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“Putting the Science in *Christian Science*: Scientific Pragmatism and Religious Revelation in American Culture.”

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Abstract: Does 21st century neuroscience help explain why Mary Baker Eddy’s arcane, 19th century metaphysical teachings, in fact, healed a significant number of her followers? In this paper, I explore two difficult and almost universally misunderstood concepts within Christian Science, concepts critical to Eddy’s healing method. I will be revisiting these concepts, *knowing the truth* and *mortal mind*, in light of recent neuroscience-based evidence that human consciousness plays an important role in determining human well-being. The link between scientific pragmatism and religious healing is not new to American cultural experience. Following in a long tradition, scholars versed in neuroscience and human spirituality are calling for a “new paradigm” that will allow serious consideration of so-called paranormal phenomena in the quest to better understand the interplay between healing and religious belief. The paper concludes with an analysis of the current global conversation regarding a scientific “paradigm shift” that will give more credence to work being done in neuroscience and human spirituality.

If there is a uniquely American brand of religiosity, this cultural expression would seek to infuse religious revelation with scientific certainty. In addition, the validity of a given religion would be measured by its effectiveness in resolving life’s many problems, not the least of which would be relief from illness and suffering. For example, in 1875, Mary Baker Eddy published the first edition of *Science and Health*, thus launching Christian Science, one of the more important “religions of healthy-mindedness,” in American religious history. Her pragmatic, “scientific” take on Christian healing ignited an extraordinary experiment in the relationship between human consciousness and human well-being. Detractors lost no time in pointing out that Eddy’s metaphysical revelation was neither “Christian” nor “scientific.” The problem, for detractors, was that for many adherents, Christian Science actually worked. By the turn of the century (19th to 20th), Christian Science was one of the fastest growing emergent religions in America.

Does 21st century neuroscience help explain why Eddy’s arcane 19th century metaphysical teachings, in fact, healed a significant number of her followers? In this paper (chapter, presentation) I want to explore two difficult and almost universally misunderstood concepts within Eddy’s metaphysical worldview, concepts critical to her healing method. I will

be revisiting these concepts, *mortal mind* and *knowing the truth*, in light of recent neuroscience-based evidence that human consciousness plays an important role in determining human well-being. In particular, it is *neuroplasticity*, the capacity for the brain to create new neural connections and actually grow new neurons in response to focused mental activity, that offers insight into the efficacy of Christian Science healing. Neuroplasticity, one of the most startling neuroscience discoveries during the past two decades, confirms a fundamental claim made by religious/spiritual groups that embrace healing through mind over matter -- mind/consciousness will produce measureable physiological changes on neurological structure of the brain. In addition, this cutting edge scientific expedition is collecting data that confirms that mind-induced changes in brain structure can change human experience. The scientific community, grounded in a longstanding materialist paradigm that seeks proof by way of the scientific method, is, as a whole, not quite ready to say that changes in human experience include healing. Nonetheless, “proof” is being pursued. In the conclusion of this chapter (paper, presentation), we will briefly explore the search for a new scientific paradigm that will validate spiritual experience, including healing.

While medical doctors and Enlightenment-inspired scientists may not buy the claim that human consciousness can actually cause physiological changes in the body (mind over matter), neuroscience is beginning to make the more conservative knowledge-protectors a bit nervous. For instance, Sharon Begley’s popular 2007 book, *Train Your Mind, Change your Brain* provided an up-to-date chronicling of neuroscience experiments in neuroplasticity and Buddhism mindfulness training. Drawing on her experience with the Dalai Lama and doctors and scientists connected to the Mind and Life Institute, she concludes with a paragraph that expresses the excitement in the dialogue between the cognitive/affective sciences and scholars interested in understanding spiritual experience. In addition, her paragraph opens up new territory in understanding why emergent religions, despite radical worldview claims, actually work. She writes,

The conscious act of thinking about one’s thoughts in a different way changes the very brain circuits that do that thinking, as studies of how psychotherapy changes the brains of people with depression show. Such willfully induced brain changes require focus, training, and effort, but a

growing number of studies using neuroimaging show how real those changes are. They come from within. As the discoveries of neuroplasticity, and this self-directed neuroplasticity, trickle down to clinics and schools and plain old living rooms, the ability to willfully change the brain will become a central part of our lives – and of our understanding of what it means to be human.

For students of religion, theologians, religious studies professors, or anyone interested in why in the world “religion” exists at all, the implications of Begley’s prediction are stunning. If thinking intensely through daily ritual practice and repetition of religious doctrine transforms the brain into an instrument for validating religious belief, then consciousness can be seen as the matrix, the womb in which religious reality gestates. As studies in the nature of consciousness abound, especially in innovative interdisciplinary graduate programs, seekers such as philosopher Alva Noe are breaking out of a materialist viewpoint that relegates consciousness to a three pound chunk of wrinkled tissue rolled up inside the skull, i.e., the brain. For Noe, consciousness is what we do, not just what we have. He describes a new “really astonishing hypothesis” in his book, *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness*,

It *would* be astonishing to learn that you are *not* your brain. All the more to be told that the brain is not the thing inside of you that makes you conscious because, in fact, there is no thing inside of you that makes you conscious...It would be astonishing to be told that we’ve been thinking about consciousness in the wrong way – as something that happens to us, like digestion – when we should be thinking about it as something we do, as a kind of living activity...to understand consciousness in humans and animals, we must look not inward, into the recesses of our insides; rather, we need to look to the ways in which each of us, as a whole animal, carries on the processes of living in and with and in response to the world around us. The subject of experience is not a bit of your body. You are not your brain. The brain, rather, is part of what you are.

Consciousness shares two vital components with religious experience; both are about identity and relationship. The intimate balance between belief and behavior in any religion shapes a person’s worldview by forming identity and guiding relationships. We are who we are because we do what we do with whomever or whatever we do it with. From the emerging perspective in innovative neuroscience, a person becomes what they do and, if religion is factored in, they do what they do because they believe.

This take on human consciousness and religious experience offers a set of intriguing answers to a number of puzzling questions regarding religion. Are all religions true? If a Muslim reads the Qu’ran with focused attention every day, prays in the mosque, and follows Sharia, then the intentional religious behavior physiologically changes the brain. The brain, our on-board computer for interpreting reality, sees what the Muslim’s brain has been shaped to see - an Islamic world.

In his book, *MindSight*, Daniel J. Siegel describes how thought lays down programs for our on-board, data processing, neural computer; what fires together, wires together,

As we’ve seen, experience means neural firing. When neurons fire together, the genes in their nuclei – the master control centers – become activated and “express” themselves. These proteins then enable the synaptic linkages to be constructed anew or to be strengthened. Experience also stimulates the production of myelin, the fatty sheath around axons, resulting in as much as a hundred fold increase in the speed of conduction down the neuron’s length. And as we know, experience can also stimulate neural stem cells to differentiate into wholly new neurons in the brain. This neurogenesis, along with synapse formation and myelin growth, can take place in response to experience throughout our lives.

Belief, ritual, community, and upbringing, along with various genetic predilections for configuring reality become the “truth” of any religion. Muslims, Christians, Jews, Scientologists, Buddhists, and, in the case of this article, Christian Scientists find the validity of their belief in the practice of that belief. As Noe puts it, it is how the world shows up for them on a daily basis. Especially if a human being is raised in a particular religion, the person’s brain conforms to and expedites the intensive practice required by their religion. Is the religion in question in fact true? Of course it is. It is the way the person sees the world and experiences reality.

In the case of Christian Science, we encounter a religion that denies the existence of the material world. Even the suggestion of a material world is seen as delusional, described by Mary Baker Eddy as *mortal mind*. In order to transform consciousness, out of *mortal mind* and into a pristine reflection of Divine Mind, Christians Scientists strive to *know the truth*. *Knowing the truth*, along with the ritual practice of “reading the weekly lesson” and attending Sunday and Wednesday services, does, indeed, make the non-reality of matter a reality for otherwise intelligent, productive, conservative, and rational human beings. And, in many documented cases, the religion works!

Of course, Christian Science metaphysics differs from the worldview of other New Thought groups over the “mind over matter” affirmation for a simple but often overlooked reason. For Christian Scientists, matter does not exist; mind has no relationship whatsoever with a material existence. Eddy makes this quite clear in her chapter on “Physiology” in *Science in Health*. She writes, “The brain can give no idea of God’s man. It can take no cognizance of Mind. Matter is not the organ of infinite Mind.” Since there are no neurons to be transformed by thought, the effect of a scientifically-proven process, no matter how positive, such as neuroplasticity is moot.

Or is it? Belief in the existence of matter may not be a necessity in order to facilitate changes in the brain that engender or open up an expanded level of human consciousness and improve (or “heal”) personal experience. In more recent studies, *attention*, or awareness, seems to play a critical role in neurological changes, even if matter does not matter. The catalyst for neuroplasticity is *attention*, how one focuses attention and, more importantly, how one masters the use of attention. In other words, a person who uses his or her attention *intentionally*, is on the road towards positive physiological changes and accompanying healing, whether it be physical, emotional, or psychological. Siegal describes the linkage between neuroplasticity and attention, ...the capacity of the brain to change is called neuroplasticity. We are now discovering how the careful focus of attention amplifies neuroplasticity by stimulating release of neurochemicals that enhance the structural growth of synaptic linkages among activated neurons.

Critiques (and critics) of Christian Science practice have primarily focused on the extravagant claim that the material world is not real and the insistence that human beings reflect a perfect Divine Mind. Sin, disease, and death are a combined *error* in human thinking – they have no ontological status - and healing is instantaneous when one realizes one’s perfect reflection of spiritual reality. For Christian Scientists, healing is not a matter of using the power of the mind to change an ontologically-valid, troubling circumstance whether manifesting as illness, lack, or desire. Healing IS the presence of God, attainable by mirroring divine consciousness. Again, this is notable difference from other “mind cure” religions of the 19th century and today

Setting aside arguments about the efficacy of Christian Science practice, is it possible that

for a significant number of followers, this religion did, indeed, provide spiritual and personal transformation? And is it now possible, using the discoveries in neuroscience, to track an efficacious path towards healing for believers with the ability to focus attention on a perfected spiritual world? The physical laws governing neuroplasticity open a path towards a worldview characterized by the denial of physicality. If a Christian Scientist experiences healing and reduces existential suffering, then matter does matter whether it matters to the Christian Scientist or not.

NEUROSCIENCE 101: EGO, SURVIVAL INSTINCT, AND THE HUMAN “DIS-EASE”

While neurologists and psychologists have studied varieties of anomalous human experience for decades, neuroscience entered the general public conversation as the cover story in the May 2001 issue of Newsweek magazine. “God & the Brain: How We’re Wired for Spirituality” explored the fascinating findings of researchers such as Dr. Andrew Newberg of the University of Pennsylvania and his late colleague, Eugene D’Aquili. In their pioneering effort to understand the relationship between the human brain and spiritual experience, Newberg and D’Aquili used brain-imaging data collected from meditating Tibetan Buddhist monks and Franciscan nuns in deep prayer to explain the physiological origins of mystical experience. Startling discoveries emerged with the application of powerful brain imaging technology that pinpointed the areas of the brain contributing to the experience of mystical transcendence. From the perspective of metaphysical religions, most provocative is the realization that for spiritual experience to occur, especially as the presence of a healing God, the parts of the brain that engender a strong sense of separate (ego) existence must “go quiet.” As we will see, in Christian Science, a separate ego existence is equitable with Eddy’s concept of *mortal mind*.

In other words, neurological studies offer scientific proof of an ancient process in any authentic spiritual transformation; spiritual experience arises as ego consciousness (*mortal mind*) is diminished. Complete with color graphics of the various parts of the human brain, the *Newsweek* article provides a “map” of neurologically based spiritual experience. In order to feel one with the universe, and experience God’s healing presence, normal brain circuitry must be disrupted. Succinctly put in the *Newsweek* rendition of key changes in brain function, “Activity

in the amygdala, which monitors the environment for threats and registers fear, must be damped. Parietal-lobe circuits, which orient you in space and mark the sharp distinction between self and world, must go quiet. Frontal-and temporal-lobe circuits, which mark time and generate self-awareness, must disengage.”

Current studies in neuroplasticity reveal the extent to which consciousness is, in part, the physiological connection between brain and mind. Various parts of the brain guide the total-body autonomic nervous system. To survive, any species needs to interpret sensory stimuli and make life-supporting decisions regarding sustenance, shelter, mating and all other fundamental survival activities. “Mind” is produced in the incredibly complex inter-connections between the autonomic nervous system and the higher structures of the neocortex. Put simply, brain makes mind; mind, in turn, engenders physiological changes in the brain. Neuberg and D’Aquili summarize the connection this way,

The brain is a collection of physical structures that gather and process sensory, cognitive, and emotional data; the mind is the phenomenon of thoughts, memories, and emotions that arise from the perceptual processes of the brain.

Our emotions may hold the key to understanding religious experience. The limbic system, including the hypothalamus, amygdala, and hippocampus, assign *emotional value* to all incoming stimuli. Interestingly enough, the three basic brain sections of the limbic system make up the oldest, most primitive parts of the brain, yet together they exert enormous influence on the autonomic nervous system not to mention the process by which “brain makes mind, and mind makes brain.” In the information exchange of life, the limbic system places individual survival – what is good for me – above all else. The “sense of self” created by this “ego-centered” interpretation, i.e., survival interpretation, comprises the bio-chemical energy that holds an experience-controlling ego together.

Cynthia Bourgeault, in her own explorations of neuroscience and spiritual experience, makes the case that ego-consciousness is neither good nor bad; the ego is our default cognitive programming, installed at birth and designed to help us function in a world of scarcity and

diversity. Relying on yet another computer metaphor she calls this cognitive operator our “egoic operating system.” One can almost imagine Bill Gates’ legions of computer wizards creating the egoic operating system and downloading it into the human brain component. Bourgeault describes our default consciousness this way,

...we human beings come into existence with a certain operating system already installed in us...The system already installed in us is a binary operating system. It runs on the power of “either/or.” It comes by its dualism honestly; the “binary operator,” as it’s called, is built right into the structure of the human brain. The egoic operating system is really a grammar of perception...it thinks in terms of good and bad, right and wrong, before and after, up and down. ..and the great religious traditions have said this all along. It’s a mirage, an illusion. There is no such self...All these impressions are simply a function of an operating system that has to divide the world up into bits and pieces in order to perceive it.

Christian Science requires its adherents to upgrade their perceptual programming. By *knowing the truth* faithful followers of Mary Baker Eddy delete the virus of *mortal mind* along with the accompanying emotional tones of fear and anxiety, and install the “Christ consciousness program.” Seen through the perceptual lens of Christ consciousness, the world is without woe or limitation.

MORTAL MIND: THE LIMBIC VOLCANO

In her glossary in *Science and Health*, Eddy defines *mortal mind* as:

Nothing claiming to be something, for Mind is immortal; mythology; error creating other errors; a suppositional material sense, *alias* the belief that sensation is in matter, which is sensationless; a belief that life, substance, and intelligence are in and of matter; the opposite of Spirit; and therefore the opposite of God, or good; the belief that man is the off-spring of mortals; the belief that there can be more than one creator; idolatry; the subjective states of error; material senses; that which neither exists in Science nor can be recognized by the spiritual sense; sin; sickness; death.

If we look at her definition as a list of every possible negative state of consciousness imaginable, it is not difficult to reduce this morbid cluster to two key emotions: anxiety and fear. Emotions, generated by the limbic system, the most primitive part of the brain, were designed to assure survival of the species. However, as culture and the brain have evolved, these the survival instinct has played havoc with human consciousness, that is, how the world shows up for us on a day to day basis. *Mortal mind* is Eddy’s term for this perennial aperture on reality that is

fundamentally illusory. *Mortal mind*, for Eddy and all Christian Scientists, must be transcended because it is a distortion of Being, itself, as well as the broken mirror refracting the otherwise perfect reflection of God and human kind. And it is not just a matter of how a person sees the world. Thought is intention and intention is the catalyst for action, a life lived. For Jeffrey M. Schwartz, M.D., human action is an integral part of neuroplasticity, in this case, action changing the brain. He writes, “The life we lead, in other words, leaves its mark in the form of enduring changes in the complex circuitry of the brain – footprints of the experiences we have had, the actions we have take. This is neuroplasticity.”

As Cynthia Bourgeault reminds us, the sense that our day-to-day experience as human beings is somehow distorted is not unique to Christian Science. In fact, the theme of incompleteness and yearning for wholeness is present in most religious traditions. Human religious activity represents the often-desperate attempt to symbolically bridge the cognitive, perceptual chasm between the unitive sense of being *a part* of everything that exists and the harsh dualistic “reality” of *apartness*. On the journey across *the bridge* from apart to a part, religions function rather like computer programs for meaning used by humans to interpret, best they can, the information stored on the hard drive of Being. However, as long as ego-consciousness is factored into the information exchange, the picture of Being from the *apart* side of the chasm is always distorted, at least to some degree.

Eddy was very clear that the ego cannot know “God” because, ultimately, there is no *apartness*; just a *false-dualism* set up by the ego. In fact, for Eddy, it is ego, her *mortal mind*, that distorts organized religion (Thus creating the necessity of a new, authentic form of Christianity, Christian Science.) Ego makes *God* in its own image, and institutional religions provide the variegated symbolic trappings for seemingly endless expressions of human divinity. The ego tricks the dutifully religious into idolatry; the worship of a book instead of the message; bowing down to a concept rather than standing before the light of wisdom that empowers the idea; dogma refracting divinity in a desperate attempt to ease existential despair.

This transition, out of ego consciousness into spiritual consciousness, from a neurological perspective, requires extraordinary attention to and observance of the “natural” workings of the

emotional mind, the process by which the limbic system assigns meaning and value to incoming stimuli. As Siegal notes, “Meaning is literally shaped by the limbic regions’ appraisal process – the continual and immediate sorting of experience into “relevant or irrelevant,” “good or bad,” “approach or avoid.” This, along with input for our middle prefrontal cortex, helps create the meaning of events in the brain.” The primitive interpretive function of the limbic system is ego oriented and places human beings clearly within the abhorrence-preference mode of interpreting reality. “This is good for me; this is bad for me.” Newberg and D’Aquili identify and name two important *cognitive operators* that work together in the brain/mind process of transforming incoming stimuli into reality. The *causal operator* instantaneously seeks out and processes the cause of incoming stimuli in the moment-by-moment flow of consciousness. The *binary operator* organizes complex incoming stimuli into basic polar opposites. This interpretive function of brain/mind draws from the most primitive parts of the brain, interprets data on a survival continuum, and is decidedly dualistic.

Knowing up from down, a simple function of the *binary operator*, is important when navigating about the material world, but the creation of polar opposites also carries important emotional signals, especially when abstract concepts are involved. Thus, mythically, theologically, and politically, human beings are wired to create dualistic cognitive structures in order to explain and deal with the unexplainable experiences of death, suffering, and change. According to Newberg’s analysis, this process of seeking answers to life’s most troubling questions is the source of all human mythic/religious activity.

In Christian Science practice, what I will later refer to as Christian Science *mindfulness training*, overcoming *mortal mind*, requires “retraining” the brain in such a way that incoming stimuli are not automatically processed through the primitive binary cognitive operator, an interpretive aperture which “sees” a world of fear and danger. Within the “I vs. Other” worldview neurologically generated by the *mortal mind*, emotional value correlates with survival. Brain science reveals that emotions are physiological manifestations of consciousness; there is no way of escaping this process; “I am conscious, therefore I feel,” with apologies to Rene Descartes. Consciousness is fundamentally neutral, but in combination with the entire

mind-body system, most human beings assign emotional value based on survival, which, from the perspective of Christian Science, clutters pure consciousness with self-limiting concepts.

Newberg and D'Aquili posit that the mind generates self-consciousness through a process of *reification*. From the neurological perspective, *reification* “refers to the power of the mind to grant meaning and substance to its own perceptions, thoughts, and beliefs, and to regard them as meaningful.” As an infant’s brain begins to develop, the child begins to draw an important distinction between the outside world – a world that “happens to the child” – and the inner reality of the self. “Self-consciousness” develops as thoughts, emotions, memories, familiar surrounds, loving parents and so forth are *reified* and become part of a personal self that is separate from the outside world.

It is hard to imagine how any human being could function without some rudimentary level of self-consciousness. However, the personal self, so necessary for survival, seems to solidify into an almost impenetrable fortress separating the self from all else. It is almost as though humans *over-reify* personal existence resulting in a consciousness-inhibiting ego matrix. Thus, every new experience, moment to moment, is instantly distorted by survival concerns. That is *mortal mind*, an uncontrolled, limbic volcano.

KNOWING THE TRUTH: CHRISTIAN SCIENCE MINDFULNESS TRAINING

So what does neuroplasticity have to do with God? Everything, for if you contemplate something as complex or mysterious as God, you’re going to have incredible bursts of neural activity firing in different parts of your brain. New dendrites will rapidly grow and old associations will disconnect as new imaginative perspectives emerge. In essence, when you think about the really big questions in life – be they religious, scientific, or psychological – your brain is going to grow.

This quotation, drawn from a more recent book by Newberg and his colleague, Mark Robert Waldman, cleverly entitled, *How God Changes Your Brain*, provides a direct neuroscientific explanation of what happens to the brain of any person who engages in a spiritual practice with focused attention. Though the term “mindfulness” has primarily been associated with Buddhist practices, every religious ritual that calls for focused attention is a form of

mindfulness training. Over time, the brain makes physiological adjustments that reify (give meaning to) the object of attention. Though neuroscience brings detail to this stunning insight about the relationship between consciousness and attention, the instinctual understanding that attention is the driving “mental force” of consciousness is not new. In his 1890 work, *The Principles of Psychology*, William James noted that to focus one’s attention on an object or an idea and “hold it fast before the mind” was the act that constituted “the essential achievement of the will.” In the case of Christian Science, *knowing the truth*, is a method of focusing attention supported by the central spiritual discipline, practiced daily by all devout Christian Scientists, and then celebrated publically at Sunday Service - the daily reading of the Christian Science weekly lesson.

In Christian Science, mindfulness training, that is, training the attention on “the truth,” is all about reading. Reading with intention! Consider the classic Christian Science Reading Room. Though Reading Rooms, like Christian Science churches, are disappearing from the street corners of the Western world’s towns and cities, there was a time when a Christian Science Reading Room was an ever-present oasis open to all peace-seekers who desired a respite from a city’s hectic energy. The key insight, here, is that “reading the lesson” and “knowing the truth” are co-activities that shape the cognitive structures of the Christian Science brain. Like exercising or practicing the piano, what fires together, wires together. Thus, the truth and the sense of self of the practicing Christian Scientist resonate and, ultimately, share the same ontological, existential home.

The ambiance of a Reading Room is that of a typical library. A friendly librarian is there to provide any needed assistance on finding reading materials, and there is no attempt to proselytize. Authorized Christian Science literature, including books and periodicals, line the shelves of a spotless room, furnished with comfortable chairs and couches, desks for writing (and now computers), soft lighting, and plush carpeting. For many Christian Scientist taking a break from work activities, the Reading Room is where they go to engage in the central spiritual practice of “reading the lesson.”

The Weekly Bible Lessons are published in the *Christian Science Quarterly*. Year in and year out, in the every Christian Science church around the world, Sunday morning service is the culmination of a week spent reading the lesson. In other words, during the week, every Christian Scientist on the planet reads the same lesson and then hears it read to them during Sunday services. The twenty-six Bible Lesson topics are covered twice a year, and they never change. However, each lesson is freshly prepared at the Christian Science Center in Boston, and disseminated to branch churches through *The Quarterly*. The 26 lesson topics are:

God
Sacrament
Life
Truth
Love
Soul
Mind
Christ Jesus
Man
Substance
Matter
Reality
Unreality
Are Sin, Disease, and Death Real?
Doctrine of Atonement
Probation After Death
Everlasting Punishment
Adam and Fallen Man
Mortals and Immortals

Each lesson in *The Quarterly* opens with a “Golden Text,” a quotation drawn from the Bible, followed by a Responsive Reading section, to be read aloud on Sunday, consisting of short, thematically-selected biblical texts. Obviously, the readings relate to the Lesson theme. The Lesson, itself, follows and is divided into six sections. Each section contains several theme-related passages from the Bible along with “correlative reading,” from the *Science and Health* (Eddy’s primary religious text) that provide spiritual interpretation of the biblical passage.

For instance, a lesson on Love includes the story of Peter raising Tabitha from the dead (Acts 9: 36-42). The correlative passage from *Science in Health*, found on page 192, reads, “Whatever

hold human thought in line with unselfed love, receives directly the divine power.” The number of passages from Bible and *Science and Health* vary, but in general between 25 and 30 passages occupy a focused Christian Scientist with about an hour of daily contemplative reading and prayer.

Technology, as usual, has transformed the delivery of the Weekly Lessons with lessons available online, on CD and cassette, and audio as the Christian Science movement necessarily responds to the information-exchange transformation of the 21st century. Innovation aside, I want to focus on the traditional ritual of lesson-reading because it is in the traditional interplay of reading and focused intention, attention guided by intention, that we find the roots of Christian Science “mindfulness training” as *knowing the truth*. Here we have a classic example of religious ritual requiring the handling and use of sacred objects, in this case books, and the establishment of sacred space in the home to perform the ritual. Just as a Hindu home might have a shrine to Vishna or Shiva, reminiscent of the larger shrine in the temple, a Christian Scientist creates a space that is similar, in ambiance, lightening, and furnishing, to that found in the Christian Science Reading Room. It is not uncommon for a Christian Scientist with a leadership role in the community – for instance, a Christian Science Practitioner (professional healer) or a First or Second Reader in a branch church – to have a separate office/study area in which she or he reads the lesson. Others will have a special reading area, including a comfortable chair, soft lighting, and table/desk to make notes. Prayer and contemplation do enhance the act of reading. It is a time of focused attention on spiritual truths as expressed through Christian Science.

Before computers, a Christian Scientist performed the Sunday evening ritual of “marking the books.” Many Christian Scientists, today, stay with the traditional preparations designed for focused reading. The books, the Bible and *Science in Health*, are usually bound in leather or hardback cloth, and are kept in a small carrying case that would also include *The Quarterly*, marking chalk, and place markers. Reading Rooms sell thin metal book markers engraved with numbers. Marking the books entails inserting the number that matches the appropriate citation number in the lesson for the following week. Also, to expedite reading the lesson every day during the following week, passages are outlined in purple chalk. If encountered, chalk from a

previous lesson can easily be erased from the pages of the two sacred texts. Though somewhat tedious, the task of marking the books is a sub-form of mindfulness training because the slow pace of the task compels the Christian Scientist to focus on the lesson to come. There is no prescribed hour to read the lesson. However, most Christian Scientists will arise early before work or other activity, retire to a chosen sacred space, and begin reading the lesson. The lesson is read in its entirety every day, including Saturday, and on Sunday, congregations gather throughout the world to hear the same lesson.

In order to assure continuity and collective focus on the Lesson on Sunday mornings, Christian Science churches around the world follow the same order as prescribed by the *Church Manual*. Under the heading, “Present Order of Services in The Mother Church and Branch Churches,” Sunday Services are outlined as follows,

1. Hymn.
2. Reading a Scriptural Selection.
3. Silent Prayer, followed by the audible repetition of the Lord’s Prayer with its spiritual interpretation.
4. Hymn.
5. Announcing necessary notices.
6. Solo. {a vocalist sings an inspirational song with piano or organ accompaniment}
7. Reading the Explanatory Note on first leaf of *Quarterly*.
8. Announcing the subject of the Lesson-Sermon, and reading the Golden Text.
9. Reading the Scriptural Selection, entitled “Responsive Reading,” alternately by the First Reader and the congregation.
10. Reading the Lesson-Sermon. (After the Second Reader reads the Bible references of the first Section of the Lesson, the First Reader makes the following announcement: “As announced in the explanatory note, I shall now read correlative passages from the Christian Science textbook, *Science and Health with Key to the Scriptures* by Mary Baker Eddy.”)
11. Collection.
12. Hymn
13. Reading the Scientific Statement of Being, and the correlative Scripture according to I John 3:1-3.
14. Pronouncing Benediction.

The First and Second Readers are not ordained religious leaders; rather, they are elected from the congregation. The Bible passages are read by the Second Reader; the passages in *Science and Health* are read by the First Reader who also leads the Sunday Service and prepares

readings from the Bible and *Science and Health* for the Wednesday (evening) Meetings that include “Experiences, testimonies, and remarks on Christian Science.” By coming together in community to read the lesson, the communal element reinforces or validates the spiritual message that the Christian Scientist has mindfully and intently absorbed throughout the week. From the perspective of neuroplasticity, Schwartz and Begley offer an accurate description of the physiological changes that come from Christian Science mindfulness training. They write,

Neuronal circuits also change when something as gossamer as our thoughts changes, when something as inchoate as mental effort becomes engaged – when, in short, we choose to attend with mindfulness. The power of attention not only allows us to choose what mental direction we will take. It also allows us, by actively focusing attention on one rivulet in the stream of consciousness, to change – in scientifically demonstrable ways – the systematic functioning of our own neural circuitry.

Neuroplasticity is facilitated in a public rendering of private, prayerful reading – privately, publically, and physiologically, *truth is known*.

In addition to Sunday services, devout Christian Scientists rarely miss the aforementioned Wednesday Testimonial Meeting, led by the First Reader. Again, social consensus found in a public forum validates experience and, from the perspective of neuroplasticity, strengthens the brain’s connection to a distinctly Christian Science worldview. The Testimonial Meeting begins with readings from the Bible and *Science and Health* selected by the First Reader (Unlike the Lesson-Sermon, there is no prescribed set of readings for the Testimonial Meeting. It is up to the discretion of the First Reader.) After setting the tone through the well-established ritual of reading, the meeting is open to testimonies of healing. Somewhat like a Quaker Meeting, attendees sit in silence until a person is moved to stand and relate the story of a healing. Testimonies run the gamut from finding lost keys to recovery from cancer. For more than 100 years, testimonies of healing in Christian Science have been collected as part of the monthly *Christian Science Journal*. Once again, the religious life of a Christian Scientist emotionally, physiologically, and psychologically delineates a spiritual reality in which healing of all earthly woes is virtually guaranteed. Neuroscience ultimately supports one of the most empowering realizations to arise out of metaphysical religion succinctly stated in one of Mary Baker Eddy’s

most popular aphorisms, “Divine Love always has met and always will meet every human need,” including the need to be healed.

SEEKING THE “NEW PARADIGM”

Looking towards the 21st century, Amanda Porterfield captures the essence of American religio-cultural pragmatism in her book, *The Transformation of American Religion*,

Viewed in the context of long-standing trends in American religious history, interest in the healthy benefits of spirituality reflected not only the universal tendency to utilize religion as a means of obtaining relief from suffering and pain, but also a distinctively American tendency to conceptualize religion in pragmatic terms.

The Christian Science movement spawned many New Thought religious organizations which, in turn, inspired the emergence of numerous New Age groups as Americans and their cultural expressions crossed the millennial threshold. With the first decade of the 21st century behind us, it is clear that the quest for God who heals has not abated. For instance, Barbara Bradley Hagerty, National Public Radio’s award-winning religion correspondent, is a former Christian Scientist. Her recent book, *Fingerprints of God: The Search for the Science of Spirituality*, is an enthusiastic and engaging chronicle of her visits with scientists, medical doctors, and ordinary human beings who have experienced God, healing, or a higher level of consciousness. In her words, “The question that launched me on this journey could not be more basic: Does God exist? Or, put another way, Is there more than this material reality?”

Hagerty’s compelling question is not an uncommon one for Christian Scientists or former Christian Scientists. To have grown up in Christian Science, wrestled with *mortal mind* and experienced healing by *knowing the truth*, leaves even the most former of Christian Scientists with one foot in spiritual consciousness. The book opens with an almost humorous account of when and how Hagerty became an apostate from Christian Science. At age 34, suffering terribly from the flu, she decided, for the first time in her life, to take a Tylenol, left in her medicine cabinet by a recent visitor. Miracle of miracles, in about an hour, the flu symptoms subsided. It was the first medicine she had taken in 34 years.

However, a quick medicinal healing did not erase a life time of reliance on the presence of God. She discloses,

...three decades of religious training does not evaporate quickly. As a Christian Scientist, I had come to believe in the power of prayer to alter my experience, whether that be my wracking cough or my employment status, my mood or my love life. In that time, I witnessed several healings. I had come to suspect that there exists another type of spiritual reality just beyond the grasp of our human senses that occasionally, and often unexpectedly, pierces the veil of our physical world. In Christian Science we called these “spiritual laws,” and (I was told over and over) I needed merely to bring myself in line with those higher laws to banish the cough or the heartache.

Though she may have left the religion of her upbringing, the book vibrates with an as yet unfilled yearning to vanquish once and for all the ravages of “mortal mind” by discovering, knowing, and most of all, sharing “the truth.” *Fingerprints of God* documents this classic narrative of a spiritual journey, for Hagerty, into the world of neuroscience. Her travels brought her into the lively, often radical world of thinkers, scholars, doctors, psychologists, and mystics who offer *entanglement theory*, *quantum mechanics*, *non-locality*, and other provocative theories of consciousness as stepping stones toward a new paradigm that will, in fact, offer proof of spiritual reality. One of her interviewees, neurologist Mario Beauregard at the University of Montreal, captures the excitement in this quest for a radical paradigm shift.

Thomas Kuhn talked of paradigm revolution, and I think we’re in the middle of one right now...There are too many data coming from parapsychology, transpersonal psychology, now spiritual neuroscience, quantum physics, and various lines of evidence, all pointing to major failures in the old materialist paradigm. So for me, it’s only a matter of time before there will be a major paradigm shift.

A paradigm shift of this magnitude would take the best of the “scientific method” and expand find new methods, especially using emerging technologies, to “prove” spiritual phenomena. For more than 400 years, scientific knowledge has been expanded using the following method. Science observes and measures the natural world; from gathered data, it infers the empirical laws that govern physical and biological process. The quest of knowledge begins with a scientists asking a question and creating an hypothesis; an experiment is set up to test a given hypothesis or theory. All findings are tentative; only as good as the next experiment. There are two “tests” for

proof within the “old paradigm”: 1) repeatability: an experiment can be repeated by other scientists; 2) falsifiability or empirical refutability; there must be a way to make an observation that could disprove the explanation. The requirement of falsifiability rules out supernatural explanations. For instance, I cannot disprove that a Christian Scientist is healed because she/he “knows the truth.” Therefore, healing in Christian Science cannot be proved using the old paradigm. A more general example; no one can disprove the claim that the Bible is the “word of God.” Therefore, proving that the Bible is the word of God is outside the realm of scientific investigation.

Is it, then, impossible to ever find proof for spiritual phenomena, including healing? The work of Dr. Richard J. Davidson suggests that new technologies, when applied to neuroscience and the neuroplasticity, will bring scientific rigor to the exploration of non-material human experience. Having reviewed the parameters of the “old” scientific method, notice how his work relies on the “old paradigm” but expands it, tweaks it, to include what we have called spiritual phenomena. As we have noted, human beings come into this world with an amazing, on board, bio-chemical computer designed to provide perceptual and cognitive formats to consciousness – the human brain. Unfortunately, we do not know how to use this extra ordinary information system, and the manufacturers forgot to include a manual with instructions on how to operate the thing! It is as though we went out to Best Buy and bought a computer with all the Microsoft programs, but had no idea how to start it up and use it.

Are we really missing the manual when it comes to operating our own brain? Maybe not according to neurobiologists like Dr. Richard J. Davidson. The work of scientists like Dr. Davidson suggests that the “manual” may, indeed, be implanted in the operating system of the brain. Not only that, neurobiological studies of the brain reveal a link between scientific and spiritual ways of knowing our world. Dr. Davidson is director of the W. M. Keck Laboratory for Functional Brain Imaging and Behavior at the University of Wisconsin-Madison. The laboratory, occupying some 17,000 square feet in the Waisman Center on the campus, affords scientists like Dr. Davidson the opportunity to greatly accelerate progress in understanding the

fundamental brain functions that underlie emotion and behavior and provide the cognitive and perceptual structure for human experience. Sharon Begley describes his hypothesis,

...meditation or other forms of mental training can, by exploiting the brain's neuroplasticity, produce changes – most likely in patterns of neuronal activation, but perhaps even in the structure of neural circuitry in the sense of what's connected to what and how strong those connections are – that underlie enduring happiness and other positive emotions. If that is so, then by exploiting the brain's potential to change its wiring, therapists or even individuals might restore the brain and hence the mind to emotional health.

Yes, science is suddenly very much a part of our own exploration of human religious experience. Using state of the art brain-imaging technology, his interest in prefrontal-lobe activity and sustained levels of joy experienced by Buddhist monks in deep meditation has resulted in a startling discover. *There is a physical dimension to joy and peace, and it resides in the brain!* Researchers, like Dr. Davidson, are beginning to explore the physiology and neurology of happiness, and they are finding that *ancient ritual practices – meditation, chanting, drumming, and so forth* – actually train the brain to experience life in a much more positive mode. In turn, a so-called “happy brain” has a powerful influence on the health and well-being of the rest of the body.

The implications of Davidson's studies in emotions and neuroplasticity are, well, paradigm shaking for science as well as religion. If, in fact, religious activity can be used to “train the brain” to experience joy and happiness and engender a sense of peace and interconnectedness with the totality of life, then negative identity formation, fear, and violence can be dramatically reduced in human experience. Science and spirituality can join together to reduce and eventually eliminate religion and violence. As Dr. Davidson notes, why not teach human beings to cultivate compassion? He speaks of “brain-retraining.” Think about the old adage, “Attitude is everything.” Some of the bestselling books in American history have dealt with the subject of positive thinking. What we are discovering in neuroscience is that brain-retraining actually works. By comparison, a person who exercises an hour a day experiences physiological changes, for the better, in a toned and healthy body. Just as running benefits the heart and circulatory system, meditation can “tone” the brain to experience life is a

manner that is less distorted by existential dread.

One begins to understand the excitement of commentators such as Barbara Hagerty who are tracking the quest for a new religio-scientific paradigm. Though Mary Baker Eddy's theology may be convoluted, and few human beings are willing to accept the claim that the material world is not real, nevertheless, this spiritual visionary raised the same kinds of questions that are sparking the search for a new paradigm. Does human consciousness have the capability of engendering changes in the material world? Does prayer heal, even prayers offered from a distance? If human beings undergo a radical metanoia, meaning a change in consciousness, by jettisoning limited ego-consciousness, will they naturally begin to reflect the perfection and infinitude of Divine Mind, as Eddy promised? Is healing, then, a natural outcome of life lived in the presence of God? Drawing on our brief exploration of neuroplasticity, does a Christian Scientist who trains her or his brain to perceive a world of health and wholeness actually come to experience that world? From a Christian perspective, was Jesus the first neuroscientist offering his followers a path towards radical transformation of consciousness? A popular spiritual leader, Eckhart Tolle, describes essence of this transformation, in a manner that reinforces the need for a spiritual paradigm shift and draws insight from quantum physics,

Remember that your perception of the world is a reflection of your state of consciousness. You are not separate from it, and there is no objective world out there. Every moment, your consciousness creates the world that you inhabit. One of the greatest insights that has come out of modern physics is that of the unity between the observer and the observed: the person conducting the experiment – the observing consciousness –cannot be separated from the observed phenomena, and a different way of looking causes the observed phenomena to behave differently. If you believe, on a deep level, in separation and the struggle for survival, then you see that reflected all around you and your perceptions are governed by fear.

Perhaps it is a form of perceptual bias, characteristic of the more primitive brain/mind activity that creates a barrier between scientific and spiritual knowledge. The view from outside the ego matrix discloses, not boundaries, not fences, but open range in which thinkers – scholars, scientists, and spiritual seekers, alike – can roam freely in the quest for self-understanding.

CONCLUDING REMARKS

In his seminal work, *The Varieties of Religious Experience*, William James captures the motivating force behind more than a century of “religions of Healthy-mindedness,” including Christian Science. For James, any summary of religion would include the following three beliefs:

1. That the visible world is part of a more spiritual universe from which it draws its chief significance;
2. That union or harmonious relation with that higher universe is our true end;
3. That prayer or inner communion with the spirit thereof – be that spirit “God” or “law” – is a process wherein work is really done, and spiritual energy flows in and produces effects, psychological or material, within the phenomenal world.

James’ insight that “inner communion with the spirit” can produce effects in the phenomenal world represents the nexus of 19th century Christian Science and 21st century Neuro-Science. Hidden beneath the debate regarding the reality of the non-material, spiritual world of Christian Science is a stunningly provocative question. And the more thoughtful people, including scientists, academics, and religious leaders, explore the implications of neuroplasticity, the harder it is to avoid addressing this profound but disturbing question; do we, in fact, create our own reality? Before we are even aware we have this potential, culture, including an “educational system” that quickly supplies a memetic prison for consciousness, smothers creative attention and expanded awareness. But what could be more important to share with our children than to educate them to be masters of their own consciousness? If our experience is shaped by the sum total of the thoughts accepted into consciousness, then an extraordinary frontier awaits enlightened human beings. The very limits that restrict our shared existence are vulnerable to positive change, and this could include hunger, violence, decrepitude, and death, all causes of suffering.

The “Christian” aspect of Christian Science tip-toes around this revelation. In Christian Science, Jesus functions more like an exemplar, a Wisdom teacher who taught the people of his time how to initiate a profound transformation in consciousness that would allow them to overcome all limitations, including sickness and death. Jesus manifested the Christ spirit, meaning he reflected illimitable consciousness, a Divine Mind that delineated a perfect world. He was a living, breathing human being who, nevertheless, did not see a world shaped by the

limitations of *mortal mind*. He not only “knew the truth,” his knowing was contagious. Followers found that, in a state of transformed consciousness, they too could overcome all the limitations of life: hunger, sickness, emotional turmoil, even death. Thus, in Christian Science, Jesus is not divine. He is just like all human beings only a human being with greatly expanded consciousness. This wisdom, following the stories in the Gospels, regularly, consistently brought about physical changes in the material world. In these pre-scientific times, these changes were called miracles. But Mary Baker Eddy set the course straight. These “miracles” as in all Christian Science healings, were demonstrable science, the inevitable result of letting go of self-limiting consciousness, *mortal mind*, and reflecting the attributes of God.

If 21st century experiments in neuroplasticity provide a window into how and why Christian Science “worked” for so many 19th and 20th century Christian Scientists, what would human experience be like if we actually taught the skills of mindfulness and mastery of attention to our children as a fundamental part of their training within the educational institutions of the world? Organized religions should heed the call to facilitate the evolution of consciousness and spiritual awareness by making transformative ritual practices central to their mission. Religious rituals including prayer, meditation, singing, chanting, drumming, and so forth, have traditionally offered followers a taste of spiritual consciousness. If these time-honored spiritual practices are seen as central to all religious activity, then spiritual transformation will become the primary objective of religious organizations. The meeting of science and religion, a quest so uniquely American, could indeed transform the world.