Buddhism and Cognitive Science: Contributions to an Enlarged Discourse
Symposium Proceedings

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PREFATORY NOTE

ON FRIDAY, 10 MAY, 2002, the Institute of Buddhist Studies and the Center for Theology and the Natural Sciences co-hosted a one-day symposium on the topic of Buddhism and Cognitive Science. The symposium comprised four presentations, given by Richard K. Payne, Institute of Buddhist Studies; B. Alan Wallace, Institute for the Interdisciplinary Study of Consciousness, Santa Barbara; Eleanor Rosch, University of California, Berkeley; and Steven A. Tainer, Institute for World Religions and the Kira Institute. The papers which follow are revised versions of the presentations given at that symposium. The symposium was organized as part of a class on "Buddhism and Cognitive Science" taught by Payne, and was supported by a curriculum development grant from the Templeton Foundation given under the "Science and Religion Course Program" coordinated by the Center for Theology and the Natural Sciences.

The following introduction to the symposium proceedings seeks to identify some of the reasons why a dialogue between Buddhism, cognitive science, and phenomenology (a topic which emerged out of the symposium) is of value to the future of Buddhism in the West, including identifying some theoretical points of contact between the two.

WHY IS COGNITIVE SCIENCE IMPORTANT TO THE FUTURE OF BUDDHISM IN THE WEST?

Before progressing further with a discussion of the relation between Buddhism and cognitive science, it is important to clarify some of the terminology involved. Elsewhere B. Alan Wallace has pointed out the difficulty of applying the categories of religion, science, and philosophy—to which we might add psychology as well—to Buddhism:

> To understand Buddhism on its own terms, it is imperative that we in the West recognize the cultural specificity of our own terms *religion*, *philosophy*, and *science* and not assume from the outset that Buddhism will somehow naturally conform to our linguistic categories and ideological assumptions.[1]

These disciplinary categories have their origins in the context of Western intellectual history, and have often been defined in terms which make them mutually exclusive. In contrast, Buddhism developed over its entire history up to the latter half of the nineteenth century in different intellectual contexts, ones which were not structured according to these disciplinary categories. As a consequence, Buddhism shares important characteristics with all of these disciplines. In the following, the category of religion as applied to Buddhism is meant in the broadest sense, one which is inclusive of scientific, philosophic, and psychological aspects.

Living Traditions Versus Dead Ones

It seems that we can approach Buddhism in one of two ways. First, we can understand it as a living religious tradition that continues to develop in relation to the changing world within which it exists. Alternatively, we can view it as a dead system of religious doctrines to be believed despite no longer being congruent with the contemporary world.[2]

If we see Buddhism as a living tradition capable of making a difference in the lives of people today, then the theories and teachings must be brought into dialogue with contemporary thought. The historical development of Buddhist thought has itself been motivated by such interactions. The development of Indian Buddhism was motivated by interactions with Hindu religious traditions, while East Asian developments were in large part motivated by interaction with Daoist and Confucian systems of thought. Additionally, interaction between differing strains of Buddhist thought also contributed to the further refinement and clarification of views.

The "Two Domains"

One of the most widely shared assumptions about the relation between science and religion is that the two form "two domains." In the two domains theory science deals with matters of fact, while religion deals with matters of value.[3] This intellectual distinction has a sociological analogy in the concept of "two cultures" introduced by C.P. Snow.[4] In Snow's view there was a moral distinction between these two forms of culture which co-

exist in American society: "one progressive and scientific, the other literary, conservative, and retrograde."[5] Even more tendentious than Snow's two cultures is the "warfare" model of the relation between science and religion, given its most classic expression in Andrew Dickson White's *A History of the Warfare of Science with Theology in Christendom* (1896). In contrast to both the two cultures and warfare models of the relation between science and religion, the two domains theory seems to offer a reasonable resolution, assigning science and religion each to its own separate function. According to the two domains view, fundamentally there is no interaction between science and religion.

While the two domains view may avoid conflict, as a normative theory of how science and religion should relate to one another it does not capture the actuality of the relation. Instead of two domains, the history of the two undertakings is much more that of a "dialectical interaction."[6] Indeed, some historians of science point to Christian institutions, practices, and concepts as important in the origin and development of natural science in the West.[7] Similarly, Daoism and Buddhism have been seen as playing a central role in the history of scientific knowledge in China.[8] Further, it is simply not the case that Buddhism, for example, only makes assertions regarding values. The values that it does assert are not separable from the rest of the Buddhist philosophic anthropology, epistemology, psychology, and traditions of practice.[9]

While the two worlds view may have an initial plausibility and appeal, the ulitmate consequence is to marginalize religion, trivializing it as arbitrary and speculative. As with matters of taste, matters of value divorced from the question of truth or any other contextualization simply become a matter of personal preference. Without opening the psychological teachings of Buddhism to critique in light of contemporary cognitive science, we will simply condemn it to being a dead religion, to be believed despite its lack of congruity with contemporary understandings. Better, I believe, to model ourselves on the great Buddhist teachers of the past—such as Nāgārjuna, Vasubandhu, and Dharmakīrti—and continue to develop Buddhist thought, even at the risk of discarding some aspects which fail in the light of contemporary understandings. Otherwise, Buddhism becomes simply a dead set of dogmas, disconnected from our contemporary realities and of only antiquarian interest.

Primacy of the Psychological in Buddhism

The Buddhist tradition has throughout its history given attention to the workings of mind. For example, the *Dhammapada*, a collection of sayings compiled from the earliest scriptural records of the Buddha Śākyamuni's teachings, opens with a discussion of the power one's perception of a

situation has in determining the emotional quality one experiences in that situation:

> Preceded by perception are mental states,
> For them is perception supreme,
> From perception have they sprung.
> If, with perception polluted, one speaks or acts,
> Thence suffering follows
> As a wheel the draught ox's foot.
>
> Preceded by perception are mental states,
> For them is perception supreme.
> From perception have they sprung.
> If, with tranquil perception, one speaks or acts,
> Thence ease follows
> As a shadow that never departs.[10]

Understanding the working of mind is seen as central to progress on the path and the achievement of awakening (*bodhi*). Consequently, there are extensive discussions about the working of mind to be found throughout the Buddhist scriptures, and there are systematic treatments to be found in such schools of thought as the *abhidharma* and Yogācāra.

If we take these models of mind seriously, then we must be willing not simply to repeat the teachings but to engage them critically. Placing these traditional Buddhist accounts of the way in which the mind works in juxtaposition to contemporary cognitive science is one way of determining the ongoing relevance of Buddhist conceptions of mind to present-day practitioners.

The Role of Cognitive Science: Naturalizing Buddhist Psychology

The project of juxtaposing Buddhist psychology and cognitive science should not be seen as an uncritical acceptance of the authority of science, but rather as a dialogue in which the phenomenologically-based teachings of Buddhism concerning the workings of the mind can interact critically with cognitive science. Nor is it an attempt toward some grand resolution demonstrating the perfect harmony of Buddhism and cognitive science. And, finally, it is not an appeal to the authority of cognitive science as legitimating Buddhism—an all too common project in the discourse on science and religion. Rather, the goal is twofold: to find a critical perspective from which to evaluate the contemporary relevance of traditional Buddhist teachings, and to provide Buddhist models of consciousness and

its transformation critically different from those already under consideration in cognitive science.

For the theoretical systems of Buddhist psychology to engage contemporary thought, it is necessary to find an approach to the working of mind that is congruent, i.e., one which has a similar scope of inquiry. While there have been many studies of the relation between Buddhist psychology and various psychotherapeutic theories (Freudian, Jungian, cognitive-behavioral, etc.), it is arguably the case that Buddhist psychology is not therapeutic in the sense that these approaches are. Most importantly, Buddhist psychology has no theory of pathology, and does not primarily concern itself—except perhaps metaphorically—with moving the person from dysfunctional to a normal functioning within a particular social context. The highly analytic and almost mechanical approach to the workings of the mind found in *abhidharma* and Yogācāra suggest greater affinity with cognitive science than with psychotherapeutics.

Buddhist psychology is informed both by philosophic speculation based upon fundamental doctrinal claims, and by a method of phenomenological observation.[11] For these claims and observations to form part of a dialogue between Buddhist psychology and cognitive science means that the concepts of Buddhist psychology need to be naturalized in the same way that recent work on the relation between phenomenology and cognitive science has sought to naturalize the concepts of Husserlian phenomenology.[12] While some authors simply use the term "naturalize" to mean reducing all phenomena to physics, what is meant here is the willingness to see the entities and processes described by Buddhist psychology as part of the natural world, and therefore subject to examination, study, and replication. This implies a much more complex ontology than simple materialism—for example, the existence of thoughts and perceptions as the result of causes and conditions. However, Buddhist thought has long dealt with this kind of issue.

POINTS OF CONTACT, FUTURE DEVELOPMENTS

Currently, there are three alternative theoretical approaches to cognitive science: computational-symbolic, connectionist-dynamic, and embodied-enactive.[13] The computational-symbolic approach analyzes the mind in terms of computations and the processing of information in the form of symbols according to identifiable rules. Contributors to cognitive science rooted in applications, e.g., robotics, have demonstrated that the quantity of computations entailed in replicating a relatively simple activity are unworkable.[14] The computational-symbolic approach is sequential in the way that axiomatic-deductive logic is sequential. In contrast to the sequential character of the computational-symbolic approach, the

connectionist-dynamic analyzes the mind as a network which produces behavioral dynamics that are regular and definable. Both of these share a commitment to understanding the mind as a mechanism characterized by the creation and manipulation of representations. The embodied-enactive approach, however, understands cognition as emerging from the activity of embodied agents.[15] This approach is philosophically rooted in the phenomenology of Maurice Merleau-Ponty.[16]

Throughout Buddhist thought one frequently finds the phrase "body, speech, and mind" as a way of describing the existential totality of human beings. This view can be understood as emphasizing the embodied nature of human existence, establishing at least a *prima facie* similarity with the embodied-enactive approach to cognitive science. The integrative or holistic orientation of Buddhism, embodied-enactive cognitive science, and phenomenology is also found in recent anthropological theory. Geoffrey Samuel's anthropological methodology, which he refers to as the "multimodal framework" (MMF), attempts to overcome the artificial divisions between mental, social, and natural. To this end, the MMF rejects a pair of distinctions—between body and mind, and between individual and society—which have been taken largely for granted in anthropology. In place of these, Samuel suggests thinking in terms of the "modal states" of the entire "human ecosystem." These modal states are "the patterns of relationships, both relationships among human beings and their natural environment" and at the same time "unified states of mind and body."[17]

As mentioned above, both the computational-symbolic and connectionist-dynamic approaches to cognitive science are constructed around a view of consciousness as being a matter of representations: "Cognitive science assumes that the cognitive mind is a representational device—that is, a device that has states or that contains entities that are representations."[18] This continues the cultural assumption of Cartesian dualism of *res cogitans* (literally, thinking being; mind and the mental) and *res extensa* (literally, extended being; body and the physical). The inner, mental world is one comprised of representations of the outer, physical world.[19]

One of the points of contact between Buddhist thought and phenomenology is a shared rejection of this kind of dualistic psychology. Phenomenologically, we are bodies in the world and consciousness is intentional, i.e., forms a non-dual field of perceiver and perceived (see Rosch in this issue).[20] Thinking of consciousness as a non-dual field can be understood through the metaphor of an electromagnetic field. The field is only created when both a positive and negative pole are present. Similarly, in this view, consciousness only exists in the field created by the perceiver and the perceived, or as the terminology of Yogācāra describes it, grasper (*grāhaka*) and grasped (*grāhya*), the dualistic interpretation of which Yogācāra identifies as a mistaken belief.[21]

As discussed by Wallace in his paper here, for most of the twentieth century Western psychology attempted to exclude consciousness from consideration. What may well have begun as a reasonable methodological strategy ("We can't figure out how to meaningfully study consciousness right now, so we'll set it aside until later.") soon developed into a doctrinaire claim that consciousness does not exist except as a "mere" epiphenomenon, and as such is hardly worthy of consideration. One of the values of the recent turn by some cognitive scientists to the philosophic tradition of Husserlian phenomenology is that consciousness has been of central concern to phenomenology and existentialism throughout the period of behaviorism's dominance in psychology. For example, the still-important *Phenomenology of Perception* by Maurice Merleau-Ponty was published in French in 1945, and in English translation in 1962, and remains in print today. The continuity of phenomenological concern with consciousness is demonstrated by Aron Gurwitsch's *The Field of Consciousness*, which was published in French in 1957 (English translation, 1964), and Henri Ey's *Consciousness: A Phenomenological Study of Being Conscious and Becoming Conscious*, which appeared in French in 1963 (English translation, 1978). As often seems to be the case, disdain for philosophy means that psychology has to recapitulate much that has already been thought through. A unified or non-dual view of human cognition, which is a potential for cognitive science under the embodied-enactive approach, can provide a means of discussing practice and its effects in such a fashion as to avoid implicitly reinstantiating dualistic conceptions of the body and mind.

Buddhism, cognitive science, and phenomenology all make claims regarding human cognition, and often these claims are asserted as applying to all humans no matter when or where they lived. In Buddhism, for example, we find such claims as all human existence is marked by dissatisfaction (*duḥkha*), and that full awakening is possible for all humans—or even more universally, for all sentient beings. For most Buddhists it would seem that these and similar universal claims are accepted on the basis of the authority to whom the claims are attributed, whether the Buddha Śākyamuni, or one of the later masters such as Dharmakīrti, Tsong khapa, Zhiyi, or Shinran.[22] In phenomenology, such universal claims are supported by the epistemological value of the phenomenological method—*epoché* and reduction.[23] Cognitive science can provide additional tools for the evaluation and understanding of such claims about consciousness. For example, in Pascal Boyer's application of cognitive science to religion the constraints of conceptual organization and the recurrence of religious phenomena provide the means by which claims about human consciousness can be evaluated. According to Boyer, constraint by the organization of concepts has two dimensions, an internal and an external. By internal he means "what holds a category together and makes it a mental structure that can encompass various objects or events or thoughts." External aspects of

conceptual constraints refers to "the way different categories are related, the type of 'networks', 'theories' and other complex structures in which categories are embedded."[24] The recurrence of a particular religious phenomenon, that is, its transmission from one generation to another, provides a way of understanding the cognitive contribution to religious traditions. Boyer has also discussed this under the theme of "belief fixation," which, while encompassing a "series of different questions, to do with the acquisition of concepts, the processes of persuasion, the memorisation and transmission of particular items of knowledge, etc." has as its unifying theme the metatheoretical assertion that "a proper theory of religious symbolism should have at least a minimal account of the processes whereby cerain ideas and actions are made intuitively plausible to human subjects."[25]

One of the key issues for contemporary thought is in fact a very old philosophic problem, that of the universal and the particular, or yet another version of the argument over nature versus nurture. This relates to Buddhist discussions about the universality of awakening, and such ideas as inherent awakening and buddha-nature. One of the extreme versions of postmodernism asserts that all aspects of human existence are particular, i.e., are conditioned by culturally and historically specific factors. This continuation of Romantic themes has been in reaction to modernist assumptions of human uniformity. For cognitive science this may be phrased in terms of the autonomy of culture versus the role of the biological universals, what has also been called "the problem of the given and the made."[26] Put strongly: are the characteristics of cognition solely the result of cultural constraints, which are distinct from one culture to another, or is cognition the result of biological constraints which are invariant across the species? What cognitive science can contribute to this discussion is information about the role of development in creating innateness—it is not simply the case that there are certain innate structures which are determined genetically, but rather that interaction between the genetic coding and the environment during the developmental process creates what appears to be invariantly innate at a later stage; the environment is itself a changing category from this perspective as it extends across the womb environment of the embryo, the physical environment, as well as the linguistic, social, and cultural environments.[27] Thus, the distinction between particular and universal is not one that is black and white, and would appear not even to be black and white with a range of greys in between, but rather only a range of greys out of which we fabricate black and white categories. The effect of the interaction between cultural context and cognition over the developmental course of a lifetime suggests the importance of viewing the Buddhist teachings as heuristics (*upāya*), in that different kinds of teachings may be appropriate to different people, and even to the same person at different times in their life.

Finally, one area in which cognitive science may stimulate Buddhist thought further is in the area known as "distributed cognition." While Buddhism has long recognized the conventional, or socially constructed character of concepts (*prajñapti*), it does not seem to have any corollary to the idea that thinking goes on as a group activity, or that cognition is a social function. As conceived by the theory of distributed cognition, cognition is not something that takes place in isolation inside one person's head. Citing Boyer again, he refers to the work of L.S. Vygotsky, an approach which "clearly locates cognitive development in its social contexts and traces patterns of development as a function of interaction."[28] Beyond the developmental question, however, distributed cognition highlights the need to "reconsider human cognition as distributed beyond the compass of the organism proper in several ways: by involving other persons, relying on symbolic media, and exploiting the environment and artifacts."[29] For Buddhism to integrate a view of cognition as distributed should not pose insuperable difficulties. The idea of interdependence (*pratītyasamutpāda*) and the familiar metaphor of Indra's net would seem to offer ways of pursuing such an integration.

This introduction has briefly discussed four aspects of the dialogue between Buddhism, cognitive science, and phenomenology: the view of body, speech, and mind as forming a non-dual, integrated whole; the utility of the methods of cognitive science; the contribution of a developmental perspective to Buddhist understandings of universal human potentials; and the problematic question of distributed cognition. Some—but certainly not all—of the other themes which will continue to inform this dialogue are: creating a contemporary understanding of the efficacy of Buddhist practice such as meditation and ritual; the implications of human cognitive structures and conceptual constraints in the formation and historical development of various doctrinal claims; and various potentially problematic areas, such as innate cognitive structures versus developmental process and neuronal plasticity, and the role of socialization and enculturation such that what is culturally specific, i.e., contingent upon historical development, is experienced as simply given or natural.[30] Given Buddhism's long history of placing primary emphasis on consciousness in the transformation of human existence, the future development of Buddhist thought would seem to necessarily entail a continuing dialogue with cognitive science.

NOTES

1. B. Alan Wallace, "Introduction: Buddhism and Science—Breaking Down the Barriers," in B. Alan Wallace, ed., *Buddhism and Science: Breaking New Ground* (New York: Columbia University Press, 2003), p. 5.

2. Or, in a perverse sense that would have delighted Tertullian, the early Church Father who asserted "I believe because it is absurd" (*credo quia absurdum est*), and Sōren Kierkegaard, the existentialist who asserted that religious faith is simply a "leap of faith" and not a matter of reason, to be believed despite not being congruent with the contemporary world.

3. The easy plausibility of the two domains doctrine suggests that it is based on older models. In this case it may, perhaps, go back as far as the late medieval dispute between the Pope and the Holy Roman Emperor regarding who held authority. The Papacy argued that the Pope held both religious and civil authority, while the Imperial forces argued that the two authorities are appropriately divided between the Pope and the Holy Roman Emperor. This division is echoed by the division between church and state at the heart of American political organization.

4. Charles Percy Snow, *The Two Cultures and the Scientific Revolution* (Cambridge: Cambridge University Press, 1959).

5. James Gilbert, *Redeeming Culture: American Religion in an Age of Science* (Chicago and London: The University of Chicago Press, 1997), p. 5.

6. Gilbert, *Redeeming Culture*, p. 3.

7. See for example, Amos Funkenstein, *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century* (Princeton: Princeton University Press, 1986); Peter Harrison, *The Bible, Protestantism and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998); David C. Lindberg, *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, 600 B.C. to A.D. 1450* (Chicago and London: University of Chicago Press, 1992); John Hedley Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991); and David C. Lindberg and Ronald L. Numbers, eds., *God and Nature: Historical Essays on the Encounter between Christianity and Science* (Berkeley, Los Angeles, and London: University of California Press, 1986).

8. The most extensive treatment is the now famous study edited by Needham, *Science and Civilization in China*, 7 vols. (Cambridge: Cambridge University Press, 1956–2003). In his view, scientific knowledge was fostered by Daoism, but hampered by Buddhism. His understanding of Buddhism, however, is limited by the stereotype common to the period in

which he was writing, i.e., the image that Buddhism is a world-denying asceticism, nihilistic in philosophy and negative in attitude. Although this one-dimensional stereotype of Buddhism has largely faded in the past half century, Needham's views still seem to have currency in the study of science in East Asia, perhaps because it is the only major work on the subject.

9. Conversely, Buddhist meditation is not simply a value-neutral technology which can be divorced from its religious significance—the goal of awakening.

10. John Ross Carter and Mahinda Palihawadana, trs., *The Dhammapada* (New York and Oxford: Oxford University Press, 1987), p. 13.

11. By a phenomenological method here I mean a trained, systematic report of first-person experience—a description of phenomena. I am focusing here on method, rather than on the philosophic goals of Husserl's phenomenology when he defined it as a "transcendental idealism": "an investigation of those conditions through which we experience and think that are not readily apparent while we are experincing and thinking" (Dan Lusthaus, *Buddhist Phenomenology: A Philosophical Investigation of Yogācāra Buddhism and the* Ch'eng Wei-shih lun [London and New York: RoutledgeCurzon, 2002], p. 11). The usage here is perhaps in fact closer to the pre-Husserlian meanings as found, for example, in W. Brede Kristensen, *The Meaning of Religion: Lectures in the Phenomenology of Religion* (The Hague: Martinus Nijhoff, 1960).

12. See, for example, David Woodruff Smith, "Intentionality Naturalized?" in Petitot, et al., eds., *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science* (Stanford: Stanford University Press, 1999), pp. 83–110.

13. Jean-Michel Roy, Jean Petitot, Bernard Pachoud, and Francisco J. Varela, "Beyond the Gap: An Introduction to Naturalizing Phenomenology," in Petitot, et al., eds., *Naturalizing Phenomenology*, pp. 1–80.

14. See for example, Andy Clark, *Being There: Putting Brain, Body, and World Together Again* (Cambridge: The MIT Press, 1997), ch. 1.

15. In addition to Francisco J. Varela, Evan Thompson, and Eleanor Rosch, *The Embodied Mind: Cognitive Science and Human Experience* (Cambridge: The MIT Press, 1993), see also Horst Hendriks–Jansen, *Catching Ourselves in the Act: Situated Activity, Interactive Emergence, Evolution, and Human Thought* (Cambridge and London: The MIT Press, 1996); S.L. Hurley, *Consciousness in Action* (Cambridge and London: Harvard University Press, 1998); also cf., Ron McClamrock, *Existential Cognition: Computational Minds in the World* (Chicago: University of Chicago Press, 1995).

16. See particulary, Varela, et al., *The Embodied Mind*. See also Eleanor Rosch, "The Environment of Minds: Toward a Noetic and Hedonic Ecology," in Morton P. Friedman and Edward C. Carterette, eds., *Cognitive Ecology* (San Diego: Academic Press, 1996), pp. 3–27, and "Transformation of the Wolf Man," in John Pickering, ed., *The Authority of Experience: Essays on Buddhism and Psychology* (Richmond, Surrey: Curzon, 1997), pp. 6–27.

17. Geoffrey Samuel, *Mind, Body and Culture: Anthropology and the Biological Interface* (Cambridge: Cambridge University Press, 1990), p. 152. See also Geoffrey Samuel, *Civilized Shamans: Buddhism in Tibetan Societies* (Washington and London: Smithsonian Institution Press, 1993).

18. Barbara Von Eckardt, *What is Cognitive Science?* (Cambridge: The MIT Press, 1993), p. 161.

19. See Gary Hatfield, "Descartes' Physiology and Its Relation to His Psychology," in John Cottingham, ed., *The Cambridge Companion to Descartes* (Cambridge: Cambridge University Press, 1992), pp. 335–370.

20. Understanding consciousness as involving a non-dual relation between subject and object in Buddhist thought has its parallel in the issue of intentionality in contemporary cognitive science and throughout phenomenology. "Intentionality" is used as a technical term to refer to the idea that the every conscious awareness is an awareness of something, and is not to be confused with "purposeful." According to Franz Brentano, Husserl's teacher, the idea of intentionality can be traced back even further, through the medieval scholastics to Aristotle's conceptions of the soul (Franz Brentano, *Psychology from an Empirical Standpoint* [Antos C. Rancurello, D.B. Terrell, and Linda L. McAlister, trans. London and New York: Routledge, 1973], p. 88, n. ‡). This is one of the points at which Buddhism diverges radically from much of the rest of Indian religious thought which holds that there is an object-less consciousness. This latter view has come to be fairly influential in contemporary Western discussions of mysticism. See for example, Robert K.C. Forman, *Mysticism, Mind, Consciousness* (Albany: State University of New York Press, 1999), and Robert K.C. Forman, ed., *The Problem of Pure Consciousness: Mysticism and Philosophy* (Oxford and New York: Oxford University Press, 1990).

21. Lusthaus, *Buddhist Phenomenology*, p. 1.

22. For a discussion of the role of the argument from authority in Buddhism, see Roger R. Jackson, *Is Enlightenment Possible?: Dharmakīrti and rGyal tshab rje on Knowledge, Rebirth, No-Self and Liberation* (Ithaca: Snow Lion, 1993).

23. Maurice Natanson, *Edmund Husserl: Philosopher of Infinite Tasks* (Evanston, Illinois: Northwestern University Press, 1973), ch. 4, "Phenomenological Method," pp. 63–83.

24. Pascal Boyer, "Cognitive Aspects of Religious Symbolism," in Pascal Boyer, ed., *Cognitive Aspects of Religious Symbolism* (Cambridge: Cambridge University Press, 1993), p. 28.

25. Boyer, "Cognitive Aspects of Religious Symbolism," p. 27.

26. Donnel B. Stern, *Unformulated Experience: From Dissociation to Imagination in Psychoanalysis* (Hillsdale, New Jersey: The Analytic Press, 1997), p. 3.

27. See for example, Jeffrey L. Elman, et al., *Rethinking Innateness: A Connectionist Perspective on Development* (Cambridge: The MIT Press, 1996), and Esther Thelen and Linda B. Smith, *A Dynamic Systems Approach to the Development of Cognition and Action* (Cambridge: The MIT Press, 1996).

28. Boyer, "Cognitive Aspects," p. 34. See also William Frawley, *Vygotsky and Cognitive Science: Language and the Unification of the Social and Computational Mind* (Cambridge: Harvard University Press, 1997).

29. D. N. Perkins, "Person-plus: A Distributed View of Thinking and Learning," in Gavriel Salomon, ed., *Distributed Cognitions: Psychological and Educational Considerations* (Cambridge: Cambridge University Press, 1993), p. 89. See also Edwin Hutchins, *Cognition in the Wild* (Cambridge: The MIT Press, 1995).

30. Exemplary of the range of concerns that fall within this discussion is the second part of Wallace's new work, *Buddhism and Science*, "Buddhism and Cognitive Science." The four contributions there discuss: (1) the pragmatic character of Buddhist philosophy of mind as directed toward awakening (Dalai Lama), (2) theories of the self (David Galin), (3) the relation between suffering and cognition (William S. Waldron), and (4) the relation between practice and imagination and perception as cognitive capacities (Francisco J. Varela and Natalie Depraz).