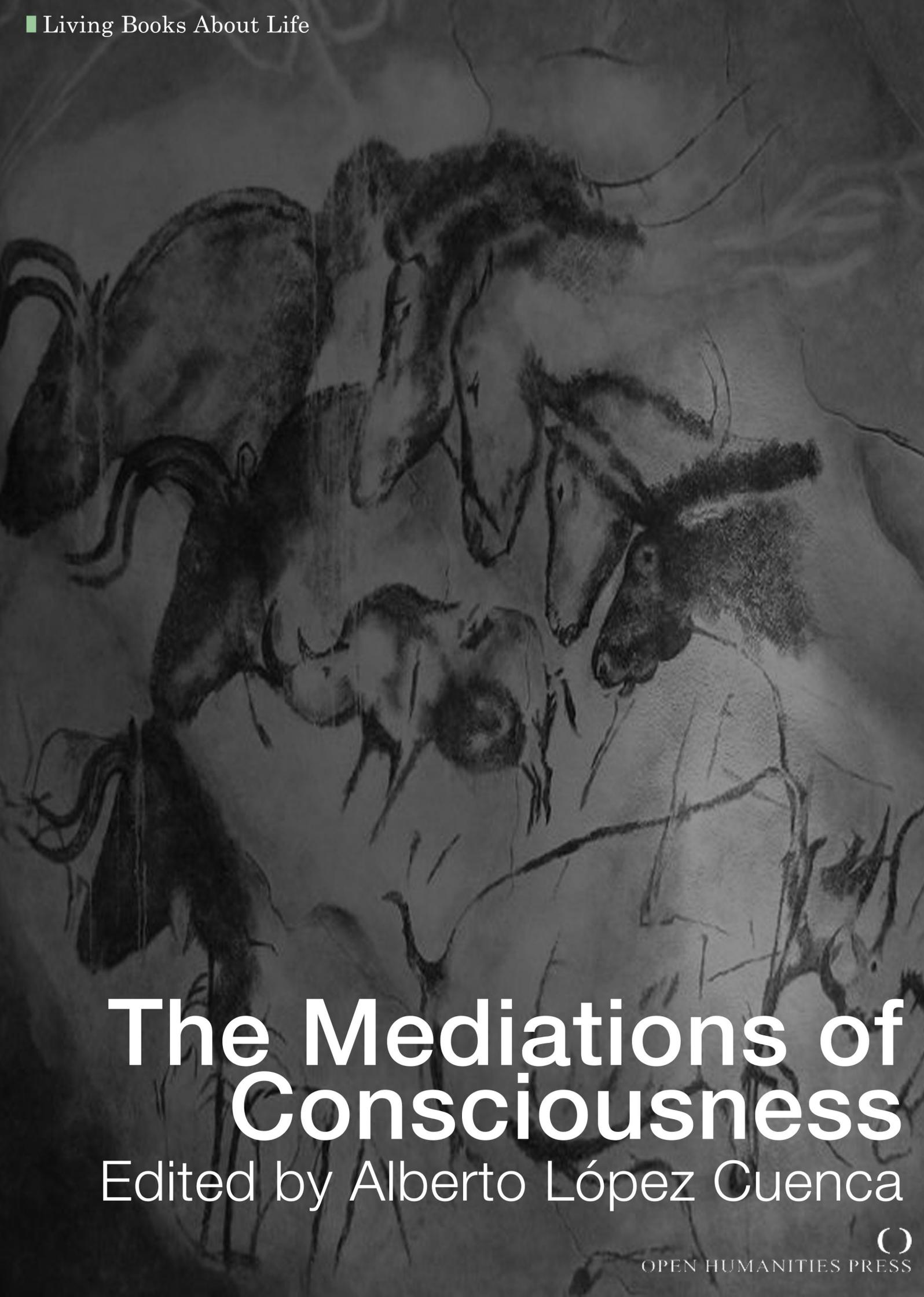


■ Living Books About Life



# The Mediations of Consciousness

Edited by Alberto López Cuenca



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## Introduction

### From the Brain to General Intellect: Commentary on the Mediations of Consciousness

‘The modern human mind is not a simple medieval clock; it is not a radio or telephone switchboard; it is not a system of clever software; and it is most definitely not a general-purpose computing device like a Turing machine. These things are its inventions, products of its culture. They are no more than the metaphors it currently uses when contemplating itself.’ (Merlin Donald, *Origins of the Modern Mind*)

There is an overwhelming amount of literature about the nature of consciousness and its riddles. Yet one must necessarily work through this literature if one is interested in the philosophical and scientific details of the related debates. However, this means that this short book can be neither an exhaustive introduction nor a developed stance on the issue of consciousness – the problem of the mind-body relationship, the reduction of mental states to brain states, or the attribution of consciousness to single individuals.

Something of that kind can be found elsewhere.<sup>1</sup> As far as these issues are concerned, this Living Book is more of a call to pay attention to the current ways in which some of the scientific discussions about consciousness are framed.

Almost any introduction to the subject of consciousness holds that the philosophical history of the modern mind starts with the strict distinction René Descartes made between 'res cogitans' and 'res extensa'. Here, a mental and a physical realm were established that are sharply separated from each other while at the same time being weakly linked by the pineal gland - what Descartes thought to be the physical seat of the mind. This dualism set both the stage and the characters that have subsequently played out the still unfinished story of modern and contemporary consciousness. If these realms are so distinct, how can the mental affect the physical? On the other hand, if the mental is conditioned by the physical, how is free will possible? How can physical states of the brain account for such phenomenologically distinct states as mental ones? How can it be shown that accessible third person descriptions of physical facts are descriptions of inaccessible first person mental states?

As a result of developments in clinical psychology and neuroscience, the dominant trend throughout most of the 20th century was to explain the nature of consciousness not in terms of a dualism, but rather in terms of different sorts of materialism. Consciousness here is either reduced to, identified with, or caused by brain states or neural connections. These various explanations converge on the basic point of making the

brain a necessary and sufficient condition for consciousness. However, a number of criticisms have been made of these forms of materialism. For example, if being in pain is identical to being in a certain brain state, why can't the person in pain identify such a brain state? If the brain causes the mental state of anger, how can two such different conditions be related? Moreover, that the brain is in a certain state or neurons are connected in a determined way does not seem to explain how one feels what one feels. As Steven Harnard writes:

Now what about the 'how'? How does a pattern of brain activity generate feeling? This is not a question about how that pattern of brain activity is generated, for that can be explained in the usual way, just as we explain how a pattern of activity in a car or a kidney is generated. It is a question about how feeling itself is generated. Otherwise the feeling just remains something that is mysteriously (but reliably) correlated with certain brain patterns. We don't know how brain activity could generate feeling. Even less do we know why. (2005)

Amid these puzzles, Colin McGinn (1993) has put forward quite a challenging argument. McGinn admits that as far as consciousness is concerned he is a naturalist. Basically, he has no doubt that the brain is the causal basis of consciousness. The problem is we do not seem to understand 'how this can be so'. The distinctive point of McGinn's stance is that he believes we cannot determine how it is that the brain is responsible for consciousness. According to him, we are precluded from ever understanding this link given the way we form our concepts and develop our theories

(1993: 2-3).

This does not mean McGinn is a constructivist. He actually holds a realist conception of the world, although he admits we have to have a cognitive and perceptive closure to understand it all. For him, there is a state of affairs in the world that human beings can neither perceive properly nor understand. 'But such closure does not reflect adversely on the reality of the properties that lie outside the representational capacities in question; a property is no less real for not being reachable from a certain kind of perceiving and conceiving mind' (1993: 3).

What seems to be missing in the materialist account of consciousness, and in McGinn's 'cognitive and perceptive closure' argument, is an evolutionary and thus historical approach to consciousness. For those hegemonic materialist theories that were popular in the late twentieth century, and are still powerful today, the resolution of the question as to how the brain produces consciousness is a discrete and synchronic one. It is an issue that can be resolved by pointing to brain states or complex neural connections. This is apparent from the spread of representations of the brain through to Functional Magnetic Resonance Imaging (fMRI) and Electroencephalography (EEG). Every now and again a digitally produced image of the brain presented in the media claims to be showing where consciousness, language, pain or love take place.

What is misleading about this particular kind of image is the way consciousness is represented as static: as if it

is detached from the environment and has not changed in the course of human evolution. It is as though being conscious has always activated the same parts of the brain. This representation leaves aside the fact that consciousness has evolved biologically and interacted socially and technologically with the environment.

Consequently, a diachronic and contextual approach must be stressed in order to make sense of the complexity of consciousness. There has been some very insightful work done in this field. For instance, Merlin Donald (1991) has argued that the evolution of consciousness has gone through at least three stages and, more to the point, that we have come to accumulate the three of them. That is, we normally switch between different states that can be regarded as conscious:

In the hybrid scheme proposed here, the functional locus of 'consciousness' can shift, depending upon the representational system currently in command. What we experience as basic, unreflective awareness probably corresponds somewhat to direct episodic experience, uninterpreted by any of our representational systems. Such unreflective states are probably as close as modern humans can get to the episodic cultures of higher mammals. In such a state, the absence of mimetic or linguistic representation concedes control to episodic cognitive structures, by default. (Donald, 1991: 369)

So, along with an episodic unreflective awareness, Donald argues that there is both a mimetic and a linguistic consciousness. Mimetic states of awareness are event-oriented and generally socially interactive. 'Above all, and in contrast with unreflective episodic

experience, mimetic states take an active, modeling approach to experience. The invention and practice of sport, games, dance, ritual, and craft without the engagement of verbal thought are typical of such states' (1991: 369). There is also a more symbolically complex and mediated linguistic consciousness. According to Donald, this is the most spread state of consciousness because most cortical regions in the human brain are tertiary: they receive great quantities of highly digested inputs from all over the brain (1991: 379). This leads Donald to a quite surprising conclusion:

In summary, the degree of consistency across individuals that has been assumed in neuropsychology may not exist in tertiary cortical regions at all. This might be expressed as the principle of singularity: the individual human brain develops a unique functional organization at the representational level. This has serious implications for optimal research strategies in neuropsychology; at the very least, it is a very strong argument in favor of the single-case approach. The regions of the brain that are most characteristically human – especially the great expanses of the frontal and anterior temporal lobes – are likely to be the most malleable neurological structures in nature, taking on many forms. They are configurable and reconfigurable to a remarkable degree, because their resources are allocated on a competitive basis to the many input paths impinging on them. In effect, the physical structure of mind has become less and less fixed as neocortical evolution has progressed. This leaves room not only for the kinds of radical reconfiguration introduced by literacy but also (presumably) for larger differences between the

brains of individual human beings. (Donald: 1991: 380)

From this perspective, the brain appears to have transformed itself during human evolution according to the need to interact with others and the environment. Consciousness here has evolved along the lines of the brain's plasticity. What this implies is that consciousness is not just molded by the brain. The latter is an argument put forward by Andy Clark and labeled 'extended mind theory' (2003; 2008). For Clark, the human mind cannot be circumscribed to the 'biological skinbag':

The human mind, if it is to be the physical organ of human reason, simply cannot be seen as bound and restricted by the biological skinbag. In fact, it has never been thus restricted and bound, at least not since the first meaningful words were uttered on some ancestral plain. But this ancient seepage has been gathering momentum with the advent of texts, PCs, coevolving software agents, and user-adaptive home and office devices. The mind is just less and less in the head. (Clark, 2003: 4)

This is Clark's key idea: that the mind relies on the material means human beings have to encode and transmit information. According to Clark, this is not just a question of cultural or material human development; it is a structural neurological condition of human beings, namely, the plasticity of the brain that allows it to adapt to the environment. 'It is the presence of this unusual plasticity', Clark writes, 'that makes humans (but not dogs, cats, or elephants) natural-born cyborgs: beings primed by Mother Nature to annex wave upon wave of external elements and structures as

part and parcel of their own extended minds' (2003: 31). It is just this capacity to extend and adapt the mind that has been enlarged in recent decades with the coming of computers and all sorts of media that enable human beings to record and manipulate information. Following Clark, we can see that mind and knowledge are inextricable from the material means we have to put them at work. This crucial intertwining of the brain and external resources grants technology a role center stage in the configuration and transformation of consciousness.

Moreover, this argument concerning the extension of the cognitive faculties beyond the head places in question the modern idea of the subject as an independent mind that owns unique ideas and imagination. This criticism of mind individualism thus has highly relevant epistemological and political implications for the current stage of cognitive capitalism. In particular, the notion of 'general intellect' is cast in a new light under these considerations. As Paolo Virno writes:

Marx, without reserve, equated the general intellect (that is, knowledge as principal productive force) with fixed capital, with the 'objective scientific capacity' inherent in the system of machines. In this way he omitted the dimension, absolutely preeminent today, in which the general intellect presents itself as living labor... In so-called 'second-generation independent labor,' but also in the operational procedures of a radically reformed factory such as the Fiat factory in Melfi, it is not difficult to recognize that the connection between knowledge and production is not at all exhausted within the

system of machines; on the contrary, it articulates itself in the linguistic cooperation of men and women, in their actually acting in concert. In the Post-Fordist environment, a decisive role is played by the infinite variety of concepts and logical schemes which cannot ever be set within fixed capital, being inseparable from the reiteration of a plurality of living subjects. The general intellect includes, thus, formal and informal knowledge, imagination, ethical propensities, mindsets, and 'linguistic games'. (Virno, 2004: 106)

The point Virno is calling attention to is that what Marx understood to be knowledge accumulated in machines as general intellect is today located in the very lives and bodies of workers. Knowledge, subjective experience and mindsets join the process of production set in motion by post-Fordism. If we follow Merlin Donald and Andy Clark's arguments regarding the plasticity of the brain and the constitutive reliance of the mind upon sign and memory technologies, then the question of the constitution of consciousness can hardly be answered by pointing to the firing of complex networks of neurons alone. Instead, consciousness appears inextricably constituted by politics, technology and the social workforce. At the same time, this approach certainly provides no definitive answers as far as the philosophical and scientific riddles of consciousness are concerned. Rather, it reminds us that a single straight answer will not be able to account for the multiple mediations in which consciousness is formed.

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Obviously, there are very different ways of reading the papers gathered in this book – readers may think of

them as the revival of speculative thinking, tokens of fair academic debate, or mere hypotheses that still need to be proved. It is far from my intention to prevent any of these views from being held. However, it is my intention that these texts, forming as they do a network of ideas currently under discussion, should be read as putting forward a very basic point. This point concerns the fact that any understanding or definition of consciousness is always founded on a specific vocabulary, and relies heavily on the technologies that make metaphors available with which to represent consciousness. I do not mean by this that there is a literal fact about consciousness that technology and its related vocabularies and metaphors refer to. It is rather that what we are faced with when we consider different discourses about consciousness is a complex set of techno-linguistic mediations that do not yield any conclusive literal content that makes it possible to resolve, once and for all, the debate over the nature of consciousness.

The papers gathered here come from a number of different authors – ranging from senior researchers to a student newly graduated. The aim of this range is to show the sheer variety of vocabularies that are currently being adopted to address issues of consciousness. The chosen papers are organized into four sections. 'The Riddle of Consciousness' provides an introduction to some of the different approaches to consciousness and its related problems – the mind-body relationship, qualia, reductionism, etc. Velmans' article is a broad and well documented presentation of the various theories that purport to define consciousness and its limitations. Robinson welcomes 'Global Workspace' as a promising neurological explanation of

consciousness as ‘synchronized brain activity’. Finally, Soren considers John Searle’s materialist approach to consciousness and, in doing so, reviews the reach and shortcomings of different sorts of materialism proposed in the last fifty years.

The second section deals with the representation of consciousness. How do scans and digital technologies make consciousness available for research? How is consciousness measured? There is a set of technologies that are most celebrated and discussed in the task of representing consciousness – especially Functional Magnetic Resonance Imaging (fMRI), but also Magnetoencephalography (MEG) and Electroencephalography (EEG). The piece by Guenedi *et al.* is an attempt to represent ‘body possession’ through fMRI. The articles by Lundervold and Stam & Reijneveld rely on a hard mathematical apparatus, but this does not prevent them from producing arguments accessible to the non-specialist. In both cases, fMRI is considered as a successful tool to map brain connectivity and to represent the brain’s complex networks. What do all these images tell us about consciousness?

The book’s third section deals with the idea of ‘Extended Consciousness’. There is a recent trend in Western academia that favours an extended notion of consciousness – i.e. the conviction that consciousness does not happen in the brain but in a complex set of interconnections with the techno-biological environment. Powerful hypotheses of this sort have been gathering momentum. If life itself has evolved from inorganic matter, could consciousness not have

come to exist in a similar way over the course of the larger picture of human evolution? This has been the question asked by quantum physicists seeking to determine the origin of consciousness. It is remarkable how certain representations recently developed from quantum physics have turned towards a kind of materialist pan-psychologism in which not just the brain but the whole of nature and the universe is actually conscious. Quantum physics can thus be seen to be overcoming the divide between *res extensa* and *res cogitans* in its substituting of matter for energy as the source of life and consciousness. With this vocabulary in hand, some quite surprising hypotheses – at least as far as Western scientific thought is concerned – have been put forward. It is in this line of work that both Zhang’s and Grover’s articles are to be located. Meanwhile, a somewhat different tone is adopted in the piece by Randrup, where he contends that a group of humans and animals can be seen as the subject of collective conscious experiences. Consequently, he proceeds to argue for an overcoming of ideas of consciousness as a mere attribute of individuals.

Finally, in the Appendix I present a number of different cases in which conscious experiences manifest themselves – be it in writing, music, dance or blogging. What I am seeking to show are the experimental ways in which conscious is expressed; that is, the ways in which the dominant hegemonic forms of consciousness are undermined by other forms of experience. I am very much interested here in the expression of altered states of consciousness, mainly by drug use. I intend this Appendix to be a work-in-progress that will be added to and developed further as I gather new material. So far,

it contains one piece: an argument put forward by David W. Hill in which he explains why he stopped using Facebook. It addresses the question: What sort of awareness did Facebook provoke in Hill that led him to this dramatic gesture?

## Endnotes

1 Among the classic texts I suggest should be reviewed are Churchland (1995), Clark (2003, 2008), Dennett (1996), Donald (1993), McGinn (1991), Nagel (1981), Pepperell (2003) and Searle (1992). There are numerous Readers I find valuable, including Schneider and Velmans (2007). This introduction assumes at least in part a dialogue with these texts.

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## **The Riddle of Consciousness**

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Richard Robinson

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Erik Sorem

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## **Representing Consciousness**

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Arvid Lundervold

On Consciousness, Resting State fMRI, and Neurodynamics

Cornelis J. Stam & Jaap C. Reijneveld

Graph Theoretical Analysis of Complex Networks in the Brain

## **Extended Consciousness**

Xialei Zhang

The Emergence of Consciousness in the Quantum Universe

Mondendra Grover

The Quantum Computing Conscious Universe and the Extended Deep Ecology Hypothesis: Implications for

Medicine, Agriculture and Technology

Axel A. Randrup

Animal Mind as Approached by the Transpersonal: Notion  
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## **Appendix: Varieties of Conscious Experience**

David W. Hill

Reflections on Leaving Facebook

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