

# *Hinduism, Buddhism, and Science*

with Jeff Wilson, “‘The New Science of Health and Happiness’: Investigating Buddhist Engagements with the Scientific Study of Meditation”; Oliver Zambon and Thomas Aechtner, “Vaishnavism, Antievolutionism, and Ambiguities: Revisiting ISKCON’s Darwin Skepticism”; and Renny Thomas and Robert M. Geraci, “Religious Rites and Scientific Communities: Ayudha Puja as ‘Culture’ at the Indian Institute of Science.”

## “THE NEW SCIENCE OF HEALTH AND HAPPINESS”: INVESTIGATING BUDDHIST ENGAGEMENTS WITH THE SCIENTIFIC STUDY OF MEDITATION

by Jeff Wilson

*Abstract.* Clinical and neuroscientific studies of Buddhist meditation practices are frequent topics in the news media, and have helped certain practices (such as mindfulness) achieve mainstream cultural status. Buddhists have reacted by using these studies in a number of ways. Some deploy the studies to show the compatibility of science and Buddhism, often using the authority of science to lend credence to Buddhism. Other Buddhists use meditation studies to demonstrate the superiority of Buddhism over science. Within inter-Buddhist debates, meditation studies are used to argue for changes in practice or belief, but also sometimes to reinforce certain traditional practices. Benjamin Zeller’s threefold categorization of religious groups’ attitudes toward science (guide, replace, absorb) and José Ignacio Cabezón’s three ideal types of relationships between Buddhism and science (conflict/ambivalence, compatibility/identity, complementarity) contribute to analysis of Buddhist uses of scientific studies of meditation.

*Keywords:* Buddhism; cognitive science; meditation; mindfulness; psychology; scientism

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“We do not need MRIs [magnetic resonance imaging] to tell us how wonderful the mind is,” the Buddhist nun Sister Annabel True Virtue pointed out in *The Mindfulness Bell* (2015, 14). Most Buddhists would agree, but the fact that she had to make her statement in the first place suggests that scientific examinations of Buddhist meditation had become

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a prominent phenomenon. In fact, by 2015, it was impossible to avoid the topic. Mainstream media carried daily articles on how science proved that meditation could literally reshape your brain and reprogram your mind to improve your stress level, waistline, bank account, and sex life; meanwhile, the Dalai Lama had already held twenty-seven increasingly high profile meetings with scientists, under the auspices of the Mind and Life Institute.

Scientific studies tended to fall into two types. First, clinical research on the effectiveness of meditation (most often, mindfulness techniques) derived from Buddhism for treating physical and psychological conditions. The best known of these are studies that involve Mindfulness-Based Stress Reduction (MBSR) or its derivatives, as originally pioneered by Jon Kabat-Zinn at the University of Massachusetts Medical School (Wilson 2014, 96–101). Second, there has been a steady rise in neuroscientific examinations of activity in the brain during Buddhist meditation practice (Goleman and Davidson 2017). Scientists, psychologists, and doctors have used Buddhist meditation to produce new research and therapies that furthered their scientific, clinical, and humanistic goals, as well as personal and professional ambitions.

But what of the Buddhists, many of whom—unlike Sister Annabel True Virtue—were engaging with the studies produced by the scientists (or, at least, the popular accounts of them)? This article examines how Buddhists use scientific studies of their meditation practices. Rather than a single response, the pluralism and fluidity of the various Buddhist uses demonstrate the diversity of contemporary Buddhism and the way that different positionalities call forth different ways of approaching the questions of science and religion. In a cultural moment when it has become common to state that “Buddhism and science are highly compatible,” it is worth noting how Buddhists seek to capitalize on this zeitgeist, whether through engagement, appropriation, or resistance.

#### SOME POSSIBLE MODES OF ENGAGEMENT

Before directly examining Buddhist uses of scientific studies of meditation, it is worthwhile to consider some ways that scholars have analyzed the potential relationships between religion and science. The focus here is on Buddhism and New Religious Movements that—like Buddhism outside Asia, where most of the current scientific meditation research takes place—must stake out positions for themselves as relative newcomers in the face of hegemonic cultural discourses on the topic.

Historian Benjamin Zeller’s work examines how New Religious Movements relate to science. In his 2010 book *Prophets and Protons*, Zeller discerns three fundamental relationships with science worked out by three different religious groups. The Unification Church sought to *guide* the development of science. It claimed that the scientific quest for knowledge

should be fundamentally directed by religious wisdom, so that its methods and concerns were ethically grounded, and thus the discoveries and innovations science produced would contribute to the church's vision of goodness. As Zeller notes,

Fundamentally the Unification Church accepted science as a positive force in American cultural, social, political, and economic life. In fact, they embraced science in its most institutionalized form, creating science conferences and inviting professional scientists to attend and discuss the state of their fields. Yet Unificationism also offered two critiques of science. First, scientists lacked unity, existing in fragmented form across a multitude of projects, centers, and disciplines. Second, unaided by an authoritative set of absolute values, science floundered in relativism and threatened the stability, peace, and health of human individuals and societies. But Moon's Unification Church reached out to science with a solution: scientists themselves must realize the need for centering their disciplines on solving human problems in accord with absolute values. (Zeller 2010, 65)

Of course, as the one true church grounded in authentic divine revelation, the Unification Church was the best authority on how science should be guided. Zeller describes this as a paternalistic but nonetheless solidly affirmative view of science.

The Hare Krishnas (International Society for Krishna Consciousness [ISKCON]), meanwhile, sought to *replace* current scientific and biomedical views and methods with their own perspectives, which they claimed were founded on a superior Vedic science that was not naively based in materialism and atheism. Their ancient wisdom represented true science, which accorded with scriptural evidence, inner knowledge gained through personal access to divine states of mind and existence, and outwardly observable effects as well. They took an overtly antagonistic stance toward Western science and education, claiming that only science rooted in the Vedas could offer true knowledge and progress for humankind. As Zeller puts it, "ISKCON declared that it offered an alternative: an Indian, spiritual, textually grounded science that was neither Western, materialistic, nor empirical, yet nonetheless both more fully explained the world and better served humanity's moral and religious needs than conventional science" (Zeller 2010, 72). Thus replacing Western science with Krishna science was what the chaotic modern world most desperately needed.

Zeller's third case study was Heaven's Gate, which largely sought to *absorb* terminology and perspectives from science. In the process they spiritualized them so that they were turned toward holy aims, yet, ironically, they rarely discussed their movement as a religion. Instead, they presented themselves as a group of scientific questors, with naturalistic explanations of religious figures and phenomena: "Christ became an extraterrestrial, the Bible a set of instructions from outer space, resurrection a biological process, and eventually they transformed even the Christian concept of

grace into a tag or tracking device” (Zeller 2010, 119). They sought to wear the mantle of science and utilize its cultural cachet, denying that their message was spiritual or religious. We can classify them, therefore, as a religion that absorbed science and tried to co-opt its brand, even while employing value systems and practices that were clearly religious in nature.

These three possible configurations—guiding, replacing, or absorbing—are useful to keep in mind. Also helpful are the observations of Buddhologist José Ignacio Cabezón. In surveying Buddhist attitudes towards science, he notes three common perspectives. The first is conflict/ambivalence, “a mode of interaction between Buddhism and science [that] presumes radical and irreconcilable differences between the two spheres” (Cabezón 2003, 49). Cabezón is clear that this form of conflict is rather rare. Or, as he puts it, “That conflict has existed between Buddhism and science can hardly be denied. But conflict, where it has existed, is often attenuated. What is perhaps more common than out-and-out antagonism is either mutual disregard, or, when the two spheres have interacted, a kind of ambivalence. . . . To my knowledge, however, there was never an elaborated and sustained critique that focused on Western science to the exclusion of other aspects of the Western intellectual tradition, even by those who viewed science and technological advancement in a negative light” (Cabezón 2003, 41, 42). Some Buddhists reacted with wariness to Western science, especially when it was part of a larger package of Western intellectual, political, military, and economic imperialism.

A more common phenomenon, according to Cabezón, is what he terms compatibility/identity (Cabezón 2003, 48). In this mode, Buddhists seek to find similarities between science and Buddhism, and often claim that (a) Buddhism is scientific in character and even that (b) Buddhism has independently discovered or predicted important facts only later uncovered or confirmed by Western science. Donald Lopez has convincingly demonstrated the difficulties with these claims (Lopez 2008), but their factuality is not the concern of this article—I seek only to explore how Buddhists use scientific studies of their meditation practices, not whether such practices (or the scientific studies, for that matter) and the rhetoric around them actually accomplish or prove anything. Cabezón offers several examples, but perhaps the best illustration is a recently published book, best-selling author Robert Wright’s *Why Buddhism Is True: The Science and Philosophy of Meditation and Enlightenment*. Wright explains that

In the course of reassuring myself that the title was indeed warranted, I started listing particular Buddhist ideas that the book defends. . . . Not all of the “truths” I list are Buddhist *doctrines*. Some are more like *takeaways*, clear implications of Buddhist thought. But all of them, I’m arguing, draw substantial corroboration from modern science, including modern neuroscience and psychology—that is, with special emphasis on the study of how

natural selection shaped the human mind. . . . Natural selection built into our brains the tendencies that early Buddhist thinkers did a pretty amazing job of sizing up, given the meager scientific resources at their disposal. Now, in light of the modern understanding of natural selection and the modern understanding of the human brain that natural selection produced, we can provide a new kind of defense of this sizing up. (Wright 2017, 269, 275)

Wright sees ancient Buddhists as having anticipated modern scientific discoveries, and cutting edge science as supporting Buddhist insights. For Wright, this means that Buddhism (at least in the naturalistic mode he prefers) is highly compatible with science and, since science is true, that Buddhism is true (and readers should practice it).

Cabezón lays out one more mode of interaction, which he terms complementarity. This lies somewhere between the extremes of dismissive conflict and rapturous identity, since it is concerned with “negotiating both similarities and differences” (Cabezón 2003, 49). Buddhists who pursue this mode do so in a number of ways. They may claim that Buddhism and science are similar in method (observation and conclusion) but different in object (the world of experience vs. the physical world). Or they may claim that Buddhism and science differ in method (rational analysis vs. experiential intuition) but are similar in content (examination of physical matter, or consciousness, or some other subject). Regardless of what tactic is taken, the basic perspective here is that Buddhism and science overlap in ways that are intriguing and differ in ways that mean they can fruitfully contribute to each other: they round each other out, so to speak. Cabezón’s examples for this mode are much more recent than for the other two, suggesting that he believes it to be an especially strong paradigm in contemporary Buddhism.

There are echoes of the findings of Zeller and Cabezón in the views of Buddhists toward meditation studies, as will be discussed below. At the same time, the nature of the relationship of Buddhists to scientific studies of meditation is complex and sometimes contradictory. As such, it doesn’t fit easily into either of these three-part typologies. Rather—with Zeller and Cabezón in mind, but without simple transposition of their ideas onto this subject matter—this article lays out some general trends employed by different Buddhists, or by the same Buddhists in different settings or at different times when discussing the meaning of recent meditation research.

#### SCIENTIFIC STUDIES OF BUDDHIST MEDITATION IN THE POPULAR PRESS

In order to see how Buddhists use scientific studies of Buddhist meditation, it’s helpful to first look at how non-Buddhists use them. Examples

in this vein are nearly endless. Perhaps the best place to look is the news magazines *Time* and *Newsweek*, which are arguably the most mainstream non-Buddhist publications imaginable. Despite being non-Buddhist, they've both included frequent, positive coverage of the mindfulness movement over the past decade. That coverage culminated this past year, when both magazines put out special one-shot editions about mindfulness. Furthermore, they were joined on the newsstands by a third such special issue, titled *Mindfulness: An Everyday Guide*. This was a new entry in the Science Classics series of Athlon Entertainment, an arm of Nashville-based major media producer Athlon Sports Communications. These three special issues are not balanced journalistic explorations of a growing phenomenon. Rather, they are baldly promotional efforts designed to sell readers on practicing mindfulness meditation; or, more cynically, designed to sell magazines to people curious about the buzzword "mindfulness."

*Time* directly makes its appeal to scientific study of meditation on its cover: the title of the special edition is "Mindfulness: The New *Science* of Health and Happiness."<sup>1</sup> The issue is full of references to scientific studies of meditation, which allegedly prove that meditation controls stress, improves sleep, alters the brain, regulates emotions, improves blood pressure, heightens focus, slows Alzheimer's, cuts addiction to tobacco, helps you lose weight, and more. This can be illustrated with a highly typical quote: "The perks of mindfulness are tangible. The American Psychological Association cites it as a hopeful strategy for alleviating depression, anxiety and pain. But mindfulness doesn't just seem to boost mood and perception—the effects go deeper. Mindfulness practice can shrink the brain's jumpy 'fight or flight' center, the amygdala, according to 2013 research out of the University of Pittsburgh and Carnegie Mellon University" (Williams 2016, 10). *Newsweek's* coverage is similar, citing MBSR studies on asthma, irritable bowel syndrome, back pain, and more ("Mind over Stressors," 2017, 54–55). And the Science Classics issue includes an entire section titled "The Science of Mindfulness: This Is Your Brain on Meditation" (di Perna and di Perna 2017a, 22).

At the same time, all three publications are explicit about the Buddhist connections of the science they're promoting. *Time* and *Newsweek* carry full articles on Buddhism's history and its use of meditation, while *Mindfulness: An Everyday Guide* includes a feature article on the work of Buddhist scholar B. Alan Wallace and the Dalai Lama's involvement in establishing the Mind and Life Institute (Ford 2016, 62–64; "A Short History of Zen" 2017, 16–17; di Perna and di Perna, 2017a; 2017b, 28–31). All three magazines quote Buddhists and illustrate mindfulness with Buddhist imagery, such as shaven-headed monks. In these non-Buddhist publications, mindfulness is acknowledged as Buddhist in origin and as having ongoing religious connections, including a spiritual dimension for many users. At the same time, scientific studies of meditation demonstrate that it has real world

effects and provide the reader with confidence in the miraculous health and lifestyle claims advanced by the editors. Ultimately, these non-Buddhists use scientific studies of Buddhist-based meditation to instill confidence and provoke desire for health, beauty, and happiness, instigating readers to search their lives to see if they have conditions that might be solved by taking up mindfulness practice.

#### USING MEDITATION STUDIES TO PROMOTE BUDDHISM

What about Buddhists? How are they using these studies? There are at least six discernable (sometimes overlapping) ways that Buddhists are *using*—not simply reacting to—scientific studies of meditation. First, we can note that the development of these studies was only able to take place because there have been Buddhists willing to participate in them, either as teachers of meditation or as the actual “lab rats” strapped into brain-monitoring machines. One primary reason for this use of scientific study has been to demonstrate Buddhists’ reasonableness, modernity, relevance, and nonfundamentalism. For example, Yongey Mingyur Rinpoche begins the first chapter of his 2007 book *The Joy of Living: Unlocking the Secret and Science of Happiness* by claiming, “When you’re trained as a Buddhist, you don’t think of Buddhism as a religion. You think of it as a type of science, a method of exploring your own experience through techniques that enable you to examine your actions and reaction in a nonjudgmental way” (Mingyur Rinpoche 2007, 11).

This sort of framing is helpful to Mingyur, a robe-wearing reincarnate *tulku*, as he seeks to attract a skeptical Western audience. He augments this attempt to appear rational and sensible by referencing his own participation in MRI experiments designed to study the action of meditation in the brain. As he says, “One of the discoveries made during the early studies of brain scans conducted by Professors Antoine Lutz and Richard Davidson (in which I participated) was that meditation on nonreferential compassion—a meditation practice based on the union of emptiness and compassion—produced a profound increase in what are often referred to as gamma waves, fluctuations in the electrical activity of the brain measured in electroencephalograph (EEG) scans, that reflect an integration of information among a wide variety of brain regions” (Mingyur Rinpoche 2007, 227–28). Implicitly, his partnership in this research shows that he and his religion are not at war with science, unlike some conservative forms of religion in the modern day.

Usage of scientific language and participation in laboratory experiments presents Buddhism as intelligent, open-minded, cutting-edge, and consonant with liberal Western values. As historians such as Judith Snodgrass, David McMahan, and Erik Hammerstrom have shown, these impulses often originated in colonial or quasi-colonial situations, as Buddhists

used scientific language to resist Western characterizations of Buddhism as backward and superstitious (Snodgrass 2003; McMahan 2008; Hammerstrom 2015). Today, those trends continue and are amplified because these alleged qualities of intelligence, progressiveness, and consonance with science are all assets in the free market competition for readers and practitioners. Of course, we shouldn't simply dismiss the genuine curiosity of many Buddhists, monks included, who wonder about what they might learn about their own practices through scientific testing.

A closely related, but strictly speaking not identical, usage of scientific studies by Buddhists is to argue that science shows that readers should engage in Buddhist practice. This mirrors the usage by non-Buddhists, as discussed earlier. In this mode, Buddhists point to scientific studies to prove that their practices are efficacious. This is perhaps the most common usage of these studies. After all, who wouldn't want to be able to say that their religion has been proven to work?

It is these impulses that bring us works such as Rick Hanson's 2009 book *Buddha's Brain: The Practical Neuroscience of Happiness, Love, and Wisdom* (Hanson 2009a) and James Kingsland's 2016 book *Siddhartha's Brain: Unlocking the Ancient Science of Enlightenment*. These and similar works deploy scientific studies as definitive proof that Buddhism is effective in providing the sorts of benefits that modern people apparently seek. As Kingsland states, "science has provided us with objective tools such as clinical trials and technologies such as genome mapping and magnetic resonance imaging that can be used to test particular claims with unprecedented rigor. We can probe scientifically not only *whether* meditation and other elements of Buddhist practice have tangible benefits, but also *how* they might operate in the brain to influence behavior and well-being" (Kingsland 2016, 29). Hanson is frank about his motives in a 2009 article published by the Barre Center for Buddhist Studies: "I don't think of neuropsychology as a replacement for traditional methods, but simply as a very useful way to understand why traditional methods work. This is helpful in our culture, since arguably the secular religion of the West is science. If you understand why something works in your own mind, that promotes conviction (*saddhā*, trust in the Buddha's teachings)" (Hanson 2009b, 9). In other words, scientific studies help make Buddhism seem reliable.

This sort of use of scientific studies goes beyond mere framing language. For well over two thousand years, Buddhism has been held to be true because of the authority invested in its representatives, be they the Buddha, the scriptures, the community of monastics, or Buddhist society at large. Secondly, there were the experiences one derived from personal practice of Buddhist rituals and scholastic investigation. But no longer: for authors who employ scientific studies in this way, Buddhism is true because science says that it is. Therefore rather than simply boosting Buddhism by reinforcing

its rightness, this use of meditation studies actually undercuts many inherited aspects of Buddhism itself, such as monastic and scriptural authority.

### USING MEDITATION STUDIES TO HIDE BUDDHISM

Interestingly, these same studies seem to be useful for something nearly the opposite as that intended by authors like Hanson and Kingsland. If science shows that meditation is effective, it also appears to show that Buddhism, strictly speaking, is unnecessary. This is another major use of scientific studies by actual Buddhists: many deploy such studies to argue that Buddhism is unnecessary, since you can get the benefits without the Buddhism, which is characterized as mere packaging rather than foundation or substance. Let me be clear—I'm not talking about non-Buddhists here, who also make such arguments. Rather, I'm pointing out that large numbers of Buddhists actively disparage or eliminate Buddhism from meditation, mainly by using reference to scientific studies of meditation techniques.

One of the primary venues for this sort of usage is the magazine *Mindful*. Launched in 2013, it has quickly captured a central place in the vast mindfulness market. Its roots are thoroughly Buddhist: it was developed by editors and writers at the Buddhist magazines *Shambhala Sun* and *Buddhadharma*, who over a number of years used their magazines to promote a semi-secularized mindfulness as a panacea for personal and social problems, bolstered by frequent references to meditation's scientifically verified benefits. The editor-in-chief, publisher, most of the other staff, and board members of *Mindful* are all Buddhists or have undertaken extensive practice in Buddhist settings (Wilson 2016, 109). But you'd never know that from reading *Mindful*.

*Mindful* put out its own special edition in 2017, a one-shot designed to compete with the *Time*, *Newsweek*, and Science Classics issues mentioned earlier. Titled *99 Ways to Live a Mindful Life*, it is studded through with unattributed references to scientific studies. For instance, on page 46 the reader learns that "A study found that when people did a compassion meditation every day for just 2 weeks, directing their attention toward those they loved and 'difficult' people in their lives, they acted more altruistically toward strangers. Also, the practice correlated with measurable changes in brain activity" ("Live a Compassionate Life" 2017, 46). Page 56 states that "A recent study surveyed 94 adults who had been cheated on by their partners and found a correlation between traits of mindfulness and forgiveness. In other words, it can be said that the more you practice mindfulness, the more you strengthen your capacity for forgiveness" ("Learn to Forgive" 2017, 56). On page 84 the magazine points out that "Numerous studies have found that positivity is linked to lower stress levels and blood pressure, healthier body weight, and greater resilience, among other things.

Mindfulness meditation is recognized as one of the best ways to develop it” (“Play More” 2017, 84).

But while studies are supposedly showing the effectiveness of meditation that comes from Buddhism, they are used here to show *only* the effectiveness of the meditation, not of Buddhism. The Buddhist editors of *Mindful* consciously avoid all mention of Buddhism: in the 96 pages of this special issue, which is full of Buddhist practices and Buddhist ideas promoted by Buddhist practitioners and even the leaders of major Buddhist organizations, there is not one single mention of Buddhism, nor any use of overtly Buddhist images.<sup>2</sup> Rather, scientific studies help to pry meditation free from Buddhism and present it as a free-floating technique of health and wellness. In the process, a scientific and secular language is used to mask the Buddhist origins of the magazine’s content, a phenomenon that I call mystification (Wilson 2014). As with some of the authors already examined in this article, science has now supplanted tradition as the source of authority and authenticity—but rather than reinforcing the rightness of Buddhism, it now makes Buddhism entirely removable. This allows the publishers to reach a wide audience of non-Buddhists, both for the well-being of such readers and of course for the financial benefit of *Mindful*’s staff and writers.<sup>3</sup> So, apparently, Buddhists can use scientific studies to show that Buddhism is right, and to show that it is unnecessary.

#### USING MEDITATION STUDIES TO REFORM BUDDHISM

One way that Buddhists use meditation studies is as justification for reforms within specific Buddhist groups, or Buddhism in general. For instance, best-selling author Stephen Batchelor deploys scientific studies in order to bolster his call for the reorganization of Buddhism in an agnostic, Euro-Enlightenment mode. Here’s how he opens his new book *Secular Buddhism*:

The very fact that a core practice of an ancient world religion can be shown through clinical trials to be effective irrespective of whether one is a Buddhist raises fundamental questions about the nature of Buddhism itself. Is this tradition best characterized as a religion? Might we still be able to recover from the teachings of the Buddha a vision of human flourishing that is secular rather than religious in orientation yet without compromising the integrity of the dharma? (Batchelor 2017, ix)

Of course, these are rhetorical questions for Batchelor, who has already made his position quite clear. He states his agenda later in the book:

While the secularization of mindfulness is deplored by some classical Buddhists as a dumbing down or commodification of a revered practice within their tradition, one could also argue that the discovery of the effectiveness of mindfulness in reducing suffering allows Buddhism to recover its secular soul that has long been obscured by the encrustation of religious beliefs. . . .

The emergence of secular Buddhism is seen by its advocates as an overdue reformation of the tradition: one that empowers the individual by returning him or her to the core principles, values, and practices taught by the historical Gotama before they mutated into an Indian religion. (Batchelor 2017, 168–69)

So scientific studies can be used by Buddhists not simply to boost Buddhism, as Mingyur does, but also to radically transform it.

A bit ironically, meditation has actually been a fairly marginal practice for most Buddhists regardless of tradition, and has been a rejected practice for some major forms of Buddhism. Increasingly, though, meditation is touted as the *central* practice for all real Buddhists, which puts pressure on Buddhists to engage with the practice in some fashion. Especially for groups that have historically dismissed meditation, referring to scientific studies is a strategy for introducing such pursuits into temples and traditions where they were previously absent. For example, the Jōdo Shinshū Pure Land tradition of Japanese Buddhism has historically disparaged meditation as inaccessible to the common person and fraught with ego traps for the elite practitioner. Jōdo Shinshū favors nonritualized recitation of the Buddha's name (*nembutsu*) and focus on gratitude for the liberating power of Amida Buddha as the most excellent practices.

Yet significant numbers of people within the Jōdo Shinshū-affiliated Buddhist Churches of America are interested in meditation. For them, the production of relatively secularized meditation and the results of research on mindfulness can be useful tools for justifying their alteration of traditional practices. For example, to celebrate the 750th memorial of Jōdo Shinshū's founder Shinran, the Idaho-Oregon Buddhist Temple organized a 24-hour meditation vigil. Aware that this was a highly unorthodox practice, the resident monk Dennis Fujimoto noted, "The Jodo Shinshu tradition doesn't rely on meditation to achieve Buddhahood. [However,] reports from various sources point out that individuals may want to use meditation to stay healthy and boost brain function. In the past, both *Time* and *Newsweek* have carried various articles on the positive health benefits of meditation. Studies have been conducted on how consistent meditation can lower stress, reduce unhealthy hormones and free radicals in the body" (Fujimoto 2008). Since science approves of it, it must be OK to add meditation to this lineage. This example is particularly telling because the actual practice that Fujimoto was promoting was constant recitation of *nembutsu*, whereas the studies he pointed to examined silent forms of meditation.<sup>4</sup> The slipperiness of the English catchall term "meditation" can be employed to strategically defend practices that are not the actual object of particular research.

## USING MEDITATION STUDIES TO PROVE BUDDHIST SUPERIORITY

Other Buddhist engagements with recent research appear as well. So far, all the Buddhist uses of meditation studies have been positive toward such practices. However, another Buddhist use is essentially to say, “Yes, but . . .” This manifests, for instance, among the many Buddhist traditions, such as Jōdo Shinshū, that do not focus on the sorts of practices that attract significant scientific attention. While some leaders use the popularity of these scientific studies as a reason to add them to their temple activities, these studies offer other leaders an opportunity to contrast the supposed superiority of their own practices.

For example, Carmela Hirano argues in the Salt Lake Buddhist Temple’s newsletter that scientific study of mindfulness is not enough to validate the practice:

The Mindfulness-Meditation Movement has become very popular and strongly encouraged among the helping professions, because being with human suffering takes an incredible amount of vital energy to pay attention, be completely present, and withstand the intense emotional upheaval and narratives that patients wish their caregivers to lift from them. However, awareness of the reality of suffering alone does not necessarily explain how this suffering is alleviated. We know from a multitude of scientific research that regular practice of mindfulness-meditation unequivocally results in benefits for both body and mind. [However,] Mindfulness meditation is a conscious choice, practiced with intention, discipline, and open-mindedness with elements of curiosity and interested observation. Therefore it is still ego-driven, and, if so, how is it possible for the ego to liberate itself from itself?

She contrasts this with her own tradition: “Pure Land Buddhist doctrine, especially the 18th Vow . . . , as expounded in the Triple Sutras, is the ultimate healing element, the powerful expedient means for people suffering from mental illness, especially for those who cannot perform mindfulness-meditation practice” (Hirano 2014, 1). Hirano, a medical doctor, is hardly antiscience. But she does believe that scientific studies of Buddhist meditation contain perils that only her sectarian form of Buddhism truly manages to transcend.

Another “Yes, but . . .” usage of scientific studies is to simultaneously affirm their merit and diminish them as relatively beside the point. This frequently takes the form of a statement that neuroscience or studies of MBSR can only take us so far, and they miss something essential that the full Buddhist tradition does provide. For example, while Mingyur was happy to discuss his participation in MRI tests, elsewhere in *The Joy of Living* he makes it clear that these studies are of limited value. As he writes, “Biology and neuroscience tell us what’s going on in our brains when we experience pleasant and unpleasant emotions. *Buddhism* helps us not only to describe such experiences more explicitly to ourselves, but also provides us with the

means to go about changing our thoughts, feelings, and perceptions so that on a basic, cellular level we can become happier, more peaceful, and more loving human beings” (Mingyur Rinpoche 2007, 115). Interestingly, here Mingyur is still operating within a relatively naturalistic framework, even as he proclaims that Buddhism goes beyond neuroscience.

Going back to the Jōdo Shinshū tradition, Rev. Marvin Harada of the Orange County Buddhist Church preached a sermon in 2015 on “Mindfulness and Shin Buddhism.” After discussing the rise of scientifically driven interest in mindfulness meditation and affirming that it has some benefits, he pivots to more transcendent concerns:

It is evident that Buddhism is entering our culture as a practical method of helping people relieve their stress, to find a sense of peace and tranquility, and to find a more meaningful life. These byproducts of a life of Buddhism are important. No one would even pursue Buddhism if it didn't have any practical benefits to one's life. We all begin our pursuit and study of Buddhism from this practical level of the teachings. However, we must also keep in mind that the object of Buddhism is to help us arrive to a deeper level of the teachings, that is the level of truth. Shinran Shonin encountered Buddhism at this very deepest level. In one of his writings, the *Tannisho*, he writes that the *Nembutsu* is the only thing that is true and real in his life. Everything else is temporary and fleeting. Everything is of the secular world, but the *Nembutsu* is something that belongs to the world of truth, something that goes beyond anything in the secular world. (Harada 2014)

Thus scientific studies of meditation are shown to be limited or shallow. They provide the opportunity for Buddhists to reassert the value and robustness of their traditions by contrasting the higher goals that Buddhism aspires to.

#### USING MEDITATION STUDIES TO REFORM SCIENCE

The Jōdo Shinshū uses of science here are rather like glancing blows—they raise the issue but only to quickly dismiss it, so they can move on to promoting their own agenda. Sustained interaction does occur, though, sometimes with the agenda to not only prove Buddhism to be better for you (spiritually or otherwise), but also that Buddhism is itself better science. Perhaps the best example is the work of B. Alan Wallace. Formerly a Buddhist monk (and a professor of religious studies), Wallace has been closely involved in the growth of scientific studies of meditation. However, he is also among the most thorough critics of such studies, or at least certain limitations he perceives.

Wallace refers to scientific studies to point out their limitations, indeed limitations to the entire Western project of scientific materialism. While appreciative of the good that science has done, and vocal in supporting a skeptical mindset in life, Wallace is concerned that scientific materialism is a highly corrosive, dangerous, and incorrect perspective that has

done damage to the world and threatens Buddhism. His criticism is that scientific studies of meditation are undertaken with a reductively materialistic framework, so that they cannot measure or account for—or even acknowledge as possible—nonmaterial forces at work:

As long as the scientific study of the mind entails the metaphysical assumption that all possible states of consciousness are physical properties or components of the brain, and as long as research focuses solely on the behavioral expressions and neural correlates of mental phenomena, it follows that all scientific conclusions about the nature of the mind must be materialistic. Scientists attend solely to the physical causes and effects of subjective mental states, and so only physical phenomena pertaining to the mind are considered real. (Wallace 2012, 64)

For Wallace, this is both bad science and incorrect apprehension of reality: “From a Buddhist perspective, the materialist view of the human mind—reduced to a composite of electrochemical processes occurring unconsciously in the brain—is profoundly alienating and depressing precisely because it is essentially delusional” (Wallace 2012, 46). Such views themselves are tantamount to a hidden religious dogma. Wallace argues instead that Buddhism provides a much richer, wider, and more accurate view on the mind because it speaks from a first-person experiential perspective and leaves open room for nonmaterial phenomena:

Likewise, without developing heightened degrees of attentional stability and vividness, as is done in Buddhist meditational practices, cognitive scientists have little chance of discovering a wide range of mental phenomena that have allegedly been ascertained by accomplished contemplatives in the past. Among the experiential discoveries claimed by Buddhist contemplatives are the continuity of individual consciousness beyond death, reincarnation, the possibility of achieving a wide range of paranormal abilities and modes of extrasensory perception, and the possibility of freeing the mind from all its afflictive tendencies. No reasonable Buddhist would ask scientists to accept any of these claims merely on faith—the Buddha himself discouraged his followers from accepting his words simply on the basis of his own authority—but it is equally dogmatic to dismiss them simply because they violate the principles of scientific materialism. (Wallace 2007, 63)

Wallace proposes alternate scientific investigations that could reveal through combined scientific and Buddhist methods knowledge that current Western models cannot access and therefore discount as possibilities. One proposal is the Alaya Project:

Such a study would require a group of subjects (the larger, the better) to achieve shamatha [deeply concentrated meditation]. While resting in the substrate consciousness, they would focus their attention upon a specific time, beginning perhaps one week earlier to the exact hour and minute. Subjects would focus their attention on this target until they were confident they had vividly recalled their experiences exactly one week before, and they would give a detailed report of their alleged memories. . . . Eventually, they

would be directed to focus their attention to a specific time before they were conceived. If they recalled nothing, this would support the materialists' claim that consciousness originates during the development of the brain. But if they recalled experiences of being someone else in a past life, these alleged memories could be checked objectively to see if they corresponded to real people who lived in the past. . . . If their memories proved to be accurate and it could be established beyond all reasonable doubt that they could not otherwise know the details of the lives of deceased individuals whom they had recalled, this would support the Buddhist hypothesis of rebirth. (Wallace 2009, 115)

Wallace also proposes the Jiva Project, which would use the unique EEG signatures of advanced Tibetan monks to determine if they were indeed reincarnated into the bodies of the children chosen as their successors (Wallace 2009, 117). Through these hypothetical studies, Wallace positions Buddhism as a sort of super-science, similar to current science but also superseding it with methods and insights currently ignored by the narrower mainstream approach. Science, therefore, needs to change to catch up to the Buddhists.

#### CONCLUSION

As we have seen, Buddhists use scientific studies of their meditation techniques in many ways and for various purposes. They use them to demonstrate that they are in tune with modern science and values, to show that Buddhism's effectiveness can be empirically proven, to generate seemingly secular non-Buddhisms, to promote reformist versions of Buddhism, to insert new practices into traditional lineages, to show the limitations of meditation compared to one's preferred practice, and as a partial foil that reveals the superiority of religious Buddhism (either as religion or science).

Returning to Zeller and Cabezón, there are ways that each scholar's ideas are reflected in the Buddhist examples, but also the Buddhist case studies suggest ways in which Zeller's and Cabezón's analysis could be productively enhanced. Mingyur's participation in neuroscientific studies leads him to show how they prove that Buddhism is compatible with science (echoing Cabezón's category of compatibility/identity), while his claim that scientific studies show us how things work but only Buddhism results in happiness and peace suggests Cabezón's category of complementarity. Hirano and Harada, meanwhile, could be plausibly fit into any of Cabezón's three ideal types. They are ambivalent about how meditation studies are used, but believe Buddhism and science are compatible, perhaps because they occupy complementing spheres (but with their own form of Buddhism the superior of the two). This difficulty in properly assigning a category perhaps points to problems with Cabezón's typology; he is explicit that these are just ideal types, but if actual phenomena are so messy as to defy use of his approach, its value may be debatable.

On the other hand, Cabezón's types can be usefully expanded upon to help analyze Buddhist relationships to meditation studies. Fujimoto's use of scientific studies of silent meditation to bolster his practice of constant chanting is a type of *strategic compatibility*: he isn't making a large argument about the compatibility of science and Buddhism, only deploying scientific studies (of dubious relevancy) in a single situation to legitimate a practice (chanting to honor the founder) that he is not actually seeking to use for the purposes supported by the studies (health benefits). Furthermore, there are instances where Cabezón's theoretical structure appears to operate well. *Mindful* magazine seems to be a perfect example of identification of Buddhism with science, to the point where the Buddhist content is actually replaced by the science label.

Zeller's models work here as well. *Mindful* has clearly absorbed the language and perspectives of science to such a degree that Buddhism is fully naturalized. Batchelor provides a similar example, with a bit of nuance: he too has fully absorbed science, but rather than complete identity, he seems closer to an advocate of compatibility, the weaker of the two forms of this type identified by Cabezón. Thus absorption of science into Buddhism *may* lead to full *identity* with it, but does not *necessarily* do so. Applying Zeller's study reveals surprising angles of view, such as how the mindfulness movement resembles the "UFO cult" Heaven's Gate. However, it is of limited use in relation to Mingyur, Hirano, and Harada—they don't seem to be seeking to guide or replace science, and while they have absorbed some of the lingo and perspectives of science, these are hardly defining traits of either.

Perhaps the most intriguing author is Wallace, who is the closest example we've examined to the position Zeller attributes to the Hare Krishnas. He seeks to replace current scientific materialism with a contemplative science informed by Buddhist experience, metaphysics, and morality. While he doesn't base his program in ancient documents as the Hare Krishnas do, Wallace does believe that a truer science would result from reorienting Western scientific studies to incorporate a dramatically larger portion of the Buddhist worldview, essentially replacing five hundred years of materialistic scientific development with a more textured Buddhist science of the mind. Yet this identification of Wallace with the "replace" position needs further interrogation. It could also be argued that Wallace is closest to the position of the Unification Church, seeking to guide neuroscientists, doctors, and psychologists toward a fuller realization of their own goals (insight into the world, for the betterment of humankind) through the adoption of Buddhist methods and ideas. Once again, the problem of placing actual persons and traditions into ideal types points to issues of artificiality and arbitrariness that lurk in our scholarly attempts at classification.

Perhaps a final use—alluded to but not explicitly tackled thus far—should be mentioned before closing this examination. Whether promoting

Buddhism or hiding it, affirming scientific studies of meditation or questioning them, all of the authors included here are using meditation studies for personal and/or institutional gain. Many stand to make money from book and magazine sales, speaking tours, grants, and other direct sources of income that may be bolstered by their engagement with scientific studies of their religion. Some hope to increase adherence to Buddhism generally, their sectarian tradition specifically, or their individual group in particular, accruing benefits such as membership, status, and, of course, increased donations. While the scales may not be balanced, it is not just scientists and similar investigators who are profiting from scientific studies of meditation: Buddhists too, in their various modes of engagement, have found ways to potentially profit from the study of their traditional practices.

Buddhism provides resources for scientists, doctors, psychologists, and self-help authors, who extract from it practices and ideas that can be subjected to scientific testing. In turn, such scientific testing of meditation becomes fodder for Buddhists to use according to the needs of their particular positions and desires. Just as Buddhism is having a clear effect on science, psychology, and medicine, the scientific studies affect Buddhism, leading to new forms of expression, justification, and practice.

## NOTES

1. Articles in the *Time* special edition have named authors, while articles in the *Newsweek* and Science Classics issues are unsigned. However, *Mindfulness: An Everyday Guide* lists Alan and Robin di Perna as the co-editors and writers of the issue, so articles can be reliably attributed to them. The special issue of *Mindful* discussed below presents a similar situation: articles are unattributed, so I take them here to be productions of the entire staff working in concert, as with *Newsweek*.

2. This is a common approach for *Mindful*, not confined to this special issue: the August 2017 issue of *Mindful* available at the same time as the other magazines mentioned thus far likewise contained no mention of Buddhism whatsoever. It did, however, contain a feature interview with a liberal *Muslim*: apparently, religion is occasionally OK within the pages of *Mindful*, as long as it is progressive, and not Buddhist (Dawson 2017).

3. *Mindful* is a nonprofit magazine, so its success does not enrich its owners. But it does provide secure employment for staff and writers, who profit from its continuing prominence in the mindfulness industry.

4. Jōdo Shinshū encourages only spontaneous recitation of *nembutsu*—constant recitation such as Fujimoto performed is not a favored practice, as it invites ego-based effort and leans too close to formal meditation techniques that are anathema in this sectarian form of Buddhism.

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