

Pier Luigi Luisi

The Two Pillars of Buddhism — Consciousness and Ethics

From the Proceedings of the meeting Mind and Life XII, 'What is matter, what is life?', held in Dharamsala, India, in 2002, in the presence of His Holiness the XIV Dalai Lama

Background

The Mind and Life Institute

The Mind and Life Institute¹ was created by the neurobiologist Francisco Varela and the American entrepreneur Adam Engle, with the aim of fostering the dialogue between contemporary science and Buddhism, as personified in particular by His Holiness the XIV Dalai Lama. The implicit basis of this enterprise is the recognition that science on the one hand and spirituality on the other are two major forces shaping our civilization, each one searching for truth and promoting human progress in its own way. And, as common understanding goes, while spirituality alone certainly does not suffice to realize our life in a concrete framework, science 'without a soul' is destined to bring us to disaster. Here is where ethics comes in — as part of spirituality. Note that in this context spirituality is not equivalent to religion or even religiosity. Under the broad term spirituality we can understand quite generally the search for ethical values and the search for internal growth, including the confrontation with the mystery; and, as His Holiness never tires of saying, these dimensions are primordial, inherent in the human being, coming before religion.

Correspondence: Pier Luigi Luisi, Biology Dept. University of Rome3, Rome, Italy.

[1] www.mindandlife.org

The proper seat for the Mind and Life institute is Dharamasala, India, the place where His Holiness lives in exile. The first meeting took place in 1987, and since then every two years, a conference on the dialogue between science and Buddhism takes place there. Five scientists of the established academic world (but not narrowly academic), carefully selected by the board of Mind and Life, engage the Dalai Lama and his Buddhist scholars for five days discussion. The Institute emphasizes particularly the sciences of the mind, and in fact in recent years neurobiology has been very much at the centre. This is the field in which the Institute has contributed also in fostering active research, with results published in the prestigious Proceeding National Academy of Science (Lutz *et al.*, 2004). However, other fields of science have also been at the centre of the attention in Dharamasala, physics in particular.

Each week-long meeting is devoted to one particular theme, and each time a book of proceedings is published, generally written by a single author, who interprets the week in the first person, recounting the conference from his or her point of view: Daniel Goleman, Bob Livingston, Anne Harrington, Richard Davidson, Arthur Zajonc, Alan Wallace and others are among the writers (see Davidson & Harrington, 2002; Goleman, 2003b; Hayward & Varela, 1992; Houshmand *et al.*, 1999; Varela, 1997; Zajonc, 2006). For the 2002 meeting, I had the honour of being asked to write the book. This was a meeting on *What Is Matter, What Is Life?* attended by people like the Nobel laureate physicist Steven Chu from Stanford; Eric Lander, one of the main researchers on the human genome project; the biologist Ursula Goodenough, a well known geneticist, but also author of more comprehensive books on ethical issues (Goodenough, 1999); the physicist Arthur Zajonc (see among other works his beautiful book on light [Zajonc, 1993]); myself from the University of Rome as a biochemist specializing in the origin of life (see Luisi, 2006); the French philosopher Michel Bitbol, MD, an expert in quantum physics (see his insightful book on Schrödinger [Bitbol, 1996]); and Buddhist scholars such as Matthieu Ricard, who became a Tibetan monk after a brilliant period of studies as a molecular biologist (you may be familiar with the book he wrote with his father, the well known French philosopher J.F. Revel [Revel & Ricard, 2000], or later on with spiritual leaders [Ricard & Thuan, 2004]); Alan Wallace, President of the Santa Barbara Institute for Consciousness Studies² and author of several books on Buddhism, (e.g. Wallace, 2000; 2003); Alan was acting as a

[2] <http://sbinstitute.com>

translator for His Holiness, as was Thupten Jinpa, also a well-known Buddhist scholar (see for example Jinpa, 2005). His Holiness, with all this exposure to science and extreme curiosity, has acquired a satisfactory general background in science, and he is rightly considered the one who personifies the relation between science and spirituality (see also his latest book [Dalai Lama, 2005]).

We covered in that 2002 week a very ambitious spectrum, going from the nature of atoms to the emergence of matter, from this to the origin of life, and then to the evolution of mankind, up to the human genome, an arc which culminated with the major attributes of human kind, namely consciousness and ethics.

The following pages are the major part of the last chapter of my forthcoming book on the conference (Luisi, 2008), which emphasizes the view on ethics from the Buddhist prospective. Since the notion of ethics cannot be easily disconnected from that of consciousness, I have rearranged the chapter to deal with these two items in a more coherent way. The second part of this article is in the 'I' form, as is the book.

Buddhism, ethics and consciousness

So is Buddhism really ethics? Some say that Buddhism is essentially religion, others that it is essentially philosophy, and for yet others it is ethics, or psychology.³ What is Buddhism, then? One is reminded of the old metaphor of the blind men describing an elephant — depending upon the observation point and/or one own's professional formation, the elephant can be many different things. This may hold, but a couple of essential points should be kept in mind for the sake of clarity. Buddhism was created by the Buddha as a liberation path, and in this sense is basically a religion — and to forget this point would be simply wrong. However, Buddhism recognizes that the problems obscuring and obstructing the path to liberation are due to the illusion of the mind, and sets therefore the study of the mind as the basis for everything. The study of the mind has two complementary aspects, one is the practice of meditation, so as to look experientially in the first person to the mechanisms and vagaries of the mind; the other aspect, which in the extreme can even do without the first, is philosophy — with the emphasis on the notion of emptiness, dependent origination, consciousness, and so on.

[3] For Buddhism as psychology see Gomez (1999), or a good chapter in Goleman's *Destructive Emotions* (2003a). See also the recent *JCS* paper by William Mikulas (2007), which prompted the publication of the present article.

And since the pursuing and development of the right mind is tantamount to correct action, Buddhism has to become ethics; and since the study of human emotions and behaviour is integral to this path, psychology rightly comes into the picture. It is a complex texture, and of course, to catch the essence of the entire thing — to catch the whole elephant — is not an easy matter. However, one can make the point that once one focuses on how ethics and consciousness are seen in Buddhism, one gets — if not the complete picture — at least the most important, general features of the elephant. And we will see to that in this article.

Thus, let us embark on the dialogue between scientists and Buddhist scholars on the relationship between consciousness and ethics, respecting the way this unfolded in Dharamsala in the 2002 meeting. We will start with an overview from Alan Wallace, which offers a rich and lively account of Buddhism as science of the mind, its origins, and its ethical implications.⁴

Alan Wallace

Buddhism as a science of mind

Democritus articulated his outward-looking view, that finally everything consists of atoms, around 2500 years ago, the same time that Buddha left his home in search of truth. So these ideas about atoms and matter have a long history, although empirical science and its rapid accumulation of knowledge is four hundred years old. And it is only in the last 120 years that the West has had an empirical science of the mind. In other words, we ignored the mind for close to three hundred years before let it enter in the field of science.

But even then, researchers rapidly shifted their focus on behaviour, which brings them back into familiar territory. They finally came round to attending to the mind in cognitive psychology, but it is always somebody else's mind. And by the time we get to neuroscience, it's somebody else's brain. So the mind has been re-introduced, but usually either studying behaviour or studying the brain.

Introspection, or first person observation of our own mental processes, which after all is the only immediate access we have to any mental process, remains at the level of folk psychology in the West right now. There is no penetrating, rigorous, reliable, cumulative science of first-person observation, experimentation, and refinement of the mind.

[4] Wallace's contribution here is somewhat shortened compared with that to be published in the book *What Is Matter, What Is Life?* (Luisi, 2008).

Questions such as what happens to the mind at death, when exactly mind emerges in the formation of the embryo, the nature of mind and of consciousness — these remain, for scientists, metaphysical questions. And so it's worth pausing to think whether the mind and consciousness are intrinsically metaphysical in nature. Or is it simply the case that we have not found the right tools for developing a systematic, rigorous science of mind and consciousness in terms of the phenomena themselves?

Empirical science started when there was sufficient technology for people like Galileo to make very close observations of phenomena; then better technology developed, with better penetration of the phenomena. Science didn't start out with just a bunch of assumptions, but with careful first-hand observation and experimentation on the phenomena. That has not occurred with the mind. So I raise the question once again: Are mind, consciousness, and questions like what happens to the mind at death simply un-scientific, or is it a matter of cultural preference? Did we, with our Graeco-Roman, Judaeo-Christian background, simply focus on pragmatic, empirical questions that look outwards to the physical? Might it be that another civilization, every bit as intelligent and sophisticated as ours, chose to ask other questions?

The Buddha's story

Here Alan gave us an account, with his own modern inflection, of the story of the Buddha's search for enlightenment:

When the Buddha set out from home, he joined a very loose-knit movement of individual wandering ascetics or seekers who were rebelling against, or at least deeply sceptical of, the prevailing Vedic religion. The Vedic religion was very dogmatic and heavily ritualistic, asserting that salvation was to be found only by performing a prescribed set of rituals very accurately. People like Gautama, who would become the Buddha, and many others of his peers, were revolutionaries, independently seeking.

At that time, ascetics had already achieved extremely subtle, focused states of concentration, described as *samadhi*. Gautama was clearly a prodigy with a genius for this training because in a very short time he achieved the same degree of *samadhi* as his teachers. But he was not satisfied, because no profound, irreversible transformation had taken place. When you come out of *samadhi*, you're back in the same state, still vulnerable to suffering. He now used the method of *samadhi* that he had trained in earlier, but instead of taking that state

as an end in itself, he used *samadhi* as a tool for active investigation. His primary area of interest was not, as in the case of Galileo, whether a ball rolling down a ramp will accelerate or move at a constant velocity, or whether the earth goes around the sun or vice versa. His primary area of interest was just the opposite of the West. His first question was: What is the nature of mind?

Using the laser-sharp focus of *samadhi*, he penetrated through what we call the ordinary mind. Being very curious, he directed that very pure, focused attention back through his own life, and then back to previous lives, which manifested to him with complete clarity. Tapping into deep memory, he was able to recall an endless number of preceding lives and the circumstances of each life. As far back as he looked, he could never find a beginning. So he stopped looking, effectively saying, 'I have enough data.'

He then expanded his vision, attending to other people's mind streams, and he saw how their mind streams, just like his own, seemed to recede endlessly. Then he did what we might call a meta-analysis, examining whether, in this stream of lifetimes, the behaviour of one lifetime is related coherently and causally to the events of a later lifetime. He could see patterns: If this happens, then that happens; where this does not happen, that does not happen. He didn't speak of an underlying mechanism but rather of a phenomenological causality. From these observations, he came to certain principles or laws concerning *samsara*, which is what we call the whole process of cycling through being over and over again.

Finally he raised the question: what can bring *samsara* to an end? How can we free ourselves from being thrown compulsively and involuntarily from lifetime to lifetime? By morning, he saw how to accomplish the cessation of this cycle. He abandoned the very causes that perpetuate that cycle, and his mind was completely unveiled.

From a Western perspective we would ask: What god gave him that knowledge? Was he a prophet, or was he simply a great philosopher? From the Buddhist perspective, he was not a prophet. He was very clear that this knowledge was not given to him by somebody else, nor did he just think it up, nor did he get it from the surrounding society. He said it came from an empirical, rational, pragmatic, and sceptical mode of inquiry. It was empirical because he was observing, looking directly. It was rational because he made sense of it and organized it into a theory that is internally consistent and consistent with available knowledge. It was pragmatic because his fundamental motivation was to identify the roots of suffering and eradicate those roots for himself

as well as for others — so it was also compassionate. And he held scepticism about the prevailing ideas, rituals, creeds, and beliefs.

So he went out and taught, and, basically, all of his teachings for the next forty-five years were structured on these four basic issues:

- Suffering is a reality. Rather than avoiding or denying it, we should recognize it and look at it in its entirety.
- Does it have causes? What are those causes? We should check empirically and find out what is crucial.
- Is it possible to irreversibly remove that tendency of the mind so that suffering never comes back, even though outside circumstances are terrible? And if so, then how?
- Finally, there is a strategy to accomplish this.

During the forty-five years that the Buddha taught, he encouraged his followers to put these teachings to the test, not to accept them out of reverence. You must check them, he said, just as if you were buying gold, you would check it by burning, rubbing, cutting; and only when you were completely satisfied would you then purchase it. He encouraged scepticism. For the last 2500 years, or a hundred generations, an unbroken sequence of Buddhist contemplatives has used a set of experiments and methods for making careful observations, to try to rediscover these truths for each generation.

Ethics as the foundation

Here Alan Wallace comes to the essence of his contribution:

The basic line of practice is actually very simple. The foundation of all Buddhist practice, and without which there is no Buddhist practice, is ethics. Ethics, in Buddhism, begins with the understanding that we are not just observers in reality. Whether we like it or not, we participate, with our bodies, our speech, and our minds. Certain behaviours of body, speech, and mind are injurious, whether in solitude or with others. They lead to our own unhappiness, to conflict, and to the suffering of others. Much of physical suffering comes from nature and is beyond our control. But the suffering that human beings inflict on others is within our control. What mental processes give rise to human-made conflict, misery, and suffering? What behaviours of body, speech, and mind bring benefit: greater peace, happiness, and relaxation, and also greater harmony with others? This empirical, rational, pragmatic approach is the foundation of Buddhist ethics.

For contemplatives who follow the Buddhist path to become Buddhas themselves, rather than merely studying Buddhism, ethics

takes on the further meaning of refining the mind. It becomes part of their contemplative technology. In the West, one problem with introspection, which has had a very short life, is that the tool used was very poorly trained. The ordinary mind that oscillates between excited agitation and dull laxity is not a good instrument for making observations. This problem was recognized by the Buddha, who adopted existing techniques, brought them into Buddhism, and applied them in uniquely Buddhist ways. Without ethics — if you're angry, jealous, or craving — meditation can make no progress. A very fine sense of ethics is necessary for developing this contemplative technology of a mind that can make very careful, precise and deep investigations.

The final phase of Buddhist practice is the cultivation of insight, where you explore the world as it exists, not independently of experience and consciousness, but rather the world of experience called in German *Leidenswelt*, or in Sanskrit, *loka*. The strategy for this begins with trying to discover the nature of the objects of consciousness, the objects of mind. If I gave you a tool and said, 'Look through this tool and you'll find many interesting things,' as a good scientist, you would ask, 'What is the tool?' You would want to take it apart to understand how good a tool it is.

Before investigating the rest of reality, you have to examine the tool that is the mind. Scientists waited three hundred years before examining this tool, and there's still no science of consciousness. How can you have science of consciousness when you have no scientific means of exploring the nature of consciousness?

Matthieu Ricard

Ethics and the analysis of reality

Having begun with Alan Wallace's account of the origins of Buddhist ethics in the Buddha's own life story, we will bring it full circle with another remarkable presentation on the philosophical grounding of Buddhist ethics, done by Matthieu Ricard. He spoke with a gentle fire of conviction:

The main point is the relation between a correct perception of reality and ethical issues — how we can implement proper understanding in order to lead our lives and transform ourselves. It may seem artificial to link those two things together, and we may ask whether we want to do so because we are Buddhist practitioners, or, generally, how our understanding of the perception of reality flows naturally into personal transformation. So I thought I should say a few words about the

intimate relation between those two. This actually bridges the scientific approach to describing phenomena with the need to transform ourselves into better human beings and actualize our potential.

When we analyse reality, we have a tendency to solidify or reify phenomena. Although we know that things are impermanent, that they are always flowing, that nothing remains identical to itself even for two consecutive moments, yet we have this tendency to perceive that yesterday's table is today's table, that the person we meet today is more or less the same person as yesterday. Even more deeply, although we know that we change from youth to old age, we think there is something constant that is 'me'. Instead of seeing the fluidity of phenomena, whether external or within our minds, we grasp them as being solid. What was fluid water now becomes ice.

What are the consequences of that? Instead of perceiving the intimate interdependence of constantly changing phenomena, and understanding that nothing can happen except through relationships, we instinctively try to ascribe intrinsic properties to things. The first great divide, of course, is between self and others. What is in truth completely interconnected becomes two worlds: me and all the rest of the world. Then from 'me' comes 'mine': 'This is mine; that is not mine' — my relatives, my belongings. Then we start to ascribe properties to things and people. We say, 'This is beautiful.' Somehow we cannot help but feeling that this beauty, or that pleasant aspect, intrinsically belongs to this person or that object. Little by little, we solidify, crystallize, and divide everything as being pleasant, unpleasant, beautiful, ugly, delicious, disgusting, mine or others. We have passions, impulses attracting us to what is pleasant to me, what I like, what I want to attract, to get, to keep, to increase. And we have a tendency to repulse whatever causes fear, or disgust, or animosity, because we ascribe those feelings as intrinsic properties. This is a friend, this is an enemy; and both become solid identifications.

What comes next is a very big development. Our mind is invaded by a chain of thoughts that arises from those feelings of attraction and repulsion. Attraction becomes a strong craving, an obsession, a desire that completely invades our minds. We feel pride and superiority when our self relates to others we consider inferior. We feel jealousy when something we consider ours is taken away. We feel animosity, wanting to destroy or harm what seems threatening to us, or goes against our desires. We lack discernment because we are blinded by this host of emotions and toxic mental events. We can't discern with correct judgment what needs to be accomplished, what needs to be

avoided, in order to fulfil our most intimate wish, the longing for happiness, and the longing that other beings have for happiness.

All these different meta-toxins become the way our mind functions, to different degrees. Sometimes the mind is stronger than other times, but in the end all this leads to a deep feeling of frustration and suffering because the world will never match our desires. So there is a very close relation between our first misapprehension of the nature of phenomena — finding solid, intrinsic properties in an increasingly fragmented vision of the world — and suffering.

If you turn this around, you perceive interdependence. Instead of building reality out of separate, permanent, intrinsic qualities, there is a whole dynamic flow of relationship, constantly in transformation. It crystallizes in different ways under different conditions, according to your perception, and so many other factors, that you cannot isolate individual causes as pleasant or unpleasant. This vast net of interconnection is described in the sutra as a necklace of pearls on the palace of Indra, each pearl reflecting the whole palace. If you perceive things like that, then the whole process of solidification will not happen. You'll naturally have the understanding that things are impermanent and changing, that the enemy of yesterday can be the best friend of tomorrow, that what seems beautiful to someone seems ugly to someone else, that you yourself are changing from one minute to the next.

Realizing interdependence

You will also see that there's no such thing as the constant entity you perceive within yourself, the 'me', if you really analyse it. In this stream of constantly changing consciousness, there is no permanent boat that is the self. In realizing this, instead of losing what you might feel is the most precious thing in yourself, the 'me', you are not losing anything. You are just unmasking an impostor. It is not the most precious thing in your being, but rather, it is what ties you to suffering.

Realizing the interdependence and the dynamic flow gives you freedom. You're no longer taken by the mechanism of taking and rejecting in the same way. There's no longer a reason for strong animosity to arise from identifying someone as truly, intrinsically an enemy. Ice and the water are of the same basic nature. But the ice that comes from solidifying phenomena can cut. You can break your bones on it. If it melts, through inner freedom from the solidification of concepts, it's just fluid. It no longer threatens to harm your happiness. Losing the self does not mean becoming nothing; you simply untie the knots of solidified phenomena and gain inner freedom.

This also has a very intimate link with compassion. Compassion without interdependence means nothing. Our true nature is love. Imagine yourself suspended in space. If there were no interdependence with other beings, then there's no notion of love or compassion. Understanding interdependence makes you understand that your happiness comes through others' happiness. There is no way you can build your happiness at the cost of others' suffering. You might gain a temporary satisfaction at having defeated your enemy, but that will never be a lasting happiness.

For these reasons, a correct understanding of reality — the absence of any intrinsic nature of phenomena, and their interdependence — is said to be the ultimate view of the Buddhist teachings, referred to as wisdom. And this is intimately linked with compassion, love, and altruism, which are the expression of this understanding and the quintessence of Buddhist ethics or behaviour. Wisdom and compassion are like a bird's two wings. A bird cannot fly with one wing... Both work together. You cannot start to fly with the right wing only and get to the left one later. You won't fly very far that way. We have to keep wisdom and compassion in union all the time, from beginning to end, uniting understanding with ethical thoughts, words and actions.

At Matthieu's conclusion, there was a spontaneous outburst of applause throughout the room, and the Dalai Lama expressed the general sentiment in a single word. 'Excellent!' he said.

A Dialogue on Consciousness

Consciousness and life

Alan Wallace's and Matthieu Ricard's overviews presented a clear picture of Buddhism as a science of mind, and of the importance of the notions of consciousness, ethics and compassion in Buddhism. Consciousness, the awareness and mastering his own' mind, is the background on which all this construction is based upon. From the very beginning of the Mind and Life conference, consciousness had become an important theme in the afternoon discussions that followed each morning's scientific presentation. These discussions were free-flowing and engaged the entire group. Questions might be sparked by the earlier presentations, but new avenues of enquiry often opened spontaneously, as we will see.

In one of the final days, for example, Arthur Zajonc, the physicist of Amherst who, as I mentioned, acted as our chairman in the 2002 conference, opened the discussion by reminding us of Matthieu's

earlier presentation of the Buddhist concept of beginningless-ness, a presentation that Matthieu had given as an answer to my own presentation on the origin of life. And on the basis of this, Arthur was posing a question to the Dalai Lama:

‘How does Buddhism account for the arising of life and sentient beings? Is this also beginningless? Luigi described the very gradual development of life through increasingly complex organization and the emergence of higher properties. Is there an analogous description in Buddhism concerning the nature and emergence of life?’

His Holiness responded by first qualifying the concept of beginninglessness:

‘If one focuses on a specific local and a specific time frame, then it is possible, of course, to speak of a relative beginning, such as the beginning of this planet. So we have no problem with the scientific description there. Likewise, if we look at the origins of life in terms of sentient beings who have corporeal bodies made out of matter, we accept the scientific account on the whole and we learn a lot from that. But if the question concerns the origins of an individual sentient being, as opposed to the body that the sentient being possesses, then the issue becomes much more complicated. The origins of consciousness are also much more complex.’

I sensed that we were approaching a critical divide between science and Buddhism. I thought we might as well face it directly, so I asked, ‘Does Your Holiness accept the view we have heard, which is also many scientists’ view, that consciousness arises naturally as an emergent property at a certain level of brain and neuronal complexity?’

‘It’s very clear,’ the Dalai Lama answered, ‘that specific modes of embodied consciousness, such as the human psyche, or human visual perception, do not arise in the absence of the brain or the appropriate faculty. The brain definitely contributes to the emergence of visual perception and various aspects of the psyche. But if we examine the clear, luminous, and cognizant aspect of these mental processes — in other words, consciousness itself — then the Buddhist perspective is that the event of consciousness does not emerge from the brain or from matter.’

‘This is an important difference,’ I noted. ‘Many scientists accept the idea that all properties of mankind come from within, even consciousness and the idea of God, as self-generated values. This is not so for Buddhism.’

‘That’s correct,’ the Dalai Lama affirmed.

‘There is an issue of terminology here,’ Alan Wallace said, clarifying an important point ‘His Holiness spoke of gross and subtle levels

of consciousness. Gross consciousness concerns those processes of the human psyche, like visual perception, that are contingent upon the body, the brain, and the nervous system. Subtle consciousness, which carries on from lifetime to lifetime, has no beginning, and is not dependent on the body.'

The Dalai Lama continued with his explanation:

'If we compare a plant, for example, with the human body, there is a great deal of common ground in terms of how the cells are organized, as you well know. But does a plant have any recognition or experience of good and bad, of pleasure and pain? Does a plant have conscious experience? You won't find an explanation for that, simply by understanding the processes within the cells. Consciousness doesn't emerge from the cells. Consciousness only arises from consciousness. It does not arise from matter.

At this point, His Holiness had pinned down what for him were points of divergence in the evolutionary history:

'Some configurations of matter in this process of cosmic evolution provided a basis for the emergence of life and some did not. What was it about the configurations of matter that enabled it to become a basis for life, and enabled that to become a basis for consciousness? What is it that distinguishes organic from inorganic matter? Within the organic track, what differentiates the organization of the cells that provide the basis for consciousness from those that do not, such as plant life?'

I felt personally hit by this question, coming as it did on the heels of my presentation on self-organization, complexity, and emergence of life. Had I not been understood? 'This is straight Darwinian evolution,' I said. 'Once you have life, it evolves in very different directions depending upon environment and accidents of contingency...' I saw that Matthieu Ricard nodded positively to this comment.

'But what is unique to matter in your earliest animal that is conscious?' the Dalai Lama persisted. 'What special property of its matter enables it to be conscious whereas its predecessors, and other tracks of evolution such as plants, are not?'

'Through contingency and evolution,' I answered. 'In other words, the structure of the brain evolved in such a way that, because of the contingent complexity parameters of that particular case, consciousness might arise. The straight answer would be that the arising of the neuronal complexity of the brain, which was an emergent process brought about among others by contingency, was the basis of consciousness.'

It was Alan Wallace who was translating for His Holiness at this point, and he seemed to be enjoying the confrontational flavour of the

debate: ‘What aspect of the complexity? What type of complexity? Complexity doesn’t explain anything!’

Consciousness as an emergent property?

Here Thubten Jimpa stepped in, as if to calm the waters: ‘The explanation is really based on the degree of complexity.’

‘Yes,’ I said gratefully, ‘and in order to have consciousness you need billions of neurons, which you do not find in a fly or in a plant.’

At this point, I was happy when Eric Lander signalled that he would like to contribute, as he is well-versed in evolutionary science and had proven himself a good communicator. The bluntness of his answer surprised me.

‘In fact, we don’t know,’ Eric admitted. ‘As scientists we think that consciousness is a property somehow of the organization, but we have no idea what. What’s interesting to me is that Buddhists, as Matthieu explained, seem very disturbed by the idea of a first cause for the universe. I share that disturbance, which is not to say I am any happier with the idea of beginninglessness. That also disturbs me. But you go from the idea that there is no first cause for the whole universe, to the idea that there can be no first cause for consciousness. It seems to me that in Buddhism you can’t imagine consciousness arising from nothing. And we scientists, perhaps because of our world view, cannot imagine a different explanation. I don’t know that either of us have a logical reason to say that it must have persisted forever, or that it must have arisen from complexity. In science we have so little to say about it because so few experiments try to probe consciousness. Mostly we avoid the question.’

Steven Chu, the physicist, stepped in here, first affirming what Eric had said — ‘The simple answer is we don’t know’ — but then offering an explanation for the Western bias favouring the notion of life as an emergent property.

‘Western science has had much success with the notion of emergent properties: from basic chemistry to recent work in superconductivity, superfluidity, and lasers, we find examples of surprising collective phenomena. Every physicist would agree that there’s a much bigger jump from atoms to molecules, than from cells and neurons, to consciousness. We don’t pretend consciousness is comparable, but perhaps small successes at a much simpler level have made us overconfident.’

Michel Bitbol, the philosopher, had a different view of the matter.

‘I would like to correct the impression that there is a wide gap between the Western and Buddhist views of consciousness,’ he said.

‘Nowadays Western philosophers have good reason to criticize very strongly the idea that consciousness is an emergent property of a complex chunk of matter. One is that science, by its very method, is unable to grasp what consciousness is. In order to make good predictions, science has to exclude everything which is not common to everybody. For instance, when science speaks about heat, it excludes the felt quality of heat, and only retains what can be measured with a thermometer, and shared on a piece of paper. Since it excludes felt qualities from the outset, present methods allow no possibility of explaining them. A second reason is that consciousness cannot be called a property, nor even a phenomenon. A property is something objective, something detached from us, which is attributed to an object, whereas consciousness obviously cannot be detached from itself. Likewise, consciousness is not something that can be considered as a phenomenon. Rather, it’s phenomenology by itself. For these two reasons at least, and there are many others, many philosophers nowadays think that consciousness must be considered primary, and not derived from anything else.’

It was the turn of a Buddhist scholar to add something to it. Alan Wallace said;

‘Although it’s a reasonable hypothesis that subjective, brain-based awareness is an emergent property of the brain, it’s clearly not a scientifically established fact at this point. It’s a cogent theory, but only a theory, so we can at least consider other theories. The Buddhist theory is that our subjective awareness is not brain-based awareness, but rather brain-conditioned awareness. Human consciousness is indeed an emergent property, but it emerges from a deeper level of consciousness, one that carries on from lifetime to lifetime, and is then conditioned by the brain.

‘For example, fifty-some years ago at my conception, the stream of consciousness that came in was not a human consciousness. It was not Alan Wallace’s consciousness. It wasn’t a human soul. It was simply a stream of consciousness that had an enormous amount of experience behind it. When it came in, it set up initial conditions in my mother’s womb that would determine the type of person I would become. Of course, there were many other conditions contributing as well. But this human psyche, heavily conditioned by brain, body, environment, parenting, education, and so forth, actually emerges not from the brain itself, but from something similar to itself. That is, it emerges from a stream of consciousness, just as configurations of mass and energy emerge from earlier configurations of mass and energy, despite how radically different they may appear.

Testing reincarnation

Alan continued, and his words opened another difficult chapter: what is death, and what happens at that point?

‘This is a theory, just as the scientific view is a theory. One theory suggests that at death, the brain decomposes and no longer functions as the brain, so the emergent properties of brain-based consciousness just vanish. The Buddhist theory is that since Alan Wallace’s consciousness did not emerge from the brain, that consciousness will dissolve back into the substrate when the brain ceases, and the continuum of mental consciousness will carry on. Both theories are compatible with neuroscience. Neither one contradicts what we actually know of the brain and the mind.

‘So, then we can ask how this could be tested scientifically. The theory from science, that death leads to absolute cessation, is very difficult to test or falsify. If we can’t even imagine how to disprove it, I would question whether it is truly a scientific theory. (A third theory available in the West is the Christian theory that at death the human soul goes to heaven or hell or limbo or purgatory, but it doesn’t come back. We also have no way to test this scientifically.) The Buddhist theory says there is continuity: the person will come back again, and in some cases — especially those with very high training — that person will come back with clear, accurate memories of the preceding life. Of the three theories, that’s the only one we can test.’

Eric Lander inserted a qualification here: ‘Just because you can’t find a way to test a prediction doesn’t mean it’s not a scientific theory.’

Alan responded by offering an alternative way to validate the scientific, materialist theory: ‘If all of the necessary and sufficient causes for consciousness could be determined, just as we have defined the minimally necessary conditions for life; if we could demonstrate that consciousness doesn’t arise in the absence of those causes; and moreover if we could show that all those necessary and sufficient causes are physical, this would be very compelling proof of the materialist theory. But for that, you would have to have an objective means of recognizing the presence or absence of consciousness in anything. There is no such instrument.

‘To test the Buddhist theory scientifically, you would need a systematic series of studies, not simply the testimony of a four-year-old girl here and a Tibetan tulku there. You would need a contemplative laboratory, where people trained rigorously for maybe ten or twenty years, and then you could test their memories very rigorously.

That would open up some very interesting collaborative research between science and Buddhism.’

‘I want to make a small but important point,’ Steven Chu interjected. ‘In science there is no absolute proof. We can never prove an idea or theory, and likewise, if you meet a person who claims to remember his last life, this is only supporting evidence, and each instance is further supporting evidence, never a proof. Similarly, each experiment on atoms is only supporting evidence, never a proof.’

Michel Bitbol answered Steven: ‘What Alan tried to explain, is that the only possible confirming evidence about the content of consciousness is first-person, or subjective evidence. No other type of evidence can be obtained. The only real difference between the two sides, I think, is the type of evidence which is relevant for an analysis of consciousness.’

Eric Lander objected. ‘Alan is actually suggesting the use of second-person evidence. He’s meeting science on its own grounds: If one were to demonstrate many examples of accurate memory of past lives, he would argue that this falsifies the theory that consciousness does not continue. We could disagree about whether such evidence is adequate — we could have many, many problems with this evidence, and we do. But I respect the fact that he’s actually laid out a test.’

Steven also agreed that this kind of experiment is in principle worth doing, and many voices chimed in, all of them positive and every scientist stressing the importance of rigorous standards.

Arthur Zajonc pointed out that some detective work on verifying past-life memories had already been done by Western psychologists, notably Ian Stevenson (1964). This prompted some reflections from Matthieu Ricard on the cultural bias that has prejudiced science against investigations of the thorny question of reincarnation.

‘Ian Stephenson studied six hundred cases over a period of thirty years,’ Matthieu pointed out, ‘and he is very well accredited. He discovered that most cases did not prove anything — they might have been fake or inconsistent — but there were twenty cases for which he could find no reasonable explanation other than memory from past lives (Dalai Lama, 2005). So there were facts and large scientific publications, but there is definitely a cultural resistance. Those books are hardly examined critically. This is a very important question,’ Matthieu continued. ‘Imagine what kind of change it would make in our perception of life if we truly had a clear indication of our death.’

Higher forms of consciousness

The notion of reincarnation, is based on the notion of consciousness as a continuum. Arthur Zajonc turned the question back to the Dalai Lama: ‘When we scientists think of consciousness arising from matter, we do so because it is hard for us to imagine it any other way. What is the alternative? Could we imagine a universe where consciousness somehow exists while matter is still in a very rudimentary state? You seem to imply that it’s possible to have sentience or consciousness of some kind without the bodily support of a complex, physical organization. Do you have any empirical evidence for that?’

His Holiness answered, ‘Even in Buddhism there is an implicit recognition of the difficulty of identifying what consciousness is. Although we are aware that consciousness exists, when we try to define it, it becomes very nebulous and difficult to pinpoint. But in principle, Buddhism maintains that it is possible to recognize experientially what consciousness is and identify it. There is an understanding, for example, that a highly advanced practitioner at the point of death can identify something called the “clear light moment of death”, which is regarded as the subtlest experience of consciousness.

‘The issue of consciousness is indeed difficult to explain. I encourage those of you scientists who are studying what we call grosser levels of consciousness — forms of emotion, the neural correlates and so forth — to keep up the good work. And on the Buddhist side, meditators have to continue working very hard to achieve higher levels of consciousness. In ten or twenty years, with more meditation, a more convincing, truthful discussion can take place.’

Ursula Goodenough, the geneticist, raised another good, general question: ‘Does Buddhism recognize a relationship between the human experience of consciousness and the mental experiences of a chimpanzee, or an organism with whom we clearly share a common ancestor?’

I recalled at this point how often in past conferences the Dalai Lama himself had posed questions of comparison between humans and other animals. Here he answered by mentioning first that Tibetan folk mythology traces the origins of human beings to monkeys, although, he said, classical Buddhist texts suggest that human beings evolved from more subtle forms of body, composed of light, with characteristics very different from normal human beings. ‘But according to Buddhism, many of the basic emotions, such as altruism, compassion, and greed, are felt by animals just as in human beings. There is only a difference of degree of complexity.’

Ursula pressed further: 'Is there a sense that these emotions or states are transfigured in humans by our subtle consciousness? Do we experience them differently from animals because we have this other property of consciousness? One view in science is that humans access the primate mind, but transfigure it, so that it becomes enriched, or more abstract, able to be organized in new ways, because we have this other property of consciousness.'

'There is a difference between animals and humans in how these emotions are experienced, in terms of complexity and probably the degree of self-consciousness,' His Holiness answered. 'But in the Buddhist view, the difference between the animal realm and the human lies more in the level of intelligence. As for subtle consciousness, there is no difference between animals and human beings. Any sentient being that has the capacity to experience pain and pleasure is thought to possess this subtle consciousness.'

So, the subtle consciousness is not uniquely human, we learned, and if we had been tempted to equate it with the Western notions of the soul, here was a deep divergence. In all this I had not yet heard a clear refutation of the notion of consciousness as an emergent property, and so I now restated my original question to His Holiness:

'How would you refute the idea that consciousness is a self-generated value that arises from the self-organization of the structure? Could you accept this as a possibility?'

Consciousness cannot arise from matter, says His Holiness

The Dalai Lama answered: 'If you are asking whether it is possible for matter — the brain, our cells, and so forth — to act as cooperative conditions that mould or influence the gross manifestations of consciousness, such as visual perception, the answer is yes. But then we ask what consciousness actually arises from; according to Buddhist principles, consciousness can arise only from a continuum of phenomena similar to itself, in the same way that formations of mass-energy give rise to formations of mass-energy. It is a similar continuum. Subtle consciousness is a radically different type of phenomenon; therefore it can arise only from phenomena similar to itself. Matter, configurations of mass-energy, are radically dissimilar. Therefore only a stream of consciousness can give rise to a later stream of consciousness. Matter cannot transform into, or become, consciousness.'

'I fear that science sets up a false dichotomy when you have separate streams, inorganic matter giving rise to life forms, finally giving rise to consciousness. And then, quite correctly, you question the

Buddhist view of consciousness giving rise to life. But it's not true that Buddhism views consciousness as the substantial cause out of which matter emerges. If A is the substantial cause of B, then A actually transforms into B, and in so doing it loses its earlier identity.

'If Buddhism adopts the notion of the Big Bang as the beginning at this universe, then the origin of matter in this universe is not a preceding continuum of consciousness, or divine consciousness. Nothing like that. The origin or substantial cause of the first matter in this universe was preceding matter. Only mass-energy gives rise to mass-energy, and consciousness always gives rise only to consciousness.'

'Isn't that a very dualistic view?' I asked.

'Yes, it's a form of dualism,' His Holiness responded. 'The moment there is more than one thing out there, dualism arises. There are all kinds of dualism. For example, one of your dualisms is inorganic and organic matter. Dualism makes sense only in relation to a very specific context.'

'Of course, we do make categories. For example, we distinguish between permanent phenomena and impermanent phenomena, and within the category of impermanent phenomena we make distinctions between mental phenomena, abstract ideas and then material phenomena, or matter. Not everything falls into the category of matter. Perhaps if we were fully enlightened, we might see things differently.'

Eric Lander asked a question that challenged the Buddhists on their own terms: 'The idea that subtle consciousness does not arise from matter, and is not dependent on matter, is clearly a central point to Buddhism. Your Holiness says that science cannot disprove this point, and I agree. As I listen, though, it seems to me that this idea in Buddhism is more an unproven but accepted assumption than it is a conclusion resulting from proof based on evidence or logic. Suppose that some day you concluded, which we cannot do today, that the subtle consciousness did arise from matter. Would it change anything? How would a Buddhist act differently?'

'First of all,' His Holiness began, 'it's not true that this is merely an assumption. There's an empirical basis that is repeatable. There is a systematic training which can lead to the empirical conclusion that a continuity of consciousness transcends the limitations of one body, one life. This is not something unique to Buddhism; it preceded Buddhism, and it is not embedded in one ideology or one belief system. There are different modes of meditation within Tibetan Buddhism, different avenues to that experience. In the cultivation of *samadhi*, for instance, you train very highly in refining and developing the mind to such a degree of subtleness, clarity, and stillness, that you can

penetrate through the turbulence of your gross human mind, with all of its sensory perceptions and all of its cogitations. You settle your rapidly churning mind so that it becomes transparent, and then you tap into an underlying core of memory, including memories of previous lives which lend themselves to corroboration.

‘There have also been small children who, without spiritual training, have somehow accessed very clear memories of a past life. I’ve actually met a four-year-old Indian girl who remembered her past life so clearly — her home, her parents, their name, their professions, the place they lived — that the parents of her previous life were fully convinced that this girl was their own child.

‘In addition to this,’ His Holiness added, ‘Buddhist philosophy employs the logical reasoning that if consciousness can arise from matter, then we have to posit a beginning to consciousness and a beginning to the continuum of sentient beings. By extension of that reasoning, we would also have to accept a beginning to the whole universe, which opens up a whole can of worms. Since Buddhism rejects that, and accepts the beginningless continuum of consciousness, it also accepts the beginningless continuum of sentient beings. And since sentient beings have no beginning, Buddhism interprets the evolution of the physical universe as intimately interdependent with the sentient beings who inhabit and experience the external world.

‘As to the question of why it matters: first, it presents a philosophical problem. If we are forced to accept a beginning to the universe, we have two options. Either something comes from nothing, or else we have to posit a divine creator, a transcendent being, neither of which Buddhism finds comfortable. Second, from a soteriological point of view, a single lifetime is an extremely brief duration in which to achieve liberation and enlightenment. It’s said to be possible in principle to achieve enlightenment in three years, three months, and three days, but this is much like Communist propaganda: the chances of this happening are so remote you might as well forget about it! Even in a lifetime of sixty years, the chances of achieving enlightenment for most of us are remote. So we need a bit more time...’

Consciousness as first-person experience

Matthieu Ricard offered some further clarification:

‘I think the proper description of subtle consciousness might be pure consciousness, or the most basic quality of consciousness. Different emotions are, of course, already coloured by mental activity; but what is common to all mental activity, and what allows it, is this

most basic faculty that we call luminosity, which is not coloured by thoughts, concepts, or reasoning, and yet is different from blank storage. It is simply the most fundamental, pure quality of consciousness. And the law of cause and effect applies to that, which is why we need a continuum. In just the same way that right now, a grain of rice will not produce wheat in one single transformation, the very preceding instant of consciousness which relies upon that basic luminosity has to be of the same quality. Whatever the mental colouring might be, there has to be a continuum of this primordial clarity, because the very nature of consciousness is not qualified by mental efforts. And therefore there is a beginningless continuum.'

Steven Chu interrupted, speaking with intense sincerity:

'I'm listening to this and I understand some of the words, but I feel it's like a physicist explaining electromagnetic waves to someone who doesn't know mathematics. We try very hard and we use analogies, but in the end you need years, even decades, of study before you understand. I get glimmers of what you are saying, but I haven't had the years of training and the discipline to really fully understand.'

There were probably a few others in the same boat with Steven. Matthieu listened carefully, and continued.

'We've been speaking about the first-person and third-person experience in science. I think it's important to distinguish different degrees of first-person experience. Perception, for instance of colours or of heat, is a first-person experience that you cannot replace with any equation. Most of science — all the equations, all the numbers — is third-person experience. But a more fundamental first-person experience is that pure consciousness, pure luminosity, which is not even qualified by mental processes. That is the ultimate first-person experience, which, as Michel was saying, is a primary quality.'

'And that takes years of study,' Steven chimed in.

'And practice,' added Arthur.

Alan Wallace pointed out that meditation practice resembles physics or mathematics more than many other disciplines: 'You can't learn physics or mathematics just by reading a lot of books, or listening to people talk. You have to do it yourself. You can read all about meditation but if you don't do it, you won't understand it.'

'Is everyone capable of doing it?' Eric Lander asked.

'Is everyone capable of having your knowledge of the genome or of mathematics?' Alan retorted. 'This is similar. People come in with different capacities. Some will be better at it, some will be worse at it. But everybody has the capacity to improve.'

The Dalai Lama added a characteristic note of humility: ‘We need to recognize our current limitations in how far we can claim to be able to describe the nature of reality. We might conceivably study all three hundred volumes of the Buddhist canon and still could not claim to know every aspect of consciousness and all phenomena that are part of mental consciousness.

‘Similarly, scientific knowledge is limited, and the fact that we cannot observe particular phenomena with current scientific methods cannot be taken as grounds to claim they do not exist. The limitations of scientific knowledge quite clearly leave open the possibility that there may be other types of physical phenomena that have not yet been discovered. They also don’t preclude the possibility that science might one day access some non-material phenomena. I’m quite sure that in due time the scope of scientific research will expand, especially in terms of investigations about the brain, emotion, and intelligence. I think that is the proper way to learn more about consciousness. More experiments are needed, including collaborations with experienced Buddhist practitioners.’

Acknowledgments

I thank Alan Wallace for discussion some items of this article; and Zara Housmand for editing my book and hence, indirectly, this article.

References

- Bitbol, M. (1996), *Schrödinger’s Philosophy of Quantum Mechanics* (Kluwer).
- Dalai Lama, H.H. the XIV (2005), *The Universe in a Single Atom* (USA: Morgan Road Books).
- Davidson, R.J. and Harrington, Anne (2002), *Visions of Compassion* (New York: Oxford University Press).
- Goleman, D. (2003a), *Destructive Emotions* (New York: Bantam Books).
- Goleman, D. (2003b), *Healing Emotions: Conversations with the Dalai Lama on Mindfulness, Emotions and Health* (Boston, MA: Shambala).
- Gómez, L. (1999), ‘Measuring the immeasurable: Reflections on unreasonable reasoning’, in *Buddhist Theology: Critical reflections by contemporary Buddhist Scholars*, ed. Roger R. Jackson & John Makransky (Surrey: Curzon).
- Goodenough, U. (1999), *The Sacred Depth of Nature* (Oxford University Press).
- Hayward, J.W. and Varela, F.J. (1992), *Gentle Bridges* (Boston, MA and London: Shambala).
- Housmand, Z., Livingston, R.B. and Wallace, A. (1999), *Consciousness on the Crossroad: Conversations with the Dalai Lama on Brain Science and Buddhism* (Ithaca, NY: Snow Lion).
- Jinpa, Thupten (2005), *Mind Training* (Pub Group West).
- Luisi, P.L. (2006), *The Emergence of Life: From Chemical Origin to Synthetic Biology* (London: Cambridge University Press).
- Luisi, P.L. (2008), *What Is Matter, What Is Life?* (Columbia University Press).

- Lutz, A., Greischar, L., Rawlings, N.B., Ricard, M. and Davidson, R. (2004), 'Long-term meditators self-induce high-amplitude gamma synchrony during mental practice', *Proceeds of the National Academy of Sciences*, November 16, 2004.
- Mikulas, W. (2007), 'Buddhism and western psychology: Fundamentals of integration', *Journal of Consciousness Studies*, **14** (4), pp. 4–49.
- Revel, F. and Ricard, M. (2000), *The Monk and the Philosopher* (Boston, MA: Wisdom Books).
- Ricard, M. and Trinh Xuan Thuan (2004), *Quantum and the Lotus* (Boston, MA: Wisdom Books).
- Stephenson, Ian (1964), *Twenty Cases Suggestive of Reincarnation* (University of Virginia Press).
- Varela, F.J. (1997), *Sleeping, Dreaming, and Dying: An Exploration of Consciousness with the Dalai Lama* (Boston, MA: Wisdom Publications).
- Wallace, A. (2000), *The Taboo of Subjectivity: Towards a New Science of Consciousness* (Oxford University Press).
- Wallace, A. (2003), *Buddhism and Science: Breaking Down New Ground* (New York: Columbia University Press).
- Zajonc, A. (1993), *Catching the Light: The Entwined History of Light and Mind* (New York: Bantham Books).
- Zajonc, A. (2006), *The New Physics and Cosmology* (Oxford University Press).

Received January 2007