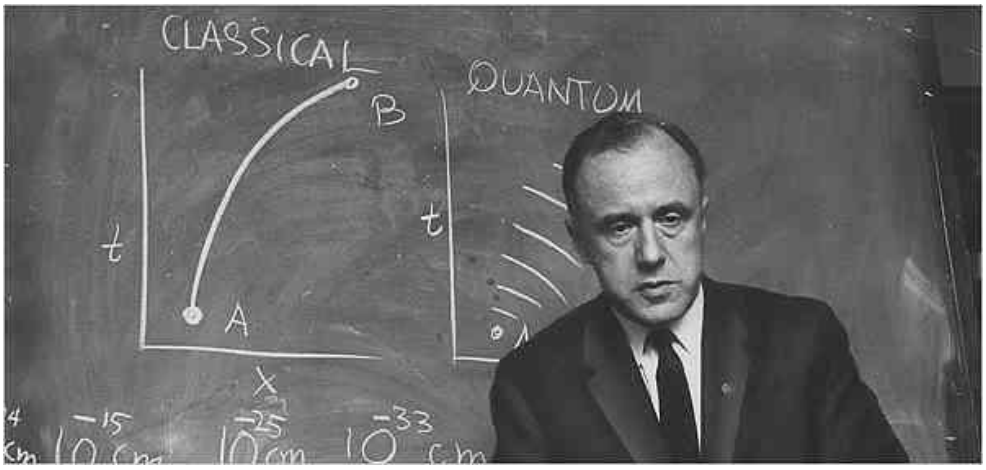
Article

The Quantum Truth of the Buddhist Metaphysics of the 'Two Truths' or 'Two Realities'

Graham P. Smetham*



* Correspondence: Graham Smetham, http://www.quantumbuddhism.com E-mail:graham@quantumbuddhism.com

Abstract

According to the 'Buddhist' writer Stephen Batchelor the core Buddhist doctrine of the 'two truths' or 'two realities' is a major mistake on the part of Buddhist practitioners and philosophers throughout the ages. Although this doctrine has been central to Buddhist thinking since the time of the Buddha, Batchelor says that it is a serious mistake, and is completely unscientific. This article show that it is Batchelor who is desperately mistaken because modern quantum theory has validated the metaphysical claim that the 'classical' or 'conventional' world is an illusion which is derived from the deeper quantum realm. Thus the division into the 'classical' realm and the 'quantum' realm maps onto the Buddhist distinction between the 'conventional' mode of reality and the 'ultimate' mode of reality. Far from Buddhist philosophy being 'unscientific', it is Batchelor who displays ignorance of modern science.

Keywords: Two truths, two realities, quantum-classical divide, Buddhist philosophy, Madhyamaka, Emptiness, Stephen Batchelor.

There seems to be a growing enthusiasm amongst a section of Western Buddhist practitioners for forging a more secular, modern and, in their eyes, more scientifically 'correct' form of Buddhism which purges the traditional forms of what is considered to be unscientific metaphysical beliefs such as karma and rebirth. Foremost, perhaps, amongst such modernisers is Stephen Batchelor, author of the books *Buddhism without Beliefs* and *Confession of a Buddhist Atheist*. According to Batchelor Buddhism requires 'major surgery'[1] in order to put it right. In fact, according to him, the Buddhism that has been handed down through *both* the canonical Theravada tradition and the more spectacular Mahayana formulations are so aberrant from what the Buddha actually taught that the kind of massive, 'heroic'[2] surgery that he thinks Buddhism requires means that it may not even survive. According to Batchelor within a couple of hundred years of the Buddha's death his followers, presumably due to intellectual incompetence, stupidity, a childish desire for a more interesting spiritual worldview, the inability to face the unpalatable facts of the mundane nature of existence, or some such motive, completely undermined his teaching. They did not just get it wrong in the odd detail; they actually turned it on its head, turned it virtually into the opposite teaching to that which the Buddha had given.

This is the message that Batchelor has forcefully promulgated in his recent book *Confession of a Buddhist Atheist*, and it is also a viewpoint held by some of the professors and researchers at the Oxford Centre for Buddhist Studies (OCBS). In 2010 OCBS held a conference on the possible interconnections between science and Buddhism[3]. I attended this conference and was struck by the strange flavour of materialism which seemed to underlie some of the presentations made by those associated with the Centre, although it must be made immediately plain that such tendencies were balanced by the presence of Alan Wallace, a Buddhist practitioner and writer known for his advocacy of the primacy of mind within the functioning of reality and the relevancy of the discoveries of modern science, especially quantum theory, for our understanding of some central Buddhist philosophical ideas such as 'emptiness'.[4]

The Oxford Centre has released the videos from the conference and tacked on to the end of this set there is an additional video of a discussion between systems biologist Professor Denis Noble, who was a speaker at the conference, and Stephen Batchelor. In this discussion Batchelor expounds his vision of materialist Buddhism. It is this discussion which provided the motivation for this paper.[5]

It is quite plain that there is a movement in the West to try and develop Buddhism as a possible candidate for a kind of 'secular religion,' to employ a phrase used by Batchelor. This thoroughly Westernized Buddhism would, it is hoped, provide a rational, humanistic, down to earth, which is to say non-metaphysical, everyday 'therapeutic pragmatism' shorn of any irritating 'mystico-poetical' religious overtones. And, in order to carry out this program of 'major surgery,' it seems that a group of Buddhist scholars, with views in line with Batchelor and Professor Richard Gombrich, the founder of OCBS, have decided to do what they consider to be serious 'objective' research into what the Buddha 'really' thought (*What the Buddha Thought* is the title of a book by Gombrich). When I was at the conference I gave a response to a speaker who claimed that Buddhist philosophy was anti-metaphysical in which I outlined the obviously metaphysical Yogacara Mind-Only Buddhist philosophy; during the following break I was taken aside by one of the professors who seriously told me that the Buddha did not really mean a lot of what he said and in reality he had been a hard headed materialist! I told him I thought the notion was ridiculous.

In this paper I shall show that it is those of the modernizing persuasion who are terribly mistaken. I shall primarily focus on the assertions made by Batchelor, and seemingly supported by Noble[6], regarding the Buddhist doctrine of the 'two truths', or the 'two realities.' According to Batchelor this central Buddhist doctrine was the 'single greatest disaster' in the development of Buddhist thought. I shall show that, on the contrary, it is the validation of this stunning Buddhist insight by modern quantum theory which shows us that the Buddha and subsequent Buddhist practitioner-philosophers down the ages had means of insight into the ultimate nature of reality which bypassed those employed by Western science. Buddhism asserted the mind-dependent illusion-like nature of the material world, a fact which only became apparent to science at the beginning of the twentieth century, two thousand five hundred years ago!

The fact that the claims made by Batchelor turn out to be based on ignorance of the central discoveries of modern science is of immense significance, and needs to be considered by all who are attracted to his seriously flawed notions, precisely because Batchelor is considered by many to be a crusader for a modern 'scientific' style of Buddhism. Thus an article posted on the Buddhist Geeks forum entitled *A Difficult Pill: The Problem with Stephen Batchelor and Buddhism's New Rationalists* refers to Batchelor as someone who "carries the torch of a scientific skeptic who is waging a campaign to do away with Buddhism's superstitions and false idols."[7] Batchelor himself mistakenly thinks that he is arguing his case from the perspective of modern science, thus when he is referring to his dislike of the Buddhist notion of 'rebirth' (which is not a reincarnation of a fixed unchanging 'self' but a continuation of an energetic continuum of mind-potential) he says that the notion:

> simply does not make sense to me. It's not coherent, and it seems to rest upon our adopting certain metaphysical views, namely that there is some part of our being that is separate, by nature, from the physical body that will continue into another life. And both in terms of what we currently understand through the natural sciences…[8]

But in making remarks such as this Batchelor displays his appalling ignorance of the modern 'natural sciences'. For anyone knowledgeable about the views of modern quantum physicists, who investigate the 'ultimate' layer of the apparently material world (it turns out not to be 'material'), the notion of both karma and rebirth is *entirely coherent* with what we know about the deepest level of the functioning of reality. This is not to say that quantum theory necessarily proves rebirth, although there are some quantum physicists who think that it does do this[9], but, as we shall see, all the evidence of the functioning of the quantum realm suggests the preeminence of the karmic mechanism of cause and effect operating at the quantum level and certainly makes the possibility of the Buddhist version of rebirth look entirely plausible.

The fact that Batchelor makes many of his statements on the basis of a deep ignorance is ironic as according to the central Buddhist doctrine of dependent origination ignorance is the first link in a chain of origination which leads to the continuation of the conditioned realm of *samsara*, the cycle of suffering and dissatisfaction. However, Batchelor has joined a hardy band of philosophers of various kinds who make ridiculously mistaken assertions about the nature of reality on the basis of deep ignorance. The quantum physicist Henry Stapp who has spent a lifetime researching the metaphysical implications of quantum theory writes concerning this:

> Philosophers of mind appear to have arrived, today, at less-than-satisfactory solutions to the mind-brain and free will problems, and the difficulties seem, at least prima facie, very closely connected with their acceptance of a known-to-be-false understanding of the nature of the physical world, and of the causal role of our conscious thoughts within it.[10]

The crucial phrase here is, of course, '*known-to-be-false*'. The astonishing fact is that, for some incomprehensible reason, the academic community has decided to allow some of its members, usually philosophers or purveyors of 'consciousness studies', to flagrantly misrepresent the truth of contemporary physics in order to defend obviously incorrect, pre-quantum metaphysical positions which are redolent of the worldview of the late nineteenth century. Because of this refusal to take on board the incontrovertible insights of modern science on the part of an extensive group of academics who wish to continue pontificating on the basis of ignorance, the general atmosphere of mistaken 'scientistic'-materialism provides a fertile ground for crude attacks upon subtle religious viewpoints such as those embodied within the Buddhist tradition. Purveyors of such nonsense consider themselves as being 'rational' but nothing could be further from the truth. As Stapp points out:

> …the re-bonding [between mind and matter] achieved by physicists during the first half of the twentieth century must be seen as a momentous development: a lifting of the veil. Ignoring this huge and enormously pertinent development in basic science, and proclaiming the validity of materialism on the basis of an inapplicable-in-this-context nineteenth century science is an irrational act.[11]

The extent of Batchelor's irrationality, sometimes verging on intellectual fraud, will become apparent during the course of this article.

Consider the following assertion by Batchelor which he makes in an interview on the 'Buddhist Geeks' forum:

> Now, one of the things that I think is central to the Buddha's teaching is that he is extremely suspicious of metaphysics and there are of course these famous

> questions that he refused to answer: Does the universe have a beginning? Does it have an end? Is it finite? Is it infinite? Are mind and body the same or are mind and body two separate things? And then the last four: Does the Tathagata exist after death or does he not exist after death? Now this latter one, I think, is being tampered with slightly. I think it's almost certainly the case that what the Buddha meant was "Does one continue after death or does one not continue to exist after death?" *Tathagata* was simply being the way he referred to himself. So in other words, it just means *one*.
>
> Now I think if you put those unanswered questions together, you'd get a picture of what, even today, remained as the big questions of life and death, and they're just as unanswered now, by science, as they were at the Buddha's time.[12]

These claims, together with the assertion that the Buddhist doctrine of the 'two truths' was the 'single greatest disaster' within the development of Buddhism, are also central in Batchelor's OCBS discussion with Denis Noble.

As we shall see, it is not true that the questions as to the 'ultimate' nature of reality and the universe are *as* "unanswered now, by science, as they were at the Buddha's time." We actually have some precise and astounding answers which validate some of the central insights of Buddhist philosophy, including the 'two truths'. One crucial insight is that, as Stapp says (in the following quote 'classical' indicates 'pre-quantum'):

> We live in an *idealike* world, not a matterlike world.' The material aspects are exhausted in certain mathematical properties, and these mathematical features can be understood just as well (and in fact better) as characteristics of an evolving idealike structure. There is, in fact, in the quantum universe no natural place for matter. This conclusion, curiously, is the exact reverse of the circumstances that in the classical physical universe there was no natural place for mind.[13]

In other words *there are* two levels of reality: the quantum and the emergent *apparently* material world. The first is an "evolving idealike" or "mindlike", to use another term used by Stapp, pool of potentiality for experiential existence, and the second resides in the experiences of sentient beings which emerge when they cognitively interact with the quantum pool of potentiality. These two levels can easily be shown to correspond to the Buddhist 'two truths' or 'two realities.'

Before looking into this remarkable convergence of perspectives, however, we shall address Batchelor's absurd and disingenuous treatment of the term '*Tathagata'*, which is generally translated as 'one gone to thusness (*tathata*)'. This term as used in the Pali Canon is clearly an epithet of the Buddha and is by implication also applied to other 'liberated' or 'enlightened' individuals. A sentient being who has accomplished 'enlightenment' becomes a *tathagata*, one who has 'gone to thusness.' According to Wikipedia the term *tathagata*:

> means, paradoxically, both *one who has thus gone* (*tathā-gata*) and *one who has thus come* (*tathā-āgata*). Hence, the Tathagata is beyond all coming and going – beyond all transitory phenomena.

For the Batchelor version of Buddhism, however, the notion of an experiential-ontological realm of 'thusness' or *tathata*, which is experientially-ontologically 'beyond all transitory phenomena', is contrary to the Buddha's teaching. In the preceding observation it is necessary to be aware that the term 'ontology' has a subtly but radically different meaning in Buddhist metaphysics, hence the term 'experiential-ontological' has been used, indicating

that experience and ontology interpenetrate. This metaphysical viewpoint can be elucidated by 'epiontic' – epistemology 'creates' ontology – quantum theory. The point here is that the manner in which sentient beings cognitively interact with the quantum realm of potentiality actually creates the 'ontology' that they experience, collectively this quantum 'epiontic' mechanism actually creates the apparently material world. This process occurs at a very deep quantum level of reality. And it is precisely because the manner of cognition determines ontology that the doctrine of the 'two truths' or 'two realities' becomes correct metaphysics from a quantum point of view, as well, of course, as from a Buddhist point of view. A radically transformed consciousness will 'epiontically' produce a radically transformed experiential-ontology.

Batchelor misleadingly tells us that the Buddha was "extremely suspicious of metaphysics", whereas in fact the Buddha was actually 'suspicious' of dogmatically mistaken metaphysical positions such as the ones that Batchelor enumerates. As we shall see the actual epiontic-metaphysical nature of reality is so remarkably subtle and counter intuitive that for many years quantum physicists could barely believe the results of their experiments. However, because Batchelor denies the Buddha's assertion that there is a experiential-ontological realm of experientially nondual enlightenment, to employ one possible description, when the term '*Tathagata*' crops up during the Batchelor-Noble video a subtitle pops up misinforming the viewer that the term *Tathagata* means 'one who is just so,'[14]

When we look at the way the term is used in the Pali Canon it is quite clear that Batchelor is far from enlightened on this issue. The following is from the 'Buddha Sutta' in the *Samyutta Nikaya* (SN 22.58), translated from the Pali by Thanissaro Bhikkhu:

> The Tathagata — the worthy one, the rightly self-awakened one, who from disenchantment with feeling ... perception ... fabrication, from dispassion, from cessation, from lack of clinging *(for feeling ... perception ... fabrication)* is released — is termed 'rightly self-awakened.' And a discernment-released monk — who from disenchantment with feeling ... perception ... fabrication, from dispassion, from cessation, from lack of clinging *(for feeling ... perception ... fabrication)* is released — is termed 'discernment-released.'[15]

This would seem to indicate that the term '*Tathagata*' indicates a 'rightly self-awakened one, not just a 'one' or 'one who is just so' as Batchelor claims. In the *Sutta Nipata* (Snp 2.1-Ratana Sutta: Treasures) we read:

> The exquisite Deathless — ending, dispassion — discovered by the Sakyan Sage in concentration: There is nothing to equal that Dhamma. This, too, is an exquisite treasure in the Dhamma. By this truth may there be well-being. What the excellent Awakened One extolled as pure and called the concentration of unmediated knowing: No equal to that concentration can be found. This, too, is an exquisite treasure in the Dhamma. By this truth may there be well-being. The eight persons — the four pairs — praised by those at peace: They, disciples of the One Well-Gone, deserve offerings. What is given to them bears great fruit. This, too, is an exquisite treasure in the Sangha. By this truth may there be well-being.[16]

Here the Buddha clearly indicates the experiential-ontological 'existence' (the kind of 'existence', which is 'beyond' the usual notion of existence, will be elucidated shortly) of the 'realm' of the 'Deathless' which appears to be the experiential-ontological realm to which the 'One Well-Gone' has 'gone'. In the translation of the same sutta by Piyadassi Thera we read:

> Whatever treasure there be either here or in the world beyond, whatever precious jewel there be in the heavenly worlds, there is nought comparable to the Tathagata (the perfect One). This precious jewel is the Buddha. By this truth may there be happiness.[17]

Here we do find Piyadassi Thera translating '*Tathagata*' as 'One', but not 'one who is just so', the *Tathagata* is 'the perfect One'. Again, in the *Samyutta Nikaya* (SN 22.86 - Anuradha Sutta) we read:

> Friends, the Tathagata — the supreme man, the superlative man, attainer of the superlative attainment — being described, is described otherwise than with these four positions: The Tathagata exists after death, does not exist after death, both does & does not exist after death, neither exists nor does not exist after death.[18]

Here again the notion of the *Tathagata* clearly seems connected to some kind of attainment, a 'superlative attainment' which transforms 'the attainer of the superlative attainment' into 'the supreme man'.

Furthermore here we have an indication of the paradoxical existential configuration of the state of the *Tathagata* after death which is 'otherwise' than existence, non-existence, both of these, nor neither of these. As we shall see this existential configuration corresponds exactly to the existential configuration of the ground of quantum potentiality, which is why physicist Robert Oppenheimer said regarding the existential condition of an electron (a quantum 'particle') that:

> If we ask, for instance, whether the position of the electron remains the same, we must say 'no;' if we ask whether the electron's position changes with time, we must say 'no;' if we ask whether the electron is at rest, we must say 'no;' if we ask whether it is in motion, we must say 'no.' The Buddha has given such answers when interrogated as to the conditions of man's self after his death; but they are not familiar answers for the tradition of seventeenth and eighteenth-century science.[19]

This existential configuration later became central as the tetralemma of Madhyamaka Buddhism which was explained by the Madhyamika master Bhavaviveka (1st-2nd century) as the character of 'ultimate' reality, or 'emptiness' (*shunyata*), in the following terms:

> Neither existent, nor nonexistent, Nor both existent and nonexistent, nor neither.
> …true reality …is free from these four possibilities.[20]

How remarkable that this exactly describes the nature of quantum reality.

The following is from science writer Marcus Chown's book *The Never-Ending Days of Being Dead*, which contains entertaining elucidations of cutting edge physics:

> So, what of a water droplet that hovers half in existence and half out of existence? It goes without saying that nobody has actually seen such a schizophrenic water droplet … Where does the quantum weirdness go.[21]

Here Chown clearly indicates that the condition of hovering between existence and non-existence is precisely the nature of 'quantum weirdness'. So it is somewhat remarkable that the Madhyamaka asserts that the 'empty' nature of reality, which is indicated by the fact that the ultimate nature of reality is a hovering between existence and non-existence, is essential for the universe to function:

> If things were not empty of inherent existence, nothing could function…It is their emptiness of inherent existence that allows everything to operate satisfactorily.[22]

In the light of this assertion that emptiness, the fundamental hovering between existence and non-existence, is essential for the manifestation of the world of experience, we might ask whether there is anything within quantum physics that corresponds to this claim. In a recent work the science writer Michio Kaku tells us that:

> The reason why molecules are stable and the universe does not disintegrate is that electrons can be in many places at the same time. ….electrons can exist in parallel states hovering between existence and non-existence.[23]

The ability of a quantum particle to be in two places at the same time, whilst still maintaining an identity as a single entity, is a feature of quantum behaviour that is absolutely crucial for the functioning of reality. It is a primary feature of the quantum world that from a 'classical' pre-quantum perspective should be completely impossible. However, the fact that quantum entities are fundamentally wave-like makes this magical trick, which is given the name 'delocality', inevitable.

Batchelor, however, thinks he is more enlightened about what the Buddha really meant than anyone else, according to him the paradoxical presentation of the existential hovering between 'extremes' of existence 'is being tampered with slightly', the issue of the Tathagata's existence after death is simple and mundane, as is all Buddhism when viewed through the perspective of Batchelor's enlightenment:

> I think it's almost certainly the case that what the Buddha meant was "Does one continue after death or does one not continue to exist after death?"

But if this is the case why would the Buddha resort to such a bizarre formulation of the after death state of an enlightened being– neither existent, nor non-existent, nor both, nor neither, a formulation which is repeated frequently even in the Pali Suttas? And, remarkably, conforms precisely to the paradoxical realm of the quantum ground.

None of the foregoing remarks and observations from the Pali Canon make any sense on the mundane understanding suggested by Batchelor. For the Batchelor Buddhist worldview the Buddha never taught the possibility of a spectacular transformation of consciousness. If we characterise what his viewpoint considers to be the inspirational legacy of the 'genius' of the Buddha, for indeed Batchelor says he considers him to have been such, in modern terms, we might say that he taught nothing more than a method of remaining calm and peaceful whilst doing a tax return.

One can only wonder, then, just what the Buddha meant when we read in the *Udana* that he expressed the realm of the unconditioned, the nondual ground from within which the illusion of duality arises, in inspirational language:

> There is that dimension where there is neither earth, nor water, nor fire, nor wind; neither dimension of the infinitude of space, nor dimension of the infinitude of consciousness, nor dimension of nothingness, nor dimension of neither perception nor non-perception; neither this world, nor the next world, nor sun, nor moon. And there, I say, there is neither coming, nor going, nor staying; neither passing away nor arising: unestablished, unevolving, without support. This, just this, is the end of stress.[24]

The removal of 'stress' that is described here seems far more radical that just that of a calm everyday mind whilst filling in forms, although that may be one aspect of the advantages gained by enlightenment. The radical nature of the 'ultimate' realm is indicated in other passages:

> There is, monks, an unborn, an unbecome, an unmade, unfabricated. If there were not that unborn, unbecome, unmade, unfabricated, there would not be the case that emancipation from the born, become, made, fabricated would be discerned. But precisely because there is an unborn, unbecome, unmade, unfabricated, emancipation from the born, become, made, fabricated is discerned.[25]

Even in the Pali suttas it appears, then, that the Buddha clearly indicated the existence of a *radically* different experiential realm which from the description is clearly 'beyond' the realm of the conditioned. The doctrine of the two truths, then, would seem central from the very start; unless, of course, as Batchelor claims, the later deluded followers of the Buddha fabricated the unfabricated!

In a talk by Gombrich entitled *Kindness and Compassion as means to Nirvana in Early Buddhism* Gombrich poses the question: 'Can an outsider tell people about their religion?' and provides his own answer:

> …historians and textual scholars, once they are equipped with the tools of their trade, such as the knowledge of languages, can legitimately ask quite different questions: what did historical events mean to the original participants; what did texts mean to those who composed them, or to their earliest audiences? To such questions we are under no obligation to accept the answers of those who stand in the relevant tradition, even though we must be ready to learn from them, as indeed from anyone at all who has anything relevant to tell us.[26]

In other words if historical and philological investigation suggests to an 'outsider' scholar that the 'original' words may have had other connotations, connotations which are usually more in line with the worldview of the 'outsider' in question, then such an 'outsider' is perfectly at liberty to ignore what a current practitioner of the 'relevant tradition' tells him. And this seems to apply no matter how accomplished an 'insider' of the 'relevant tradition' might be considered to be by his fellow practitioners.

On the basis of historical and philological research Batchelor and others consider that once the Buddha supposedly attained his final nirvana at his death (actually it would seem that they do not really think such an event – i.e. nirvana – actually occurred or is possible) then very quickly it must have become the case that no further practitioners achieved such a state of dramatic enlightenment, because it never actually occurred. It's all fiction! This also entails that they consider all the supposedly enlightened, or at least on their way to enlightenment, masters of Mahayana or Theravada lineages: Nagarjuna, Vasubandhu, Kamalashila, Atisha, Shantarakshita, Longchenpa, Naropa, Tsongkhapa, Gampopa, Dolpopa, Ajahn Mun, Ajahn Chah, just to name a tiny few, to have been seriously deluded, or, worse still, fraudulent.

The extraordinary Thai meditation master Ajahn Chah, in one of his extemporary inspirational Dharma talks that he was famous for, spoke of the necessity of becoming familiar with a deeper level of fundamental awareness, a level of awareness which he clearly considered to be more 'ultimate':

> Whatever we experience, it all arises within this knowing. If this mind did not exist, the knowing would not exist either. All this is phenomena of the mind. … the mind is merely the mind. It's not a being, a person, a self, or yourself. Its neither us nor them. …The natural process is not oneself. It does not belong to us or to anyone else. It's not any thing.[27]

And:

> This mind is free, brilliantly radiant, and unentangled with any problems or issues… In the beginning what was there? There is truly nothing there. It doesn't arise with conditioned things, and it doesn't die with them.[28]

Ajahn Chah gives some idea of the dramatic nature of what is perhaps a direct experience of the nondual nature of the ground of reality as follows:

> …just before my head hit the pillow, the mind's awareness began flowing inward; I didn't know where it was headed, but it kept flowing deeper and deeper within. It was like a current of electricity flowing down a cable to a switch. When it hit the switch my body exploded with a deafening bang. The knowing at that time was extremely lucid and subtle. Once past that point the mind was released to penetrate deeply inside. It went inside to the point where there wasn't anything at all. Absolutely nothing from the outside world could come into that place. Nothing could reach it.[29]

According to the worldview of the Ajahn, a worldview which, if we take the Batchelor viewpoint seriously, can only be deluded, this is a description of an experience of the nondual, or close to nondual, mind. It gives an indication that, in the deeper reaches of mind beneath the dualistic overlay there lies an extraordinary quality of deep powerful awareness which resides within the ground of reality. It is this quality of the nondual ground which is the wisdom-awareness that is the target of the various paths of transformation described by Buddhism:

> Without a centre, without an edge,
> The luminous expanse of awareness that encompasses all-
> This vivid, vast brightness:
> Natural, primordial presence.
> Without an inside, without an outside,
> Awareness arisen of itself, as wide as the sky,
> Beyond size, beyond direction, beyond limits-
> This utter complete openness:
> Space, inseparable from awareness.
> Within that birthless wide-open expanse of space,
> Phenomena appear-like rainbows, utterly transparent.
> Pure and impure realms, Buddhas and sentient beings
> Are seen brilliant and distinct.
> As far as the sky pervades, so does awareness.
> As far as awareness extends, so does absolute space.
> Sky, awareness, absolute space,
> Indistinguishably intermixed:
> Immense, infinitely vast-
> The ground of samsara,
> The ground of nirvana.

To remain, day and night, in this state-
To enter this state easily-this is joy.[30]

According to the SB (Stephen Batchelor) vision of reality, however, this can be nothing more than deluded gibberish. According to SB the view of the 'primacy of mind' was a view which the Buddha *rejected*. In an astonishingly implausible reformulation, which goes against the core teachings of all schools of Buddhism down the ages, and also contradicts the evidence of central Pali Suttas, Batchelor tells us that the Buddha did not advocate the rigorous investigation of the nature of mind, he just told his followers to investigate the details of 'ordinary mundane reality.'

According to SB the entire edifice of Buddhist practice and philosophy since shortly after the time of the Buddha has been nothing other than a vast delusion echoing down over two thousand years of (pseudo-) spiritual practice. And, if the SB vision were to be correct, the multitude of deluded Buddhist frauds teaching across the centuries have, adding insult to injury, suggested that it was the common herd, so to speak, those who believed in the full 'reality' of the material world as existing independently of mind, who were the deluded ones. For, according to the central Cittamatra (Mind-Only) and Madhyamaka (Middle Way) presentation of the ontological/metaphysical structure of reality, the appearance of the 'conventional,' or 'seeming' realm of the everyday world is an 'illusion,' an illusion which conceals the true 'ultimate' nature of reality.

Buddhist scholar Jeffrey Hopkins, for instance, refers to a *samvrti satya*, a 'conventional truth', as a 'concealer of suchness,'[31] a misleading mode of 'reality' which covers the true 'ultimate' reality, which is *tathata* or 'suchness,' the direct and pure nondual experiential essence of reality. This 'ultimate' realm of *tathata* is experienced only by realized yogins:

Thus two kinds of world are seen:
The one of yogins and the one of common people.
Here, the world of common people
Is invalidated by the world of yogins.[32]

Thus the metaphysical structure of the non-SB, mainstream Buddhist worldview asserts two interpenetrating but radically different perspectives or 'realities' within Reality, the 'seeming' and the 'ultimate.' Furthermore a direct non-conceptual realization of the latter activates enlightenment, which is the final goal of dualistic existence. This viewpoint requires a metaphysical structure of reality within which the dualistic world is a deceptive veil hiding the ultimate nondual nature of reality. The correctness of this view is suggested by the fact that physicist and Buddhist practitioner Victor Mansfield has clearly indicated that modern quantum physics constitutes an 'experimental metaphysics[33]' precisely because *quantum physics has penetrated the veil of the material world to what lies beyond.* In fact quantum physics has clearly shown the significance of the notion of 'the two truths,' precisely because it turns out that the 'material' world *is an illusion*.

The notion of 'metaphysics' as a philosophical endeavour within the Western tradition had as its central concern the determination of the 'ultimate' nature of the seemingly external world of materiality; at its most basic the core issue was that of the ultimate nature of the world: 'Matter', 'Mind' or both? In the time when this question was central for Western philosophical thought physics was what is now called 'classical' physics, the investigation and description of the Newtonian edifice of reality. So, when quantum mechanics first discovered a mode of existence radically at variance with the 'billiard ball' Newtonian

façade of materiality, physics had penetrated through the surface of the material world to see a more 'ultimate' nature which lies 'beyond'. Thus Victor Mansfield tells us:

> We can now demonstrate that 'quantum moons' do not exist when unobserved. Such 'experimental metaphysics' has an extraordinary resonance with the Middle Way Buddhist principle of emptiness…[34]

Mansfield uses the term 'quantum moons' here in reference to a question that Einstein once posed to a colleague as to whether the moon existed when no one was looking at it. The point is that it has been shown quite clearly that quantum 'entities' do not 'exist' when not being observed. Furthermore quantum physics has now shown that consciousness is an essential factor in 'creating' existence out of an indeterminate realm of quantum potentiality, a realm which can be shown to be equivalent in ontological nature to the Buddhist concept of 'emptiness' (*shunyata*).

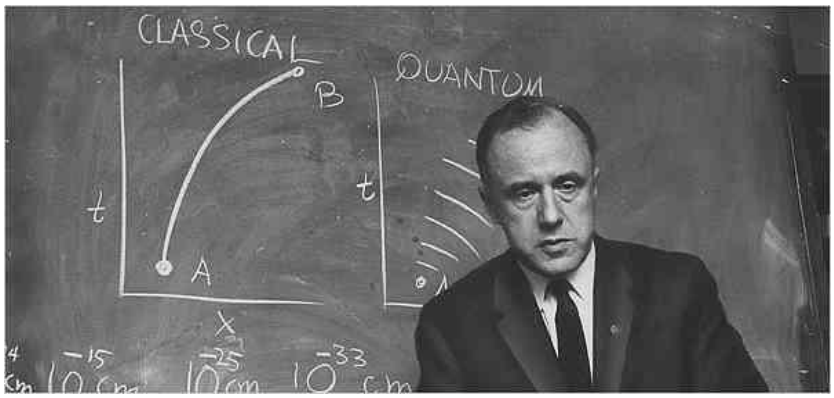


Figure 1 - The 'two truths' according to John Wheeler

The photo shows Professor John Wheeler in mid flow of explaining the 'two truths' as discovered by quantum theory: the 'classical' realm and the 'quantum' realm. On the left of the photo the blackboard drawing shows a 'classical' size object moving between two points. At every point in time it has a definite position and it therefore seems to follow a definite trajectory between the points. In other words it behaves like an everyday object. The section of the blackboard drawing behind Wheeler's head indicates the situation at the quantum level; quantum 'entities' behave in a completely different and counter-intuitive manner; they spread out or 'smear out' over increasingly large areas and fade into a ghostly semi-existence of potentiality. Such 'entities' only recover their full entity-ness when they are observed. When unobserved quantum entities really are not 'entities,' they are a 'smeared out' potentiality fields of possible entity experience.

The quantum physicist Professor Henry Stapp, who is one of the few physicists still around who discussed such 'experimental metaphysical' issues with some of the 'founding fathers' of quantum theory, says that the central distinguishing feature between these two physical 'truths' is that on the 'classical' level motions are 'apparently independent of our human observations of them.'[35] The important word in this observation is '*apparently*', a word we could equally replace with 'seemingly', so the 'classical' level, or 'truth', has been clearly established by physics as a 'seeming' reality. It is a 'seeming' appearance of an independent material world of Newtonian objects, an appearance which, when analyzed from the perspective of quantum theory, is found to emerge from a deeper, more 'ultimate', quantum level through the operation of consciousness, although not necessarily individual

consciousness. These 'two truths' of modern physics map seamlessly onto the Buddhist version:

> The seeming and the ultimate-
> These are asserted as the two realities.
> The ultimate is not the sphere of cognition.
> It is said that cognition is the seeming.[36]

Quantum physics, then, has unmasked the same metaphysical structure of reality asserted by Buddhist philosophers down the ages, a metaphysical structure which is at least implicit in the early teachings of the Buddha as contained in the Pali presentation.

According to SB the Buddha was not at all concerned with metaphysical knowledge but was thoroughly 'pragmatic'. Towards the end of the discussion with Noble he says that with regard to one of the questions that the Buddha refused to answer: whether the mind and body were separate or identical, that the Buddha's view was that we could never know such a thing, the Buddha, says SB, told us 'don't go there'. But this is incorrect. As SB himself clearly states in the earlier part of the discussion, the Buddha did not say that he did not know the answers to these questions, he indicated that being obsessed with such issues was not conducive to enlightenment. So, whilst it is true that the Buddha did indeed demonstrate an intensely 'pragmatic' streak with regard to giving out the information required for the pursuit of the goal of the spiritual task, information often formulated with the mental tendencies and capacities of the person or persons concerned, he did not indicate that metaphysical issues were completely beyond the pale.

Indeed in the Sisapavana Sutta we read that the Buddha asked his followers to compare the quantity of leaves in his hand to the quantity in the forest. The monks reply that there are abundantly more leaves in the forest, to which the Buddha replies:

> It is so indeed, monks. In the same way, vast is the knowledge that I have directly realised but not revealed. But why did I not reveal it? [37]

The Buddha explained that it was because such knowledge was not conducive to liberation from the sufferings pertaining to the endless round of births and deaths. The implication clearly is that the Buddha probably did know quite a lot about metaphysical issues and, furthermore, as I have shown in the companion article *The 'Epiontic' Dependently Originating Process of Cyclic Existence According to Early Buddhist Metaphysics*, he gave clear indications as to answers to these metaphysical issues.

According to the mainstream, non-SB, Buddhist metaphysical perspective there is an 'ultimate' experiential realm which, although not physically separate from the everyday realm experienced by unenlightened sentient beings, is experientially and therefore ontologically distinct from the usual dualistic mode of perception and experience. The radical nature of the mode of experiencing reality which comes into operation when a sentient being becomes 'enlightened,' and thereby experiences reality as it actually is in its nondual 'heart,' is further indicated by the following description by Zen master Hung Po:

> This pure Mind, the source of everything, shines forever and on all with the brilliance of its own perfection. But the people of the world do not awake to it, regarding only that which sees, hears, feels and knows as mind. Blinded by their own sight, hearing, feeling and knowing, they do not perceive the spiritual brilliance of the source substance. If they would only eliminate all conceptual

> thought in a flash, that source substance would manifest itself like the sun ascending through the void and illuminating the whole universe without hindrance or bounds.[38]

This Mind-Only (*Cittamatra*) account describes a mode of experiencing the world from a nondual state of awareness which is not 'blinded' by identification with the sense faculties and the dualistic mind. We can think of the dualistic sense faculties and their experiences and the operations of the dualistic mind as 'floating' within a field of deep nondual awareness. Furthermore, if, as seems to be the case, the quantum level is of the nature of consciousness or mind, then it is quite natural to suppose that quantum physics reveals the 'objective' face of such a deep nondual awareness. It could indicate the move-ments of a universal Mindnature constructing the 'illusion' of the material world.

This deeper nondual level is hidden from the minds of unenlightened beings like an unknown treasure under one's home:

> Though devoid of a self of phenomena and persons, is thusness, self, and pure self,
> Though beyond the extremes of existence and non-existence, permanence and annihilation, resides as just permanent, stable and everlasting,
> Though without the nature of things, is the natural clear light,
> That which is to be known like a great treasure under ones own home…[39]

This is a description of the hidden realm of *tathata,* 'thusness' or 'suchness,' the direct nondual experiential 'taste' of reality.

SB considers that the doctrine of the 'two truths' was the 'single greatest disaster' within the development of Buddhism. The problem for this claim, however, is that modern science has supported this two-tier counter-intuitive view of the 'illusory' material world and a more 'ultimate' concealed realm in a spectacular fashion. The quantum gravity theorist Lee Smolin, for instance, tells us that a necessary implication of quantum theory is that:

> How something is, or what its state is, is an illusion. It may be a useful illusion for some purposes, but if we want to think fundamentally we must not loose sight of the essential fact that 'is' is an illusion.[40]

Indeed, whereas Madhyamaka and Cittamatra thought, and early Buddhist thought also, agrees with Smolin and considers the edifice of the seemingly 'material' world to be an 'illusion', quantum physicist Erich Joos goes even further:

> The disturbing dichotomy between quantum and classical notions was only a delusion.[41]

In this assertion the term 'classical notions' indicates the appearance of the seemingly 'material' world; an appearance which manifests from the deeper quantum realm which according to quantum field theory is completely non-substantial. In fact at the very base of the quantum description of the physical world, which is 'embodied' (although the metaphor is slightly inappropriate in this context) within quantum field theory there is no substantiality whatsoever, the quantum field is actually 'empty' of substance. The following is from a recent work on quantum physics:

> Now, from a philosophical point of view, this is rather big stuff. Our whole manner of speech … rather naturally makes us think that there is some stuff or *substance* on which properties can, in a sense, be glued. It encourages us to imagine taking a

> particle and removing its properties one by one until we are left with a featureless 'thing' devoid of properties, made from the essential material that had the properties in the first place. Philosophers have been debating the correctness of such arguments for a long time. Now, it seems, experimental science has come along and shown that, at least at the quantum level, the objects we study have no substance to them independent of their properties.[42]

There is no substantiality within quantum field theory; it is a theory whose objects 'have properties but not substances'.[43]

This fact, that the seemingly 'material' world is ultimately non-substantial, was clearly known to all phases of Buddhism:

> These phenomena are like bubbles of foam …
> Like illusions, like lightening in the sky,
> Like water-moons; like mirages.[44]

And here is the formulation concerning the illusion-like nature of the material and immaterial world from the *Phena Sutta* which contains the seeds of later Mahayana metaphysical exuberance:

> Form is like a glob of foam; feeling, a bubble; perception, a mirage; [mental formations], a banana tree; consciousness, a magic trick …. However you observe them, appropriately examine them, they're empty, void to whoever sees them appropriately. Beginning with the body as taught by the One with profound discernment: when abandoned by three things — life, warmth, & consciousness — form is rejected, cast aside. When bereft of these it lies thrown away, senseless, a meal for others. That's the way it goes: it's a magic trick, an idiot's babbling. … No substance here is found.[45]

The following comes from the eleventh century *Book of Kadam*:

> Now I shall cast to the winds concepts of solid objects with mass[46].

And:

> This world of deceptive conventions is a lie; …
> Since these manifestations without existence are devoid of core …
> All things are but mere appearances …
> Even should the entire world surround me
> And argue against me, claiming that phenomena are real,
> I … would find them the greater laughingstock.[47]

Here the Buddhist practitioner and philosopher Dromtonpa vigorously proclaims that external, independent, self-powered, 'real,' by which he means independent of mind, solid and inherently massive objects do not *ultimately* exist in the way that they appear to. In other words the eleventh century Buddhist thinkers had figured out that the very impressive and imposing illusion of a completely independent 'material' reality, an apparently external to consciousness structure of 'matter' which has its own internal 'solid' 'mass' was 'devoid of core' and devoid of independent internal mass.

This completely counter-intuitive, and from the perspective of everyday experience clearly insane, claim has now been completely vindicated by modern physics. As Nobel Prize winner Professor Frank Wilczek writes in his wonderful book *The Lightness of Being*:

> Matter is not what it appears to be. … The mass of ordinary matter is the embodied energy of more basic building blocks, themselves lacking mass.[48]

And in his essay for the recent collection of cutting edge quantum physics essays *Science and Ultimate Reality* Professor Anton Zeilinger, a physicist responsible for some of the most delicate quantum experiments currently possible, refers to the pre-quantum viewpoint as involving 'the obviously wrong notion of a reality independent of us.'[49] In other words the 'classical' notion that matter is independent of mind is incorrect.

The current division within physics between the 'classical' realm, which is the seemingly 'objective' structure of materiality which *appears* to be independent of mind, and the *insubstantial and mind-like quantum realm* maps seamlessly onto the Madhyamaka doctrine of the two truths: the 'conventional' or 'seeming' truth of the way the 'conventional' realm *seems* to exist and the 'ultimate' truth of the way that it actually does exist. Furthermore, the *Yogacara-Cittamatra* Mind-Only account of the *alayavijnana*, or ground consciousness, which we may consider to consist of deep levels of increasingly nondual awareness underlying the world of duality, provides a remarkable account of how the quantum realm functions to produce the 'illusion,' or 'delusion' of the material world; an account which interlaces with the latest 'epiontic' and other quantum perspectives (see the article 'The Myth of Mind Independent Reality').

Quantum theory has vindicated the Mind-Only Buddhist perspective at the ground level. Ever since the time of Descartes, when the ontological fabric of reality was rent asunder into the antithetical and seemingly irreconcilable realms of Mind and Matter, the relationship between these two primary categories of our experiential world has been a matter of much mind-searching. However, it looks as if the final answer to this conundrum will not be determined by philosophy but has been decided by physics, although very few Western philosophers have taken appropriate note of this fact.

Sir Roger Penrose, however is quite aware of the powerful nature of the experimental evidence of quantum physics that clearly suggests that:

> At the large end of things, the place where 'the buck stops' is provided by our *conscious perceptions*.[50]

And in his massive tome *The Road to Reality*, he makes the following observations:

> …almost all the 'conventional' interpretations of quantum mechanics ultimately depend upon the presence of a 'perceiving being'…[51]

And:

> The issue of environmental decoherence … provides us with a merely stopgap position … 'lost in the environment' does not literally mean that it is *actually* lost, in an objective sense. But for the loss to be subjective, we are again thrown back on the issue 'subjectively perceived – by whom?' which returns us to the consciousness-observer question.[52]

And:

> …the behaviour of the seemingly objective world that is actually perceived depends on how one's consciousness threads its way through the myriads of quantum-superposed alternatives. In the absence of an adequate theory of conscious observers, the many-worlds interpretation must necessarily remain incomplete.[53]

And:

> As far as I can make out, the only interpretations that do *not* necessarily depend upon some notion of 'conscious observer' … require some fundamental change in the rules of quantum mechanics…[54]

Where ever we look the quantum 'observer' seems to be looking back! In fact John Wheeler was so convinced that sentient beings were agents of the universe looking at itself that he used the following graphic to dramatise his quantum insight.

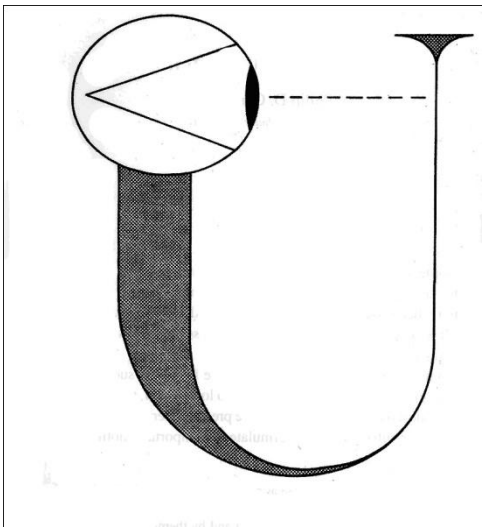


Figure 2 - John Wheeler's Self-Perceiving Universe graphic

Quantum physicist Wojciech H. Zurek supports Penrose as follows:

> …while the ultimate evidence for the choice of one alternative resides in our elusive "consciousness," there is every indication that the choice occurs much before consciousness ever gets involved.

Figure 3 shows Zurek's version of the 'two truths' according to quantum theory. The 'alternatives' he mentions in the above quote refers to the quantum possibilities which 'exist' prior to observation. And here, again, we find that in some way which alternative is 'chosen' depends upon consciousness, but not necessarily a single consciousness. The material world emerges from a much deeper level of consciousness. But this is exactly what one would expect if the seeming material world is, as Wheeler suggests, a collective illusion built up over vast time scales through the perceptual activities of all sentient beings.

This is a view which resonates with the Buddhist assertion that the material world is actually a karmically created collective illusion:

> The entire world was created through latent karmic imprints. When these imprints developed and increased, they formed the earth, the stones, and the seas. Everything was created through the development or propagation of these latent karmic potentials.[55]

The mechanism of karma lies at the centre of the process of embodied existence. Sentient beings are karmic beings, the very nature of their embodied existence means that their function within the process of reality is to act and subsequently experience the results of those actions. And this view of the nature of the central role of a person within the process of reality finds a remarkably precise echo from quantum theory. As Stapp describes one of his central conclusions from a lifetime of pondering the mystery of the quantum revelation:

Figure 3 – The 'two truths' according to Wojciech Zurek

> According to the orthodox interpretation, these interventions are probing actions *instigated by human agents who are able to 'freely' choose which one, from among the various probing actions they will perform*. … The concept of intentional actions by agents is of central importance. Each such action is intended to produce an experiential feedback.[56]

This does not mean however that any one individual can affect gross material reality; it is a multitudinous collective construction. Within the Buddhist perspective karma is the central mechanism which drives the process of the wheel of existence within the realm of the dualistic world; actions and subsequent effects make up the process of dualistic experience on all levels of reality. Remarkably this view finds a deep resonance at the level of the micro-scopic foundations of the process of reality within the discoveries of quantum physics.

Professor Stapp is very adamant about the ultimate non-existence of 'matter':

> …no such brain exists; no brain, body, or anything else in the real world is composed of those tiny bits of matter that Newton imagined the universe to be made of.[57]

An assertion which dramatically echoes the Heart Sutra:

> Therefore, Sariputra, in emptiness there is no form, nor feeling, nor perception, nor impulse, nor consciousness; No eye, ear, nose, tongue, body, mind; No forms, sounds, smells, tastes, touchables …

By his quantum physics based assertion Stapp is emphasizing the fact that the quantum realm is primary; there is no 'Newtonian' type matter ultimately in existence, its all quantum stuff. And an ontologically non-existent aspect of reality cannot be ontologically causal. With regard to Cartesian-Newtonian type of matter, which classical physics *thought* existed, Stapp tells us that:

> One might try to interpret the 'matter' occurring in this formula as the 'matter' that occurs in classical physics. But this kind of 'matter' does not exist in nature.[58]

Physicists do talk about 'ultimate particles' as if tiny little balls of real material 'stuff ' had been discovered, tiny little balls whizzing around each other which also club together to construct the entire universe. Such a picture of ultimately existent particles of 'matter', so easily, and misleadingly, presented by some physicists is, however, completely false. The particles of this physical model only appear in relation to a measurement performed by human consciousness; they are a manifestation of an interaction of consciousness and a hidden ground of potentiality which must exist at the quantum level. The Madhyamaka describes the situation:

> They are without nature, just like space,
> But since they come about due to mere dependent origination,
> They are not utterly nonexistent,
> Similar to cause and effect in dreams.[59]

This is actually a precise description of the nature of what physicists call subatomic particles, and also atomic level entities, and therefore also all phenomena. They do not have an independent 'nature' of their own because they originate due to an interaction of interdependent aspects of reality, including consciousness. Because of this they can said to be a 'matter' of 'dependent origination,' which is another central Buddhist teaching which Batchelor tries to debunk, but now shown to lie at the heart of reality. Atomic phenomena are not 'utterly nonexistent' because they do appear under the appropriate conditions; but neither are they fully and independently existent because without the necessary causes and conditions they do not appear. Their essential nature seems more akin to the phenomena of dreams rather than a solid independent reality. Indeed the quantum physicist Wojciech Zurek describes the quantum realm as the 'dream stuff is made of.'[60]

According to Zurek:

> quantum states, by their very nature share an epistemological and ontological role – are simultaneously a description of the state, and the 'dream stuff is made of.' One might say that they are *epiontic*. These two aspects may seem contradictory, but at least in the quantum setting, there is a union of these two functions.[61]

And in this assertion, which tells us that the way the world actually is (ontology) depends upon the way it is known or perceived (epistemology), we find the, shocking for many, truth of the nature of reality: its fundamental nature is mind. This is a conclusion reached by just about all (Einstein being the notable exception) of the 'founding fathers' of quantum theory. Erwin Schrödinger, who constructed the fundamental quantum equation, wrote, for instance, that:

> Mind has erected the objective outside world … out of its own stuff.[62]

And Max Planck, hapless instigator of the quantum revolution, came to a similar conclusion:

> All matter originates and exists only by virtue of a force... We must assume behind this force the existence of a conscious and intelligent Mind. This Mind is the matrix of all matter.[63]

In an important book published recently industrial strength physicists Bruce Rosenblum and Fred Kuttner clearly state that in quantum experiments:

> Physics had encountered consciousness but did not yet realize it.[64]

This assertion, however, is not quite correct because the early physicists did realize it but very quickly the physics community who found the necessary conclusion unpalatable mounted a cover up job. But, as Rosenblum and Kuttner point out:

> …physics' encounter with consciousness, demonstrated for the small, applies to everything. And that 'everything' can include the entire Universe.[65]

It is consciousness which is the essential ingredient in the appearance of reality from out of a nebulous ground of potentiality. As the greatly admired physicist John Wheeler wrote in 1978 that:

> The universe does not 'exist, out there,' independent of all acts of observation. Instead, it is in some strange sense a participatory universe.[66]

Wheeler suggests that quantum theory requires a participatory universe, which means that somehow phenomena which appear to be external and independent of the minds of sentient beings cannot be so. Buddhist philosophers have made a similar point for at least two thousand years:

> …when we see houses and fields in dreams, we think of them as being external objects that are not created by the mind, even though they are nothing other than projections of our mind. All that we see when we are awake is also nothing other than a creation of the mind.[67]

It appears that we live in a Mind-Only Universe!

At the end of the last programme in the television series 'Atom' the media friendly physicist-presenter Jim Al-Khalili says, looking very serious: 'if you ever want to see fear on the face of a physicist ask him about the measurement problem.' The quantum measurement problem is precisely the fact that all the 'seeming' phenomena of the 'classical' dualistic world are etched out of the deeper quantum level of potentiality by the continuous 'measuring' activity of consciousness. And, indeed, this quantum discovery, the fact that the material world is not really there in the way that it seems to be, did cause, if not 'fear,' then absolute astonishment and bewilderment. As physicists Bryce DeWitt and Neill Graham say:

> No development of modern science has had more profound impact on human thinking than the advent of quantum theory. Wrenched out of centuries-old thought patterns, physicists of a century ago found themselves compelled to embrace a new metaphysics. The distress which this reorientation caused continues to the present day. Basically physicists have suffered a severe loss: their hold on reality.[68]

If one reads accounts of the reactions of physicists as the solid independent reality that we still all think exists 'out there' actually disappeared from their grasp one is reminded of the reaction of some of the Buddha's disciples when he (supposedly) expounded the *Prajna-paramita* (Perfection of Wisdom) view that:

> all phenomena are empty. There are no characteristics. There is no birth and no cessation. There is no impurity and no purity. There is no decrease and no increase. … in emptiness, there is no form, no feeling, no perception, no formation, no consciousness; no eye, no ear, no nose, no tongue, no body, no mind; no appearance, no sound, no smell, no taste, no touch, no phenomena … no ignorance, no end of ignorance up to no old age and death, no end of old age and death; no suffering, no origin of suffering, no cessation of suffering, no path, no wisdom, no attainment, and no non-attainment.

In the *Vajjracchedikasutra* we are told that there is a danger of becoming fearful upon hearing such a teaching. As Buddhist scholar G. Schopen points out:

> The repeated emphasis on fear, terror and dread in connection with hearing the Perfection of Wisdom being taught or explained would seem to indicate that the authors of our texts were clearly aware of the fact that what they were presenting was above all potentially terrifying and awful, and that a predictable reaction to it was fear.[69]

Perhaps this is why many Western philosophers refuse to take on board the solidity established, in fact more solidly established than the material world, evidence of quantum physics that all phenomena are 'empty' of independent self-existence, quantum physics has validated the Buddhist assertion that:

> Phenomena are empty of a certain mode of being called 'inherent existence', 'objective existence', or 'natural existence'. This 'inherent existence' is not a concept superimposed by philosophical systems but refers to our ordinary sense of the way that things exist…[70]

And this means *all* phenomena.

It is ironic that in the past SB himself noted in passing a connection between the Buddhist insight of 'emptiness' (*shunyata*) as the ultimate nature and quantum theory:

> I like to think of the Buddha's awakening under the Bodhi tree not as some kind of transcendental absorption, but as a moment of total shock. Neils Bohr once said about quantum mechanics: "If you're not shocked by quantum theory, then you don't understand it." I think we could say the same about emptiness: If you're not shocked by emptiness, then you haven't understood it.

But it is very unlikely that SB actually thought that the Buddhist notion of ultimate reality as being 'emptiness' and quantum theory were actually connected in any significant way. However, according to a recent book by Vlatko Vedral, Professor of Quantum Information Theory at the Universities of Oxford and Singapore:

> Quantum physics is indeed very much in agreement with Buddhistic emptiness.[71]

And in his book *Physics and Philosophy* the physicist and philosopher Bernard d'Espagnat, having reached the conclusion that physics is incapable of ever unveiling the nature of a quantum 'veiled' reality conceived of as existing separately and independently of consciousness suggests that insights into the nature of reality might very well come from other directions amongst which he cites mysticism[72]. In particular he refers to Buddhist thought which:

> …rejects the notion of a 'ground of things' and even lays stress on the opposite notion, the one of an 'absence of foundation' or 'emptiness.'[73]

It seems that quantum physics supports the Buddhist 'two truths' metaphysics, with 'emptiness' – the lack of inherent existence which 'hovers' between existence and non-existence – as the ultimate truth, in a remarkable fashion.

John Wheeler, one of the great physicists of the twentieth century, indicated that the solution to the question 'Why the quantum?' might contain the solution to the question of existence itself:

> …eventually we will have an answer to the question 'How come the quantum?' And to the companion question, 'How come existence?'[74]

According to Wheeler, then, the answer to the question concerning the quantum nature of reality might contain the answer to the question which the philosopher Heidegger considered to be the most important question for philosophy; 'why is there something rather than nothing?' The confrontation between the everyday world and the quantum world leads us to the very limits of what we can know about reality. And according to Wheeler the solution to the question regarding why the world has a quantum basis will provide an insight into the nature of existence itself. This is, indeed, an extraordinary possibility which should be sought at all cost.

The Madhyamika master Nagarjuna's offered the following answer:

> For those for whom emptiness is possible,
> Everything is possible,
> For those for whom emptiness is not possible,
> Nothing is possible.[75]

But 'emptiness' is not nothingness. It can only be a vast infinite realm of potentiality which is triggered unto manifestation through the operation of consciousness. We noted earlier that Einstein once asked whether the moon would exist if no one was looking at it. Today there are physicists who will tell you that:

> …even an object as large as the Moon, full of atoms held together by gravity and jiggling about with the random thermal motion appropriate to its temperature, does not exist when nobody is looking at it.… The Moon doesn't simply disappear when nobody is looking at it … The probability waves spread out very slowly, from the states they were in when they were last observed; the whole moon begins to dissolve away into a quantum ghost. But because the Moon is so big the process is very slow. It doesn't take a few nanoseconds but millions (perhaps billions) of years for the Moon to dissolve away into quantum uncertainty.[76]

So how did the moon come into existence? In the Guardian obituary for John Wheeler we can read that:

> In 2002, he wrote: 'How come the universe? How come us? How come anything?' Although Einstein had once asked him whether, if no one looked at it, the moon continued to exist, Wheeler's answer to his 'how come?' questions was 'that's us'.[77]

According to Wheeler:

> Directly opposite to the concept of universe as machine built on law is the vision of *a world self-synthesized.* On this view, the notes struck out on a piano by the

> observer participants of all times and all places, bits though they are in and by themselves, constitute the great wide world of space and time and things.[78]

And according to the Astronomer Royal Martin Rees:

> In the beginning there were only probabilities. The universe could only come into existence if someone observed it. … The universe exists because we are aware of it.[79]

And according to the quantum cosmologist Andrei Linde:

> Thus we see that without introducing an observer, we have a dead universe, which does not evolve in time. This example demonstrates an unusually important role played by the concept of an observer in quantum cosmology. John Wheeler underscored the complexity of the situation, replacing the word observer by the word participant, and introducing such terms as a 'self-observing universe.'[80]

And according to the Buddhist Mind-Only metaphysical perspective:

> …all of the external phenomena-mountains, houses, roads and their perceptions – originated from the mind. They all arose out of the ground consciousness. How is this possible? The answer lies in the fact that since beginningless time we have been perceiving sights, sounds, smells, tastes and bodily sensations and these perceptions have been creating imprints or latencies in the ground consciousness. Habituation of having experienced a certain visual form will create a latency for that very form. Eventually, that latency will manifest from the ground consciousness as a visual form again, but it will be perceived as external to ourselves.[81]

The evidence from modern quantum theory tells us without ambiguity that the ultimate nature of reality is mind-like. 'Matter' is a dramatic transformation of Mind as it produces the dualistic play of the universe as it manifests ever greater levels of awareness towards the state of enlightenment. Thus quantum theory has validated in spectacular fashion the insights of the Buddhist and some other 'mystical' traditions such as Sufism. In the light of all this, the notion that the historical instigator of the extraordinary Buddhist spiritual efflorescence actually only taught some kind of mundane palliative therapeutic mind-calming techniques to ease the stress of doing the washing up is clearly ridiculous. It seems that the doctrine according to SB needs reversing!

Sources:

Addiss, Stephen; Lombardo, Stanley; Roitman, Judith (2008). *Zen Source Book: Traditional Documents from China, Korea and Japan*. Hackett Publishing Company.

Allday, Jonathan (2009). *Quantum Reality: Theory and Philosophy.* CRC Press.

Barrow, John D., Davies, Paul C. W., Harper, Charles L. (eds) (2004). *Science and Ultimate Reality*. Cambridge University Press.

Brunnhölzl, Karl (2004) *Center of the Sunlit Sky: Madhyamaka in the Kagyu Tradition.* Ithaca: Snow Lion Publications.

Brunnhölzl, Karl (2007). *Straight from the Heart: Buddhist Pith Instructions.* Ithaca: Snow Lion Publications.

Chown, Marcus (2007). *Quantum Physics Cannot Hurt You*. Faber and faber.

d' Espagnat, B (2003). *Veiled Reality: An Analysis of Present-Day Quantum Mechanical Concepts,* Westview Press.

Dolling, L.M.; Gianelli, A. F. & Statile, G. N. (eds) (2003). *The Tests of Time: Readings in the Development of Physical Theory*. Princeton University Press.

Eccles, John C. and Karl Popper (1984). *The Self and Its Brain: An Argument for Interactionism,*

Geshe Sonam Rinchen (2006) *How Karma Works* trans & ed. Ruth Sonam. Snow Lion Publications.

Gribben, John (2009). *Science: A History*. Penguin Books.

Herbert, Nick (1985). *Quantum Reality: Beyond The New Physics.* Random.

Hopkins, Jeffrey (1996). *Meditation on Emptiness*. Wisdom Publications, U.S.A. (First published 1983).

Hopkins, Jeffrey (2006). *Mountain Doctrine: Tibet's Fundamental Treatise on Other-Emptiness and the Buddha Matrix by Dol-bo-ba Shay-rap-gyel-tsen*. Ithaca: Snow Lion Publications.

Kaku, Michio (2006). *Parallel Worlds: The Science of Alternative Universes and our Future in the Universe*. Penguin Books (First published by Doubleday 2005).

Khenpo Tsultrum Gyamtso (2003) *The Sun of Wisdom,* Shambhala Publications.

Oppenheimer, Robert (1954). *Science and the Common Understanding*. Oxford University Press.

Penrose, Roger (2005). *The Road to Reality: A Complete Guide to the Laws of the Universe*. Vintage.

Penrose, Roger (1995). *Shadows of the Mind*. Oxford University Press:1994, Random House-Vintage:1995

Ricard, Mathieu (1996). *Journey to Enlightenment,* Aperture.

Rosenblum, Bruce and Kuttner, Fred (2006). *Quantum Enigma: Science Encounters Consciousness*. Oxford University Press, U.S.A.

Schrödinger, E. (1944) *What is Life?* Cambridge University Press, Cambridge.

Stapp, Henry (2004). *Mind, Matter and Quantum Mechanics*. Springer-Verlag Berlin Heidelberg 1993, 2004.

Stapp, H. P. (2007). *Mindful Universe: Quantum Mechanics and the Participating Observer*. Berlin, Heidelberg, New York, US.: Springer.

Thupten Jinpa (translator) (2008) *The Book of Kadam.* Wisdom Publications: Library of Tibetan Classics.

Vedral, Vlatko (2010). *Decoding Reality*. Dutton.

Wilczek, Frank (2008). *The Lightness of Being*. Penguin.

[1] http://www.voicesfromoxford.com/B-S-Batchelor.html.
[2] This is the term used by surgeons for procedure which have a serious risk of death for the patient.
[3] http://www.voicesfromoxford.com/B-S-Introduction.html
[4] See his book 'Hidden Dimensions'.
[5] http://www.voicesfromoxford.com/B-S-Batchelor.html
[6] In email correspondence with me Noble told me that he did not necessarily agree with Batchelor but was only exploring his view. The reader can judge for themselves from the video. However it must be said that Noble holds a sophisticated 'systems' view of biology – but it still seems to me to be fundamentally materialistic.
[7] http://www.buddhistgeeks.com/2010/10/a-difficult-pill-the-problem-with-stephen-batchelor-and-buddhism%E2%80%99s-new-rationalists/
[8] http://www.buddhistgeeks.com/2010/06/bg-175-the-buddhist-atheist/#idc-cover
[9] Amit Goswami, a nuclear physicist from the University of Oregon Institute for Theoretical Physics, in "God is not Dead- What Quantum Physics Tells Us Our Origins and How We Should Live" (2009) offers an scientific explanation on Karma and Dharma. He says that the complete theory of reincarnation must also contend with reincarnational content memory and certain cause-effect entanglements that may happen between two disparate reincarnations. Reincarnation memory is easy to understand; we assume that there is nonlocal window that is always open between reincarnations
[10] Stapp, Henry: 'Philosophy of Mind and the Problem of Free Will in the Light of Quantum Mechanics' p19
[11] Stapp, Henry: 'Quantum Interactive Dualism' p18
[12] http://www.buddhistgeeks.com/2010/06/bg-175-the-buddhist-atheist/#idc-cover
[13] Stapp, Henry (2004) p223
[14] http://www.voicesfromoxford.com/B-S-Batchelor.html
[15] http://www.accesstoinsight.org/tipitaka/sn/sn22/sn22.058.than.html
[16] http://www.accesstoinsight.org/tipitaka/kn/snp/snp.2.01.than.html
[17] http://www.accesstoinsight.org/tipitaka/kn/snp/snp.2.01.piya.html
[18] http://www.accesstoinsight.org/tipitaka/sn/sn22/sn22.086.than.html
[19] Oppenheimer, Robert (1954) pp 8-9
[20] Brunnhölzl, Karl (2004) p228
[21] Chown, Marcus (2007) p93
[22] Geshe Sonam Rinchen (2006) p19
[23] Kaku, Michio (2006) p148
[24] Udana Viii-1
[25] Udana Viii-3
[26] Gombrich, Richard - 'Kindness and Compassion as means to Nirvana in Early Buddhism'
[27] Chah, Ajahn (2002) p181
[28] Chah, Ajahn (2002) p183
[29] Chah, Ajahn (2002) p192
[30] Ricard, Mathieu (1996) p92
[31] Hopkins, Jeffrey (1996) p405
[32] Brunnhölzl, Karl (2004) p79
[33] www.namgyal.org – a term originally coined by Abner Shimony
[34] www.namgyal.org
[35] Stapp, Henry (2004) p233
[36] Brunnhölzl, Karl (2004) p606.
[37] Sisapavana Sutta, SN 56:31
[38] Addiss, Stephen; Lombardo, Stanley; Roitman, Judith (2008) p39
[39] Hopkins, Jeffrey (2006) p555
[40] Smolin, Lee (2002) p53

[41] Joos, Erich (2006). 'The Emergence of Classicality from Quantum Theory' in *The Re-Emergence of Emergence: The Emergentist Hypothesis from Science to Religion* (Eds: Philip Clayton and Paul Davies). Oxford: Oxford University Press. p54
[42] Allday, Jonathan (2009). p493
[43] Allday, Jonathan (2009). p496
[44] Khenpo Tsultrum Gyamtso (2003) p59
[45] Translated from the Pali by Thanissaro Bhikkhu
[46] Thupten Jinpa (2008)
[47] Thupten Jinpa (2008)
[48] Wilczeck, Frank (2008) page xiii
[49] Barrow, John D., Davies, Paul C. W., Harper, Charles L. (eds) (2004). p201
[50] Penrose, Roger (1995) p309
[51] Penrose, Roger (2005) p1031
[52] Penrose, Roger (2005) p1031
[53] Penrose, Roger (2005) p1031
[54] Penrose, Roger (2005) p1032
[55] Thrangu Rinpoche, Kenchen (2001) p28
[56] Stapp, Henry (2007) p22-23
[57] Stapp, Henry (2007) p139
[58] Stapp, Henry (1995) – Why Classical Mechanics Cannot Naturally Accommodate Consciousness But Quantum Mechanics Can.
[59] Brunnhölzl, Karl (2007) p27.
[60] Barrow, John D., Davies, Paul C. W., Harper, Charles L. (eds) (2004) p136 – Wojciech H. Zurek: 'Quantum Darwinism and envariance.'
[61] Barrow, John D., Davies, Paul C. W., Harper, Charles L. (eds) (2004) p136 – Wojciech H. Zurek: 'Quantum Darwinism and envariance.'
[62] Schrödinger, E. (1944) p121.
[63] Das Wesen der Materie" (The Nature of Matter), speech at Florence, Italy, 1944 (from Archiv zur Geschichte der Max-Planck-Gesellschaft, Abt. Va, Rep. 11 Planck, Nr. 1797)
[64] Rosenblum, Bruce and Kuttner, Fred (2006) p67
[65] Rosenblum, Bruce and Kuttner, Fred (2006) p201
[66] Dolling, L.M.; Gianelli, A. F. & Statile, G. N. (eds) (2003) p491 – John A. Wheeler (1978): 'The 'Past' and the 'Delayed Choice' Double-Slit Experiment.'
[67] Thrangu Rinpoche, Kenchen (2001) p16
[68] Herbert, Nick (1985) p15
[69] Schopen. G. (1989) The manuscript of the Vajjracchedikasutra found at Gilgit. In Studies in the literature of the great vehicle: Three Mahayana Buddhist texts)pp 89-140). L. Gomez & J. Silk (Eds.), Ann Arbor: The University of Michigan Press.
[70] Hopkins, Jeffrey (1996) p9
[71] Vedral, Vlatko (2010) p200
[72] d'Espagnat, Bernard (2006) p433
[73] d'Espagnat, Bernard (2006) p440
[74] Barrow, John D., Davies, Paul C. W., Harper, Charles L. (eds) (2004) page xi
[75] Brunnhölzl, Karl (2004) p214
[76] Gribben, John (1996) p 150
[77] Guardian obituary – Michael Carlson
[78] Barrow, John D., Davies, Paul C. W., Harper, Charles L. (eds) (2004) p577 – Wheeler, J A (1999) 'Information, physics, quantum: the search for links.' In *Feynman and Computation: Exploring the Limits of Computers*, ed A. J. G. Hey, p309 (314). Cambridge, MA: Perseus Books.
[79] Rosenblum, Bruce and Kuttner, Fred (2006) p
[80] Barrow, John D., Davies, Paul C. W., Harper, Charles L. (eds) (2004) p450 – Andrei Linde: 'Inflation, quantum cosmology and the anthropic principle.'

[81] Thrangu Rinpoche, Kenchen (2001)p35