Essay Review: Tibetan and Western Models of Mind

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Choosing Reality

B. Alan Wallace

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Consciousness at the Crossroads: Conversation with the Dalai Lama on Brain Science and Buddhism

Zara Houshmand, Robert B. Livingstone and B. Alan Wallace (eds)

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Two Views of Mind: Abhidharma and Brain Science

Christopher deCharms

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Part One (published in No 73 of ***Network***)

Buddhism and Western Neuroscience

Any attempt to help neuroscientists and Tibetan Buddhists to understand each other is of potential value. At the very least, such an attempt is likely to help scholars on both sides to enter discussions from informed positions rather than from ignorance. Thus these three books deserve a warm welcome, though readers may vary somewhat in the degree of warmth they accord to each of them.

Alan Wallace authors *Choosing Reality* and is a contributing editor of *Consciousness at the Crossroads,* so let me turn to these two books first. As a physics graduate from Amherst College who trained for ten years in Buddhist monasteries in India, and who is a frequent translator for Tibetan scholars, Wallace is clearly in an ideal position to explore meeting points between Buddhism and Western science. He is also not afraid to question prevailing Western paradigms, and makes it clear in his opening chapter that science, like religion, requires faith - the difference being that whereas most religions 'make a clear statement of their articles of faith, science introduces its underlying assumptions more surreptitiously'. He then proceeds to give us examples of these assumptions:

The universe as it exists apart from human perceptions and conceptions can be known by means of scientific methods; although the world exists independently of our concepts, its components and laws can be grasped by concepts ... (page 12)

In addition, in spite of the fact that science 'repeatedly abandons its earlier theories', it persists in the belief that 'it is progressing steadily towards a correct representation of the universe as it is'.

Wallace goes on to make it clear that these various assumptions still persist in spite of the fact that:

For generations the notion that scientific theories represent objective, independent physical reality has been serious challenged by philosophers of science. Indeed, there are few today who adhere to such straightforward scientific realism. Among the many problems with the realist position is the fact that multiple, mutually incompatible theories can often be presented that equally account for a given body of experimental evidence. A philosophically unreflective approach to science gives the impression that objective reality screens out false hypotheses, leading to only one true theory. In fact multiple hypotheses are often put forth, and the choice among them is based on various human factors. (page 13)

Later in the book Wallace presents a particularly striking example of the hypothetical 'realities' of physics:

The standard procedure in atomic physics, as well as various other branches of science, is known as 'retroduction'. In this process we regard a body of empirical evidence with a specific theory in mind. Much of the evidence is accounted for ... by the theory, but now let us imagine that some surprising phenomenon is observed. Wishing to explain ... (it) ... in terms of our theory, we propose that it would be explicable if a physical entity - a new particle with attributes determined by the evidence - existed. We then conclude that the proposed particle exists. (page 65)

Even Max Planck's famous idea of 'quanta' of energy is just such a proposition. The notion of 'quanta' provides us with an opportunity for explaining diverse and apparently incompatible microphysical phenomena, but more recently Timothy Boyer (see e.g. 'The Classical Vacuum' in *Scientific American,* August 1985) has outlined a concept which demonstrates that we can explain such phenomena without recourse to the notion of 'quanta'. In the world of microphysics, it has in fact never proved possible to made a direct observation of subatomic entities. We merely *infer*their existence from circumstantial evidence (e.g. the macroscopic effects - such as traces in a cloud chamber - they produce when they interact with certain measuring devices). In effect, we create a hypothetical concept which has an 'as if' reality, but this is not the same as demonstrating physical realities. And we cannot hide the fact that 'physics has never been able to demonstrate that its theoretical concepts uniquely account for the experimental facts' - hence the presence, common throughout physics, of the multiple incompatible theories which in their various ways can each be used to account for the same phenomenon. Problems arise not because such theoretical concepts only describe hypothetical realities, but because they are presented - at least to the student and the layperson - disguised in the trappings of physical reality.

Later, Wallace reviews the evidence that even mathematical laws are only representations of objective truth (i.e. are what Whitehead called 'habits of nature') occurring in relation to our system of measurement. This brings him to the recognition that 'The very notion of objective reality ... (is) simply ... an empty rack on which to drape the cloak of mathematics'. Given the propensity of scientists thus to base their theories upon what one of the eminent

authorities quoted by Wallace calls 'metaphysical propensities', Wallace goes on to conclude that:

Upon close examination it appears that no theory is true in the sense of describing or explaining reality as it exists in its own inherent nature. Nor is such an ultimately true theory to be found in any eventual integration of scientific and contemplative insights. If we grasp on to any theory as being true in the above sense, we may become satisfied with that conceptual construct of reality, and that impedes the quest for truth, which finally transcends all concepts. We may avoid this obstacle by asking not whether a theory is true, but by inquiring to see how meaningful it is. (page 204)

How, then, does a theory become meaningful? For Wallace, it does so if firstly it accounts for a broad range of events and yields accurate predictions about them, and secondly if it is useful in helping remove physical pain and mental suffering. In his view both the scientific and the contemplative traditions (by which he means specifically the Tibetan Buddhist traditions) meet in different ways both these criteria, science through its explanatory and predictive power in the physical world and its ability to relieve physical pain, and Tibetan Buddhism through its explanatory power in mental realms and its ability to remove mental suffering.

If Wallace is correct in saying that the test of a theory is not its truth but its meaning because 'no theory is true in the sense of describing or explaining reality as it exists in its own inherent nature', it follows that the physical universe as we experience it is a creation of our own minds from whatever it is that appears to our senses. The term 'participatory reality' is now used to describe this co-created universe, and Wallace notes that the concept underlying it has its roots in the instrumentalism of our Greek/Christian heritage (e.g. the writings of both Aristotle and St. Thomas Aquinas). Recognition of the existence of participatory reality does not imply a naive belief that the universe will vanish when homo sapiens is no longer here to relate to it, but in Wallace's words it does mean that 'the world*that we experience* will vanish' (my italics).

Naive realism rejects the notion of participatory reality on the grounds that the mind is simply an accidental side-effect of matter dominated by genetic predispositions and neurological processes, and that such a mere epiphenomenon of matter cannot play a phenomenologically creative role *within* matter. Wallace counters this by arguing that naive realism, with its belief in the objective reality of the material world, simply does not understand the nature of mind, or the fact that the mechanistic, quantitative research methods used by modern physical sciences were never intended to address mental events. Furthermore, the failure of naive realism to produce conclusive physical evidence or coherent theories to account for life's initial evolution from nonliving substances may lead one to question its relevance to any of the fundamental questions about our own nature.

Wallace then turns to an approach that supports the concept of participatory reality and provides alternatives to realism without resorting to the instrumentalism represented by the creator God of Western religious traditions, namely the middle way (*Madyamika*) supposedly taught by the Buddha and systematised from the second century BCE onwards by Nagarjuna, Candrakirti, Tsongkhapa (the founder of the Tibetan Gelupa order to which the Dalai Lama belongs) and others. In common with the concept of participatory reality, the Madyamika regards physical reality as defined by the human mind, and rejects the notion that it defines *itself* in any self-existent way, or even that it exists as we conceive it. Its

existence is simply relative to our verbal and conceptual designations. As Wallace puts it, 'Objects exist relative to the (verbal and conceptual designations of the) theory-laden consciousness that experiences them'.

Our minds early in life construct concepts related to the world, and then proceed to project them out into the world, with the result that such concepts appear to have an existence independent of the mind that formulated them. The world therefore appears to take on the form of an objective reality composed of independent, self-existent phenomena and events. This is the case not only for the world of immediate experience, but for the physicists' theoretical world of subatomic particles and electromagnetic fields. However, if we examine logically each of the phenomena which make up this apparently objective world, we see how erroneous this apparent independence is. The Madyamika insists that far from being self-existent, each object or event is dependent upon three sets of factors, firstly its own constituent components and attributes, secondly the causally-related physical and mental phenomena that brought it into being and sustain it, and thirdly the mental designations we ascribe to it.

I find that one of the best ways to illustrate this point of view is to think of an *object* like the motor car and the *event*of its movement. To what do we attribute the motorcar? To its constituent components of steel, plastic, rubber, electrical wiring, shape, mass etc? To the causally-related phenomena of designers, manufacturers, steelworkers, the presence of iron ore in the earth's crust etc? To the concepts about 'motor car' that register in our minds when we see it (e.g. those of a small child and those of an adult will be quite different)? And to what do we attribute its motion? To the workings of the internal combusion engine, the workings of the electrical system, the petrol in the tank, the oil workers who extracted and refined the crude oil, the geologists who found the oil, the ancient vegetation that decomposed to form the oil etc? To the concepts about motion, direction, purpose, driving skills, mental and muscular co-ordination of the driver etc? The answer is that all of these are intimately involved. Without any one of them, the car and its movement, as we experience them, could not be said to exist. As we look closely into any phenomenon, we find the same three factors compose its reality - components, causes and concepts.

The Madyamika philosophy then looks inwards and finds that this is also true of the ontological status of the mind. The mind as we conventionally define it does not exist independently of its contents, and its contents do not exist independently of the circumstances that give rise to them and of the designations (e.g. our concepts about ourselves and our mental processes) which we ascribe to them.

However, as Wallace explains, Tibetan Buddhism claims that when we have attained a high degree of mental refinement through a true understanding of the absence of intrinsic, independent self-existence in all things including our own minds, our enlightened awareness can then be directed to *subtle levels of consciousness inaccessible to our habitual mental states.* These levels allow us to see what, if anything, remains (or is revealed) when we have stripped away the blinkers of our conventional mode of seeing. However, even access to these rareified levels does not mean that we necessarily become infallible judges of ultimate reality. Just as Western science spawns many mutually incompatible theories which nevertheless each 'explain' aspects of the material world, so the various contemplative traditions - and even individuals within the same tradition - have spawned incompatible theories concerning the nature of absolute reality which nevertheless all give it the 'meaning' defined earlier.

This suggests the existence of many different forms of understanding and perhaps of reality, but Wallace affirms that as a result of highly advanced contemplation it is possible to experience a still more exalted level that transcends all these various conceptual frameworks. Wallace devotes two chapters to a discussion of how this advanced contemplation can be attained. Essentially, it involves meditation into the real nature of the self and of physical phenomena. It is one thing to assent to the inter-dependence of all things at an intellectual level, quite another actively to experience a sense of this inter-dependence (or, in more mystical language, the unity that underlies all things). Those familiar with Tibetan Buddhist meditation practices will find nothing particularly new here, though readers with no background in these practices will appreciate the clarity with which they are described by Wallace. Of more novel interest is the chapter that follows this discussion, *A contemplative view of the mind.* In it, Wallace explores one of the central issues both in Tibetan Buddhist practice and in Western psychology, namely whether thought arises from mind working through the brain, or directly from brain activity.

The prevailing orthodoxy from much of Western science (to which I return in more detail in the context of*Consciousness at the Crossroads* below) supports the latter view, namely that thought is a product of the electro-chemical activity of brain cells. Wallace attacks this materialistic perspective on the grounds that:

... physics has discovered a vast body of evidence to support the principle that physical phenomena are conserved through all known transformations. To be conserved means, for the physicist, that they retain their physical status as forms of mass/energy.

Thus the hypothesis that any physical component or process in the brain transforms into a nonphysical mental event would be vigorously denied on the grounds of energy conservation. Given our original hypothesis that mental events are nonphysical, events in the brain certainly influence mental phenomena, but the former cannot be the source of the latter.(page 183)

The hypothesis that thoughts are nonphysical - i.e. are a different class of phenomena from the physical - is uncontroversial. I know of no arguments that seriously suggest otherwise. Thus if nonphysical events are to be caused by physical processes, the latter must be transformed in some way (i.e. become nonphysical). But if, as Wallace tells us, modern physics supports the principle that physical phenomena are conserved (remain physical) through all known transformations, it is indeed difficult to see how the physical mass/energy of the brain can become converted into what we experience as the processes of mind. Thus modern physics can be said, no doubt unwittingly, to support the Buddhist belief that thoughts are not simply epiphenomenon of brain activity. But if not from brain activity, from where do thoughts arise? Buddhism does not go to the opposite extreme and argue that they emerge from nothingness. Instead, it argues that they originate from preceding *mental events in an unbroken continuum,*much as physical phenomena arise from preceding physical phenomena.

Be this last argument as it may - and to explain precocious talents, intuition and creative insights the Buddhist view has to accept either that these preceding mental events stretch back into previous lives or exist in other dimensions of reality - Wallace's contention that modern physics supports the idea of the conservation of physical phenomena is a strong counter to the orthodox notion that brain creates mind. But he goes further. As physical phenomena are conserved, the same may be true of the phenomena of consciousness.

Buddhism in fact holds that the essential stream of consciousness of all sentient beings cannot be destroyed, and continues in its subtle form after physical death. Thus there is an unbroken continuum of consciousness throughout life, the death process, the intermediate state, and into the next life (which may be on this earth or in other realms). Further, meditation allows us to refine and stabilise the mind so that instead of experiencing these events in the traumatic form that impels us quickly to lose recollection of what has gone before, an unbroken clarity of awareness is maintained throughout (though judging by the Buddha's reported experiences of all his past lives at the moment of his full enlightenment, all our memories from countless lifetimes must be stored somehow in the stream of consciousness, and be ultimately recoverable).

After the richness of *Choosing Reality,* Wallace's edited book *Consciousness at the Crossroads* comes (I think through no faults of his) as something of a disappointment. It provides us with transcripts of the second Mind and Life Conference held in 1989 at Newport Beach California. The purpose of these conferences (subsequent ones have been held at two year intervals and presumably will be reported in due course) is to give the Dalai Lama the opportunity to meet and discuss with a small invited group of Western scientists. The Dalai Lama's interest in science is well-known, and at the second conference he met with six eminent neuroscientists and psychiatrists to discuss what might loosely be called the mind/brain question. The format was for each scientist to make a presentation on his or her specialist area (reported under such chapter headings as *Towards a natural science of the mind; Mapping brain function; Brain control of sleeping and dreaming states; Psychiatric illnesses and psychopharmacology),* and for these to be followed by comments and questions from the Dalai Lama, and by general discussion.

I anticipated the book to report a real meeting of East and West, with the Dalai Lama acquiring knowledge of brain function, and with the scientists learning something of the complexities of Buddhist models of mind. Instead, the traffic is very much one-way. Although they are far too polite to say so, the scientists appear to take little real interest in what the Dalai Lama has to say, and remain intent on describing and adhering to their own materialist reductionist paradigm. The Dalai Lama for his part seems much more prepared to listen and learn, and even at times appears somewhat diffident in putting forward Buddhist alternatives to this paradigm (e.g. 'I am uncertain about Buddhist philosophy and psychology here in terms of the relation between the brain and the body'). If meeting ground there is, it is the Dalai Lama who is prepared to find it.

Perhaps this is a misinterpretation. There is a long tradition in the East of rulers and spiritual leaders inviting learned men to come and give them a crash course in their specialist subjects, and the Dalai Lama may not have felt that this was the place to challenge some of the things that he was hearing. But we are told in the Introduction to the book that the participants had 'come together to explore what insights the Western sciences of the mind and Buddhism might offer to each other'. To readers of the book without much background in Buddhism or in Western neuroscience and psychology, the impression is likely to be that the Western scientists have come to speak from a position of authority rather than to listen, while the Dalai Lama is in the role of listener and takes in much of what he hears. Let me give an example from early in the book. Speaking of consciousness the Dalai Lama explains that:

... when the body ceases to function as a body, there is still a very subtle form of consciousness and that is independent of the body. The fact that the body is able to act as a basis for mental events is dependent on the pre-existence of a subtle form of consciousness.

What you call consciousness has its basis in a subtle type of awareness . There is a capacity for awareness, a kind of luminosity which is of the nature of awareness itself, which must arise from a preceding moment of awareness ... there is a continuum of awareness that does not itself arise from the brain. This basic capacity exists ... prior to the formation of the brain itself. (pages 40 and 41)

To this Allan Hobson, professor of psychiatry at Harvard Medical School, replies:

Western science would obviously not agree with that part of Buddhist theory. We would assume that conscious awareness arises at some stage during brain development, when there are enough neurones with elaborate enough connections to support conscious activity. We would hold that there is no prior consciousness. Consciousness, therefore, is not infinite in our view. It originates in brains, and it is essentially expandable according to the number of brains that have sufficiently evolved biologically (page 41).

As none of the other scientists demur, I assume Hobson speaks for them all. This is therefore the picture of 'Western science' that is presented to His Holiness, with no alternative voice. Patricia Churchland (a philosopher of science from the University of California at San Diego) does make a passing earlier reference to Sir John Eccles, who she reports 'stoutly believes in the Dualistic theory (of mind-brain separation)', but she does so only to add that 'most neuroscientists and scientists generally do not hold this view'. But instead of saying a little about this view, and more importantly pursuing the Dalai Lama's description of subtle consciousness, the scientists move the discussion on to other things.

The concept of subtle consciousness is however central to the Buddhist model of mind. I would have hoped that its introduction into the discussion would have led the Western scientists to want to know more. How did Buddhism arrive at this concept? What is the evidence for it? What difference does an experience of subtle consciousness make to the experiencer? Is the experience open to all, or only to a select few? What techniques of Buddhist mind science lead to this experience, and how (if at all) do these techniques accord with Western understanding of mind? What is the exact of subtle consciousness for the survival of aspects of consciousness after physical death?

The last of these questions does receive some incidental attention in a chapter on *Subliminal awareness and memories from previous lives.* In the course of the chapter, the Dalai Lama raises the topic of reincarnation and the memories carried forward on the stream of consciousness:

Buddhism, of course, asserts the existence of former and later lives. The way this is understood from a Buddhist perspective is that during one's experience in past lives one meets individuals and these meetings place imprints on one's stream of consciousness. The stream of consciousness is then carried over into this life- time. There is therefore a subliminal affinity.

The answer he receives from Larry Squire (professor of psychiatry at the University of California at San Diego) is that:

The neuroscience perspective would be that our memories are relatively imperfect, so that when we encounter a person and believe that there may be a sense of familiarity, we are experiencing some correspondence and possibly some confusion with many other faces that we have encountered in this lifetime.

The Dalai Lama counters this with a report from India of two girls aged four or five who recollected names, geography, places, parents, favourite objects etc. apparently from their previous lives, details which on checking turned out to be accurate. He explains that one of the girls had met with an accidental death in her 'previous life', and that 'when death occurs suddenly, if one is in perfect health, one's memories still remain very sharp', but this crucially interesting point (e.g. what is the evidence for it? If memories are retained after death how and where are they stored? What relationship does this place of storage have to the way memories are retained during physical life? If memories are retained from lifetime to lifetime is it right to say that only a stream of subtle consciousness goes from life to life?) is ignored by the scientists.

In the main their preference is for descriptions of our success in mapping out which parts of the brain are involved in which kind of mental activity. This success is taken by them to mean that *as* the brain is involved in this activity, *it must be* the originator of it. There is no discussion of the point that if Eccles and other Western scientists are correct in that mind appears to work through brain rather than arise from it, one would still expect the brain to be involved in mental activity, and that this activity would to some extent be amenable to mapping. If the brain was not so involved, we would wonder why it takes up space within the skull. Whether mind works through brain or brain creates mind, brain must still be the agent through which mental events interact with the physical world. The argument that - and this was clearly a major stumbling block for the scientists - we do not know how a non-physical mind can interact with a physical brain, does not invalidate this fact. Equally (as Wallace made clear), we do not know how the electro-chemical activity of the brain can produce non-physical events such as thoughts, intention, volition and a moral sense.

Another disappointment in this book is that there is no mention by the scientists of Out of Body Experiences (OBEs), Near Death Experiences (NDEs), and the findings from parapsychology. These phenomena - and the evidence for their existence is hard to dispute - are a concern to Western science, and support the notion of some distinction between brain and mind. The careful work of scientists such as Moody, Sabom and Ring on NDEs had all been published at the time of the conference. Were the scientists unaware of it, or did they consider it not worth bringing to the attention of His Holiness? Opportunities were there in plenty, particularly in the chapter on *Brain control of sleeping and dreaming states,* where lucid dreams come under brief discussion, and in the following chapter on *Manifestations of subtle consciousness.* In these two chapters the Dalai Lama takes the opportunity to put forward some of the material associated with dream yoga and with the subtle state of consciousness at death, and to reveal in the process the relative ignorance of Western science on such matters (the scientists in return primarily give accounts of the superficial aspects of dream research - how long we dream each night, when dreaming episodes take place etc.). Here, if anywhere, the scientists could have referred to Western findings that do not accord with a purely materialistic view of mind.

In fairness to the scientists it must be said that the conference lasted only two days instead of the four deemed necessary when the Mind and Life conferences were first planned. There was therefore very little time to go into things in any depth. We are told that the scientists

were also 'committed to representing consensus in their respective fields', but presumably this refers to the avoidance of controversial ideas of their own rather than to a fair-minded description of those areas where consensus within science is more apparent than real. We are also told that, in addition to eminence in their own fields, the scientists were chosen because they possessed 'some understanding of Tibetan Buddhism'. However, in a thoughtful though brief chapter by Alan Wallace early in the book on *A middle path between dualism and materialism,* he rightly criticises them for their apparent failure to recognise:

that Tibetan Buddhism explicitly rejects any substantial dualism of mind and matter in which the two are asserted as self-existent things or substances .... not only does this view reject the notion that the mind is an inherently existent substance or thing, but it similarly denies that physical phenomena as we experience them are things in themselves. ... mental and physical phenomena, as we perceive and conceive them exist in relation to our perceptions and conceptions.(pages 33 and five)

In his *Afterword,* Alan Wallace also addresses the concept of subtle consciousness and its relation to physical death:

Tibetan Buddhism asserts that during the process of dying, our normal sensory and conceptual faculties become dormant. The end result of this process , when all our normal mental faculties have withdrawn, is not the cessation of consciousness, but rather the manifestation of very subtle consciousness, from which all other mental processes originate. The presence of this subtle consciousness, according to Tibetan Buddhism, is not contingent upon the brain, nor does it entail a loss of consciousness. (page 165)

Had this been made clear during the discussion, the scientists would have had an opportunity to ask how, if 'normal mental faculties have withdrawn' at the moment of death, people have under certain circumstances, as the Dalai Lama makes clear, 'memories (that) still remain very sharp'. Are memories therefore part of subtle consciousness? In which case subtle consciousness would seem to include perceptions, conceptions as well as memories - all of which also constitute a major part of non-subtle consciousness. So what is the difference between consciousness in its two forms?

In short, *Consciousness at the Crossroads* is more an account of missed opportunities for dialogue than a record of any real interaction. In fact it is hard to see to what the term 'crossroads' in the title refers. The roads represented by Tibetan Buddhism and by Western science appear, on the evidence of this book, to be very far from any real convergence with each other.

Part Two (published in No 74 of ***Network***)

In *Two Views of Mind,* Christopher deCharms sets himself very much the same task that faced the participants in the Mind and Life conference, namely to explore whether there is anything that Buddhism and Western science can learn from each other on the nature and mechanisms of mind. The author, a neuroscientist at the University of California at San Francisco, draws much of his material from discussions he had with the Dalai Lama and other Tibetan teachers at Dharmsala throughout 1992, though he also draws extensively from the literature and from other sources.

deCharms begins by detailing conversations with the Dalai Lama and with Lobsang Gyatso on the Tibetan view of mind. He then proceeds to explore some of the differences between the Buddhist and the Western approaches to the subject - the former grounded in meditative observation and the latter in empirical verification - and points out that the Buddhist methods are what the Western science of mind lacks in any systematic form. In his contention, the main value of these methods to Western thinking is that they may be:

both subjective and systematic to a level of detail that current Western systems of observation have not yet reached. They are subjective in the sense of being ... observations of one's own experiences. To call them subjective exactly negates their main potential value to science - which is to provide a basis for carefully observing the mind from the 'inside'... (however) no amount of neural data alone can completely explain the functioning of the mind, for mental states are not experienced as neural impulses nor are they describable in those terms alone. (pages 46 and 47)

At the same time, deCharms considers that Western science provides the broad consensus, arrived at through testing and verification and lacking in Buddhism, of the neural processes that accompany mental states (though this consensus may be more apparent than real, as Wallace makes clear in *Choosing Reality* is the case in physics). Although deCharms does not pursue the point, the contribution of this consensus to Buddhist understanding would seem to be that differences between neural functioning may help us to distinguish between the various forms of mystical experience, though I have my doubts about this, not least because the inadequacies of language make it difficult to classify mystical experiences with any certainty.

deCharms stresses that we should not be misled by the apparent similarities that exist in some areas between the Buddhist concepts of mind and those of Western science. The Buddhist approach - as expounded particularly in the*Abhidharma,* the earliest compilation of Buddhist philosophy and psychology - is largely descriptive and explained by means of metaphor and illustration, whereas that of Western science is mechanistic and explained in terms of material forces acting upon constituent parts of the brain. He points out in addition that the major concern of the Buddhist is with practices designed to bring about desirable changes in mental states, rather than with the chemistry behind these changes. By contrast, the Western scientist is concerned precisely with this chemistry (and its associated biology and physics), and if changes in mental states are required, he or she seeks to bring them about by manipulating this chemistry. To look towards Buddhism for answers to Western questions about physical mechanisms, or to look to Western science for answers to Buddhist questions about mystical states, is to court disappointment and confusion. It is the complementarity of their approaches rather than the overlap between them that should attract us.

Of course, deCharms might also have pointed to another frequently overlooked difference between Buddhist and Western ideas on the mind, namely that of historical time-scale. Buddhaghosa, the Indian sage who codified the*Abhidharma,* lived some 1500 years ago, whereas the great majority of our Western knowledge on the neural aspects of the brain has been acquired only over the last decades. The *Abhidharma* still remains the dogmatic basis for both Theravadin and Mahayana Buddhism after a millenium and a half, while our modern neurology textbooks are out of date almost as soon as they are written. What does this tell us? That Buddhists are stuck incurably in the past while we in the West continue to forge ahead? Or that the knowledge of the mind revealed in the *Abhidharma* (and said to

originate in the teachings of the Buddha himself) has so stood the test of time - more specifically the direct experiences of countless thousands of advanced meditators - that it has been verified beyond reasonable doubt? The point is one to which I return in my conclusions.

Turning to perception and consciousness, deCharms discusses further differences between East and West. In Buddhism perception is seen as a way of acquiring the truth of experienced reality, whereas in science it is regarded as the brain's interpretation of sensory information. The differences in philosophy between East and West are shown up sharply here. For Buddhism, perception is a means through which we can liberate ourselves from the ignorance that prevents us from seeing into the real nature of things, while in the West it is simply a function of our fundamental urge for survival. Buddhism wants to know whether the objects of perception are 'true' or not, science wants to know if they are of use. Buddhism holds that the purpose of perception is to provide us with consciousness of reality, science regards it as existing only to allow effective behaviour. Buddhism sees consciousness, particularly subtle consciousness, as quite literally what we are, while science questions why it should exist at all, given that survival would seem to be possible without it.

In spite of these differences, deCharms considers that Buddhism can learn from the West that the human body has many organs of sensory perception in addition to the five known traditionally - for example science has established that the mechanisms in the ear perceive not only hearing but movement, balance and orientation in space - while the West can learn from Buddhism the centrality of consciousness and of the knower in the interpretation and understanding of perception and awareness. However, he does not explore what the two traditions will do with the knowledge generated by the other should they decide to become more familiar with it. Knowing the mechanisms of the inner ear is of enormous value if we are dealing with physical problems associated with these mechanisms, but it is hard to see how such knowledge can help us in overcoming ignorance about the real nature of the physical world and of one's own mind. Similarly, knowing the centrality of consciousness is vital if we want to understand the real nature of things, but is of little use if we are treating patients with disturbances of the middle or inner ear.

There follows a somewhat technical chapter which reports a discussion between deCharms and the Dalai Lama on various aspects of perception, and likely to prove of most interest to those Western scientists with specialist interests in the detailed issues involved. The next chapter, a discussion with Lati Rinpoche, continues along similar lines. However, of considerable general relevance is Rinpoche's explanation that just as the eye allows seeing but is not itself sight, so the brain allows thought (presumably because it receives and registers the sense impressions which stimulate thinking) but is not itself thought. He insists that the brain does not in fact possess the 'illuminating element' (*sal rig*) that runs through cognitive states (and which presumably reaches back to cognition in previous lives).

From perception, deCharms goes on to explore conception, and makes clear that although the concepts we have about an object are not the object itself, phenomena can only be grasped initially *through* conceptualisation. Thus if the mind is to have direct awareness of the subtle nature of experience, it must replace the conventional conceptualisation which is our usual mode of thinking by what Buddhism calls true conceptualisation. Until it does so, even meditation cannot lead to this direct awareness, and reveal all the subtle features of phenomena. It is the need to refine and develop conceptualisation from the conventional to the true that explains the strong emphasis placed upon debate and scholarship by the

Gelupa order, and the refusal of some Gelupa teachers to allow young monks to commence meditational practices until they have some grounding in this scholarship.

The development of true conceptualisation involves ridding ourselves of all aspects surrounding objects and events which do not pertain essentially to their nature. This practice allows us to approximate more and more closely to their subtle features until eventually we *realise* these features in their fullness. For example, if everyone wore gloves, we would mistakenly conceptualise hands as being in the form of gloves. However, if we become more acquainted with the hand (for example by feeling its structure underneath the superficial material of the glove), we would progressively recognise that gloves are only outer coverings, and not properties of hands themselves. This metaphor is of course an over-simplification, because it is not simply the outer coverings of objects that needs to be stripped away in order to realise objects in their fullness. Thus once having realised the hand we would then need cognitively to dissect it in turn, until we proceed from its fullness to its emptiness. But the metaphor conveys something of what Buddhism teaches.

Without these steps towards true conceptual understanding, we crucially fail to recognise that, in the form in which they are conventionally experienced, all matter and even the self are impermanent and constantly changing, a recognition which is essential if we are to cease to cling (be over-attached) to these things - a major cause of suffering according to Buddhist teachings. Once we start taking them we become aware of the simple, specific, and richly detailed nature of things, and are said to be on our way towards a realisation of ultimate truth at which point the object as it appears to perception, the object as it is conceptualised, and the object in itself are now experienced as one and the same.

deCharms tells us that by contrast, Western neuroscience regards thought and concept formation in a purely mechanistic way. Instead of starting with subjective experience, it begins from the opposite direction and examines how concepts might work and what they might do. Concepts are considered to be brain processes that follow physical laws, and the many trillions of interconnections involved in these processes are thought to allow the brain to be continually reshaped by experience (and thus to escape rigid determinism). The result of this mechanistic approach by Western neuroscience is that the brain is studied primarily as a passive organ which merely processes information fed in from the outside, and little attention is paid to how the mind takes an active role in experience, and shapes perceptions and generates behaviour through active choice. Furthermore, as neuroscience considers that these various brain processes run in parallel, it does not recognise the existence of a single unified structure - such as a 'self' - behind it all. Indeed, as deCharms points out, the neural origin of our subjective experience of a 'self' as a controller or experiencer of all this mental activity remains a mystery to neuroscience.

deCharms then devotes several further chapters to discussions with Tibetan lamas on the details of how the neural pathways recognised by Western science and the subtle anatomical channels recognised by Tibetan thinking may relate to each other, and how both may operate to allow the processes of perception to take place at the physical (or in the case of the Tibetan system the quasi-physical) level. These discussions will have undoubted curiosity value for Western neuroscientists and psychologists, but are unlikely to engage the layperson. It is also difficult to see how they may assist the coming together of Western and Eastern ideas, as the level of conceptualisation represented by the respective systems appears to be quite different, and the relationship between them difficult to identify.

In view of this it is easy to understand why in his concluding chapter deCharms remarks that Western mechanistic analysis 'offers a way of thinking about the mind that is almost entirely different from that provided by (the Tibetan) tradition'. It is less easy to understand why he sees the former as bringing 'a whole new set of challenges' to the 'old beliefs' of the latter, and why he considers that 'the kind of objective understanding of the mind (practised in the West) has some practical and theoretical import for the Buddhist view'.

Put simply, what are Tibetan Buddhists supposed to do with the knowledge gained from the West? deCharms concedes that it is an open question whether the Western approach 'can help a meditator towards the elimination of confusion'. If the answer to this question, as I would suggest, is no, are there other ways in which it may prove useful? deCharms speaks of how Western discoveries have made it possible, within narrow limits, to make valid inferences 'about how the mind works based upon the functioning of the brain', and of how these inferences help us 'in diagnosing and treating numerous illnesses of the mind, such as manic-depressive disorder, schizophrenia, (and) impairment of the senses such as deafness'. If this is so (and it is open to challenge - most of the improvements in the treatment of mental disorders owe far more at the practical level to advances in psychopharmacology than to advances in brain science), how is this information to be put to use by Tibetan Buddhists, since it is unlikely they will be able to develop their own research laboratories and their own colleges of psychiatry?

Tibetan Buddhism, like most spiritual traditions, is a path of transformation rather than a path of neural science. deCharms considers that our Western knowledge of how the brain remodels its physical structure in response to experience suggests that the transformative processes described in Buddhism 'may have discoverable physiological underpinnings, and that an understanding of this physiology might someday lead to insights into how to change the mind more effectively'. Perhaps. It is just possible to imagine a scenario in which drugs are discovered which persuade the brain to 'remodel' itself in the way in which it may be remodelled by Buddhist transformational practices. But even in this highly unlikely eventuality, would the effects be the same as when this remodelling takes place as a result of direct experience? Isn't it the experience itself that counts, and not just a tinkering with neural pathways? And would such tinkering miraculously produce a change from conventional to true conceptualisation? deCharms seems to overlook the fact that in Buddhism the path and the goal are seen as aspects of the same thing (e.g. Dogen's famous dictum that 'one does not meditate in order to become a Buddha, one meditates because that is what Buddhas do').

Western science, deCharms feels, can benefit from Buddhism in its search for a generally accepted definition of consciousness, and in its understanding of awareness, of mind, of the subject-object relationship, and of experience. Here he seems to be on less contentious ground, though whether Western science will take advantage of the opportunities offered is quite another matter. However, deCharms careful examination of both Eastern and Western approaches fully justifies his conclusion that the two systems should be seen as complementing rather than duplicating or contradicting each other. His final paragraph even claims to identify one point on which they agree, namely that on the one hand through meditation and logical reasoning, and on the other through mechanistic analysis and theoretical models, neither of them see any need 'for a belief in a self, there is only a process taking place which is our individual experience'.

What is one to make of these three books? Do they add a great deal to our understanding of the differences between Western and Eastern ideas and how the debate between them can best be moved forward? The answer to the first question is certainly yes, but the answer to the second is more problematic. Although none of the books explores the issue in any detail, a major problem is the different methodologies used by Eastern and Western traditions. The approach of the former is based upon direct observation of one's own mind, and the practitioner is given guidance on how to test these observations against personal experience. The practitioner is, in a sense, his or her own experiment. But this testing may take a lifetime of dedicated practice. Very few, if any, Western neuroscientists are prepared to follow this path, and none of them would be prepared to accept Buddhist findings without supporting experimental evidence. In the absence of this evidence, is it likely that Buddhist ideas will attract any real mainstream attention?

Similarly, how likely is it that Western ideas will have practical relevance for Tibetan Buddhism? I have already questioned how Buddhism might be expected to use these ideas. They have no obvious application for meditative practices, or for the development of true conceptualisation. They might change Buddhist theories on such things as the existence of subtle channels, but the concept of subtle channels seems to relate to different levels of reality from Western neurological models. The former are quasi-physical, in the same way that the meridians of the acupuncturists are said to be quasi-physical and to relate to subtle 'energy bodies' rather than to physical systems. By contrast, Western models are firmly grounded in observable physical reality, however conventional our conceptualisation of this reality seems to be. Just as the meridians of the acupuncturist have withstood the criticisms of Western science (not least because they are seen to have practical value), so too may the Tibetan subtle channels.

The question that then arises for many Westerners, is why bother to study Buddhist ideas? Why does it matter whether we see the external world as objectively there or not? Why does it matter whether we think of ourselves and all other phenomena as self-existent or not? Western science, however much we may criticise its models of reality, has been outstandingly successful in doing what it sets out to do, namely probing the secrets of the physical world and shaping this world to our service. Why concern ourselves with what may seem like metaphysical ponderings?

The answer brings me to a point that none of the books really tackles. Buddhism is a religion, by which is loosely meant a set of teachings about spiritual realities. There is a tendency among some Western Buddhists to play down this side of things, assisted partly by certain misconceptions about the Buddhist *anatta* doctrine of no permanent 'self' or 'soul', and the absence of any teachings regarding a creator god. But if one strips out the spiritual side of Buddhism, with what are we left? A set of practices designed to alleviate mental suffering - in other words a form of psychotherapy and personal growth movement? As such it must compete with the many other psychotherapies (and psychopharmacologies) available in the West and the many other personal growth movements. In the face of such competition its appeal will remain limited. Few people will be prepared to embark upon the lengthy and committed training which it teaches when there are much quicker (if less deeply satisfying) alternatives available. The Western liking for quick solutions to its problems will see to that. In addition, the last thing many psychologically vulnerable people need is a psychotherapy that confronts them with the *anatta* doctrine. At the very least, such people require help in working towards an actualised self before they are strong enough to transcend it with higher

realisations. deCharms is quite wrong when he speaks of no need for a belief in the self. At the relative level there is every need. The task is to distinguish between the conventional conceptualisation represented by this relative level, and the true conceptualisation which lies beyond it.

It may be objected that even without its religiosity, Buddhism teaches not just a way out of personal suffering, but compassion and loving kindness towards others. This is true, but the West has generally proved more effective at caring for the needy and underprivileged than has the East. It may also be objected that, through its doctrine of*ahimsa* (non-violence) and the unity of all things, Buddhism teaches respect for every form of life and for the environment. This is also true, but such respect is already a part - if an often unheeded part - of the Western tradition. Buddhism can certainly help strengthen this tradition, but this is not the same as initiating radically new ways of thinking and being.

No matter how one views it, the role of Buddhism can only be properly understood if its religiosity is recognised. This applies particularly to our understanding of its teachings on the mind. For Buddhism, conscious processes pre-date birth and survive after death. Such survival involves not only subtle consciousness but, as the references to the Dalai Lama's comments quoted in *Consciousness at the Crossroads* make clear, earth memories and the consequences of one's behaviour during earthly life. Moreover, Buddhism has detailed teachings on the nature of the afterlife, on rebirth, and on the ultimate aim of existence, namely the attainment of Nirvana, a state in which the subtle consciousness realises its true nature as ultimate reality. Buddhist theories of mind, Buddhist mind training, Buddhist ways of living, are all directed towards this realisation. It is for this that the Buddhist seeks to refine conventional conceptualisation into true conceptualisation, for this that the Buddhist strives to see into the real nature of things, for this that the Buddhist seeks to understand his or her own mind. Buddhist teaching is that failure to follow a spiritual path, and to break free of the ignorance that mistakes physical reality for ultimate reality, condemns one to lifetime after lifetime in the world of *samsara,* of suffering (interspersed perhaps with the odd rebirth in one or other of the somewhat unpleasant hells said to await the unwary, or even as an animal).

Whether we accept the reality of any of this teaching or not, Tibetan Buddhism cannot be understood unless it is approached within the context of it. We may plead that Buddhism should be separated from cultural accretions such as a belief in previous and future lives, but such pleadings tend to come from those who have not studied Buddhist literature.
Teachings on previous and future lives are not simply cultural accretions.
The *Abhidharma,* which I have mentioned as the dogmatic basis of Buddhism, makes explicit reference to them, and is said to go back to the words of the Buddha himself.
The *Prajnaparamita* ('The Perfection of Wisdom'), which is claimed as one of the highest expressions of Buddhist wisdom, is full of references to other lives, as are many of the Sutras. The Bodhisattva ideal of Mahayana Buddhism is based upon the idea of enlightened men and women taking voluntary rebirth in this world (instead of entering final Nirvana) in order to teach others. The *Bardo Thodol* (mistakenly translated as 'The Tibetan Book of the Dead') provides detailed guidance to the afterlife state. Even Zen Buddhism, which is regarded by many commentators as the most practical and iconoclastic of the Buddhist paths, pays special reverence to the*Prajnaparamita,* and Ch'an (Chinese Zen) masters, in additon to Ch'an teachings, will also teach the beliefs of Jodo-shin-shu ('True School of the

Pure Land') which hold that veneration of Buddha Amida leads to rebirth in his Pure Land, where final enlightenment is easier to obtain than it is in this world.

As mentioned earlier, the longevity of Buddhist teachings on the mind and of former and subsequent lives suggests that they have proved of practical value. It is inconceivable that they would have done so had they been presented and used simply as theoretical models or as psychotherapies. Buddhists have followed the Buddhist path as a spiritual training leading to the realisation of a state of consciousness said to transcend the impermanent world of appearances and allow realisation of one's true, undying nature. If we are to look to Buddhism for guidance on the mind, we are unlikely to benefit much unless we approach it - whether ultimately to accept it or reject it - in its entirety.

Of the three books under review, Wallace's *Choosing Reality* comes closest to this approach. An absorbing text which sets out complex ideas on both Buddhism and Western science with persuasive clarity. Even those with no interest in Buddhism can read it as a perceptive critique of Western science, a critique reflecting not just personal scholarship and enquiry but much post-modern thinking. *Consciousness at the Crossroads* can be recommended for its presentation by Western authorities of orthodox neurological views, and as a demonstration of how resistant such views are likely to be to much of Buddhist teaching. *Two Views of Mind* is a much more specialist text, requiring in places some background knowledge - and some interest in - the intricacies of Western views of perception and cognition. Like *Consciousness at the Crossroads* it reveals the sizeable gap between Eastern and Western thinking, and, by virtue of its transcripts of interviews with a number of Tibetan lamas, will appeal to those who wish to know more of the intricacies of Tibetan theories on such things as subtle channels. Thus all three books have their place, and are of great help in highlighting some of the major differences between Tibetan and Western ideas (though the absence of an index in any of them is a puzzle and a handicap). But if I had to recommend only one to both the specialist and the lay reader I would unhesitatingly name *Choosing Reality.* A splendid book viewed from both Eastern and Western perspectives.

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