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Premises of a Natural Science of Consciousness

Ervin Laszlo

Abstract: According to the mainstream of modern science, there cannot be a natural science of consciousness because consciousness does not actually exist in nature. It is a product or by-product of the workings of the brain. There is a natural science of brain and the nervous system, for these are bona fide elements of the world, but there cannot be a natural science of a phenomenon of which the very existence is in question.

In the prevalent view consciousness is something that happens when neurons fire in the brain. This is said to be confirmed by experience. There is no consciousness in the absence of brain function. However, there is increasing evidence that this is not true: some forms of experience seem to occur even when the brain is not functioning. Evidence on this score comes from a variety of sources: from people who arrived at the portals of death and returned, from spiritual masters, and from ordinary people who enter a meditative, prayerful, deeply loving or otherwise non-ordinary state of consciousness. It also comes from psychic mediums who claim to “channel” the consciousness of people who have already died. Some strands of the evidence have been confirmed by physicists and psychiatrists, consciousness researchers, and other serious and otherwise unbiased observers.³ If the evidence is cogent, there is a need to expand the prevalent theory of consciousness. We need to account for the possibility that consciousness can exist independently of brain function.

Keywords: consciousness, science, brain, survival, holographic, James, Bohm

In his widely regarded 1899 lecture on immortality, William James suggested that there is a veiled domain of the world from which information is received and transmitted by the brain. The “transmission theory” of consciousness, he said, is preferable to the “production theory” because it can account for various otherwise anomalous “spiritual” phenomena (James, 1899). If the brain produces consciousness these are merely a chimera of the imagination. But if the brain only transmits the phenomena, they could exist beyond the brain the same way as a TV

or radio program exists beyond the TV or radio set that transmits it.

Whether consciousness is produced by the brain or transmitted by it is a crucial issue for a science of consciousness. We first consider the brain-produced theory of consciousness, and then the consciousness as a real-world phenomenon alternative.

***The epiphenomenon theory:
consciousness is a product of brain function***

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Retrieved from http://www.conscjournal.org/?page_id=59
www.conscjournal.org Page 1

The basic premise: *The observation of the brain discloses networks of neurons firing in complex sequence. Consciousness is an epiphenomenon generated by the firings of the neurons. This is confirmed by the observation that when the neurons cease to fire, consciousness disappears.*

In the traditional form of the mainstream theory consciousness phenomena are limited to the human brain. In more “universalist” versions of the theory a stream of sensations analogous to those that constitute human consciousness are allowed to be present in nonhuman organisms as well. Presumably, consciousness is produced when a certain level of complexity has been reached in the evolution of the organism’s information-processing functions. A relatively simple brain is merely a biochemical reaction system. As primate researcher Jane Goodall noted, even fifty years ago chimpanzees were placed into the category of complex reaction systems without “interiority.” However, further research disclosed mind-like elements in the comportment of chimpanzees and in other primates. Scientists then allowed that they, too, may have a form of consciousness.

Independently of the problem of defining the cut-off point for the presence of consciousness. the theory that the brain produces consciousness comes up against the so-called hard question of consciousness research (Chalmers, 1995). How could a set of neurons generate consciousness? Neurons discharge electrical impulses and associated biochemical substances; how could they generate such “qualia” as colors and sounds, not to mention feelings, emotions, and a sense of meaning and significance?

How the brain functions is a comparatively “soft” problem that neurophysiologists can be expected to solve

step by step. But how an “immaterial consciousness” could arise out of “unconscious matter” cannot be answered by brain scientists because their research deals with “matter,” and matter is not conscious. Philosopher Jerry Fodor pointed out that “nobody has the slightest idea how anything material could be conscious. Nobody even knows what it would be like to have the slightest idea about how anything could be conscious” (1992, p. 20)

Compounding the problems of theory are those of the evidence. As already noted, there are strands of evidence that are anomalous for the brain-produced consciousness theory. It appears that consciousness does not always and necessarily cease in the absence of brain function. This paradoxical finding is reported by people who have reached the portals of death but returned to the living: the near-death experience. As widely known, in some cases critically sick people become temporarily brain dead, but subsequently regain normal cerebral functioning. During their “flat-brain” period an estimated six million people have reported conscious experiences (Charbonier, 2015).

There is further counter-evidence confronting the epiphenomenon theory. There are indications that consciousness can exist not just during the temporary cessation of brain function, but also in its permanent absence: when the individual is irreversibly dead.

Psychic mediums claim to channel messages from persons who are already deceased, but the authenticity of these messages is not *prima facie* clear. It could be that the mediums themselves invent the messages, or that they pick them up from living persons through some form of ESP. There are cases, however, in which these

possibilities can be effectively ruled out: the messages conveyed by the mediums contain information that neither the mediums themselves could have possessed, nor any living person with whom they could have been in touch. One such case is the game of chess played by a living chess grandmaster with a grandmaster who had been dead for decades (Laszlo & Peak, 2014).

“Dead” people seem able to send messages not just through psychic mediums but also through electronic instruments. Known as ITC (Instrumental Trans-Communication), this phenomenon consists of anomalous voices appearing on audio recording devices, radios, and even on ordinary telephones. Hundreds of controlled experiments on ITC have been reported in various parts of the world and they leave little doubt that the phenomenon exists, although it lacks a satisfactory explanation (Laszlo & Peak, 2014).

A prima facie cogent explanation of the counter-evidence

The simplest and most logical way of accounting for evidence counter to the epiphenomenon theory is to allow that, while all elements of consciousness are produced by the brain, some elements are conserved—“saved”—not *in* the brain (because in the anomalous cases the brain is not functioning) but *beyond* the brain. The term “saved” is a meaningful metaphor. Some computer programs offer a functional analogy for the persistence of consciousness beyond the brain that generated it.

The stream of sensations that makes up consciousness can be seen as a string of information. According to the prevalent brain-production theory, this information reaches the brain through the sensory organs. An analogous string of information can also reach an electronic instrument such as a computer. If the information is entered on an old-fashioned computer without internal memory and links to other devices, it is limited to that computer. If the computer is shut down, the information disappears. But modern computers have internal memories and external drives and can also be linked to information networks. The information entered on them need not disappear when the computer is turned off: it may be “saved.”

Saving the information that makes up consciousness appears to be a dynamic metaphor for the persistence of consciousness beyond the brain that would have generated it. Some researchers claim to have understood how this could happen. Robert Lanza, for example, suggests that the information that constitutes consciousness (the “soul”) is conserved in nature at the quantum level (Lanza & Berman, 2010). Since it is conserved beyond space and time, it can be anywhere in the world, in the body or outside of it. Conserved at the quantum domain, it remains available for transfer to other domains when the individual has died.

The theory that consciousness is saved in nature can account for recalling the items that had entered the subject’s consciousness whether he or she is alive or dead. But it cannot account for recalling the experiences of others. A more sophisticated variant of the computer-memory theory can do so, however. The consciousness of an individual could be stored in nature in the manner of a cloud-computing system. Such a system receives

information from a variety of sources and it saves all the information and makes it available for recall.

The cloud-computing theory has its limitations: there are experiences that it cannot account for. These are experiences of not just recalling a past item of consciousness but of actually communicating with a consciousness that is not attached to a living brain. This is an anomaly, because a cloud-computing system stores and retransmits the information that has been entered in it, but it does not elaborate it. The recall from such a system should be the same as the original. That such a system saves and re-transmits information from a variety of sources does not change this fact.

Communicating with a quasi-living consciousness that is not the consciousness of a living individual is not explained by the hypothesis that consciousness is saved by a memory function beyond the brain. Yet the phenomenon — s o - c a l l e d “transcommunication”—is widespread. It surfaces in the mystical experience, in the experience of therapists who induce altered states of consciousness in their patients, and in the experience of trance mediums. Therapist Allan Botkin claims to have induced what he calls “after-death communication” in thousands of patients (Botkin & Hogan, 2006)); after-life researcher Raymond Moody reported similarly large number of cases of spontaneous communication with deceased persons; and hundreds of psychic mediums report communication with discarnate intelligences that answer questions and recount what happened to them after they had died (Laszlo & Peak, 2014).

The evidence suggests that communication can take place with entities that have a sense of self, carry memories of physical existence, and may manifest the wish

to communicate. This is not accounted for by the theory that consciousness is a product of the brain.

The realworld phenomenon theory: the brain transmits and does not produce consciousness

Received wisdom is that the brain produces consciousness. The more sophisticated version of this theory is that items of consciousness, although produced by the brain, are conserved beyond the brain. But even this theory cannot explain how communicating with a quasi-living consciousness that is not the consciousness of a living person could be possible.

We may have to embrace the alternative suggested by William James: that the brain, rather than producing consciousness, transmits it from a domain of reality beyond space and time. As astrophysicist David Darling (1995) noted,

... no account of what goes on at the mechanistic level of the brain can shed any light whatsoever on why consciousness exists. No theory can explain why the brain shouldn't work exactly as it does, yet without giving rise to the feeling we all have of "what it is like to be." And there is, I believe, a very simple reason for this. The brain does not produce consciousness at all, any more than a television set creates the programs that appear on its screen. On the contrary, the

brain filters and restricts consciousness, just as our senses limit the totality of experience to which we might otherwise have access. (p. 4)

Consciousness is a stream of information that appears for the individual when he or she introspects on his or her experience. If that stream is produced by the brain, the display is a product of the brain. But if the stream includes elements that did not, and could not have been, produced by the brain, we must allow that consciousness—or elements of consciousness— could originate beyond the brain. Such elements appear to exist. They include the array of experiences Stanislaw Grof (2000) calls “transpersonal.”

Three categories of transpersonal experiences are especially relevant. According to Grof, the first category,

...involves primarily transcendence of the usual spatial barriers, or the limitations of the “skin-encapsulated ego,” as Alan Watts referred to it. Here belong experiences of merging with another person into a state that can be called “dual unity,” assuming the identity of another person, identifying with the consciousness of an entire group of people (e.g.all mothers of the world, the entire population of India, or all the inmates of concentration camps), or even experiencing an extension of consciousness that seems to encompass all of humanity. Experiences of this kind have been repeatedly described in the spiritual literature of the world.

One can even transcend the limits of the specifically human experience and identify

with the consciousness of various animals, plants, or even with a form of consciousness that seems to be associated with inorganic objects and processes. In the extremes, it is possible to experience consciousness of the entire biosphere, of our planet, or the entire material universe. Incredible and absurd as it might seem to a Westerner committed to materialistic philosophy and to the Cartesian-Newtonian paradigm, these experiences suggest that everything that we can experience in our everyday state of consciousness as an object has in the holotropic [nonordinary] states of consciousness a corresponding subjective representation. It is as if everything in the universe has its objective and subjective aspect, the way it is described in the great spiritual philosophies of the East. For example, in Hinduism all that exists is seen as a manifestation of Brahman and in Taoism as a transformation of the Tao.

The second category of transpersonal experiences is characterized primarily by the overcoming of temporal rather than spatial boundaries, by transcendence of linear time. ... The vivid reliving of important memories from infancy and of the trauma of birth ... can continue farther and involve authentic fetal and embryonal memories from different periods of intrauterine life. It is not even unusual to experience, on the level of cellular consciousness, full identification with the sperm and the ovum at the time of conception. But the historical regression does not stop even here; it is possible to have experiences from the lives of one’s human or animal ancestors, and those that seem to be coming from the racial and collective unconscious as described by C. G. Jung. Quite frequently, the experiences that seem to be happening in other cultures and historical periods are associated with a sense of personal remembering (déjà vu or déjà vécu); people then talk about reliving

of memories from past lives, from previous incarnations.

The third category of transpersonal experiences is even stranger; here consciousness seems to extend into realms and dimensions that the Western industrial culture does not even consider to be “real.” Here belong numerous encounters or even identification with deities and demons of various cultures and other archetypal figures, visits to mythological landscapes, and communication with discarnate beings, spirit guides, superhuman entities, extraterrestrials, and inhabitants of parallel universes. Additional examples in this category are visions and intuitive understanding of universal symbols, such as the cross, the Nile cross or ankh, the swastika, the pentacle, the sixpointed star, or the yin-yang sign (Grof, 2015).

The brain-production theory of consciousness is obliged to dismiss experiences in these categories as fantasy, or at the most as misleadingly realistic combinations of elements of sensory experience.

The problem with the dismissal of the transpersonal strands of experiences is that they sometimes convey veridical information. This is true especially of the first and the second category of experiences: these transcends the spatial and/or the temporal boundaries of sensory experience. Such experiences could not have been produced by the brain; but they could conceivably be transmitted (more exactly, transduced) by it.

Premises of a natural science of consciousness

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ISSN applied for

In a natural science consciousness is not the product or by-product of cerebral activity but a real phenomenon in the real world. It exists beyond space and time whether or not it is received, transduced and displayed by an entity in space and time. The high level of consciousness that appears for a human being in space and time is the manifestation of the cosmic consciousness through the transmission—or transduction—of its relevant features by a complex brain and nervous system.

Consciousness exists throughout in space and time, much as energy and information does. Consciousness, the same as other phenomena in space and time, are manifestations of holographic codes beyond space and time. It is both ubiquitous, and nonlocal.

The holographic theory of the universe is intensely debated in physics. In its simplest form the theory maintains that the 3D things and events we observe in space and time are projections of 2D codes at the periphery of spacetime (and possibly in another universe).

This theory has been introduced into physics by David Bohm in the late 20th century and significant evidence for it has surfaced in 2013. At that time Fermilab physicist Craig Hogan proposed a hypothesis that could be tested against observation. He suggested that the fluctuations observed by the German gravity-wave detector GEO600 may be due to the graininess of spacetime (according to string theory at the supersmall scale spacetime is not smooth but patterned by minuscule ripples: it is “grainy”). It turned out that the inhomogeneities found by GEO600 were not gravity-waves. They could be, however, the ripples in the structure of

Retrieved from http://www.conscjournal.org/?page_id=59
www.consciournal.org Page 6

spacetime. This would be the case if they are 3D projections of 2D information coded beyond spacetime. If the grains found by GEO600 are of the indicated size, Hogan's hypothesis would gain experimental support. Subsequent measurements confirmed that the spacetime ripples are precisely the size they would have to be if they were 3D projections of 2D codes beyond spacetime.

Further support for holographic spacetime theory came in the work of Yoshifumi Hyakutake and colleagues at Ibaraki University in Japan. They computed the internal energy of a black hole, the position of its event horizon, its entropy and several other properties based on the predictions of string theory and the effects of virtual particles. Hyakutake together with Masanori Hanada, Goro Ishiki and Jun Nishimura (2013) then calculated the internal energy of the corresponding lower-dimensional cosmos with no gravity. They found that the two calculations match. The internal energy of a black hole and the internal energy of the corresponding lower-dimensional cosmos are the same. Black holes, as well as the cosmos as a whole, are holographic. Spacetime and quanta and systems of quanta that in spacetime, are projections of a beyond-spacetime hologram.

If the holographic theory is truly a theory of the universe, it includes the phenomena of consciousness. The codes beyond spacetime manifest both as physical and as mental events in space and time: as clusters of energy, as well as the sensations that appear for the clusters. It is assumed that all existents in space and time have a property we can describe as awareness—in Whitehead's (1929) metaphysics, "prehension." This is a form and degree of mapping in and by the systems in the form of sensations. These may be as

simple and basic as an oceanic "feel" of the world, or as articulate as the awareness of particular objects, events, and the feelings that accompany them.

The tenet that consciousness is a real and ubiquitous phenomenon in the universe overcomes the puzzles confronting the prevalent brain-produced theory of consciousness. Consciousness is not produced by the human brain and is not limited to the human brain: it is ubiquitous in the universe. All consciousnesses in space and time are manifestations of the beyond-spacetime hologram: they are intrinsically interconnected: "entangled." Shifting from one manifestation to another is not shifting from one point in space and time to another, but from one manifestation of the same phenomenon to another. It does not involve displacement either in space or in time. Individual consciousness is a nonlocal manifestation of universal consciousness.

The universality as well as interconnection of mind in the world has been recognized by major thinkers and scientists. There is no categorical separation between minds, any more than there is between quanta. Maintaining the separation of one mind from others is a convenient convention in our everyday commerce in the world, but it is not objective reality. All minds are manifestations of one mind or consciousness.

That consciousness is fundamentally one is now held by a growing number of investigators, including leading physical scientists. Erwin Schrödinger, for example, said that the overall number of minds in the world is one. "To divide or multiply consciousness is something meaningless. In all the world, there is no kind of framework within which we can find consciousness in the plural ... this is a false construction... the

category of *number*, of *whole* and of *parts* are then simply not applicable to it” (Schrodinger, 1983, p. 31-34).

Based on his detailed observations, NDE and OBE researcher Kenneth Ring concluded that the mind is not located in the individual and is not fixed either in time or in space. Also Carl Jung came to this conclusion. The psyche is not located within the cranium, he remarked, it is part of the *unus mundus*, the single generative principle of the cosmos. The English astrophysicist Arthur Eddington said, “The idea of a universal Mind or Logos would be, I think, a fairly plausible inference from the present state of scientific theory; at least, it is in harmony with it” (Eddington, 1928, p. 338). David Bohm was categorical on this point. “Deep down the consciousness of mankind is one. This is a virtual certainty ... and if we don’t see it it’s because we are blinding ourselves to it” (Weber, 1986, p. 41).

More recently philosopher Michael Grosso wrote, “Our individual minds are surface growths that appear separate and distinct but whose roots lie in a deeper psychic underground; there we are mutually entangled and part of a more extended mental system”(Kelly, Crabtree, & Marshall, 2015, pp. 83-84). Grosso’s “psychic underground system” recalls William James’ Universal Mind—a mother-sea into which our several minds plunge despite the fences we build as adaptation to our earthly existence” (Kelly, Crabtree, & Marshall, 2015, pp. 521-522-84). Aldous Huxley explained: ... in so far as we are animals, our business at all costs is to survive. To make biological survival possible, Mind at Large has to be funneled through the reducing valve of the brain and nervous system.” (Huxley, 1954; 1984, pp. 19-20).

The holographic theory of the universe is the logical premise of a natural science of

consciousness: a science that recognizes that consciousness is a basic element in the universe. Consciousness is not produced by the human brain and by any brain or organism, and it is not confined to them. It is a cosmic phenomenon received, transduced, and necessarily also reduced by the human brain.

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Retrieved from http://www.conscjournal.org/?page_id=59
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