

Consciousness and the Physical World: Ontological Reflections on Michael Towsey's "The Emergence of Subtle Organism"

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Significantly inspired by the writings of Prabhat Ranjan Sarkar, Michael Towsey, in his article "The Emergence of Subtle Organism," presents a comprehensive ontology (theory of reality) and epistemology (theory of knowledge) that he applies to science, both in its present form and its potential and preferable future evolution. More specifically, he critiques what he takes to be the dominant paradigm in contemporary science, one that he identifies as "materialist monism" (which contains both ontological and epistemological dimensions) and which he finds too limiting in scope. Towsey proposes an alternative paradigm grounded in Sarkar's ideas on the mind-matter spectrum, microvita, and our future cognitive evolution.

My intent in this review is to selectively critique certain key features of Towsey's critique of materialism, as well as the ontology of his proposed "subtle organism" alternative to materialism. (There are many aspects of his paper that I do not address due to limitations of space.) Some of the main points of my critique are the following: Almost all of the presumed weaknesses Towsey identifies within materialism are based on mistaken or confused interpretations of physical science; though Towsey wishes to align his theory with recent emerging "organicist" (holistic) views of nature, his "subtle organicism" theory is not organicist or holistic at all, but rather atomistic and reductionistic, the very views that holistic science criticizes; though he acknowledges that there are multiple meanings of the concept of consciousness, his ontological scheme mixes up these meanings, leading to deep ambiguities in what he is proposing; the theory of microvita, as he presents it, is totally unsubstantiated scientifically as a theory of physics; and though he criticizes "vitalism," arguing that his view is distinctly different, he actually is proposing (as best as can be clarified) a vitalistic and rather "magical" theory of mind and consciousness. In essence, there is no clear, let alone illuminating, theory of consciousness in his paper. Though materialism (or a physical ontology of the universe) has its problems, which I identify below, Towsey turns consciousness into a "thing" (or collection of things) which I believe is a fundamental philosophical mistake. Instead I propose as an alternative that consciousness and the physical world should be viewed as an interde-

pendent reciprocity—a view totally different from anything that Towsey comes near to proposing.

Let us begin with Towsey's critique of materialism. He starts by stating that contemporary science is materialistic, by which he means that contemporary science assumes that all that exists is physical matter and all that can be studied scientifically is physical matter. It may be true that contemporary physics, chemistry, and biology assume that all that exists and can be studied scientifically is physical, it is clearly not true for the sciences of psychology, sociology, anthropology, and economics. All of these sciences, which deal with humans, postulate various non-physical "mental" realities (thoughts, values, emotions, attitudes, decision making processes) in their theories and research (Gardner, 1985; Baars, 1997; Damasio, 1999; Pinker, 2002; Hall, 2010).

Towsey then lists a set of problems with materialism (anomalies that can't be explained or assimilated within a materialistic framework). He states that most of the domain of contemporary physical science, though assuming materialism, refers to realities that are not qualities of matter but rather abstract in nature (such as energy, space-time, and entropy). Hence, the concept of matter can't even cover most of the domain of physical science. But, contrary to his argument, he does not seem to realize that even matter is an abstract theoretical concept in the physical sciences. All scientific theory, whether physical or not, is abstract. (This has nothing to do with whether its referents are physical or not.) Hence, "abstract" does not equate to non-material. Further, what is physical in the physical sciences need not refer directly to material objects, but also various relationships, abstract and lawful, between material objects. The science of energy and forces clearly refers to physical realities that can be measured using physical instruments, and even space and time are physical realities, indeed influenced by the distribution and behavior of material objects. Within the history of physical science, right from the beginning, variables such as force and energy, or space and time, were included as part of the physical world (for example, gravity as a force in Newton's theory.) The physical sciences always assumed, as part of their ontology, physical realities that were not just simply the "stuff of matter." Towsey mixes up the concepts of matter and physical—the latter being a broader concept—and also mistakenly thinks that if something is physical or materialistic it can't be abstract. In essence, in his opening general critique, he attacks a "straw man."

Next, Towsey seems to argue that contemporary physical science doesn't present a coherent or intelligible theory of reality. On the contrary, physical science does present a theory of reality; it simply does not jive with our everyday notions of reality, especially at the quantum level. Even if the quantum level appears to present features that seem to us to be "contradictory" (such as the wave-particle duality), it doesn't follow that the physical world doesn't possess such apparently "incompatible qualities." The same is true regarding determinism: even if the quantum level isn't entirely deterministic, so what? Does this somehow throw a monkey wrench into the quantum theory of sub-atomic reality? Does it mean that something is necessarily missing, as Einstein, for example, believed? Does physical reality have to be deterministic in its entirety? Where is this written in the laws of the universe? Because quantum theory does not agree with our everyday, common sense notions of reality, this doesn't imply that there

is something deficient or wrong with quantum theory. It is more likely that there is something wrong in expecting everyday notions of reality to serve as a foundation for understanding all of physical reality, especially at the micro-level of things (Gell-Mann, 1994).

Towsey argues that materialism can't explain the origins of life, but if the origins of life are due to, or connected with, emergent and holistic properties in nature (the main argument he cites from the life sciences), it doesn't follow that a physical explanation is impossible—only that what is required is a physical explanation (at the very least) involving holistic and emergent qualities (Davies, 1999; Morowitz, 2002; Kauffman, 2008).

Towsey says that materialism ignores and can't explain such psychological realities as purpose. But scientists working from within a physical framework clearly have proposed explanations of purpose and how it arises (emerges) within physical systems (Boring, 1950). On this question of explaining or understanding purpose, he mixes up explanations of purpose with explanations postulating purpose (teleological explanations). He states that physical science avoids teleological explanations, which is generally true, but this doesn't mean that physical science avoids attempts to explain purpose as an emergent phenomenon in nature (Kauffman, 2008).

Towsey argues that materialism relegates questions of ethics, aesthetics, and intelligence to the metaphysical realm. The basis for Towsey's assertion here appears to come exclusively from the extremist view of logical positivist philosophy, which reached its highpoint in the mid-twentieth century. But this view does not accurately capture the nature of ethics, for example, or how ethics, in fact, is approached within most of contemporary science and philosophy. Contemporary philosophy sees ethics and aesthetics as normative concepts, as opposed to descriptive concepts within science; they are questions of "should" and of value (Thiroux & Krasemann, 2009). They are not questions about another ontological realm. A normative concept, in no sense whatsoever, needs to be metaphysical or have anything to do with metaphysics. To think so would be a conceptual confusion. In fact, there is a host of naturalistic (operating from within a physical framework) approaches to ethics (Bell, 1996, 1997; Wilson, 1998; Shermer, 2004; Harris, 2010). In essence, this is another straw man—based upon another confusion—that Towsey attacks.

Towsey states that the materialistic paradigm is based on faith; he includes, in support of this view, a quote from the neurophysiologist Patricia Churchland, where she states that her approach is based on faith. But Churchland's remark specifically has to do with her physicalist approach to mind and consciousness—that we will be able to explain all aspects of mind and consciousness through brain processes (Churchland, 1986). This is only one piece of the general physicalist approach to nature though. The contention that physicalism within science in general is based on faith is decidedly wrong. In fact, physicalism has repeatedly been demonstrated through evidence and experimentation to be a very successful approach to understanding the workings of nature. (Is this faith?) Every time a physical explanation of a natural phenomenon has been found in science that rendered unnecessary earlier explanations involving "spirits" or desires/intentions of non-physical deities, physicalism was further corroborated. Darwin's theory of evolution through natural selection is a strong case in point. This

last contention of Towsey is one of the most invalid and consequently misleading statements made in his whole article.

Yet, Towsey does touch upon certain "anomalies" that I would agree create problems for physical science, if the intent of physical science is to realize a complete and comprehensive explanation of all of reality. Though Towsey seems to mix up the general meaning of "sentience" which is to be aware, to have feelings and perceptions, with the idea of our "internal life" not directly derived from the senses (for example, thoughts), he does note that such "internal" events are not publicly observable, that is, not observable through the senses of others. According to Towsey, it is a basic epistemological principle in materialism that all its factual statements must refer to facts observable through the senses, an interpretation of the epistemology of physical sciences that is simply wrong (Feyerabend, 1965). Though I am very skeptical about the claim that our "internal lives" are totally cut off from the perception of others, Towsey eventually does get to the general problem of how one can explain consciousness (with its feelings, thoughts, and perceptions) through brain activity. As the philosopher David Chalmers (1996) describes it, this is the "hard problem" in the mind-body problem. As I have stated it, "the puzzle is that the qualities of consciousness seem very different than the qualities of the physical world. For example...how can a physical brain of electro-chemical impulses produce conscious sensations, emotions, and thoughts?" (Lombardo, 2011). I will return to this question a bit later; it is an important issue.

Moving to the idea of organicism, Towsey correctly notes that biological and systems science has been moving away from the idea that systems in nature can be adequately and completely understood in terms of their parts; many areas of science have instead been moving in a holistic direction. Stated simply, holism argues that there are emergent properties within systems pertaining to the overall organization of the system that go beyond the qualities of the parts of a system and cannot be predicted from a complete description of the parts and their interaction (Koestler, 1987; Morowitz, 2002; Kauffman, 2008). The contrary view, sometimes labeled "atomism," is that everything about the whole can be understood through its constituent elements; hence, it has been argued from within this mindset that everything (biology, chemistry, psychology, etc.) is reducible to physics (this view is labeled "reductionism"). Clearly, everything we have learned in science, especially over the last few decades, seems to totally invalidate both reductionism to physics and atomism. Towsey wishes to align the view that he will develop with holism or organicism, which would mean that he intends to present a holistic view of reality. I argue (see below) that this is exactly what he doesn't do; he presents, rather, an atomistic (reducing to parts) vision of reality with vitalistic overtones.

Before he lays out his theory, Towsey discusses consciousness and opens with quotes from the physicist, Roger Penrose, and Sarkar, regarding the nature of consciousness. The meaning of each of these two quotes is different (corresponding to two different meanings of consciousness), yet he treats the two statements as expressing the same idea. (Another confusion.) Penrose states that everything we know and experience (including our perception of the physical world) is revealed through consciousness; Sarkar's statement defines consciousness as the subject or knower (the "I")

that is conscious. Towsey states that Penrose is saying the same thing as Sarkar, when, in fact, he isn't. Penrose is saying that everything we know/experience derives through consciousness, including, I would add, the sense of the "I." Sarkar is talking about the I, as knower, not that everything we know is contained or revealed through consciousness.

Towsey then goes on to quote the physicist Max Planck: "Everything we talk about, everything we regard as existing, postulates consciousness." This is a restatement of Penrose's point—not Sarkar's. Towsey also quotes Sewell Wright's hypothesis that consciousness is inherent in all elementary particles, which is panpsychism—another idea, the view that all entities in the universe possess consciousness (are aware) (Blackmore, 2004), and though Towsey treats this statement as somehow equivalent to Penrose's statement or Planck's, it is not. Wright is arguing that everything is aware; Penrose and Planck are arguing that everything we are aware of is revealed through consciousness (Berkeley, 1713; Kant, 1781). Though Towsey acknowledges that there are multiple possible definitions of consciousness, he mixes them up in his interpretations of what other writers are arguing and mixes them up in his exposition of his own theory. These confusions on consciousness ripple out through the rest of the paper.

But Penrose and Planck raise an important point which I would take as a second problem with a comprehensive physicalist theory of reality: How can consciousness (that is, awareness or experience) be explained in terms of physical concepts, if the phenomenal manifestation of the physical world (and everything meaningful we can say about it) requires consciousness? This seems to me to be a fatal flaw with physicalism as a comprehensive theory of reality.

This point notwithstanding, Towsey states in his conclusion in his section on consciousness that it is the subject/knower sense of consciousness that is primary (can't be explained through physical science), and further he states that the fact that everything known (including the physical world) is experienced through consciousness is an emergent (holistic) aspect of consciousness. The second point seems clearly false—this is Penrose's point which has nothing to do with emergence. The first statement is debatable. But this two-part conclusion is based on an ongoing confusion regarding the various theories and meanings of consciousness.

A few pages later Towsey presents two hierarchal tree diagrams, one representing a materialistic conception of reality; one representing a "subtle organicism" view. In the materialistic diagram, he locates mind, aesthetics, ethics, and consciousness under "metaphysics"; as I argued above, this is simply wrong as an accurate depiction of the natural sciences. In the subtle organicism diagram, he places consciousness at the top—as the fundamental dimension/reality of all existence. But what is the meaning of consciousness here? He does not explain. Towsey then lists consciousness as subject/knower and consciousness as what is known (objects of consciousness) as the two major conceptual subdivisions below. But this is not what he argued earlier, stating that the subject is primary, and clearly it is not what Penrose and Planck argued (and I concurred) that everything known is known through consciousness—which perhaps should really be at the top. Perhaps Towsey believes that the subject and the conscious phenomenal field are the two fundamental non-derivative aspects of conscious-

ness. But this is not what he says earlier. The reality of "consciousness" at the top of the hierarchy just hangs there, without explanation.

To further confuse matters, Towsey identifies, in the "organicism" hierarchy, the "known" side with "energy." But what does this mean? Clearly not energy simply in the physical sense. In fact, below energy, he divides the terrain into "subtle mind," "crude mind," and "matter." Is matter a type of energy then? If so, then his criticism that energy is not part of the materialistic view is contradicted in this diagram. And how are we to understand how and why subtle and crude mind fit under energy? What kind of energy? As best as I can understand, Towsey means by crude mind perceptual awareness of the physical world, and subtle mind refers to higher levels of consciousness, including thought, value and considerations of beauty. So are all forms of mind, forms of energy? Is what we perceive a form of energy? What kinds of energy? This part of the hierarchy, a very central part, hangs on mere vagary—never explained.

At this point, we come to Towsey's interpretation of Sarkar's theory of microvita, which Towsey believes is an organicism theory. Following Towsey's interpretation of Sarkar, microvita are the smallest units of reality—the smallest entities; everything is composed of microvita. This is a monumental claim, completely unsubstantiated by any physical or scientific evidence, as is his subsequent assertion that one type of microvita ("crude microvita") are the hypothesized ultimate constituents of physical matter. What evidence is there for this within the physical sciences? Is there anything in the whole domain of quantum physics that indicates anything like this?

Towsey states (quoting Sarkar) that microvita come into and out of existence, and so, it would seem, do quantum particles (at least virtual ones). But quantum theory explains this becoming/passing away phenomenon without recourse to anything resembling microvita. I could just as well argue that the universe ultimately consists of extremely tiny (much smaller than electrons) angels that pop in and out of existence. Why believe this?

Further, contemporary developments in physics strongly suggest that the ultimate constituents of the universe are vibratory rather than particle-like (a quark is an integration of a set of vibrations), and further that all of the hypothesized elementary particles are actually interdependent with each other; there are no stand-alone particles (Gell-Mann, 1994; Smolin, 1997; Greene, 1999). To suppose that the universe is made up out of a vast collection of distinct particle-like entities is a form of atomism that is regressive and confused when quantum physics has demonstrated that there may, in fact, be no ultimate atoms.

Towsey also seems to think that because microvita pop into and out of existence (they are born and they die) this makes them inherently alive. But quantum virtual particles pop into and out of existence. Does that make them inherently alive? In fact, following Towsey's earlier argument, which derives from holistic biological thinking, life is an integrated set of holistic properties, rather than some quality contained in the constituents that make up a living organism. The physical universe and the biological realm both appear to be fundamentally relational and holistic—that is the main point of an "organicism" theory—but in the presentation he makes of the theory of microvita, Towsey seems to be saying the exact opposite. Everything can be explained in terms of exceedingly tiny, distinct units—including consciousness.

In this regard, consider that Towsey postulates two types of microvita: crude and subtle. Crude microvita form the building blocks of physical matter; subtle microvita form the building blocks of mind. The latter inherently possess some level of consciousness. But also keep in mind that even what we call physical things (such as atoms and brains) are, according to Towsey, a mixture of crude and subtle microvita, making all physical things to some degree conscious (recall Wright's panpsychist argument and Towsey's support of it). Hence Towsey attempts to explain consciousness in everything by postulating its existence in the fundamental building blocks of existence. This is atomistic again. (And which meaning of consciousness are we referring to here?)

The holistic, emergent explanations of consciousness and mind within holistic science argue that these phenomena derive from sufficiently complex systems within nature. Towsey's explanation of consciousness is not a version of a holistic view, but the reverse, namely, atomistic. More generally, I do not see anywhere in Towsey's paper holistic descriptions or explanations (derived from his theory) of thought, emotion, self-identity, ethics, aesthetics, purpose, or even perception, all features of mind and consciousness. What I find instead, at best, are tiny little particles that already possess such qualities.

Moreover, Towsey's theory smacks of vitalism. Consciousness comes into the physical body via tiny particles that possess consciousness (which are different than the tiny crude particles that do not). Towsey states that his view is neither vitalistic nor dualistic, since mind and matter exist on a continuum or spectrum; mind being a result of subtle (low intensity, high frequency) microvita and matter being the result of crude (high intensity, low frequency) microvita. Consciousness (awareness), as such, is this unexplained quality (rather magical in nature) that some microvita possess (due to their high frequency) that mix into the dumb collections of crude microvita. This is vitalism.

In essence, there is no explanation, holistic or atomistic, of consciousness in Towsey's theory, except perhaps to say it is connected with low intensity, high frequency energies, but of course, what kinds of energies? He seems to think that his view is neither vitalistic nor dualistic, instead treating mind and consciousness as substantive realities only differing in degree from physical matter. But to say that mind and consciousness are due to high frequency/low amplitude energies is to say nothing at all about consciousness. One could still ask why does consciousness emerge from such "subtle" energies? And we still have the problem of identifying what these more subtle energies are. The whole scheme is word magic resting on totally unexplained and empirically unsound concepts.

Towsey's whole line of thinking ends up sounding like the Greek philosopher, Democritus, who argued that the mind was composed up out of more refined (or "subtle") atoms relative to the world of matter which was composed up out of denser, bigger atoms. This treats mind (and consciousness) like a thing—a collection of things—a concatenation of some kind of refined substance. Phenomenologically, consciousness does not appear to be a substance at all; it does not appear to be a thing, in the way that a rock is a thing. At the very least, if consciousness is knowing, then to say knowing is reducible to a collection of entities/particles amounts to a total conceptual con-

fusion, if not simply a mistake. Knowing is, if nothing else, a relationship between knower and known; it can't be a thing, and hence, neither can consciousness.

Towsey's theory does not explain the hard problem; how does experience and all its distinctive qualities arise from a physical entity, such as the brain? Towsey just magically postulates that it does because there are conscious (subtle energy) microvita in the brain. And just as importantly, Towsey fails to come to grips with the fundamental point raised by Penrose and Planck: everything we know, everything we experience, is revealed through consciousness, including, even if it were true, those postulated tiny microvita. Microvita cannot explain consciousness because consciousness provides the necessary framework in which microvita would be or could be understood.

It seems to me that Towsey collects together a large number of different ideas (and I have only discussed some of them) from different disciplines and theoretical perspectives and attempts to squeeze them together into consistency under the general idea of "subtle organicism"—a forced synthesis that is filled with unexplained explainers, undefined concepts, misrepresentations, and logical contradictions.

As I have argued, understanding the fundamental nature of consciousness and the physical world requires a theory which takes as a starting point the interdependency of consciousness and the physical world. Towsey's position is monistic, attempting to reduce everything to one ultimate reality. Yet, scientific evidence clearly supports the idea that consciousness requires physical support and embodiment, including but not limited to the brain (Clark, 2003, 2008; Noe, 2009), and yet, conversely, everything we know about the physical world (including our brains) comes through consciousness. This reciprocal reality—a relational one—is where to begin in formulating a truly innovative approach to understanding what consciousness is and how it connects with the physical world (Lombardo, 2009, 2011).

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