressing their emotional suffering, Open Dialogue includes family and friends; therapists understand that they are only visitors in their clients' world. Open Dialogue seeks self-advocacy, agency and empowerment for clients; clients are encouraged to

formulate and direct a therapeutic strategy. Drug therapy is discouraged, although sleep aids for sleeplessness are often prescribed for an initial five-day period. Since classical Open Dialogue therapy addresses mental distress consistent with a social welfare problem, it's far more successful than other therapies.<sup>191</sup> Unfortunately, the application of Open Dialogue in the United States is less successful because it lacks cultural support and rarely addresses clients in their own environment where their problems exist.

Twelfth, pharmaceutical therapy (drug therapy) can provide some short-term relief ("reduction of symptoms") by having a sedative effect on emotions, but it doesn't address causation.<sup>192</sup> The APA is unethical for permitting the chemical imbalance theory to defend its legitimacy after most eminent psychiatrists have rejected it as scientifically unsupportable. Consistently, the APA is unethical for permitting the misconception that psychiatric drugs are medicines that treat a pathology. This is a criticism of a failure to provide honest, fully-informed consent; it is not a criticism of anyone who feels that they benefit from the drugs (especially in lighter doses). Drug therapies may provide valuable sedation during an emotional crisis when emotional pain distorts reality and causes disorienting sleep deprivation that hinders the solution of real problems in living. Drugging undesirable emotions may provide temporary relief of symptoms but typically becomes an obstacle to solving underlying problems over time (especially in higher doses). Long-term drug therapies promote fatigue, reduced mental acuity, and distressful side-effects that hinder solutions to natural social problems. Drug therapies are generally counterproductive especially in heavier doses; consistently, cultures that promote drug therapies document worse outcomes.<sup>50</sup> Mislabeling psychiatric drugs as medicines causes harmful drug abuse; Allen Frances who chaired the DSM-IV committee now lectures on the harm of long-term drug therapy.<sup>42</sup> (Note: psychiatric drugs are addictive and withdrawal can be dangerous; seeking professional medical advice is recommended before discontinuing any drug therapy program.<sup>193,194,195,196</sup>)

Thirteenth, electro-convulsive therapy (ECT) may temporarily reduce symptoms of emotional suffering (sadness) with brain trauma, but doesn't address causation.<sup>197</sup> The surge of electricity through the brain ignites a brain seizure (a myriad of electrical neuron firings) that leaves neurons "spent" through "long-term potentiality." This leaves the brain in a state of unusual neural homeostasis that is generally perceived by patients as emotional well-being (a temporarily reduction of problematic symptoms). But the physical brain trauma of seizures causes memory loss and neural damage; the electrical surge from ECT is especially damaging to glial cells that nourish and support neurons.

Fourteenth, court ordered therapy or any coerced therapy is generally a violation of

human rights that is generally counterproductive for social welfare problems. (It should be noted that in practice, it's difficult at best to assist someone in an emotional crisis especially in the short term. There is no "right way" to address problematic behavior considered "a cry for help" or behavior expressing danger to oneself or others.) Since "mental disorders" express natural emotional suffering from distressful experiences, coerced "therapies" are additional distressful experiences that generally worsen emotional suffering. It may be difficult to witness someone in an emotional crisis but understanding "mental disorders" as a social welfare problem changes everything. Mental distress is the natural expression of distressful experiences; there are rarely easy answers to resolving distressful experiences; this is the reality of our humanity. The best immediate response to social welfare problems is offering empathy and emotional support, and assistance if possible and desired. It is a calamity that emotional suffering is "treated" with coercion — terrifyingly distressful experiences. Agency and empowerment are critical for promoting emotional well-being; in contrast, coerced "treatments" are horrifying human rights violations.<sup>52,53,54</sup> Coerced "treatments" often cause greater emotional suffering than the experiences that caused the initial emotional suffering; they may occasionally save a life but the abuse more often promotes suicide. "Coercive therapy" is an oxymoron; it is rightfully the subject of horror films.

For individuals, there are a multitude of different types of "therapies" that should be reevaluated based on their ability to address "mental disorders" as social welfare problems. The different types of therapies deemed valuable may be combined for a program tailored to individual needs.

Understanding emotional suffering as the natural neurobiology of distressful experiences will revolutionize "community mental health" (the social welfare of the community). More economic and social justice and less emphasis on social status will promote community "mental health." Community "mental health" will improve with a more supportive, respectful, charitable social environment of fellowship that reflects our common humanity. For individual therapy, agency, empowerment and self-advocacy are vital for solving the real problems in living that cause emotional suffering. Family, friends and counselors may be therapeutic when providing empathetic support that promotes agency, empowerment and self-advocacy (unless they are the problem). Supportive assistance can provide helpful empathy for injustice, access to desired resources, insight into the cause of suffering, and occasionally valuable assistance with strategies for promoting increased social and economic justice. The Social Welfare Model describes sadness as the natural expression of sad experiences; it will soon be considered astonishing that

sadness was ever considered a disease.

People experiencing emotional suffering should be mindful that humans have intrinsic value and a human right to emotional well-being as advocated by the UN Commission on Human Rights. Autocrats and other abusers thrive in darkness; self-knowledge will shine light into the dark recesses of our social fabric and expose hidden abuse. Humans are often weak and vulnerable individuals but create strong and powerful communities. Since power corrupts, the community will prosper through increased transparency of social and economic institutions. People should always retain hope for improved emotional well-being (“mental health”) since “the only constant in life is change.”

## References

- 1) Warren, H. (1921). *A History of Association Psychology*, Charles Scribner's Sons.
- 2) Meehl, Paul (1978). Theoretical Risks and Tabular Asterisks: Sir Karl, Sir Ronald, and the Slow Progress of Soft Psychology, *Journal of Consulting and Clinical Psychology*, 46: 806-834.
- 3) Chang, Hasok (2004). *Inventing Temperature*, Oxford University Press; p.239.
- 4) Myers, D.G. (1992). *Psychology*, Worth Publishing, inc., New York, pp. 120-121, 409.
- 5) Bernstein, D. & L. Penner, A. Clarke-Stewart, E. Roy (2006). *Psychology*, Houghton Mifflin Co., Boston, p. SIG-17.
- 6) Wade, C. & C. Tavis (2006), *Psychology*, Pearson Education, Inc., New Jersey, pp. 445-448.
- 7) Passer, M. & R. Smith (October, 2007). *Psychology: The science of Mind and Behavior (4th ed.)*, McGraw-Hill, New York, pp.502-505.
- 8) Wilson, E.O. (1980). *Sociobiology: a New Synthesis*. Harvard Press.
- 9) Machamer, P., R. Grush & P. McLaughlin eds. (2001). *Theory and Method in the Neurosciences*, University of Pittsburgh Press.
- 10) Szasz, T. (1960). *The Myth of Mental Illness; Foundations of a Theory of Personal Conduct*, Hoeber-Harper.
- 11) Wade, C. & C. Tavis (2006), *Psychology*, Pearson Education, Inc., New Jersey, p.566.
- 12) Passer, M. & R. Smith (2009). *Psychology: The science of Mind and Behavior (4th ed.)*, McGraw-Hill, New York, p.556.
- 13) Kendell, R. (1974). The Stability of Psychiatric Diagnoses, *British Journal of Psychiatry*, 124: 352-356.
- 14) Breier, A., D.S. Charney, and G.R. Heninger (1985). The Diagnostic Validity of Anxiety Disorders and Their Relationship to Depressive Illness, *American Journal of Psychiatry*, 142: 787-797.
- 15) Tyrer, P. (1985). Neurosis Divisible, *The Lancet*, March 23, pp. 685-688.
- 16) Stavrakaki, C, & B. Vargo (1986). The Relationship of Anxiety and Depression: A Review of the Literature, *British Journal of Psychiatry*, 149: 7-16.
- 17) Zimmerman, M., W. McDermt, & J. Mattia (2000). Frequency of Anxiety Disorders in Psychiatric Outpatients with Major Depressive Disorder, *American Journal of Psychiatry*, 157: 1337-1340.
- 18) Ross, C. (2007). *The Trauma Model: A solution to the Problem of Comorbidity in Psychiatry*, Manitous Communications: pp.210-111.
- 19) World Health Organization (2004). *Promoting mental health: concepts, emerging evidence, practice* (Summary Report) Geneva. p.2.
- 20) Wakefield, J. (1992). The Concept of Mental Disorders: On the Boundary between Biological Facts and Social Values, *American Psychologist*, 47: 373-388.
- 21) Horwitz, A. (2002). *Creating Mental Illness*, University of Chicago Press.
- 22) Makwana N., et al. (2019). Disaster and its impact on mental health: A narrative review, *Journal of Family Medicine and Primary Care*, 2019 Oct; 8(10): 3090–3095.
- 23) QB VII (1974), Screen Gems, Columbia Pictures, Hollywood, (included documentary footage of medical experiments by Nazi doctors on Jewish subjects).
- 24) Lancet editors (2016). Medicalisation and its discontents, *The Lancet Psychiatry*, Vol. 3, no. 7, (July, 2016).
- 26) Moncrieff, J. (2008). *The Myth of the Chemical Cure: A Critique of Psychiatric Drug Treatment*, Palgrave Macmillan.
- 27) Kirsch, I. (2010). *The Emperor's New Drugs: Exploding the Antidepressant Myth*, Basic Books.
- 28) Lynch, T. (2015). *Depression Delusion: The Myth of the Brain Chemical Imbalance*, Mental Health Publishing.
- 29) Pies, R. (April 30, 2019). Debunking the Two Chemical Imbalance Myths, Again, *Psychiatric Times*,



- 36:8.
- 30) Lacasse, J.R., & Leo, J. (2014). Challenging the Narrative of Chemical Imbalance: A Look at the Evidence. In B. Probst (Ed.), *Critical Thinking in Clinical Diagnosis and Assessment*. New York: Springer.
  - 31) Healy, D. (April 21, 2015). Serotonin and Depression: The Marketing of a Myth, *BMJ*:2015;350:h1771.
  - 32) Mosher, L. (1998). Letter of Resignation from the American Psychiatric Association, <http://www.moshersoteria.com/soteriawp/wp-content/uploads/2009/12/resig.pdf>
  - 33) Gotzsche, P. et al. (2013). *Deadly Medicines and Organised Crime: How Big Pharma Has Corrupted Healthcare*, Radcliffe Medical Press LTD.
  - 34) Angell, M. (2004). *The Truth About the Drug Companies: How They Deceive Us and What to Do About It*, Random House.
  - 35) Goldacre, B. (2012). *Bad Pharma: How Drug Companies Mislead Doctors and Harm Patients*. Fourth Estate.
  - 36) Ioannidis, J. (April 4, 2011). Excess Significance Bias in the Literature on Brain Volume Abnormalities, published online at *Arch General Psychiatry*, doi:10.1001/archgeneralpsychiatry.2011.28.
  - 37) Turner, E.H. (2013). Publication Bias, with a Focus on Psychiatry, *CNS Drugs*, 27: 457-468, [http://femhc.org/Portals/2/Publications/2013\\_May22\\_Combating%20Publication%20Bias\\_Turner.pdf](http://femhc.org/Portals/2/Publications/2013_May22_Combating%20Publication%20Bias_Turner.pdf).
  - 38) Every-Palmer, S. et al. (May 12, 2014). How Evidence-Based Medicine Is Failing Due to Biased Trials and Selective Publications, *National Center for Biotechnology Information, National Institutes of Health*; PubMed/24819404.
  - 39) Jellison, S. et al. (2019). Evaluation of Spin in Abstracts of Papers in Psychiatry and Psychology Journals. *BMJ: Evidence-Based Medicine*. Published Online First: 05 August 2019.
  - 40) American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders: DSM-5* (Fifth Edition), American Psychiatric Association Publishing, Washington, DC.
  - 41) Kirk, S. & H. Kutchins (1992). *The Selling of DSM: the rhetoric of Science in Psychiatry*, Adline Transaction.
  - 42) Frances, A. (2013). *Saving Normal: An Insider's Revolt Against Out-of-Control Psychiatric Diagnosis, DSM-5, Big Pharma, and the Medicalization of Ordinary Life*, William Morrow.
  - 43) Insel, T. (2013). Transforming Diagnosis, *National Institute of Health*.
  - 44) Caplan, P.J. (2017). *Why DSM-5 Is Bad for Your mental Health: A Critique*. Palgrave Macmillan.
  - 45) Kirk, S., T. Gomory & D. Cohen (2013). *Mad Science: Psychiatric Coercion, and Drugs*, Transaction Publishers.
  - 46) Laing, R.D. (1969). *The Divided Self: An Existential Study in Sanity and Madness*, Pelican Books, New York.
  - 47) Kirk, S. & H. Kutchins (1994). The Myth of the reliability of the DSM, *Journal of Mind and Behavior*, 15(1&2), pp. 71-86.
  - 48) Frances, A. (2013). The New Crisis of Confidence in Psychiatric Diagnosis, *Annals of Internal Medicine*. 159(3), 221-222.
  - 49) Spitzer, R.I. & Wakefield, J.C. (1999). DSM-IV Diagnostic Criterion for Clinical Significance: Does It Help Solve the False Positive Problem? *American Journal of Psychiatry*, 156(12). 1856-1864.
  - 50) Whitaker, R. (2010). *Anatomy of an Epidemic: Magic Bullets, Psychiatric Drugs, and the Astonishing Rise of Mental Illness in America*, Crown Publishing Group.
  - 51) Kirk, S., T. Gomory & D. Cohen (2013). *Mad Science: Psychiatric Coercion, and Drugs*, Transaction Publishers: p.172.
  - 52) United Nations (1948). UN Universal Declaration of Human Rights, *United Nations Commission on Human Rights, United Nations*.
  - 53) United Nations (2006). UN Convention on the Rights of Persons with Disabilities, *United Nations*

*Commission on Human Rights, United Nations.*

- 54) United Nations (2017). UN Report of the Working Group on Arbitrary Detention, A/HRC/36/37, *United Nations Commission on Human Rights, United Nations.*
- 55) MadinAmerica.com (2019). <https://www.madinamerica.com/writers-page/>
- 56) Insel, T. (2015). A different way of thinking. *New Scientist*, 227(3035), p.5.
- 57) British Psychological Association (June, 2012), Response to the American Psychiatric Association: DSM-5 Development, [http://apps.bps.org.uk/\\_publicationfiles/consultation-responses/DSM-5](http://apps.bps.org.uk/_publicationfiles/consultation-responses/DSM-5)
- 58) Critical Psychiatry Network (2020). <http://www.criticalpsychiatry.co.uk/>
- 59) Greenberg, G. (2013). *The Book of Woe: The DSM and the Unmaking of Psychiatry*, Blue Rider Press.
- 60) Taylor, M.A. (2013). *Hippocrates Cried: The Decline of American Psychiatry*, Oxford University Press.
- 61) Bicks, M. & A. Strachen, (May, 2023). Your Brain: Perception Deception, *NOVA PBS Official*.
- 62) Brainard, J. (May 9, 2023). Fake Scientific Papers Are Alarming Common, *Science*.  
<https://www.science.org/content/article/fake-scientific-papers-are-alarming-common>
- 66) Wright, R. (1994). *The Moral Animal*, Random House, New York: pp.313-315.
- 67) Dennett, D. (1996). *Darwin's Dangerous Idea: Evolution and the Meaning of Life*, Simon & Schuster, New York.
- 68) Pinker, S. (1997). *How the mind works*. New York: Norton.
- 69) Wilson, E.O. (1998). *Consilience: The Unity of Knowledge*, Alfred A Knopf, New York.
- 70) Cosmides, L. & J. Tooby (1999). Evolutionary Psychology, *MIT Encyclopedia of Cognitive Science*.
- 71) Barkow, J., L. Cosmides, L. & J. Tooby (eds.) (1992). *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, Oxford University Press, New York.
- 72) Buss, D. (2007). *Evolutionary Psychology: the New Science of the Mind*, Allyn & Bacon.
- 73) Wright, R. (1994). *The Moral Animal*, Random House, New York.
- 74) Dawkins R. (1976). *The Selfish Gene*. New York, Oxford University Press.
- 75) Gould, S.J. (1997). Evolution: The Pleasures of Pluralism, *New York Review of Books*, 44 (11): 47-52.
- 76) Darwin, C. (1871). *The Decent of Man*.
- 77) Darwin, C. (1859). *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*.
- 78) Sober, E. & D.S. Wilson (1998). *Unto Others*. Harvard Press.
- 79) Gould, S.J. (1996). *The Mismeasure of Man*, W.W. Norton and Company: p.39.
- 80) Kuhn, T. (1962). *The Structure of Scientific Revolutions*, University of Chicago Press.
- 81) Popper, K. (1959). *The Logic of Scientific Discovery*, reprinted 2002 by Routledge.
- 82) Eagleman, D. (October, 2015). *The Brain with David Eagleman: All Is Not as It Seems*, PBS,  
<https://www.youtube.com/watch?v=wtzzS9TtKes>
- 83) Sterling, P. & S. Laughlin (2017). *Principles of Neural Design*, The MIT Press.
- 84-A) Noorden, Richard (July 18, 2023). Medicine Is Plagued by Untrustworthy Clinical Trials. How Many Studies Are Faked or Flawed? *Nature*, <https://www.nature.com/articles/d41586-023-02299-w>.
- 84-B) Eysenck, H.J. (1978). An Exercise in Mega-Silliness, *American Psychologist*, vol. 33(5), 517.
- 85) Ioannidis, J. A. (2016). The Mass Production of Redundant, Misleading, and Conflicted Systematic Reviews and Meta-analyses. *The Milbank Quarterly*, 94(3), 485-514. doi:10.1111/1468-0009.12210
- 86) Lewin, W., N. Buckner & R. Whittlesey (1998). *Mysteries of the Universe, A Science Odyssey*, (part 1-A PBS film).
- 87) Greene, B. (1999). *The Elegant Universe*, Norton, New York.
- 88) Weinberg, S. (1993). *Dreams of a Final Theory: The Search for the Fundamental Laws of Nature*, Vintage Books.
- 89) Tortora, G. & B. Derrickson. (2012). *Principles of Anatomy and Physiology*. New York: Harper and Row, (13<sup>th</sup> Edition).
- 90) Martini, F. et al. (2011). *Fundamentals of Anatomy and Physiology*. Benjamin Cummings Publishers,

- (9<sup>th</sup> Edition).
- 91) Marieb, E. & K. Hoehn (2012), *Human Anatomy and Physiology*, Benjamin-Cummings Pub. Co, (9th Edition).
- 92-A) *Encyclopaedia Britannica* (classic 1911 edition). New York.
- 92-B) Young, J.Z. (1951). *Doubt and Certainty in Science: a Biologist's Reflections on the Brain*, (BBC Reith Lecture, 1950). Oxford University Press, New York, pp. 61-64.
- 93) Senden, M. (1960). *Space and Sight: The perception of Space and Shape in the Congenitally Blind Before and After Operation* (P. Heath, Trans.), Free Press, New York.
- 94) Sacks, O. (May 10, 1993). *The New Yorker*, pp. 61-64.
- 95) Amen, D. (1999). *Change Your Brain, Change Your Life: The Breakthrough Program for Conquering Anxiety, Depression, Obsessiveness, Anger, and Impulsiveness*, Three Rivers Press.
- 96) Myers, D.G. (1992). *Psychology*, Worth Publishing, inc., New York: pp.11-12.
- 97) Nairne, J. (2003). *Psychology: the Adaptive Mind*, Wadsworth/Thompson Learning, Belmont, Ca. p.72.
- 98) Wade, C. & C. Tavis (2006), *Psychology*, Pearson Education, Inc., New Jersey, p.49.
- 99) Passer, M. & R. Smith (2009). *Psychology: The science of Mind and Behavior* (4<sup>th</sup> ed.), McGraw–Hill, New York.
- 100) Nyberg, L. et al. (2001). Reactivation of Motor Brain Areas during Explicit Memory for Actions, *Neuroimage*, 14: 521-528.
- 101) Sackett, D. (October 25, 2017). Why Is My Brain Tingling? The Neuroscience of “Autonomous Sensory Meridian Response”, *Scientific American Blog*.
- 102) Bernstein, D. & L. Penner, A. Clarke-Stewart, E. Roy (2006). *Psychology*, Houghton Mifflin Co., Boston, p. 401.
- 103) Watson, J. (1930). *Behaviorism*, Norton, New York.
- 104) Pinker, S. (2002). *The Blank Slate: the Modern Denial of Human Nature*, Penguin, New York, p.34.
- 105) Ratner, C. (2002). *Cultural Psychology: Theory and Method*, Springer Publishing.
- 106) Nisbett, R. (2003). *The Geography of Thought: How Asians and Westerners Think Differently... and Why*, Free Press.
- 107) Heine, S. (2007). *Cultural Psychology*, Norton, New York.
- 108) Watters, E. (2010). *Crazy Like Us: The Globalization of the American Psyche*, Free Press.
- 109) Bures, F. (2016). *The Geography of Madness: Penis Thieves, Voodoo Death, and the Search for the Meaning of Some of the World's Strangest Syndromes*, Melville House.
- 110) Brown, G. (1996). Genetics of Depression: A Social Science Perspective, *International Journal of Psychiatry*, 8: 387-401.
- 111) Horwitz, A. (2002). *Creating Mental Illness*, University of Chicago Press, p.127.
- 112) Jablensky, A. (2000), Course and Outcome of Schizophrenia and Their Prediction, *New Oxford Textbook of Psychiatry*, Oxford University Press, UK.
- 113) Read, J., L. Mosher & R. Bentall eds. (2004). *Models of Madness: Psychological, Social and Biological Approaches to Schizophrenia*, Brunner-Routledge: p..
- 114) Sartorius, N. (2008). Brief Description of World Health Organization Studies Comparing Mental Health Recovery in Developed and Developing Nations, Letter from the past Director of the Mental Health Division of the World Health Organization, *MindFreedom.org*
- 115) Glatt et al., (2008), Psychiatric Genetics: A Primer, in J. Smoller et al., (Eds.), *Psychiatric Genetics: Applications in Clinical Practice* (pp. 3-26), Washington, DC: American Psychiatric Publishing, pp. 6-7.
- 116) Ross, C. & A. Pam (1995). *Pseudoscience in Biological Psychiatry: Blaming the Body*, Wiley.
- 117) Andreasen, N.C. (2000) Schizophrenia: The Fundamental Questions, *Brain Research Reviews*, 31, 106-112, p. 109.
- 118) Boekel, W. et al. (November 19, 2014). Failed Replications: A Reality Check for Neuroscience?

*Discover.*

- 119) Aarts et al. (August 28, 2015). Estimating the Reproducibility of Psychological Science, *Science*.
- 120) Yong, E. (March 4, 2016). Psychology's Replication Crisis Cannot Be Wished Away, *Science*.
- 121) Kirk, S., T. Gomory & D. Cohen (2013). *Mad Science: Psychiatric Coercion, and Drugs*, Transaction Publishers, p.307.
- 122) Joseph, J. (2013). The Latest Gene Finding Claim in Psychiatry, online at MadinAmerica.com. <http://www.madinamerica.com/2013/03/26127/>
- 123) Joseph, J. (2001). The Danish-American Adoptees' Family Studies of Kety and Associates: Do They Provide Evidence in Support of the Genetic Basis of Schizophrenia? *Genetic, Social General Psychology Monographs*, 127: 241-278.
- 124) Joseph, J. (2004). *The Gene Illusion — Genetic Research on Psychiatry and Psychology Under the Microscope*, Algora Publishing, New York.
- 125) Joseph, J. (2006). *The Missing Gene — Psychiatry, Heredity, and the Fruitless Search for Genes*, Algora Publishing, New York.
- 126) Leo, J. (2016). The Search for Schizophrenia Genes, *Issues in Science and Technology*, University of Texas at Dallas.
- 127) Keski-Rahkonen, A. et al. (2004). Genetic and Environmental Factors in Breakfast Eating Patterns, *Behavior Genetics*, 34: 503-514.
- 128) Tozzi, F., et al. (2004). The Structure of Perfectionism: a Twin Study, *Behavior Genetics*, 34: 483-494.
- 129) Luciano, M. et al. (October, 2005). The Genetics of Tea and Coffee Drinking and Preference for Source of Caffeine in a Large Community Sample of Australian Twins, *Addiction*:100(10):1510-17.
- 130) Boomsma, D. et al. (November 2005). Genetic and Environmental Contributions to Loneliness in Adults: The Netherlands Twin Register Study, *Behavioral Genetics*: 35(6):745-52.
- 131) Bartels, M. et al. (April 5, 2008). Genetic and Environmental Contributions to Stability in Loneliness Throughout Childhood, *American Journal of Medical Genetics, Part B, Neuropsychiatric Genetics*: 147(3):385-91.
- 132) Spector, T. (May 5, 2015). General Election 2015: Do Your Genes Determine How You Vote? *The Independent*,
- 133) Horwitz, A. (2002). *Creating Mental Illness*, University of Chicago Press, p.173.
- 134) Risch, N.J. (2000). Searching for Genetic Determinants in the New Millennium, *Nature*, 405: 850.
- 135) Kendler, K.S. (2005). "A gene for...": the Nature of Gene Actions in Psychiatric Disorders, *American Journal of Psychiatry*, 162: 1243-1252.
- 136) Faraone, S.V. et al. (2008). Editorial — The New Neuropsychiatric Genetics, *Neuropsychiatric Genetics*, 147B: 1-2.
- 137) Joseph, J. (2014). *The Trouble with Twin Studies: A Reassessment of Twin Research in the Social and Behavioral Sciences*, Routledge.
- 138) Nairne, J. (2003). *Psychology: the Adaptive Mind*, Wadsworth/Thompson Learning, Belmont, Ca. p.23.
- 139) Watson, P. (1981). The Science of Coincidence, *Twins*. Viking Press, New York.
- 140) Pam, A., et al. (1996). "The Equal Environment Assumption" in MZ-DZ Twin Comparisons: An Untenable Premise of Psychiatric Genetics, *Acta Genet Med Gemellol*, 45: 349-360.
- 141) Joseph, J. (1998). The Equal Environment Assumption of the Classical Twin Method: a Critical Analysis, *Journal of Mind and Behavior*, 19: 325-3.
- 142) Hilker, R. (March 15, 2018). Heritability of Schizophrenia and Schizophrenia Spectrum Based on the Nationwide Danish Twin Register, *Biological Psychiatry*, Volume 83, Issue 6, pp. 492–498.
- 143) Torrey, E.F. et al. (1994). *Schizophrenia and Manic Depressive Disorder: The Biological Roots of Mental Illness as Revealed by the Landmark Study of Identical Twins*, Basic Books.
- 144) Arkowitz, H & S. Lilienfeld (August 1, 2012). Is There Really an Autism Epidemic?

- Scientific American*. <https://www.scientificamerican.com/article/is-there-really-an-autism-epidemic/>
- 145) Wright, J (March 3, 2017). The Real Reasons Autism Rates Are Up in the U.S., *Scientific American*. <https://www.scientificamerican.com/article/the-real-reasons-autism-rates-are-up-in-the-u-s/>
- 146) Harris, E. (May 3, 2023). Autism Prevalence Has Been on the Rise in the US for Decades—And That’s Progress, *JAMA* (JAMA Network), <https://jamanetwork.com/journals/jama/fullarticle/2804698>
- 147) Bouchard, T. et al. (October 12, 1990). Sources of Human Psychological Differences: The Minnesota Study of Twins Reared Apart, *Science*, vol.250: 223-228.
- 148) Myers, D.G. (1992). *Psychology*, Worth Publishing, inc., New York.
- 149) Bouchard, T. et al. (October 12, 1990). Sources of Human Psychological Differences: The Minnesota Study of Twins Reared Apart, *Science*, vol.250: pp.224-227.
- 150) Bouchard, T. et al. (October 12, 1990). Sources of Human Psychological Differences: The Minnesota Study of Twins Reared Apart, *Science*, vol.250: pp.223, 226.
- 151) Benjamin, L. S., (1976), A Reconsideration of the Kety and Associates Study of Genetic Factors in the Transmission of Schizophrenia, *American Journal of Psychiatry*, 133, 1129-1133
- 152) Kety, S. et al. (1968). The Types and Prevalence of Mental Illness in the Biological and Adopted Families of Adopted Schizophrenics, in Rosenthal, D. & Kety, S. (Eds), *The Transmission of Schizophrenia*, Oxford, Pergamon, pp. 345-362.
- 153) Lidz, T. & S. Blatt (1983) Critique of the Danish-American Studies of the Biological and Adoptive Relatives of Adoptees who became Schizophrenic. *American Journal of Psychiatry*, 140,426-434.
- 154) Pinker, S. (2011). *The Better Angels of Our Nature: Why Violence Has Declined*, Viking Adult.
- 155) Gordon, E. (March, 2016). *The Brain Revolution: Know and Train New Brain Habits*, Dog Ear Publishing.
- 156) Skinner, B.F. (1948). *Walden Two*, McMillian.
- 157-A) Rutter, M. (January, 2005). Incidence of Autism Spectrum Disorders: Changes Over Time and Their Meaning, *NIH*.
- 157-B) Barbaresi, W. (March, 2009). The Incidence of Clinically Diagnosed Versus Research-Identified Autism in Olmsted County, Minnesota, 1976–1997, *NIH*.
- 157-C) Doheny, K. (March, 2008). Autism Cases on the Rise; Reason for Increase a Mystery, *WebMD*.
- 158) CDC. (2023). Data & Statistics on Autism Spectrum Disorder, *CDC*, <https://www.cdc.gov/ncbddd/autism/data.html>
- 159) CDC, (December, 2021). Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 8 Years, *CDC*, <https://www.cdc.gov/mmwr/volumes/70/ss/ss7011a1.htm>
- 160) Piaget, J. (1954). *The Construction of Reality in the Child*. New York: Basic Books.
- 161) Proust, M. (1927). *Remembrance of Things Past*.
- 162-A) Sarno, John (February 27, 2018). *Healing Back Pain: The Mind-Body Connection*, Grand Central Life & Style.
- 162-B) Melzak, R. (1973). *The Puzzle of Pain*, Basic Books, New York.
- 163) Gawande, A. (September 21, 1998). The Pain Perplex, *The New Yorker*, pp. 86-94.
- 164) Zoffness, R. (December, 2020). *The Pain Management Workbook: Powerful CBT and Mindfulness Skills to Take Control of Pain and Reclaim Your Life*, New Harbinger Publications.
- 165) Spiegel, S. (2022). *Natural Science Therapy for ALS*, Online @ <https://beat-als.org/>
- 166-A) Spitz, R. A. (1945). Hospitalism: An inquiry into the genesis of psychiatric conditions in early childhood (sic), *Psychoanalytic Study of the Child* I: pp. 53-74.
- 166-B) Weir, K. (2014). The Lasting Impact of Neglect, *Monitor on Psychology*, American Psychological Association, June 2014, Vol 45, No. 6.
- 167) Wade, C. & C. Tavis (2006), *Psychology*, Pearson Education, Inc., New Jersey, p.94.
- 168) Maslow, A. (1943). *A Theory of Human Motivation*.

- 169) Erikson, E. (1959), *Identity and the Life Cycle*. New York: International Universities Press.
- 170) Whorf, B. (1956). *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*, Wiley, New York.
- 171) Nairne, J. (2003). *Psychology: the Adaptive Mind*, Wadsworth/Thompson Learning, Belmont, Ca: pp. 478-9.
- 172) Wade, C. & C. Tavris (2006), *Psychology*, Pearson Education, Inc., New Jersey, p.480.
- 173) Culbertson, F. (2010). Online at phobialist.com
- 174) Abramson, D. et al. (1978). Learned Helplessness in Humans, *Journal of Abnormal Psychology*, 78: 40-74.
- 175) Horwitz, A., J. Wakefield & R. Spitzer (2007). *The Loss of Sadness: How Psychiatry Turned Normal Sadness into Depressive Disorder*, Oxford University Press.
- 176) Bentall, R. (2004), *Madness Explained: Psychosis and Human Nature*, Penguin Books.
- 177) Musalek, M. et al. (1989). Delusional Theme, Sex and Age, *Psychopathology*, 22: 260-267.
- 178) Sternberg, E. (2016). *Neurologic: The Brain's Hidden Rationale Behind Our Irrational Behavior*, Pantheon.
- 179) Boyle, M. (2002). *Schizophrenia: A Scientific Delusion?*, Routledge.
- 180) Sieben, A. (1999) Brain Disease Hypothesis for Schizophrenia Disconfirmed by All Evidence, *Journal of Ethical Human Sciences and Services*, 1, 179-182.
- 181) Wampold, B. (2001). *The Great Psychotherapy Debate: Models, Methods and Findings*, Routledge.
- 182) Goldsmith, L. et al. (March, 2015). Psychological Treatments for Early Psychosis can be Beneficial or Harmful, Depending on the Therapeutic Alliance: An Instrumental Variable Analysis, *Psychological Medicine*, Cambridge Journals Online.
- 183) Burns, D. (2008). *Feeling Good*, Harper Publishing.
- 184) Beck, J. & A. Beck, (2011). *Cognitive Behavioral Therapy, Second Edition: Basics and Beyond*, Guilford Press.
- 185) Leahy, R. et al. (2011). *Treatment Plans and Interventions for Depression and Anxiety Disorders*, Guilford Press.
- 186) Kuyken, W. et al. (April, 2015). Effectiveness and Cost-Effectiveness of Mindfulness-Based Cognitive Therapy Compared with Maintenance Antidepressant Treatment in the Prevention of Depressive Relapse or Recurrence (PREVENT): A Randomised Controlled Trial, *The Lancet* (online).
- 187) Toussaint, L. et al. (August 19, 2014). Effects of Lifetime Stress Exposure on Mental and Physical Health in Young Adulthood: How Stress Degrades and Forgiveness Protects Health, *Journal of Health Psychology: An Interdisciplinary, International Publication*, 1359105314544132.
- 188) Littrell, J. (June, 2013). Talk Therapy Can Cause Harm, Too. Published online at <http://www.madinamerica.com/2013/06/when-talk-therapy-can-cause-harm/>
- 189) Mackler, D. (2010), *Open Dialogue: An Alternative, Finnish Approach to Healing Psychosis*, a film available through the National Empowerment Center, Inc.
- 190) Lundblad-Edling, H. (ed.) (2014). *Nine Lives: Stories of Ordinary Life Therapy from Sweden*, Mad in America Publishing.
- 191) Seikkula, J. et al. (March, 2006) Five-Year Experience of First-Episode Non-affective Psychosis in Open-Dialogue Approach: Treatment Principles, Follow-up Outcomes, and Two Case Studies, *Psychotherapy Research*, 16(2): 214-228.
- 192) Jackson, G. (2005). *Rethinking Psychiatric Drugs: A Guide for Informed Consent*, AuthorHouse.
- 193) Hall, W. (2007). *Harm Reduction Guide to Coming Off Psychiatric Drugs*, Icarus Project
- 194) Breggin, P. (2012) *Psychiatric Drug Withdrawal: A Guide for Prescribers, Therapists, Patients and Families*, Springer Publishing Company.
- 195) MadinAmerica.com (2019). <https://www.madinamerica.com/drug-withdrawal-resources/>
- 196) The Withdrawal Project, (2020). *Inner Compass Initiative*, online at:

<https://withdrawal.theinnercompass.org/>

197) Breggin, P. (1991). *Toxic Psychiatry: Why Therapy, Empathy, and Love Must Replace the Drugs, Electroshock, and Biochemical Theories of the "New Psychiatry,"* St. Martin's Press, New York: pp.97-98.