Review: *Buddhism and Science: a Guide for the Perplexed* by Donald S Lopez Jr Chicago: University of Chicago Press: Chicago 2008, 278 pages ISBN-13: 978-0226493121, £17.50.

Reviewed by Ratnaprabha

After one of his recent lectures at Yale, a questioner almost pleaded with Donald Lopez: 'Surely Buddhism is the most rational of religions'. Lopez retorted, somewhat icily: 'That is a Victorian conceit!'[1] In this book, Lopez warms up considerably as he tries to defend Buddhism from the embrace of science and rationality.

The title is misleading. *Buddhism and Science* simply aims 'to document some of the ways that Buddhism has been represented as compatible with science over the past 150 years.' (p216). Lopez himself, a very fine Buddhist scholar and linguist, is unqualified to discuss scientific issues, as he freely admits (p4).[2] So he tries to avoid the temptation to assess the *validity* of compatibility claims.

Scientific paradigms evolve, and the view of what Buddhism is has also shifted since the two were first compared. With the image of both Buddhism and science shifting so much, Lopez is surprised that their compatibility has been claimed so consistently, especially since the need to counter anti-Buddhist views from missionaries and colonialists has long passed. Before relativity demoted Newton's mechanical universe, apologists seized on karma as a natural and mechanical law. After the Second World War, Zen displaced Theravada in the popular imagination in the West, and the preoccupation became interdependence (derived from 'creative readings of Nagarjuna', p31); then emptiness and quantum physics, and today meditation, the brain and cognitive science.

After a long chapter on traditional Buddhism's Mount Meru cosmology, perhaps the most obvious material to be dispensed with in the light of western geography, Lopez

[1] 'The Problem with Karma', the third Terry Lecture at Yale University, 6 October 2008, video stream available online at http://www.yale.edu/terrylecture/ [accessed: 08.03.2009]
[2] This is not just modesty; for example, when Lopez humorously attempts to imagine a Buddhist response to cloning, he seems unfamiliar with what cloning actually involves (p150).

turns to the issue of social class and caste. This issue is even less relevant to Buddhism and science than Mount Meru. There may have sometimes been a racist, or at least nationalist, tinge to the Buddhist use of traditional terms like 'aryan' in the early 20th-century, and Lopez links this with the notorious racist 'science' of the same period.

Chapter 3 focuses on the Dalai Lama and another Tibetan monk, Gendun Chopel. The latter encountered modern technology during his travels in the 1930s, and enthusiastically explained it to his compatriots. Chapter 4 is the highlight of the book, covering the early decades of the investigation of Buddhism by European scholars, who constructed an image of a rational, even scientific, Buddha, which was then re-exported back to Asia. The final chapter looks at laboratory studies of Buddhist meditation.

How do we compare Buddhism and science? Perhaps the two simply rule over separate domains: the internal and external world respectively. This was the Dalai Lama's position in his early writings. More true to Tibetan Buddhism is the distinction between the ultimate truth of liberation, and conventional truths concerning the mundane world. But the line between Buddhism and science is not so easy to draw: Buddhism is itself concerned with conventional truths, and science regards itself as seeking Truth itself.

Some 20 years ago, the Dalai Lama's youthful fascination with technology and astronomy firmed into what has become a very fruitful ongoing dialogue with many Western scientists. He inaugurated - and is the focus of - a continuing series of biennial 'Mind-life Conferences',[3] where Buddhists and scientists seem to have genuinely learned from each other in a number of fields. In fact, Lopez fears that the contact has infected the Dalai Lama with modernist tendencies, so that he is open to Buddhist ideas being corrected by science, and even prioritises experience over scripture (p139), a stance which Lopez regards as disturbingly innovative.

[3] Dalai Lama, *The Universe in a Single Atom* (Little Brown, London, 2005), 38f.

Nevertheless, the Dalai Lama seems to feel that certain Buddhist teachings need defending against scientific scepticism or materialism: karma and rebirth, yes, and most importantly, the need for compassion. For example, in a recent book on his response to science, *The Universe in a Single Atom* - examined in some detail by Lopez, the Dalai Lama's enthusiasm for science stops short of fully endorsing evolution by natural selection. From early on, the evolutionary nature of Buddhist thought has been recognised in the West,[4] but the Dalai Lama's problem is with the mind appearing out of non-mind, and with randomness. Since, in his view, mind and matter are quite distinct, how could a stream of mind appear in an evolving being, where no mind has existed before? The Buddhist explanation has to involve karma, rebirth, and a beginningless mind-stream. The Dalai Lama concedes that karma is an assumption, but no more than 'that all of life is material and originated out of pure chance... karma can have a central role in understanding the origination of what Buddhism calls 'sentience', through the media of energy and consciousness.'[5] The Dalai Lama understands Darwinism to claim that humans are 'the products of pure chance in the random combination of genes, with no purpose other than the biological imperative of reproduction',[6] leaving no room for true altruism. Lopez ascribes to the Dalai Lama, probably mistakenly, the very odd logic that if there were no karma and rebirth, there would be no Samsara, and so no place for the bodhisattva's compassionate vow to liberate all from Samsara. Surely the Bodhisattva's compassion would not be stifled by a change in his or her conception of the scope of Samsara?

When the Dalai Lama expresses a hope that the wisdom needed on the Buddhist path will be enhanced by scientific discoveries, Lopez remarks that this was 'something presumably not needed by pre-modern aspirants to [Enlightenment].' (p151) He goes on to attack the Dalai Lama's omissions in this one book, which we must remember was specifically on the topic of science. These include Nirvana and the non-physical realms, deities and the protectors he consults, and the possibility of living in the world untainted by the eight worldly concerns.

[4] Page 244n, and Robin Cooper, *The Evolving Mind* (Windhorse Publications, 1996).
[5] Quoted on pages 150-1.
[6] Quoted on page 151.

Elsewhere, the Dalai Lama comments extensively on such unscientific matters, but is not concerned to defend one glaringly pre-scientific Buddhist teaching. By the mid-19th century, Christian missionaries were deriding Buddhists for believing in Meru, the giant central mountain, topped by heavens, on a disc-shaped world. Ignoring their own churches' struggles with science, they upheld Western map-making and astronomy as showing the true state of affairs. One Japanese Buddhist tried to defend Meru on scientific grounds (of course his efforts were fruitless) and some Tibetan lamas were still clinging to Meru cosmology quite recently. So why did the Enlightened One have such poor knowledge of geography? The Dalai Lama is prepared to say that the Buddha was simply wrong. For Lopez, Meru looms large, and he strangely compares a Buddhism lacking Mount Meru to a chessboard without the Queen -- if Buddhism loses Meru, he says, what doctrines are safe? (p72) However, Buddhist history is littered with the husks of superseded teachings. A standard Mahayana explanation is that the Buddha, through skilful means, taught provisional truths to those not ready to hear higher truths. More likely, he made use of contemporary Indian myths and travellers' tales to construct a cosmology that could act as a vehicle for spiritual teachings, and didn't know that it was not literally true.

The French Sanskrit scholar Eugène Burnhouf wrote the first authoritative book on Buddhism, published in 1844, after eagerly translating thousands of pages of Sanskrit manuscripts newly arrived from Nepal (p168). His disciple, Max Müller, based at Oxford, built on his master's erudition, and established an academic view of the Buddha that is only now being seriously questioned well over a century later (p187).

While celebrating Burnhouf and Müller, Lopez laments their misrepresentation of Buddhism as a stark humanistic rationality, which has today developed into modernist versions of the ancient religion 'with the vast *imaginaire* of Buddhism largely absent; ... extracted from... a universe dense with deities.' (p216) As a detached connoisseur of Buddhist cultures, depending chiefly on the preserved texts, Lopez finds modernising trends in Buddhism genuinely distressing, I think, and one has to sympathise. Yet Buddhism has always been transformed by the

cultures it has encountered, at the same time as it has enriched those cultures. What is important for the practitioner (as opposed to the scholar) is not whether literal beliefs in Mount Meru survive, but whether we still have an effective path towards awakening. Conceptual hints concerning awakening retain impressions of the Asian cultures Buddhism has passed through. Soon they will be couched in terms which recognise the insights of Western thinking and the discoveries of modern science. Yet these discoveries are limited in their scope.

The limits of any scientific investigation of phenomena come at the edge of a direct apprehension (as opposed to a conceptual description) of the streaming 'contents' of consciousness. Lopez quotes DT Suzuki: 'the spiritual facts we experience are not demonstrable, for they are so direct and immediate that the uninitiated are altogether at a loss to get a glimpse of them.'[7] Such spiritual discoveries may provide scientists with hints concerning where to direct their observations, as well as suggestive explanatory frameworks. Suzuki noted a century ago that 'Buddhism clearly anticipated the outcome of modern psychological researches'[8] (for example, explaining mentality with no place for a soul), and scientific psychology is still learning from Buddhist accounts.

A Chinese Buddhist commentator in the 1920s (Taixu) saw science as a stepping-stone towards a wisdom that goes beyond science and logic (p19). Lopez takes this to imply that science can confirm the insights of Buddhism, but can't achieve those insights itself, and regards this as a 'strident' view. He seems not to distinguish between the attempt to convey one's direct apprehensions of reality in concepts, and those realisations themselves. Neither science nor Buddhism can *have* insights; each provides a set of frameworks for conveying experience. Scientists have shown that careful quantitative observation allows meaningful accounts of reality to develop more or less cumulatively; those accounts are what we call science. They help us understand how the material universe (including the human brain) works, and how to manipulate it effectively.

[7] Quoted on page 24, from *Outlines of Mahayana Buddhism* (1908).
[8] Quoted on page 23, from the same source.

Are the realisations of mystics and meditators legitimate? Yes, but the accounts the meditators give of their experiences, their interpretations, can surely be clarified – and even corrected - in the light of other, scientific sources of knowledge. Suffering, impermanence and insubstantiality are still there, both subjectively and objectively. They are amenable to discovery through contemplation, and through reflection on one's experience of life. They are also accessible to empirical investigation. For Buddhists, the most significant arena of investigation is human experience, and thus the human mind.

The Dalai Lama has encouraged neuroscientists to investigate brain changes during meditation, and thus they have found willing volunteers amongst Tibetan monastics. Wider studies have looked at the psychological effectiveness of meditation, though these have generally used simple meditation techniques that are not specifically Buddhist. In a bizarre narrative, which is also something of a tour de force, Lopez opens the fifth chapter with a ten page imaginary account of a Tibetan performing the elaborate ritual visualisation of the deity Vajrayogini, only to be interrupted by the discomfort of his rectal thermometer and scalp electrodes! It's a striking juxtaposition of two apparently unrelated worlds. How can you investigate scientifically whether Buddhist meditations work? Can you even tie down what it would mean for them to 'work' in a truly Buddhist sense? Indeed, that rectal thermometer may have registered a rise in body temperature. So what?

Rather than meditation and other practices that constitute the Dharma, Lopez' primary focus is on the image of the Buddha. He contrasts the larger-than-life Buddha of the canonical texts, even the less baroque Pali ones, with the reasonable humanistic educator Buddha of the Western scholars. Yet a number of those same texts represent the Buddha as asking his followers to honour the Dharma rather than his person, and to put his teachings into practice. Arguably, his central teaching was of conditioned arising (*pratītya samutpāda*). Specifics of the causes of suffering in craving, aversion and ignorance, and of cultivating a path to awakening, are instances of conditioned arising. Conditioned arising asserts that there are regularities in human life, as well as in the world, that ensure that one set of circumstances surely evolve into particular new circumstances, a process that can

be discovered. It is here that the strongest parallel with science lies. Science too is trying to trace the lines of causality that explain observed situations, and predict how they will evolve. Science is on its surest ground when it explores the regularities of matter and energy, untouched by the human will. But there is no need to debar science from the phenomena of the psyche, and even the suggestion of karmic links between one's willed actions and later events should be, to some extent, testable scientifically.

However, does Buddhism need that supplementation from science? The question for pious traditionalist Buddhists is: 'is there any knowledge beyond the content of the Buddha's enlightenment that could be discovered by science?' Many have been tempted to answer 'no', believing that the Buddha withheld certain truths either because people were not ready for them, or because they were not relevant for overcoming suffering and gaining enlightenment. Could the Buddha, for example, have accepted belief in Mount Meru only because he knew no better? How much did the Buddha know? Lopez asserts that 'everything' is the traditional view; some of the Mahayana texts he quotes seem to support this, though his canonical Pali sources circumscribe the Buddha's knowledge comparatively severely.[9] It is, surely, preposterous to claim (as Lopez puts it) that an Iron Age teacher understood Einstein's theory of relativity, though a number of eastern Buddhists have done so.

Whatever the Buddha did or didn't know, surely we are aided in comparing Buddhism and science by comparing their respective sources of knowledge. Here, Lopez is interesting on sources of knowledge in Buddhism, especially when he considers the Dalai Lama's views, but his ignorance of science makes it difficult for him to assess the comparison effectively. Perhaps it is deliberate that there is no definition of science in this book. This certainly helps Lopez avoid directly confronting the issue of compatibility from scratch; he prefers simply to analyse the succession of claims made by other writers. In any case, he questions the much-vaunted 'empiricism' of Buddhism, claiming that experiences, including deep meditation experiences, are recounted in the light of, and validated from, scriptural

[9] See Dharmacari Naagapriya, 'Was the Buddha Omniscient?' (*Western Buddhist Review*, volume 4).

authority (p210). (Science, also, is much less empirical than is often maintained, observations often being strongly influenced by theoretical assumptions.)

This is a valuable and fascinating survey of encounters between Buddhism and science. I'm left with a sense of regret, however, that Lopez did not seek out as co-author an academic as literate in science as he is in historical scholarship, so that the two great disciplines could be brought at least to a point of mutual comprehension. From that point of comprehension, the compassionate project of Buddhism can be enhanced by the insights of science, and by applying science to beneficial technologies. And science can perhaps learn a non-supernatural ethics from a friendly Buddhism, as well as finding a guide into the subtleties of human consciousness.

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