JAMES AND THE NEUROSCIENCE OF BUDDHIST MEDITATION

JOHN J. HOLDER

I. INTRODUCTION

Over the last 25 years, the Dalai Lama, the spiritual leader of Tibetan Buddhism, and western scientists have been meeting on a number of occasions to discuss the intersections of Buddhism and science. These meetings have become formalized as the Mind and Life Institutes. At one such meeting in 2004, several prominent neuroscientists, including Richard Davidson from the University of Wisconsin--Madison, reported to the Dalai Lama their remarkable findings that the adept Buddhist meditators they studied showed significantly different brain function as compared to other people. Davidson's studies found strong empirical evidence that rigorous mental training through mindfulness meditation rewires the parts of the brain that play a significant role in positive emotions. To be more specific, the Buddhist monks studied reacted to stimuli with greater activation in the left regions of their prefrontal cortex--the regions associated with positive affect (e.g., joy, contentment, happiness)--and had all but cancelled out the activation in the right regions of the pre-frontal cortex that are associated with negative emotions (e.g., anger, anxiety, and sadness).

This exciting discovery was hailed by everyone at the meeting as a significant advance, and yet the neuroscientists and the Dalai Lama came to quite different conclusions regarding the metaphysical interpretation of the studies. As you might expect, the neuroscientists explained their findings in terms of neuro-anatomy alone. From the neuroscientific point of view, the "mental" training of meditation is nothing more than one type of brain function regulating other brain functions. According to the neuroscientists, the fact that meditative practice has observable neural effects supports the position that the so-called mental phenomena are entirely a matter of brain function--and not the effect of a metaphysically distinct, immaterial, thing called the "mind." In brief, the neuroscientists expressed a form of physicalism roughly along the lines of identity theory.

The Dalai Lama, on the other hand, was not agreeable to this metaphysical interpretation of the scientific studies of the monks' brain functions. Although the Dalai Lama accepted the idea that many mental functions have neural correlates, that is, mental phenomena often arise because of physio-chemical activities in the brain, yet there is no reason, on his view, to say that this rules out the dualist position held by Tibetan Buddhism. The fact that mental training demonstrably changes the brain, the Dalai Lama argued, suggests "downward" causality from mind to brain and this, in turn, is strong evidence that the mind is a distinct entity or substance. The Dalai Lama, given *his* understanding of Buddhist principles, holds that the mind is not reducible to the brain; in fact, he regularly refers to a luminous "pure mind" in his scholarly books. In this way, the discussions at the Mind and Life Institutes had reached a philosophical impasse: the physicalism of neuroscience versus the dualism of Tibetan Buddhism.

William James Studies
2013, Vol. 10, pp. 1-11

But just when the discussants were about to give up, William James walked in muttering something about a squirrel and "going round." Ok, he didn't, since he has been dead for a century. But imagine with me for a few minutes what James might have said at this meeting to help sort out the radically different conclusions drawn from the neuroscientific study of advanced meditators. This is just the sort of philosophical conundrum that James would relish resolving. And, as I will show in my paper, it is where he has an important contribution to make. I will argue that James' concept of "pure experience" provides the best philosophical interpretation of the neuroscientific study of Buddhist meditation--that, in fact, *both sides* in this debate have got it fundamentally wrong. This is precisely the type of problem that James's concept of pure experience was created to solve. Although my main focus is on James's philosophy, I will offer a short appendix to show that there are resources already evident in Buddhism's earliest sources that are consonant with James's cure for the metaphysical mistakes that are dualism, idealism, and physicalism. Contrary to the Dalai Lama's views on the matter, the historical Buddha held a functionalist and emergentist account of experience that originates from a phenomenological (not a metaphysical) starting point-- a position that is remarkably similar to James's approach.

II. FOUNDATIONAL DISCOVERIES IN RECENT NEUROSCIENCE

But before developing James's or the Buddha's ideas, let's back up a bit and put the neuroscientific study of meditation in context.

Great advances have been made in neuroscience in the last two decades. Until recently, conventional neuroscience held that the adult human brain is fixed, its basic structure and circuitry immutable. For most of the 20th century, it was believed that each part of the brain is biologically programmed to perform certain functions—vision, hearing, language, etc.—in certain identifiable areas. No changes in the fundamental structure of the brain were considered possible in adult humans.

But in the last 20 years, neuroscientists have demonstrated the adaptability and flexibility of the human brain--the brain continues to be highly adaptable throughout life (not just in childhood). This is widely referred to--even in TV commercials--as "neuroplasticity."[1] Some readers might know that it was James who first introduced the word "plasticity" to the science of the brain in his *Principles of Psychology*. In simplest terms, neuroplasticity refers to the fact that *experience changes the brain*. The brain can literally rewire its synaptic connections as well as expand and reassign neural regions based on the inputs of sensory experience. Experiments have demonstrated significant neuroplasticity. For example, London cabbies have significantly more neural capacity allotted to spatial cognition as compared with other people; and accomplished violinists have more brain activation in the regions that control the fine motor skills of the fingers than do most other people. These brain changes are developed as a result of a pattern of action coupled with sensory experience. We now know conclusively that the actions we take literally expand or contract different regions of the brain opening up new circuits, amplifying or diminishing existing ones. The implications of these discoveries are nothing short of a revolution in how we consider our human nature--and, of course, when that happens it is a gold mine for philosophy.

These neuroscientific discoveries involve what some philosophers call "upward" causality, because they show that external factors like sensory stimulation can change the brain which in turn causes certain (purported) mental events. But the most recent advances in neuroscience suggest that phenomena that are typically labeled "mental events" (such as thinking, imagining,

choosing, deliberating) *also* cause observable changes in brain structure and function. In several studies it has been shown that mental practice alone can result in a reorganization of the motor cortex--e.g., mental rehearsal of playing a piano has been shown to activate the same motor circuits as actually playing the piano--and, surprisingly, such merely mental practice brought about the same changes in the cortex as bodily actions do. No doubt, neuroscientific evidence for such "downward causality" (from mind to brain) is even more revolutionary than the "upward" variety because it opens up all kinds of questions about the metaphysical status of so-called mental phenomena. Popular books on the subject, such as Sharon Begley's *Train Your Mind, Change Your Brain*, have argued for a form of mind/body dualism based on the claim that the brain can be changed by "pure mental activity."[2]

III. NEUROSCIENTIFIC STUDY OF BUDDHIST MEDITATION

The most significant neuroscientific evidence that mental training can have a profound impact on the circuitry of the brain has come from several studies on the brain function of adept Buddhist meditators.[3] Richard Davidson has studied more than a dozen Tibetan Buddhist monks who had practiced mindfulness meditation for more than 10,000 hours. For anyone unfamiliar with Buddhist meditation, mindfulness meditation is a kind of hyper-focus of the mind; it is mental attention on steroids, to speak in the popular idiom. Mindfulness meditation is the practice of observing one's inner experiences in a way that is fully aware but nonjudgmental. One mindfully attends to the bare facts of perception and notices the arising and ceasing of thoughts impartially and without reacting to them emotionally.

Davidson's work aimed to discover whether brain states associated with such positive emotions as happiness, compassion, enthusiasm, and joy are trainable. In the 1970s, Davidson discovered striking differences in the patterns of brain activity that characterize people along what he called a "eudaemonic scale"--that is, along a continuum of baseline happiness. He found that positive emotions form a stable *trait*--they have an enduring baseline. This is the happiness "set point." Davidson and his colleagues found that there are specific brain states that correlate with happiness along this scale. Surprisingly, the prefrontal cortex (or PFC)--the part of the brain usually associated with cognitive function--turned out to play an essential role in the regulation of emotion. This discovery overturned the earlier view that the limbic system alone (especially the amygdala) accounted for the emotions. Using an EEG, Davidson found that asymmetric activation in this region corresponds to different "affective styles." When activity in the left PFC is higher than in the right, people report feeling alert, energized, enthusiastic and joyous, a greater sense of well-being. But when the activity is greater in the right PFC, people feel negative emotions: worry, anxiety, sadness, and depression.

In his more recent work, Davidson and his colleagues asked: could "mental practice" such as meditation modify or modulate human experience so as to reduce negative affect and increase positive affect (happiness and contentment) in enduring ways? If so, would such modifications at the level of experience be correlated directly with observable changes in the brain?

Recent studies indicate a firm *yes* to both questions. Buddhist mindfulness meditation is a trainable mental skill that shifts our experience away from negative affect towards positive affect.[4] In fact, Davidson's research showed that during meditation on compassion, these Buddhist monks activated neural areas for positive feeling and preparedness to act to a degree never seen before.

But more important for our purposes is the answer to the second question: it turns out that for happiness/contentment to be trainable, the emotional circuits of the brain must be plastic--allowing *mentally generated* experience to induce changes in the structure and function of brain regions involved in regulating emotions. The scans measured gamma-wave activity in the monks' brains. During compassion meditation, the monks' brains showed very large increases in gamma-wave activity (as compared to control subjects). In short, meditation, a purportedly *mental* process, has observable neural correlates. Perhaps, then, happiness is something we can deliberately cultivate through mental training that affects the brain.

What is even more surprising is the fact that these neural changes persisted long after meditation had ceased. This suggests that meditative practice had created certain enduring *traits*, that is, long term changes in brain structure and function. Specifically, Buddhist meditation strengthens the connections between the prefrontal cortex and the amygdala and it also shifts activity from the right regions of the prefrontal cortex to the left regions, in effect, resetting the happiness set point. Meditation also strengthens the cortical circuitry that modulates the activity of the limbic system, like a thermostat regulating a furnace of emotions. Thus through meditation (or perhaps through any form of intensive mental training, such as cognitive therapy) a person can reduce negative affect, increase positive affect, shift their happiness set point (their baseline) and thereby transform the emotional quality of one's mental life. And, most remarkably, all of these traits have observable neural correlates, which is to say they involve enduring physical changes in the circuitry of the brain.

IV. METAPHYSICAL INTERPRETATIONS OF THE NEW NEUROSCIENCE OF MEDITATION

From a scientific point of view, these discoveries are revolutionary, and yet they have engendered metaphysical interpretations that are nothing short of a philosophical mess. The problems stem in part from non-philosophers using words like "mind" and "brain" in philosophically naive ways.[5] Sometimes "mind" refers to brain functions and sometimes to an immaterial substance. And the statement that mental events "cause" bodily events is taken to mean that the mind and the body must be different entities or substances--hence as support for some kind of dualism. Metaphors like "inner world" and "outer world" are often taken as literal descriptions of the relations between the mind and the body.

At the beginning of my paper, I mentioned the two foremost metaphysical interpretations of the neuroscientific study of Buddhist meditation, namely, the reductive physicalism held by most neuroscientists and the dualism espoused by the Dalai Lama as a representative of Tibetan Buddhism. I aim to show that both of these are wrong--they are different positions that derive from a common mistake--the attempt to "entify" mental and bodily phenomena. But let me first present each position in a little more detail.

According to the accepted explanation of recent neuroscience, perception, sensation, and other subjective experiences are nothing more than chemical and electrical changes in the brain. When electrical impulses pass through our visual cortex, we see, and when neurochemicals connect through our limbic system, we feel--that's all there is to it. Even consciousness is just a manifestation of brain activity, and when the brain ceases to function, consciousness vanishes. For most neuroscientists, the mind, if we want to keep that term, is what the brain *does*, and so thoughts and feelings are nothing but complex brain activity. The fact that so-called mental phenomena so closely correlate with precise brain processes implies, according to the neuroscientist, that mental phenomena just *are* those processes. In the current scientific

paradigm, mind and brain are identical; it isn't that neural processes just cause mental processes, they *are* mental processes. Consciousness cannot exist without the brain and the "mental forces" that are causally efficacious are not disembodied supernatural forces independent of the brain mechanism but are inseparably tied to the cerebral structure and its functional organization.

Sometimes neuroscientists confuse the matter by uncritically adopting terms like "upward causality." But when they use such a term, they can't mean a physical thing like the brain having a causal impact on an immaterial mind. According to the physicalist account, there are precise neural correlates for each "mental" process such as thinking, choice or intention. In each case, the purportedly mental phenomenon is really just one part of the brain controlling a different part of the brain. So while we might naively think that a metaphysically distinct mind is causing the brain to change, what is really happening is that the brain state that corresponds to a particular mental phenomenon is affecting another aspect of the brain in a perfectly scientific way--electrochemistry *here* affecting electrochemistry *there*. And that's all you need: brain states giving rise to other brain states. Neuroscience thus dismisses the idea that the mind--as a distinct entity--can change the brain and that consciousness might not be reducible to matter.

To the Dalai Lama, the fact that meditation can bring about changes to the brain makes it clear that "a purely mental process" can have observable effects on physical things. But, if Western science insists that all mental states are actually brain states, then the question becomes how can mental training act back on the brain so the brain is more likely to generate attention and compassion? The Dalai Lama agrees with neuroscientists when they describe upward causation--when brain activity giving rise to mental activity--but he rejects the neuroscientific view that dismisses "downward causation"--when mental activity affects brain activity. According to the Dalai Lama, the mind enjoys a status separate from the material world. In the Dalai Lama's view, "there is something in addition to the brain that gives rise to thoughts, feelings and other cognitive activity that together add up to a mind" and he thinks "there might be aspects of consciousness that cannot be explained as impulses of electrical current and the release and absorption of neurotransmitters in the brain. In these cases, the brain would fall short of explaining mind--something about the mind remains separate and apart from brain."[6] On the Dalai Lama's view, through meditation one develops "pure thought" in the "luminous mind" and thus "the arrow of causality would point both ways, and pure thought would change the brain's chemistry and electrical activity, its circuits, or even its structure."[7] From the Dalai Lama's perspective, the problem with the neuroscience of meditation is that it is too materialistic and reductionist.

V. JAMES'S CONCEPT OF "PURE EXPERIENCE" AS THE ANTIDOTE TO IDEALISM, PHYSICALISM, AND DUALISM

Now I am finally ready to bring James (and the Buddha) to the rescue. In his later work, especially in his radical empiricism, James abandoned any hint of substance dualism that might have been lurking in his *Principles of Psychology*. In fact, he specifically referred to dualism as one the "great pitfalls" from which radical empiricism will save us.

In his radical empiricism, James held that matter and mind are but *functional* distinctions--that these are not ontologically fundamental entities. The problem, as James saw it, was to account for the relationship between the world of objects--what is represented--and the world of consciousness--the process of representing--without resorting to a metaphysical dualism of subject and object--

and also without a reduction to either mind or brain. Instead of any of these metaphysical positions, James famously offered a world of "**pure experience.**"[8]

Even though the concept of pure experience is central to James's radical empiricism, it remains notoriously ambiguous. This isn't a problem created by scholars alone. James himself was not completely consistent in his development of the concept of pure experience. So I am going to appropriate only one strand of the concept and try to avoid the problem of whether this is the only or even the best interpretation of James's understanding of pure experience.

The first thing to note about pure experience is that is fundamentally a phenomenological concept, a *starting point* for the analysis of experience, a methodology rather than a metaphysical concept. The idea of pure experience is built on *concrete* experience--experience as it is actually lived--not on an idealization of experience. Thus, pure experience refers to experience *before* it is conceptualized or retrospectively analyzed. Pure experience is the name James gives "to the immediate flux of life which furnishes the material to our later reflection with its conceptual categories."[9] Joel Krueger, eloquently described pure experience in the following terms:

> Pure experience for James therefore grounds any phenomenology of human experience. According to James, pure experience is the non-conceptual givenness of the aboriginal field of the immediate, a phenomenal field prior to the interpretive structures (and concomitantly, subject-object bifurcations or conceptual discriminations) that we subsequently impose upon it. Pure experience is prior to the reflexive thematizing of the cogito in language and thought. [10]

James says further that it is "an experience pure in the literal sense of a *that* which is not yet any definite *what*, tho ready to be all sorts of whats."[11]

In an early definition, James called pure experience a kind of *primal stuff*, but seeing as this has the unfortunate effect of making pure experience sound awfully close to a metaphysical substance, he backed off this definition, saying "there is no *general* stuff of which experience at large is made." [12] Someone might object that if pure experience isn't made of matter or consciousness, then what is it made of? After all, we are inclined to think that it must consist in something! But this is precisely the metaphysical trap that James himself almost fell into--and, ironically, the trap that the concept of pure experience was created to avoid. Pure experience is not a metaphysical stuff or entity or "general element," so the question itself is ill-formed. The concept is a phenomenological starting point that avoids substantialization or "entification." Perhaps James would have more easily avoided a metaphysical interpretation of pure experience if he had consistently held that pure experience answers to questions about "*how*" not "*what*." Thus its primacy and purity are methodological, not metaphysical. It gives us a starting point to tell the story of the unfolding of concrete experience without the need for substance-oriented metaphysical foundations.

What is important for the purposes of my paper is that James used pure experience to avoid all those positions that require a metaphysical foundation: namely, idealism, physicalism, or dualism. James makes this point very clear:

> In opposition to this dualistic philosophy, I tried...to show that thoughts and things are absolutely homogeneous as to their material, and that their opposition is only one of relation and of function. There is no thought-stuff different from thing stuff...but the same identical piece of "pure experience" (which was the name I gave to the *materia prima* of

> everything) can stand alternately for a "fact of consciousness" or for a physical reality, according as it is taken in one context or another. [13]

As a starting point, "pure experience" *precedes* the realities of thought and thing, of representing and represented, and thus it simply makes no sense to speak of the mental or the physical as fundamentally distinct or ultimate entities, nor to reduce mental phenomena to physical phenomena (or vice versa). For James, "the attributes 'subject' and 'object,' 'represented and representative,' 'thing and thought' mean, then, a practical distinction which is of a FUNCTIONAL order only, and not at all ontological as understood by classical dualism." [14] We divide experience into a subject and an object only because, as experience occurs, control is offered by analyzing experience into "what represents and what is represented." Of course, even this functional distinction is a by-product of analysis (not pure experience), because as James wrote: "no dualism of being represented and representing resides in the experience *per se*. The relation itself is a part of pure experience; one of its 'terms' becomes the subject or bearer of the knowledge, the knower, the other becomes the object known. In its pure state, or when isolated, there is no self-splitting of it into consciousness and what consciousness is of."[15] Subjectivity and objectivity mark functional attributes that only emerge when we reflect retrospectively on experience and associate different portions of the evolving experience with various contexts.[16] James argued that this is why it is wrong to think of anger, love, and fear as affections purely of the mind--they are, in fact, simultaneously affections of both the mind and the body. And, similarly, it would be wrong to think of meditative experience as purely mental--it represents a full integration of the mental and the bodily aspects of experience. The distinction between them is only achieved in analysis and in the contexts that analysis utilizes.

In "The Notion of Consciousness," James wrote: "I conclude, then, that--although there be practical dualism--inasmuch as representations are distinguished from objects, stand in their stead and lead us to them, there is no reason to attribute to them an essential difference of nature. Thought and actuality are made of the same stuff, the stuff of experience in general." [17] What I take James to mean is that as experiences unfold, they typically fall into patterns to which we assign classifying terms like mental and physical--but such distinctions should be made without making ontological commitments. This point is further reinforced by remembering that James, even in his *Psychology*, took great pains to show that terms like consciousness and mind do not refer to entities---they are mere functions that relate the process of representing and the represented in experience.[18]

Another misguided metaphor for the process of experience that has caused metaphysical mischief is the common distinction between the "inner world" where mental phenomena reside and the "outer world" where the body and other natural phenomena reside. But, of course, there is no literally distinct "inner world" differentiable from and an "outer world."[19] Like the terms "mind" and "body, "inner" and "outer" are just sorting devices; and yet so much of the appeal of dualism seems to rest on the pervasiveness of this metaphorical distinction. It is indeed a strange irony that the dualists appeal to the spatial metaphor of "inner/outer" because the distinction only makes sense in physicalism. Spatial location only applies to physical things, thus one could differentiate between what is inside one's head (namely, a brain) and the rest of the world. But that's a physicalist picture and no help to dualism's differentiation of the mind and body. Perhaps given the concept of pure experience, the metaphors of an "inner world" and an "outer world" should be dropped entirely, because they are misleading in that they reinforce an untenable metaphysical distinction.

Of course, James did not aim to eliminate talk of mental and physical phenomena, but only argued that we contextualize such descriptions so as to avoid the philosophical problems that arise from entifying experience at a foundationally metaphysical level. Whether we treat some aspect of experience as mental or physical depends on the *context* which in turn is determined by how the part of experience we are labeling relates to other parts. As James wrote:

> Just so, I maintain, does a given undivided portion of experience, taken in one context of associates, play the part of knower, of a state of mind, of 'consciousness'; while in a different context the same undivided bit of experience plays the part of the thing known, of the objective 'content.' In a word, in one group it figures as thought, in another group as thing. And since it can figure in both groups simultaneously we have every right to speak of it as subjective and objective both at once.[20]

What follows, then, from such contextualism is that there's nothing wrong with saying that the brain is physical or that thoughts are non-physical. As Joel Krueger wrote: "Pure experience is therefore [the] attempt to secure a space for both the first-person ontology of consciousness as lived *as well as* the third-person ontology of the physical world in the greater structure of the real. It negotiates a 'middle way' between the Scylla of dualism and the Charybdis of materialism."[21] In other words, context allows metaphysical analysis but with a small "m." And such classifications by context, of course, depend on our temporary purposes. James's favourite illustration for this difference due to context is paint--it is both saleable matter and possesses an aesthetic function in a given painting. I think that perhaps a finished painting furnishes an even better illustration. A painting is at once an aggregation of molecules suitable for chemical study and yet it is also an *object de art* whose aesthetic meaning is typically subject to the analysis of the art historian rather than the chemist.[22] There's nothing metaphysically mysterious about this once context is taken into account. Think about this: no one, except maybe the Platonist, asks what metaphysical substance aesthetic meaning is made of.

Because pure experience is methodologically prior to the bifurcation of experience into mental and physical phenomena, neither metaphysical dualism, idealism, nor physicalism are warranted. Whereas the mind and the body an integrated whole, all three metaphysical positions attempt to "entify" what is in fact only a context-dependent function. Thus, James has shown that idealism, physicalism, and dualism are all in error because they wrongly start their analysis with a metaphysical commitment to either the subject, the object, or both, as distinct entities. In this way, James's concept of pure experience resolves the dispute between the neuroscientists and the Dalai Lama by showing how neither physicalism nor dualism are warranted philosophical interpretations of the results of recent neuroscientific studies of Buddhist meditation. This solution renders the problem of "downward causation" moot because in the end there simply aren't two metaphysically distinct entities in a causal relation. There's no more need to try to explain the mind's effect on the body than there is a need to explain how a painting's aesthetic meaning has a causal effect on the molecules that make up the painting.

VI. A BRIEF APPENDIX: THE EARLY BUDDHIST PHENOMENOLOGY OF EXPERIENCE

In the most ancient of Buddhist scriptures, the Pali Canon, the historical Buddha offered a highly detailed analysis of human experience that is remarkably similar to James's phenomenology of pure experience. Like James, the Buddha offered a psychological functionalism that avoided metaphysical commitments of a foundational or ultimate sort.

The Buddha's account of the human person rejects any consideration of the self or consciousness as an entity. For the Buddha, the person is a dependently arisen, emergent, process; a person is not a thing in the static sense. In the most frequent analysis found in the Pali Canon, the Buddha described a person as comprised of five aggregates or bundles--body, feeling, perception, dispositions to action, and consciousness---none of which is a substance or self-subsistent thing. Thus, a person is a complex integration of psycho-physical unfoldings (*nāmarūpa*). The texts make it clear that the Buddha, like James and *unlike* the Dalai Lama, was not a mind-body dualist. Although the Buddha spoke of the human person as a psycho-physical phenomenon, yet the psychological and the physical aspects of a person were never discussed in isolation, they are an integrated whole that resists metaphysical "entification," in much the same way that James presented his concept of pure experience.

But this analysis of a person left the Buddha with a puzzle regarding how experience arises and functions without reference to a permanent self. Just as James's conception of "pure experience" avoids the bifurcation of experience into distinct subject and object, so the Buddha, in the "Discourse of the Honeyball," for example, showed how experience, including consciousness, should be explained as an emergently integrated set of functions in which there is no distinct subject and object dichotomy. Such a bifurcation can only arise later as the process of experience is analyzed and classified in thought. A short passage from this text reads:

> Visual consciousness arises dependent on the eye and visible objects. The meeting of the three is contact. Dependent on contact, there is feeling. What one feels, that one perceives. What one perceives, that one reasons about. What one reasons about, that one mentally proliferates. What one mentally proliferates, that is the cause by which mentally proliferated perceptions and (obsessive) notions assail a person in regard to visible objects cognizable by the eye, in the past, future, and present.[24]

In this and many other passages, consciousness (*viññāna*), and its objects, are not distinct entities, but are emergent functions within an ongoing process. Conscious experience is an organic/integrated process that can be analyzed into a coordination of both a sensory organ and the sensory object. But it is very important to realize that neither the sense organ nor the sensory object is given a metaphysically fundamental status--they are functions delineated within an experience that is integrated as a unitary process. Thus, experience, from which conscious emerges, is phenomenologically an integrated whole in which the parts can only be delineated by later analysis. This pattern of experience holds for all six modes of consciousness (each deriving from one of six sensory modalities). Like James, therefore, the Buddha held a functionalist view of experience together with an emergentist conception of consciousness.

Consciousness, as the Buddha characterized it, is merely the fact that the objects of experience are experienced *as had* by an experiencer. It provides a measure of continuity in experience, but it does so without appealing to a permanent or transcendent *subject* of experience. This is why the Buddha used the metaphor of a "*stream* of consciousness" (*viññāna-sota*) to illustrate how a changing process can maintain continuity and identity despite ongoing change.

This metaphor obviates the need for a metaphysical commitment regarding either the subject or the object in experience. There is simply no "thing" that is consciousness that can serve as the basis for any metaphysical reduction.[25] In his translation of the *Majjhima Nikāya*, Bhikkhu Bodhi alludes to the Buddha's phenomenological starting point for his analysis of experience when he writes that for the Buddha, feeling is "simultaneously a quality of the object as well as an affective tone of the experience by which it is apprehended" [26] I imagine that this statement would be right at home in the writings of William James.

St. Norbert College
john.holder@snc.edu

NOTES

[1]Pascual-Leone, A. , Amedi., Fregni.F., and Merabet, L.B., "The Plastic Human Brain Cortex, " *Annual Reviews of Neuroscience* 28, 2005, pp. 377-401.

[2] Begley, Sharon. *Train Your Mind, Change Your Brain* (New York: Ballantine Books, 2008), p. 9.

[3] Lutz, Antoine, Greischar, Lawrence L., Rawlings, Nancy B., Ricard, Mathieu and Davidson, Richard J. "Long-term meditators self-induce high-amplitude gamma synchrony during mental practice," *Proceedings of the National Academy of Science*, 101 (2004), 16369-16373. Also, see Lutz, Antoine, Dunne, John D. and Davidson, Richard J. "Meditation and the neuroscience of consciousness: an introduction," in Zelazo, P. D. , Moscovitch, M. and Thompson, E. (eds) .*The Cambridge Handbook of Consciousness* (Cambridge, England: Cambridge University Press, 2007) pp. 499-554.

[4]These neuroscientific studies of mindfulness meditation explain in part the successes seen in the use of mindfulness as a psychological therapy. Experiments have already shown that mindfulness meditation helps patients' Obsessive-Compulsive Disorders and clinical depression. Using mindfulness meditation, OCD and depression patients experience the trigger that normally leads to a spiral of obsessive or depressive experiences but without reacting emotionally--realizing that it is just a brain event--just a wiring defect that has no reality in itself. Patients were taught the meditative mantra: "I can watch this thought come and go without having to respond to it." By monitoring their own thoughts in this way, patients were able to keep the dysfunctional products of their mind from cascading into full-blown problems. With only one week of mindfulness meditation training, some patients reported that the disease no long controlled them. PET scans have verified the neural changes that have taken place: the OCD and depression patients who improved had much less activation in their right frontal cortex. This is more evidence that mindful effort can alter brain function; and more specifically, that *self-directed* brain change is can be scientifically demonstrated --just as ancient Buddhism has been saying for 2400 years.

[5]Begley's book, for example, is full of inconsistencies and ambiguities in the use of the words "mind" and "brain" and "mental phenomena."

[6] Begley, pp. 131-133.

[7] Begley, pp. 133.

[8] William James, *Essays in Radical Empiricism* (Cambridge, MA: Harvard University Press, 1976) p. pp. 21-44.. (Henceforth, E.R.E.)

[9] E.R.E., p. 93.

[10] Joel W. Krueger, "The Varieties of Pure Experience: William James and Kitaro Nishida on Consciousness and Embodiment," *William James Studies*, vol. 1, no. 1. p. 11.

[11] E.R.E, p. 46. It is worth mentioning that certain types of Buddhist meditative experience may well be suggestive of what James was calling "pure experience." Joel Krueger suggested this as regards meditation in east Asian forms of Buddhism. But there is evidence in the earliest traditions as well. For example, in the "Greater Discourse on Cause" (*Mahānidāna Sutta*), the Buddha describes certain levels of meditative attainment as removing discursive or conceptual modes of thought. And the very pinnacle of meditation one achieves a kind of ultimate non-dualistic kind of experience called the plane of "neither perception nor non-perception."

[12] E.R.E., p. 26.

[13] E.R.E., p. 69.

[14] E.R.E., p. 235.

[15] E.R.E., p. 70.

[16] James wrote: "Only in the later experience that supersedes the present one is this naif immediacy retrospectively split into two parts, a 'consciousness' and its 'content,' and the content corrected or confirmed." E.R.E., p. 37.

[17] E.R.E, p. 187.

[18] James wrote: "*Experience, I believe, has no such inner duplicity and the separation of it into consciousness and content comes, not by way of subtraction, but by way of addition*--the addition, to a concrete piece of it, of other sets of experiences, in connection with which severally its use of function may be of two different kinds. (E.R.E., p. 172)

[19] We read so often such statements as in Begley: "the outside world as well as the contents of one's mind."

[20] E.R.E., p. 7.

[21] Joel Krueger, "The Varieties of Pure Experience: William James and Kitaro Nishida on Consciousness and Embodiment," *William James Studies*, vol. 1, no. 1., p. 36.

[22] As Tom Alexander writes: "In the undivided, instantaneous unity of a given moment [i.e., pure experience] there is no basis upon which distinctions of 'mental' and 'physical' can be generated. Once the aspect of experience to the future is introduced, the distinctions of 'material' or 'mental' refer to functionally different expectations of consequences and so to different habits. Pure experience is no 'substance' and attains its 'purity' only when considered atemporally." (*A Companion to Pragmatism*, p. 187.)

[24] *Majjhima Nikāya*, I. 111-112. See also *Samyutta Nikāya*, IV.86 for an alternate version.

[25] As the Buddha famously said: "In this fathom-long living body, along with its apperceptions and thoughts, lies the world, the arising of the world, and the cessation of the world."*Anguttara Nikāya*, II.48.

[26] Bhikkhu Bodhi, *The Middle Length Discourses of the Buddha: A New Translation of the Majjhima Nikaya* (Kandy, Sri Lanka; Buddhist Publication Society, 1995) p. 1236.