



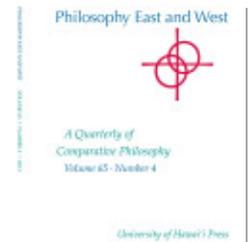
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THE PROBLEM OF THE UNITY OF CONSCIOUSNESS: A BUDDHIST SOLUTION



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Introduction

In the last decade, the research into the sciences of the mind has witnessed what some aptly call a “consciousness boom” (Dreyfus 2011). This boom has resulted in a new willingness to include the earlier frowned-upon discussions of dimensions, traditions, and practices into these sciences. Nowadays it is commonplace to find philosophers and scientists engaging in discussions of Conscious Presence, Subjectivity, Out-of-Body Experiences, Meditation, Phenomenology, and, more recently, Asian—particularly Indian—theories of the mind. This essay contributes to this process by showing that Yogācāra Buddhist ideas on consciousness can significantly advance contemporary research into consciousness. Furthermore, it also shows that the Buddhist concepts of consciousness are not just of historical but also of systematic interest: Scholars of Indian thought and contemporary philosophers stand to benefit much from such an engagement.

The celebrated “no-self” doctrine, according to which a person is simply a causally conditioned composite of ephemeral psychological and physical states, rather than an enduring substantial entity, is recognized as the defining feature of Buddhist thought. However, the absence of an unchanging self or agent not only poses ethical and moral dilemmas about personal responsibility but also makes it hard to explain the continuity of our mental life. The Abhidharma schools offer various explanations to account for mental-dispositional continuities and for the efficacy of chains of causation captured by the notion of *karma*. The Sautrāntika doctrine of seeds is one such example of an early Abhidharma account of continuity. In this essay I shall focus on an early Yogācāra explanation that postulates a repository or basic consciousness (*ālaya-vijñāna*), akin to what we might call the subliminal mind, to account for such continuity and causation.¹ More precisely, in Yogācāra, it is appropriate to speak of basic consciousness as a mental stream that encompasses the life of an individual.

Below, in the first section, I briefly chart the relevant Abhidharma background and the reasons that led the Yogācāra to the postulation of *ālaya-vijñāna*. This basic consciousness is first introduced as a theoretical posit (an unobservable construct) to explain observable phenomena, namely the continuity of consciousness through deep meditative states in which all conscious activity is said to have halted. To support their position that basic consciousness really exists and is not just a theoretical solution to a specific problem, Yogācāra philosophers argued that basic consciousness also solves the apparently unrelated problems of the continuity of *karma* and the

unity of consciousness, memory, recollection, et cetera. In the second section, I explain the contemporary formulation of the “unity of consciousness” problem and its significance in the search for neural correlates of consciousness. In the third section, I show that the Yogācāra notion of basic consciousness and neuroscientific research on Open Monitoring meditation offer useful insights to establish a coherent philosophical account of unity of consciousness.

I. The Ālaya-vijñāna

Abhidharma Background

The *Āgamas/Nikāyas*—the collections of *sūtras*—constitute the earliest Buddhist literature. They are mainly in the form of the Buddha’s discourses, which served as a colloquial platform for disseminating Buddhist doctrines. Later, the Abhidharma traditions provided the first theoretical explanations for these doctrines based on a systematic account of sentient experience. The Buddhist analysis of experience reveals that what we perceive as a temporally extended, uninterrupted flow of phenomena is, in fact, a rapidly occurring sequence of causally connected events—much the same way that a rapidly projected sequence of juxtaposed discrete images is perceived as a movie. The early *Nikāyas* explain sentient experience in terms of mental and physical processes that arise and cease in a causal sequence. Although the early *Nikāyas* stressed the doctrine of impermanence and the no-self, they preserved the talk of persons and the continuity of mental stream as conventional realities.

The avowed aim of the Abhidharma traditions is to analyze experience in terms of basic elements or ontological primitives (*dharmas*) taxonomized into appropriate categories. The distinctive contribution of the *Ābhidharmikas* is that they reduce the time scale of sequential mental and physical processes (*skandhas*) and regard them as discrete moments, rather than as impermanent events (Ronkin 2005, pp. 66–78). The Abhidharma enterprise involves analyzing conscious experience—and in this sense one’s “world”—into its constituent discrete *dharmas* and clarifying the relations of causal conditioning of these *dharmas* (Ronkin 2010). The analysis of dharmic constituents is synchronous in that they last only for a moment and interact only with other simultaneously existing, immediately preceding, or immediately succeeding, *dharmas* (Waldron 2003, p. 55). This synchronic discourse raises a problem for the Abhidharma philosophers since it cannot account for underlying tendencies and dispositions (on account of accumulated *karma*) to explain *saṃsāric* continuity (in the cycle of birth and rebirth) and its ultimate cessation in liberation (*nirvāna*). This problem is further exacerbated by the fact that, in Abhidharma, the only things that are ultimately real, and thus causally efficacious, are the momentary *dharmas*. The *Ābhidharmikas* continued to refer to persons and mental streams in order to explain the *saṃsāric* continuity of individuals. However, since anything other than the momentary *dharmas* was not deemed to be causally efficacious, it was difficult for the *Ābhidharmikas* to explain the influences of habitual tendencies or karmic dispositions (*vāsanās*). Waldron labels this “The Abhidharma Problematic” and summarizes it thus:

This exclusive validity accorded to the synchronic analysis of momentary mental processes threatened to render that very analysis religiously vacuous by undermining the validity of its overall soteriological context—the diachronic dimension of samsaric continuity and its ultimate cessation. (Waldron 2003, p. 56; italics in original)

Parallel to their account of experience, the Abhidharma traditions model the mind as a causally interdependent series of manifest and subliminal cognitive events in a no-self mode.² A key thesis of Abhidharma philosophy of mind is that experience is constituted by psychologically primitive processes that lie below the level of intentionality. Ganeri (2012, p. 127) explains that there are five kinds of proto-cognitive and proto-affective processes, namely registering (*rūpa*), appraising (*vedanā*), stereotyping (*saṃjñā*), readying (*saṃskāra*), and attending (*manasikāra*), and that these jointly constitute states of conscious intentional experience. On the interplay of these states in the constitution of experience, Ganeri says:

The great elegance and attraction of the [Abhidharma] theory lies in the fact that simultaneously it recognizes the irreducibility of the phenomenal character of experience, it admits the joint contribution of sensation and conceptualisation in the constitution of experience, it acknowledges that experience is, as it were, saturated with affect, that appraisal is built into the fabric of experience, it maintains that every experience has, as a basic ingredient, a capacity or tendency to combine in various ways with various others, and it makes the attention intrinsic to experience. (Ganeri 2012, p. 127)

According to the canonical Abhidharma the mind is constituted by six kinds of awareness or consciousness (*vijñānas*). Five of these correspond to the five sense organs (sight, touch, hearing, smell, and taste), and the sixth is a mental cognition (*mano-vijñāna*). This picture of consciousness is counterintuitive to many ordinary facts of experience, for example the phenomenal unity of experiences, the sense of self, and the feeling of continuity. In addition, there are also the systematic and exegetical contexts within the Abhidharma philosophy of consciousness, which demand the postulation of *something more* than these six kinds of consciousness—for example: a connecting link between conscious awarenesses before and after deep meditation, wherein all manifest conscious states are supposed to have come to a halt; the phenomenon of memory and recollection; and the issue of *karman* and its fruition (Schmithausen 1987, pp. 4–6). The ancient Yogācāra philosophers introduced *ālaya-vijñāna* in response to these limitations, citing these very reasons for its introduction as proof of its existence.³

Asaṅga, the noted Yogācāra philosopher and author—or at least the compiler—of the *Yogācārabhūmi*, expanded the list of original six conscious states by adding two more kinds of consciousness to it: the basic or storehouse consciousness (*ālaya-vijñāna*) and afflictive mentation or ego-consciousness (*kliṣṭa-manas*). The first is a constant and neutral subliminal baseline consciousness that serves as a repository of all basic habits, tendencies, and karmic latencies accumulated by the individual, providing a degree of continuity to mental states. The second can be thought of as an innate sense of the self arising from the apprehension of *ālaya-vijñāna* as being a self (Dreyfus and Thompson 2007, p. 112). This self, however, is not an ontological real-

ity for Buddhists; it is merely a conceptual fabrication resulting from the (mis)apprehension of *ālaya-vijñāna*.

Not all Buddhist philosophers are enthusiastic about these two new kinds of consciousness, especially the basic consciousness that seems to allow a back-door entry to the idea of a continuing self. One critic describes it as a “conceptual monstrosity” in the Buddhist scheme (Conze 1973, p. 133). But there are others who characterize basic consciousness as “[t]he most comprehensive and systematic of the many innovative ideas proffered within the intellectual milieu of fourth-sixth centuries C.E. Buddhist India” (Waldron 2003, p. 92).

Yogācāra Reasons for Introducing Ālaya-vijñāna

Schmithausen (1987) notes that *ālaya-vijñāna* is introduced in the Buddhist literature in the initial passage in the *Yogācārabhūmi* as a kind of unmanifest or subliminal consciousness that persists within the material sense faculties during the highest meditative state (*nirodha samāpatti*, literally translated as the “attainment of extinction,” signifying the extinction of perception and feeling). Basic consciousness contains within it the seeds of the forthcoming manifest conscious states that are bound to arise after a person’s emergence from deep meditation. This deep meditative state is characterized by the temporary suspension of all consciousness and mental activity, but at the same time it is distinguished from death in that the life force is not exhausted, the vital heat is not extinguished, the faculties are unimpaired, and some consciousness (*citta*) is retained in the body. The early Ābhidharmikas struggled to explain this seeming contradiction in the characterization of *nirodha samāpatti*.

The Yogācāra resolution of this difficulty was through the postulation of the *ālaya-vijñāna* or basic consciousness, distinguished from the six manifest cognitive awarenesses (*pravṛtti-vijñānas*, the ordinary perceptions and reflection) excluded in the highest meditative state. Vasubandhu addresses the question about how the mind stopped and how it restarts once it has been interrupted during meditation (Lusthaus 2002, p. 141). He proposes that the cessation produces a dharma that temporarily blocks the production of *cittas* (apperceptive moments) and other mental states, like a dam that temporarily holds back water (*Abhidharmakosabhasya*, II.42). So the idea is that even though the senses are bombarded with information, no perception is happening during *nirodha samāpatti*. The meditation blocks the automatic cognitive and emotional patterns that condition the perceptual experience and are also responsible for apperceptive cognition of the experience. This mindless state involving the suppression of conceptualization (*saṃjñā*) and feeling (*vedana*), Vasubandhu says, is experienced by the meditator directly with the body: The meditator is a *kāya-sākṣin* (body-witness).⁴ There is no cognition happening here in the sense that the mind is not cognizing, registering, reacting to anything.

The initial passage of the *Yogācārabhūmi* mentioned above introduces *ālaya-vijñāna* as being present in the material sense faculties, situating it, therefore, in the body. The Yogācāra, however, must go beyond this initial characterization if indeed they have to succeed in transforming the notion of “[t]he Seeds of mind lying hidden in corporeal matter [the earlier Sautrāntika view] to a new form of mind proper”

(Schmithausen 1987, p. 30). *Ālaya-vijñāna*, as introduced in this initial passage of the *Yogācārabhūmi*, does not qualify as consciousness by any Abhidharma standards, according to which the characteristic feature of consciousness is its ability to cognize objects (*vijñāna* is related to *vijñāpti*, which literally is “that which makes known”). Vasubandhu categorically defines consciousness as “the discrete cognition [of objects]” (*Abhidharmakośa*, I:30). Furthermore, the Ābhidharmikas also maintained that every mental state is accompanied by the five mental processes mentioned above (registering, appraising, stereotyping, readying, and attending). This seems to be in conflict with the initial passage of the *Yogācārabhūmi* that introduces *ālaya-vijñāna* for the explicit purpose of mental continuity through the highest *nirodha samāpatti* meditative states, which are expressly stated to be without attention or affect. Yogācāra addresses these concerns in the *Samdhinirmocana Sūtra* and later sections of the *Yogācārabhūmi*.

The development of *ālaya-vijñāna* in the *Samdhinirmocana Sūtra* (V) and the later refinement in the *Proof Portion* of the *Ālaya Treatise* (a later section of the *Yogācārabhūmi* compiled after the *Samdhinirmocana Sūtra* [Waldron 2008]) emphasize its distinctly psychological character. *Ālaya-vijñāna* is introduced in the *Samdhinirmocana Sūtra* as the “mind with all the seeds,” which enters the womb of beings and grows, matures, and develops depending on the appropriation (*upādāna*) of material sense faculties (with their physiological supports) and predispositions (cognitive and affective conditionings persisting from the past). It is, therefore, described as depending on the physiological (sense faculties) and the psychological (predispositions). Ordinary perceptions (e.g., seeing and hearing) depend on *ālaya-vijñāna* in that it provides the substratum for the sense faculties and also fuels them (Waldron 2003, p. 95). The *Sūtra* further indicates that *ālaya-vijñāna* is, in turn, fueled or seeded by the objects of ordinary perceptions and reflection. There is, therefore, a two-way dynamic between *ālaya-vijñāna* and ordinary perceptions: *ālaya-vijñāna* insofar as it contains seeds or predispositions produces conscious states (almost always in association with sense faculties and their objects), say, of seeing a mango, which, in turn, accumulate into it further seeds, say, the desire for a mango. Thus the *Sūtra* presents a holistic model of the mind—in contrast to the early Abhidharma model—wherein perceptions and other mental dispositions are tied together in a continuous feedback cycle.

There are two points that need to be emphasized in the development of the concept of *ālaya-vijñāna* in the *Samdhinirmocana Sūtra* (V). First, it is postulated as consciousness persisting through the entire life of an individual from entering the mother’s womb at the time of conception to leaving the body at death. Thus, it continues (that is, arises uninterruptedly from moment to moment in the Ābhidharmika sense) not just through *nirodha samāpatti*, where there is no manifest mental activity, but also through other so-called “unconscious” states like deep sleep, swooning, moments before death, and perhaps even the minimally conscious and vegetative states. And, second, *ālaya-vijñāna* is connected to our sense of embodiment and described as pervading the entire body, rather than being present just in the sense faculties as originally hypothesized. This is not to suggest that *ālaya-vijñāna* is nothing more than

the body in which the seeds (dispositions) of forthcoming mental states lie dormant during deep meditation and other unconscious states—that earlier Sautrāntika view was explicitly rejected by the Yogācāra. Rather, the *Sūtra* emphasizes that *ālaya-vijñāna* itself is a conscious state. The question is: What is it conscious of?

According to the *Sūtra* (VIII 37.1) *ālaya-vijñāna* is a subliminal (not fully conscious) stable perception of the surrounding world. In other words, *ālaya-vijñāna* is a continuing background awareness of one's immediate environment. This not only provides a much-needed cognitive object that is required for *ālaya-vijñāna* to qualify as a consciousness according to general Ābhidharmika definitions, but also marks a major departure from the traditional Buddhist model of conscious awareness, according to which ordinary perceptions occur sequentially depending on nothing more than the contact between the sense faculty and its object. Since the awareness of the surrounding world is always present, it must occur simultaneously with other ordinary perceptions, which, as we have noted above, in turn depend on and are supported by *ālaya-vijñāna*. Once this “single awareness at each moment” requirement was abandoned, the Yogācārins accepted multiple awarenesses, and indeed that all six kinds of manifest awareness could be simultaneously present.

In the later developments of the *Yogācārabhūmi*, in the *Proof Portion* and the *Pravṛtti Portion* of its *Ālaya Treatise*, as in the *Sūtra* (VIII 37.1), *ālaya-vijñāna* is posited as perceiving two objects, one outward and the other inward. In the *Proof Portion* ordinary perceptions are stated to be inevitably accompanied by a perception of one's immediate environment and also by a continuous perception of one's own body (the basis of personal existence or the sense of “I”). In the *Pravṛtti Portion* the notion of “basis of personal existence” is cashed out in terms of subliminal awareness of more than just the material body; it also includes the awareness of the predispositions (cognitive and affective conditionings persisting from the past). In fact, in this portion of the text, the perception of the surrounding world is secondary, a by-product of the primary consciousness of the body. This is illustrated in the analogy of the flame (of a lamp), which arises inwardly on the basis of a wick (body) and fat (predispositions) to illuminate its own basis, but also at the same time illuminates the surrounding external space (Waldron 2008). Similarly *ālaya-vijñāna* reflexively illuminates its own basis (body and predispositions) and the surrounding world. The suggestion that the body is the primary object of basic consciousness seems natural if we think back to the idea suggested in *Sūtra* (V) that the material body and the predispositions are appropriated by, and sustain the development of, *ālaya-vijñāna*.

Ālaya-vijñāna is said to arise with its own characteristic objects—the internal and the surrounding environment—as well as omnipresent mental factors (attention, appraisal, etc.), much like ordinary perceptions. The *Pravṛtti Portion* explains that basic consciousness is accompanied by an indifferent affect, feelings that are neither painful nor pleasant. However, other factors like attention are said to be “undiscerned” or imperceptible “even for the wise” (Waldron 2003, p. 109). A particularly illuminating analogy is offered in the texts: Just as a glow-worm flying during the day, though not lacking in luminosity, is yet not visible because of the light of the sun, so also the omnipresent mental factors accompany *ālaya-vijñāna*, and even though they

may not present themselves distinctly, they are, nevertheless, always present. This suggests that it is erroneous to interpret *ālaya-vijñāna* as the unconscious mind and draw parallels with Freudian and Jungian psychology (Jiang 2004). For this reason I favor the interpretation by Schmithausen (1987) and Dreyfus (2011), who suggest that mental states within the scope of basic consciousness can be thought of as forms of subliminal awareness, rather than totally unconscious states.

Dreyfus makes the point by using an example. When one is walking one has an implicit awareness of one's body, even though it is passive and inchoate. But if one loses balance and starts falling, suddenly one is explicitly aware of one's own body as falling and tries to regain one's balance. Before this time one is not completely unaware of one's body. Rather, as Dreyfus puts it:

I had a subliminal awareness that encompassed my whole body, a sense of its aliveness, its occupation of a certain space, its movements, its relation to its immediate environment, etc. It is out of this dim, and yet patterned, space of awareness that my falling is apprehended. I am surprised because I had a sense that my body was on firm ground and yet I am suddenly falling. This is when my sense of the body emerges from a subliminal level of awareness in sharp focus. This background awareness, which is described by some phenomenologists as *operative orientation*, seems to be not unlike the Yogācāra idea of a basic consciousness, a subliminal and yet structured space of awareness that contains all the predispositions, and provides the cognitive backdrop to more manifest forms of awareness. (Dreyfus 2011, pp. 144–145)

Dreyfus recommends that the right way to think about Buddhist notions of consciousness is in terms of degrees of awareness or consciousness rather than the simple conscious/unconscious distinction.

The *Proof Portion* lists six proofs, which are basically concerned with two sets of problems: (a) the problem of explaining the immediate succession of divergent states of mind (e.g., equanimity followed by anger), and (b) the simultaneous occurrence of various ordinary perceptions and mental processes (Waldron 2003, p. 103). I will focus on the second set since it is directly related to unity of consciousness issues in contemporary philosophy of mind. Proof 3 claims that if an ordinary perception (e.g., seeing blue) and a concomitant mental awareness of *that* perception (e.g., “that is blue”) do not arise simultaneously, the latter would lack the clarity (and vividness) that is present in immediate awareness (Waldron 2003, p. 105). The marked difference in the phenomenology of immediate perceptions and memory experiences could not be explained unless the visual sensation of blue and the resulting mental awareness “that is blue” occur simultaneously, rather than successively. Our mental awareness, which has the content “that is blue,” is just as clear as the sensory perception, but if it occurred later, rather than simultaneously, then it would be a memory experience and hence not as clear. But since it is in fact clear, and because there is no difference between it and the sensory perception, it must occur at the same time as the sensory perception.⁵

But why does simultaneity of ordinary awareness require the postulation of a distinct form of basic consciousness? The answer becomes obvious if we combine

this argument in proof 3 with insights from proofs 2 and 6, which cite the example of phenomenally unified multi-sensory experiences. Our ordinary experience involves simultaneous awareness of many objects at the same time: seeing a steaming hot cup of coffee, smelling the aroma of the coffee, lifting the cup in one's hands and sensing the warmth on one's skin, desiring to drink the coffee, et cetera. These perceptions and cognitive awarenesses arise in dependence on diverse sense faculties, their appropriate objects, and attention. The Yogācārinś argue that the phenomenological sense that there is a single subject simultaneously undergoing clear, though different, experiences at the same time cannot be explained without postulating a form of consciousness that underlies and supports these multiple experiences.⁶ And, insofar as *ālaya-vijñāna* appropriates the entire body and underlies and supports the sense faculties, it provides the common substratum and thus the source of phenomenal unity. The text argues that the phenomenal synchronic unity of experiences cannot be explained without postulating *ālaya-vijñāna*. Proof 5 reiterates the claim:

[T]he perception (*vijñāpti*) of the world, the perception of the [physiological] basis, the perception of "[This is] I," and the perception of the sense objects[:] [t]hese perceptions are experienced as occurring simultaneously moment to moment. It is not tenable for there to be diverse functions like this within a single moment of a single cognitive awareness. (trans. in Waldron 2003, p. 106)

Ordinary experience, for the Yogācārinś, is a complex affair combining the simultaneous perception of four elements that accompany every experience. The first two, the background awareness of the surrounding receptacle (the immediate external world) and one's own body, are the objects of *ālaya-vijñāna*, which, in turn, is the object of the third kind of perception or ego-consciousness (*kliṣṭa-manas*). The fourth kind of perception is ordinary perceptions, one or many (in the case of multi-sensory perceptions), which arise simultaneously against the background support provided by *ālaya-vijñāna* and ego-consciousness. This proof, thus, highlights a further feature of *ālaya-vijñāna* in that it is the object of our ego-consciousness or sense of self and also the background condition for ordinary conscious awarenesses. However, there are still further questions that demand answers. For example, what is the relationship between *ālaya-vijñāna*, ego-consciousness, and manifest forms of cognitive awareness?

The *Pravṛtti Portion* states that *ālaya-vijñāna* and the manifest forms of cognitive awareness arise simultaneously and mutually condition one another. *Ālaya-vijñāna* conditions ordinary perceptions, which can only arise in the body that is alive in the sense that some mental activity, even if subtle and beneath the level of conscious experience, is occurring. Insofar as *ālaya-vijñāna* appropriates the sense faculties it provides a common support or substratum for (the arising of) manifest cognitive awarenesses. And again, insofar as *ālaya-vijñāna* is characterized as the "mind containing all the seeds," it can "seed" a cognitive awareness that results from an activation of karmic seeds (mental dispositions). It is widely accepted in the Buddhist tradition that many manifest cognitive awarenesses arise spontaneously as a result of mental dispositions: A person prone to anxiety may feel anxious without there being

any manifest awareness that triggers this state. The mutual conditioning of the two kinds of consciousness can be summed up succinctly: “[T]here are virtually no moments in which multiple seeds are not coming into fruition. By the same token . . . [t]here are virtually no moments in which the *ālaya-vijñāna* is not simultaneously ‘being seeded’ by the process of manifest cognitive awareness” (Waldron 2003, p. 113). The idea is that *ālaya-vijñāna* provides the essential condition for manifest cognitive states to arise, and, in turn, these cognitive states nurture *ālaya-vijñāna* by adding new seeds and causing it to grow and mature, thereby perpetuating the continued existence of this series of mental and physical states.

However, since cognitive awarenesses can arise involuntarily as a result of past dispositions, they cannot be thought of as intentional actions and thus cannot, by themselves, generate new *karma* or “seeds”: only actions corrupted by afflictions give rise to karmic seeds or dispositions. Afflictions result from ego-consciousness (or the sense of “I”), which constantly (mis)conceives *ālaya-vijñāna* as the self or “I,” and these, according to the *Pravṛtti Portion* are: a view of self-existence, the conceit “I am,” self-love, and ignorance (Waldron 2003, p. 116). Actions instigated by these afflictions, which take the form of cravings, result in karmic seeds being deposited in *ālaya-vijñāna*. These seeds are experienced as pleasant or unpleasant feelings in every moment of awareness, and, in turn, these feelings activate latent afflictions instigating further intentional actions, resulting in more karmic seeds, and so on. The ego-consciousness is thus posited as another stream of consciousness that occurs simultaneously with *ālaya-vijñāna*, and it is momentary as it, too, like everything else in the Abhidharma universe, is continually produced. *Ālaya-vijñāna* is the object or the foundation of ego-consciousness, which, in turn, also like *ālaya-vijñāna*, is subliminal in the sense of being a pre-attentive mode of being self-aware through which my experiences present themselves to me as mine (Ganeri 2011). Thus, *ālaya-vijñāna* and ego-consciousness together provide an explanation of the subjectivity of experience, without the need to postulate a self or the subject of experience. Furthermore, the ego-consciousness is the basis of the manifest awarenesses as in first-person psychological judgments, for example “I am F.” The transformation of ego-consciousness into a first-person perspective constituted by first-person psychological judgments draws on the additional concept of self, which concept, according to the Buddhists, is a mere fabrication.⁷

This completes my explication of the early Yogācāra concept of *ālaya-vijñāna* and its relation to the body, self-awareness, and other manifest cognitive awarenesses. It should be clear, however, that in dealing with this topic I have no pretension of providing an exhaustive account of *ālaya-vijñāna* or a complete account of the process of evolution of this concept in Abhidharma literature. To sum up, *ālaya-vijñāna* can be thought of as a background awareness of one’s own body including the predispositions (cognitive and emotional predispositions from the past). Such awareness is always present in the backdrop of every explicit conscious awareness. As Dreyfus puts it, “[T]he basic consciousness [*ālaya-vijñāna*] is the baseline of consciousness, the passive level out of which the more active and manifest forms of awareness arise in accordance with the implicit preferential patterns that struc-

ture emotionally and cognitively this most basic level of awareness” (Dreyfus 2011, p. 144). *Ālaya-vijñāna* is, like everything else in the *Ābhidharmic* universe, a series of moments; it continues as a homogeneous perception as its object is always present and does not change. This is the reason why it goes unnoticed.

II. What is the Problem of the “Unity of Consciousness”?

In recent years, the apparent “unity of consciousness” thesis has assumed center stage because of its close connection with a major focus of cognitive neurosciences research: the search for neural correlates of consciousness (henceforth, NCC). In his recent book, Tim Bayne spells out the unity thesis thus: Necessarily, for any conscious subject of experience (S) and any time (t), the simultaneous conscious states that S has at t will be subsumed by a single conscious state—the subject’s total conscious state (Bayne 2010, p. 16). Bayne is concerned with the phenomenal unity of consciousness, which is not just a functional connection between states, but an experiential one. Simply put, the phenomenal unity thesis is that all conscious experiences of a subject at a given point in time are unified. Similarly, John Searle (2000) argues for a unified field model of consciousness based on the fact that conscious experiences are qualitative, subjective, and unified. Both Searle and Bayne favor a mereological definition of phenomenal unity: Two states are phenomenally unified if they are subsumed by a larger conscious state (or part of a unified conscious field, in Searle’s terms). Furthermore, both Searle and Bayne hold that the phenomenal unity thesis implies a structural constraint on theories of consciousness. In Bayne’s words, “[C]onsciousness is fundamentally holistic: there are no mechanisms responsible for phenomenal binding because the unity of consciousness is ensured by the very mechanisms that generate consciousness in the first place” (Bayne 2010, p. 247). Searle suggests that the holistic theory of consciousness is implicit in the hypothesis that we have a unified field of consciousness (Searle 2000, p. 574), whereas Bayne is more cautious and makes a plausible case against atomism (Bayne 2010; see chapter 10).

At the time Searle wrote his article (2000), the standard approach to consciousness was what he calls the “building-block model.” Searle argues that the building-block approaches are ruled out as contenders for NCC because they cannot account for the fact that phenomenal experiences are unified. For example, Bartels and Zeki argue that

consciousness is not a unitary faculty. . . . [I]t consists of many micro-consciousnesses. . . . Activity at each stage or node of a processing-perceptual system has a conscious correlate. Binding cellular activity at different nodes is therefore not a process preceding or even facilitating conscious experience, but rather bringing different conscious experiences together. (1998, pp. 2327–2330)

Searle maintains that such theories of NCCs that limit the search to NCC of particular mental states ignores the necessary conscious background that exists before these mental states come into being. The search for NCCs of particular mental states limits

the search to components of consciousness, say, visual consciousness of faces, that join together to form the field. For example, to find the NCC of visual consciousness, the researchers begin with a subject who is already conscious, just not conscious of faces. The subject is then shown a face, and brain activity is measured. But what we really want to know is how can a subject be conscious at all? Hence, the building-block model of NCC can never get to consciousness itself. To do so, we need to conceive of consciousness as a unified field, a kind of basal background awareness that goes on as long as we are awake (Searle 2000, p. 573). George Dreyfus (2011) suggests that Searle's idea of a basal background awareness is very close to the Yogācāra concept of *ālaya-vijñāna* in the sense that both views offer it as an explanation of the phenomenon of unity of consciousness. In the next section, I take this suggestion further to investigate whether this theoretical posit in Yogācāra philosophy can offer a new insight in the search for a unified phenomenal field and its NCC.

Other philosophers and neuroscientists, however, do not share Searle's enthusiasm for the concept of basal background awareness because his conception suggests that there is an empty field of background awareness that gets populated or modulated by particular contents. This interpretation of Searle's idea of background awareness as an empty conscious field is unfortunate because it is subject to various criticisms. Those with a phenomenological bent dismiss such an empty field out of hand; for them, pre-reflective awareness is just minimal self-consciousness by virtue of which my experiences are given to me as *mine*. For example, Gallagher and Zahavi (2010) note that "there is no pure or empty field of consciousness upon which the concrete experiences subsequently make their entry. The field of experiencing is nothing apart from the specific experiences." Others, however, are more circumspect; they do not want to rule out empty phenomenal fields as impossible, but they doubt that such a phenomenon exists (Hohwy 2009, p. 432). Even if it were to exist, Bayne argues that it does not help with the problem of finding minimally sufficient NCCs (2007, p. 16). Bayne's skepticism rests on the fact that the "[m]ere activation of one's phenomenal field does not suffice to make one conscious, for there is nothing it is like to have a phenomenal field unless one's phenomenal field is modulated in a particular way" (2007, p. 16). Jakob Hohwy's concern about the empty conscious field seems to stem from the worry that it does not lend itself easily to scientific investigation. He does suggest, however, that the best bet for an empty conscious field might be the kind of states reported by master meditators, a suggestion I will take up shortly.

I am sympathetic to these concerns about the unified field, but I think the problem arises because of the suggested conceptualization of the unified field as an empty conscious field. An alternative conceptualization, standard in experimental neuroscience, is to combine the building-block approach with the unified field model. The idea is that the contribution of content to the overall conscious state is kept constant across conditions, while the overall conscious state is intervened on (e.g., in vegetative-state patients vs. controls). Hohwy (2009) argues that this standard conceptualization has problems that cannot be fixed. Thus, Hohwy suggests that

further progress in the search for NCC requires that something new be brought to the study of consciousness.

I propose that we look to phenomenology for a new approach, in particular the Yogācāra analysis of consciousness. The Yogācāra notion of basic consciousness provides a new model for a unified field of consciousness; we do not need to conceptualize it as an empty field at all. But that is not the only reason for introducing *ālaya-vijñāna* into contemporary philosophy and neuroscience. The Buddhist concept of basic consciousness has a unique advantage over other phenomenological notions, for example phenomenal field of consciousness. *Ālaya-vijñāna*, as understood by the Yogācārins, is not necessarily a dualistic consciousness: it is closely associated with the body and its immediate surroundings; it has the body as its object but at the same time it also has the cognitive and emotional factors that accompany every conscious state as its objects. *Ālaya-vijñāna* is unique in the way that it breaks across the physical-mental divide, and this characteristic makes it suitable for providing the causal impetus for the emergence of ordinary conscious states. Recall that basic consciousness is best thought of as background awareness—a subtle but indistinct perception—of cognitive and emotional factors and bodily states that modulate the phenomenal field. These factors play a role in the generation of ordinary conscious awarenesses and thus meet the condition that the unity of consciousness is ensured by the processes that generate consciousness in the first place. A mere description of this kind is unlikely to satisfy a philosopher of a scientific bent; that there is such a conscious field modulated by a subject's bodily states and cognitive and emotional dispositions from the past is far from a notion that can be investigated scientifically. However, recent research in the neuroscience of meditation suggests ways to scientifically delineate basic consciousness. This is addressed next.

III. Unity of Consciousness: The Ālaya-vijñāna Solution

In section 1, I argued that *ālaya-vijñāna* or basic consciousness can be thought of as a background awareness. The question I want to address in this section is: can basic consciousness or awareness of background factors that modulate the phenomenal field be investigated scientifically? Buddhist scholars and neuroscientists have made joint efforts to find an operational definition of Open Monitoring meditative practices, sometimes also called mindfulness meditation for the scientific investigation. Open Monitoring meditation is the non-reactive monitoring of the stream of experience, primarily as a means to recognize the nature of cognitive and emotional patterns that work automatically behind the scenes to interpret sensory data (Lutz, Dunne, and Davidson 2007; Lutz, Slagter, Dunne, and Davidson 2008). A scientific study of these factors may be a useful first step for exploring the Buddhist idea of *ālaya-vijñāna* or basic consciousness. It must be noted at the outset, however, that the primary aim of the scientific studies of meditation is to investigate the positive effects of meditation on mental health and well-being. Nevertheless, the theoretical underpinnings of the Open Monitoring style of meditation suggest that it might be instrumental in delineating basic consciousness or the unified field of consciousness.

Open Monitoring meditation practice, like all other forms of meditation, begins with Focused Attention (FA) training to calm the mind and reduce distractions. In the transition from FA to the Open Monitoring state, the “effortful” selection of an object as the primary focus is gradually replaced by the “effortless” sustaining of an awareness without any explicit focus. However, Open Monitoring meditation should not be understood to be objectless meditation. The idea is to cultivate awareness of the subjective character of experience, and for that to happen one must be having experiences. A central aim of Open Monitoring practices is to gain a clear reflexive awareness of the usually implicit features of one’s mental life: a sense of body, the emotional tone, and the active cognitive schema. The awareness of these implicit features enables one to transform one’s cognitive and emotional habits resulting in a decrease in the forms of reactivity that create mental distress (Lutz, Slagter, Dunne, and Davidson 2008, p. 164). Open Monitoring meditation is thought to enhance meta-cognitive monitoring coupled with an increase in the awareness of automatic cognitive and emotional interpretations, thereby providing opportunities for cognitive flexibility and reappraisal resulting in enduring changes in mental function, that is, the developments of certain traits. For example, the intensive practice of Open Monitoring meditation can be expected to reduce the propensity to “get stuck” on a target object and indulge in elaborate stimulus processing and conceptual activity (Bishop et al. 2004; Chambers, Gullone, and Allen 2009; Slagter, Davidson, and Lutz 2011).

Basic consciousness can be seen as providing an alternative conception of a unified field insofar as it is the repository of bodily representations and cognitive and emotional patterns, the background factors that modulate the phenomenal field. Open Monitoring meditative states are aimed at gaining a clear awareness of the usually implicit factors, the cognitive and emotional factors that are in the background of every conscious experience. These factors, together with bodily representations, are precisely the primary objects of basic consciousness. Thus, Open Monitoring meditation does in effect reveal the objects of basic consciousness. There is no scientific theory of meditation yet—the science of Open Monitoring meditation, in particular, is still in its infancy. However, it is an active area of research that aims to address some of the following questions: Which neural regions and circuits are involved in Open Monitoring meditation? Can we train people to be more Mindful? Can we regulate our emotional and cognitive responses in Open Monitoring? And what are the Neural Correlates of Open Monitoring Meditation? Below, I briefly sketch the tentative answers to these questions raised in the neuroscience literature. The answers to the first and last questions on this list are particularly relevant to our investigation.

Open Monitoring meditation involves the heightened awareness of the subjective features of an experience at a given moment, such as its emotional tone. It is expected that Open Monitoring meditation engages processes involved in interoception (the perception of internal bodily responses). These processes rely on homeostatic meta-representations in the anterior insula, somatosensory cortex, and anterior cingulate cortices (Craig 2009). In a recent study, Farb et al. (2007) found that participants who attended an eight-week course in the Open Monitoring style of

meditation showed greater activity in this neural circuitry during a monitoring state compared with a group of controls. In another study, a group of participants who had undergone mindfulness training showed greater activation of the right insula when being presented with sad movie clips (Farb et al., 2010). Another study by Grant, Courtemanche, and Rainville (2011), using fMRI and a thermal pain paradigm, showed that practitioners of Zen and mindfulness meditation, in contrast to controls, reduce activity in executive, evaluative, and emotion areas during pain (prefrontal cortex, amygdala, hippocampus); meditators with the most experience showed the largest activation reductions. Also, simultaneously, meditators more robustly activated primary pain processing regions (anterior cingulate cortex, thalamus, insula). These results suggest a functional decoupling of the cognitive-evaluative and sensory-discriminative dimensions of pain, possibly allowing practitioners to view painful stimuli more neutrally.

The second question—can we train people to be more Mindful?—is of particular interest to neuroscientists concerned with understanding the phenomenon of neuroplasticity. The Open Monitoring style of meditation is associated with changes in the brain's physical structure and cognitive functions during both meditation and the performance of tasks that do not require meditation. A group of scientists at Harvard has shown that brain regions—the prefrontal cortex and right anterior insula—associated with attention, interoception, and sensory processing are thicker in meditation participants than matched controls (Lazar et al. 2005). Between-group differences in prefrontal cortical thickness were most pronounced in older participants, suggesting that meditation might offset age-related cortical thinning. Another cross-sectional study comparing the gray-matter morphometry of the brains of experienced meditators and controls showed that meditators had greater gray-matter concentration in the right anterior insula (Hölzel et al. 2008). More recently, Luders and his team have shown that the Open Monitoring style of meditation results in larger cortical gyrification (the pattern and degree of cortical folding) within the left precentral gyrus, right fusiform gyrus, and right cuneus, as well as in the left and right anterior dorsal insula, which represent the global significance maximum (Luders et al. 2012). The exact functional implications of larger cortical gyrification are yet to be confirmed; these findings suggest the insula to be a key structure involved in aspects of meditation. Luders et al. hypothesize that increased gyrification of the insula may reflect an integration of autonomic, affective, and cognitive processes. However, Luders et al. note that further research is necessary to determine the contribution of nurture to links between insular gyrification and meditation.

Regarding the third question, the Open Monitoring style of meditation also encourages cognitive and emotional flexibility by disengaging from the elaborate processing of emotionally charged data. Following participation in a mindfulness-based stress reduction course, social anxiety patients presented with negative self-beliefs showed a quicker decrease of activation in the amygdala as compared to earlier pre-course responses (Goldin and Gross 2010). In a longitudinal study measuring the performance of practitioners in an attentional blink task, Slagter et al. (2007) found support for the idea that one effect of intensive training in Open Monitoring meditation might be a reduction in elaborate stimulus processing (the propensity to “get

stuck" on an object). Attentional blink phenomena illustrate that the information-processing capacity of the brain is limited: when two targets T1 and T2, embedded in a rapid stream of events, are presented in close temporal proximity, the second target is not often seen; the blink is a result of competition between T1 and T2 for limited attentional resources. The study found that after three months of intensive Open Monitoring meditation there was a reduction in the brain resource allocation to T1, which was associated with improved detection of T2. These results provide support for the idea that one effect of intensive training in Open Monitoring meditation results in the development of efficient mechanisms to enable cognitive flexibility in response to task demands. The researchers also anticipate a similar improvement in the capacity to disengage from aversive emotional stimuli to enable greater emotional flexibility.

Regarding the last question—on the neural correlates of meditation—various studies show that the left fronto-parietal areas are selectively active in mindfulness-based meditation and thus are plausibly involved in conscious access to sensory and mental contents arising in the present moment. Furthermore, the evidence of the involvement of the left fronto-parietal areas in Open Monitoring meditation is consistent with models emphasizing a differentiation between consciousness and attention processes (Raffone et al. 2007). The authors also suggest that the form of reflective awareness in the present moment in mindfulness-based meditation may be regarded as a higher-order access consciousness of perceptual and thought contents, including the ongoing metacognitive awareness of mental operations subserving the emergence of those contents. Recently, Manna et al. (2010) have shown that expert meditators control cognitive engagement in the conscious processing of sensory-related thought and emotion contents by massive self-regulation of fronto-parietal and insular areas in the left hemisphere. Their study also suggests that a functional reorganization of brain activity patterns for focused attention and cognitive monitoring takes place with mental practice, and that meditation-related neuroplasticity is crucially associated with a functional reorganization of activity patterns in prefrontal cortex and in the insula.

The discussion above suggests that there is greater activation and long-term change in the anterior insular cortex (AIC) and the prefrontal cortex in meditators compared to controls. There is ample evidence in the neuroscience literature to suggest that conscious perception is systematically associated with surges of activity in the prefrontal cortex (Dehaene et al. 2006). The AIC has been considered to be a hub for autonomic, affective, and cognitive integration (Damasio 1994/2006). In a recent review, Craig argued that the AIC is involved in the meta-representation of interoception in the brain. This, in turn, points to the AIC's involvement in all subjective feelings, which indicates a fundamental role for the AIC in awareness, as well as its potential as a neural correlate for consciousness (Craig 2009).

This brief survey of the neuroscientific literature shows that the Open Monitoring style of meditation is correlated with increased activation and long-term changes in the prefrontal cortex and anterior insular cortex. Thus, it is likely that these areas of the brain support the awareness of the basic consciousness or awareness of cognitive

and emotional factors and bodily states that are in the background of every conscious awareness. In line with Craig's suggestion, I believe it is worth investigating further whether the insula and prefrontal cortex are potential candidates for the neural correlates of a unified, though modulated, phenomenal field. To sum up, the Buddhist explanation for unity of consciousness in terms of basic consciousness meets the structural constraints on a theory of consciousness, and the neuroscientific studies of Open Monitoring meditation show that such a notion can be investigated scientifically. Basic consciousness explains the unity of consciousness and functions as a background condition of conscious content. It explains what *it is like* to be a conscious subject in terms of being a repository of cognitive and emotional patterns that modulate the phenomenal field.

Notes

I am grateful to the anonymous referees for comments that have helped much with improving the clarity of the main thesis and the arguments presented here.

- 1 – Yogācāra is an important school within the Abhidharma traditions, which arose in India at the beginning of the third century B.C.E. and which have many well-known Tibetan offshoots. Abhidharma traditions represent the first attempts in Buddhism to develop systematic, analytically rigorous, and terminologically precise accounts of the content and character of experience and a rigorous metaphysics of mind and mental states.
- 2 – In discussing the mind within the Abhidharma context it is important to note that Abhidharma is a plural tradition that evolved over centuries to include a large variety of views. So, there is no one view that can qualify as “the Abhidharma view of mind.” In this essay, I will be attending to a mature Abhidharma view of the mental stream or mind, namely the Yogācāra view.
- 3 – Schmithausen (1987, pp. 3–6) lists fourteen systematic and six exegetical reasons as having a decisive impact on the introduction of basic consciousness.
- 4 – Vasubandhu, however, does not answer the question as to how an insentient body can be said to be having experiences or be conscious in the first place (Lusthaus 2002, p. 142).
- 5 – I am grateful to an anonymous referee of this journal for help with clarifying this argument.
- 6 – This is question-begging against theorists who argue that consciousness only appears to be unified, but such an appearance is misleading. The Yogācārin, however, did not address such views.
- 7 – This is where the Buddhist idea differs from that of the phenomenologists, for whom the pre-reflective first person givenness is necessary for first-person thoughts. Buddhist philosophers, however, argue that the pre-reflective self-awareness is necessary but not sufficient for the concept of the first person.

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