Conference Report

Toward a Science of Consciousness 2011: **The Greatest Show on Earth**

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Abstract

A review of the 18th annual TSC interdisciplinary conference on consciousness sponsored and organized by the Center for Consciousness Studies at the University of Arizona and supported by the Perfjell Foundation of Sweden.

Key Words: TSC 2011, consciousness, science, conference, Stockholm, anti-physicalist.

Anyone who has ever been to a TSC conference will know that it is impossible to sum them up; impossible to attend to all of the more than 300 papers presented in plenary sessions, concurrent sections, workshops, posters, and art installations; impossible to know whether one has seen and heard the best of everything; impossible to absorb all the perspectives one *has* managed to see and hear; impossible to extrapolate all the implications of what one *has* managed to absorb. The best a reviewer can do is offer a peek into the underlying ethos of this particular conference. Unlike neural assemblages of the past, this one had the flavor of the Big Top, with larger-than-life performances, colorful and plentiful side-shows, the tension of the high-wire, and a pace and rhythm that quickened the heart.

The exposition was launched in the center ring with a well-staged war of world-views. Leonard Mlodinow trapezed directly from Arlanda Airport into Stockholm University just in the nick of time to upstage Deepak Chopra who (temporarily losing sight of his transcendental spirit) had seconds earlier called Mlodinow a cowardly no-show and was claiming default victory. Mlodinow mounted the stage yanking off his red varsity jacket while recounting a travel snafu that stranded him in Amsterdam, hugged a startled Chopra and proclaimed his sincere love ─ effectively upsetting the stereotypes of cold-minded scientist and warm-hearted spiritual leader. Though clearly sleep-deprived Mlodinow dove into modestly and gracefully defending physical monism from the idealist monist attacks Chopra had been polishing all-day long with larger-than-life showmanship in a 7 hour preconference workshop on the very same stage. Both gave light-hearted, chummy performances based on a book they have coauthored due out in the fall. Though clearly a marketing ploy, they provided very welcome high entertainment value in a venue better known for dry and somber discourse.

Chopra has a large presence and wondrous talents but his marketing techniques were something new at these conferences and some of the delegates were disconcerted by these. What seemed like manipulative

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marketing techniques were being used to try to fill the hall for the Deepak Chopra's 'celebrity' preconference workshop. The conference promotional material had claimed months in advance that there were only a few balcony seats left in the 'famous' Aula Magna Hall for Chopra's preconference event, and suggested that preconference attendees should hold their seats for the TSC Conference Opening/Public Forum which occurred immediately afterward – the implication being that if you did not buy one of the few remaining $99 tickets to Chopra's workshop, you could not attend the Conference Opening/Public Forum. Alas, the hall was actually only around 25% capacity. I suspect the conference organizers will return to relying on legitimate intellectual interest. The off-putting marketing technique may have prevented more attendance than it drew in, and likely scared off the economy-bound Swedes for whom the free Public Forum was supposedly intended. Chopra had miscalculated the character of the delegates and the sensibility of the Swedes.

Sweden, the Swedes, and the Stockholmian sensibility in particular, provided the physical and sociological context for this conference. The Swedish culture is characteristically secular, open-minded, egalitarian, with a fair and just socio-economic uniformity arising without a significant loss of individual autonomy. This tangible urbane cultural flavor invisibly informed the ebb and flow of ideas, creating an intelligent, sensible, intuitive balancing act that has not been achieved at similar conferences elsewhere. Of course familiar troubles provide the usual analytical context of these conferences. What, pray-tell, is the relationship between consciousness and physics? Does consciousness arise from physical principles or are physical principals the product of conscious processes, the natural result of the interpretive structure of human brains? etc, etc. Is consciousness non-local, also occurring outside of brains, thus rendering our brain obsession an obsolete analytical grounding-point? What is the scope of consciousness? What is the definition? Is it physical? Is it spiritual? Is it a combination of these or something else entirely? And the even more hidden question, "Whose version of reality should we use to contextualize this debate?" Chopra's early and loud dominance in these proceedings infused Aula Magna Hall with a context of Vedic principles with which to offset the precepts and assumptions of a typical scientific conference.

And Chopra's interest in these conferences may have other very positive long-term effects. We did not (and did not intend to) answer any of the major questions while in Stockholm but it behooves us as an emerging field to share the questions being raised, as well as the implications at stake for everyone should our communal ideological preferences on reality-defining issues fall one way or the other. Who better than Mlodinow and Chopra to spread the word of what is happening in this vital field of inquiry to a word-weary, sound-bite oriented world? Their compelling science vs. spirituality argument can be said to loosely represent the underlying tensions in the field of consciousness studies. The developmental cohesion so necessary for progress in a field of consciousness studies is fundamentally thwarted by the contentions inherent within a similar kind of split. Airing our dirty laundry outside of academia promises to invite and incite the critical energy needed to overcome these incessant internal obstacles. We know from past conferences that neither monist polarization nor dualist conciliation have served us as sufficiently explanatory. Mlodinow and Chopra, while intending to crystallize the issues with an innovative new clarity, only skimmed the surface of a more subtle dichotomy deeply infecting and severely protracting the developmental phase of a science of consciousness. Unfortunately, Mlodinow and Chopra stated their two-dimensional argument and fled the proceedings without being influenced by

the depth and breadth and intricacy of the inquiries for which these conferences are well-known. The assembled delegates have been dealing with the finer points of these issues in the trenches for years.

When the spot light went up in ring number two the Strongman of Science was there flexing his empirical muscles. The mostly brain-oriented plenary sessions animated Aula Magna hall with the rapt attention of those who love to see the causal-physical empirical world-view putting the hammer to the lever that propels the ball that rings the bell. Ding, ding, ding. Neural correlates, transcranial therapies, electromagnetic fields, anesthesia, quantum biology, and so on, were presented in well-attended sessions that were occasionally punctuated by the squeaky protestations of those who saw their own more holistic understanding of consciousness (and reality) discounted by the unquestioned underlying assumption that neural correlates, quantum processes, and electromagnetic fields ARE the very definition and explanation of what consciousness is. Waves are indeed making waves in the brain sciences: waves internally produced by DNA through water molecules (Nobel laureate Luc Montagnier gave a talk on this); by neuronal cells via ultra-weak biophoton emission (Vahid Salari); or waves externally applied using pulsed ultrasound (William Tyler) or using electromagnetic fields (David McCormick) to stimulate action potentials in the brain.

Ringmaster Hameroff whipped our attention onto microtubules at the conclusion of each and every plenary. Fine. But for those who can see no viable correlation between a quantum physical explanation of microtubule signal-transfer and a meaningful explanation of the rich perspectival nature of conscious experience, this repetitive reminder of his pet theory, as well as the overly brain-oriented presentations at the plenary level, despite being very important work, seemed annoyingly self-serving. But Hameroff is forgiven all theoretical biases. It is easy to sit back and criticize but organizing a conference of this magnitude is a gargantuan responsibility for which he deserves great credit and thanks. Mention was made in several talks about the presence of neuron-like cells and activities occurring in the heart, the liver, and the gut. Perhaps these clues will be the beginning of a widening of scope in research attention (and funding) – expanding our attentions outward from the brain toward the study of the entire body as a conscious system, eventually expanding from there to include social structures, the species, etc. and expanding downward in organizational scale to the level of awareness in cells as well. Many delegates felt that our over-focus on the brain, while providing terrific new knowledge, suggests too small a definition of the central subject matter for which these conferences are intended. And many feel that without an understanding what is happening in terms of awareness at the scale of cells and social structures we will never comprehend what the brain is actually mediating between the two. Without a rational context of analysis the brain (and consciousness) will forever remain a mystery, thus giving rise to many forms of compelling but non-explanatory mystagoguery: quantum mysteries = consciousness mysteries, conscious mysteries = spiritual mysteries, spiritual mysteries = quantum mysteries, and so on.

For the keynote address Sir Roger Penrose was magically floated into ring number three on a quantum mechanical cloud, untouched by modernity or commercialism or by the pre-emeritus strivings of ordinary academia, separated in time from the Chopra/Mlodinow antics, and unsullied by world-wide digital ubiquity (his presentation was prepared with multi-colored magic-markers via overhead projector). And much like some of the other physicists present, he seemed untouched by the point and purpose of the conference itself. He only had a sentence or two to spare for the subject of consciousness in a 90 minute

presentation which covered all of physics from the quantum to the cosmological, from the big bang to the final blip implosion. With childlike innocence and Penrosean charm he suggested that the final implosion would be a small event like a single mortar explosion that would fit into such a space as we had there in Aula Magna Hall, wherein "you all might all be affected" (i.e., destroyed) "but it would not be much of a noticeable event as far as the present universe was concerned". Note taken!

According to Penrose, all of physics (and thus reality) is computational, can be reduced to the methods and logic of mathematics *except* for a micro-millisecond of time-split that occurs before the moment of collapse in the quantum state. There, because the events and circumstances cannot be accurately computationally predicted, he allowed that consciousness could indeed come into play. In other words, if you cannot understand something computationally, well then… maybe this mysterious thing consciousness just might be the answer. Ergo, not only did our keynote speaker not present an actual theory of consciousness he revealed one of the most ungenerous acknowledgements of sentience in the living world. He only allows that it might exist in the one micro-millisecond pre-collapse event for which the mind of the materialist fails to find a mathematical solution. The impression given is that were there a bit of math for the quantum pre-collapse moment we would be gratefully relieved of the inconvenience of having to discuss consciousness at all. Were there no mystery in physics we would not need the mystery of consciousness. Clearly, for the physicist, reality does not *need* consciousness. Henceforth for this reviewer, the mind of physicists became the conundrum in question, the puzzle of *all* puzzles, *the* mystery of mysteries.

Note to conference organizers: Though most delegates acknowledge the importance of understanding brain function, and though we see the remarkable way in which mathematics can be applied to problems in physics and logic, and though we applaud and support those who can do the important and necessary work performed via strict empirical method, many of the delegates do not see how numeric language, quantum processes, cosmological constants, and causal proofs, will ever be able to directly capture the meanings and purposes for which conscious experience arises in *living systems*. Math and physics may capture the laws of nature but not the inter-relative logic of living systems caught up within those laws ─ living systems for whom (and by whom) such laws are figured and formulated. Unlike other natural phenomena, one needs a wider conceptual approach for the subject of consciousness. The empirical model is insufficient. As even Penrose admitted, non-computational logic is fundamental to understanding our conscious condition. Perhaps in developing a science of consciousness the organizers are attempting to borrow legitimacy status from math and physics that have so dominated our description of realty for two centuries. But to move forward toward a science of consciousness me must countermand the scientific mind-set-of-the-moment, reduce its sway over our analysis, and forfeit its grip on our definition of reality in order to do the actual world-view-extending theoretical work required to properly orient a science of consciousness.

This is not to say that other non-traditional points of view were underrepresented at the conference. They were not. In fact by proportion they probably outnumbered the traditional approaches two to one. But they were mostly relegated to the concurrent or poster level, merely given lip service at the plenary level, ignored in the keynote address, and given a pop-spirituality glister by the presence and voice of Deepak Chopra. To the credit of the organizers one did hear terrific arguments both for and against physicalism

itself. This gave thrill and seemed to touch upon the heart of the matter, bringing into clearer focus the odd relationship between the main-stage plenary presentations and the underbelly sideshow concurrent talks. Whereas most main-stage physicalists just assume their fundamental assumptions about reality are correct, Reinaldo Bernal, in a concurrent section on Materialism/Physicalism took time and great care to construct a convincing argument for physicalism's continued pragmatic use in an explanation of our conscious condition. Bernal's argument, based on the logical flaw inherent in the concept of intersubjectivity, was impressively wooing and deserves kudos. But then Kristjan Loorits' poster presentation emphasizing the inescapably abstract nature of physics and mathematics, quickly brought one back to one's anti-physicalist senses.

And many other presenters (some explicitly, others obliquely) contributed to the delicious underlying conference-wide tension between physicalism and the yet-to-be-unified underground anti-physicalist resistance. Tarja Kallio-Tamminen in a plenary on Consciousness and Reality thankfully reminded us that despite great expectations, atomism, reductionism, and determinism turned out *not* to be universally applicable; that nature is *not* mechanical; and that knowledge, values, and goals are also intrinsic aspects of the fabric of reality. Jon Cape made a humorous and well-pointed case against the dominance of physicalism in his concurrent presentation entitled The Naked Emperor, which was written to honor the retirement of JCS's venerable managing editor Anthony Freeman who in 1993 wrote a similar critique of prevailing beliefs in his book *God in Us*. Anthony Freeman's unusual absence from this conference was as noticeable and as peculiar as was Deepak Chopra's unusual presence. And the qualitative significance of this altered quantum state took (and is still taking) a bit of digesting.

I cannot emphasize enough how refreshing it was to see that many bold presenters were simply dispensing with physicalism's analytical constraints and getting on with the work of consciousness studies, without waiting for this central ideological issue to be publicly and finally resolved. A good example of this work was found in new approaches to the old mind/body problem, formerly the exclusive domain of philosophy. This hard-core *hard* problem inherent to the physicalist stance is now broached through an understanding of the brain mechanisms and mind behaviors responsible for the creation and maintenance of body-awareness and body-ownership. Valoria Petkova tackled this subject in a concurrent session on Body Consciousness and Henrick Ehrsson addressed it in a plenary session on Neural Correlates of Consciousness. Rather than distinctly separate entities, the mind and body must now be seen as fully-integrated inseparable aspects of a unified reality. The mind and the body necessarily reify one another.

This inter-relational metaphorical ethos emerged as a common theme in many a presentation ranging from the psychological/sociological aspects of conscious experience to the proposed quantum-physical aspects of brain function. Laura Weed in her Jabberwocky-inspired poster presentation championed a new metaphysical grounding for the quantum interrelational characteristic, and she conjured the powers of Pierce, Maudlin, Ladyman, Ross, and van Fraassenish to bolster her case. "So, what *is* reality as described by the quantum world?" she asks, and then answers, "… it is a relational dance among very small and very large structures, mediated by observational perspectives and descriptive languages, whether information-theoretic, mathematical, or logical. What structures exist are themselves relational entities…"

What this reviewer realized anew in Stockholm is that the physicalist and anti-physicalist analytical routes toward a science of consciousness each come with their own unique worldview, and each result in drastically divergent explanations of what consciousness is and what reality is. The physicalist in general prefers to view consciousness as the *product* that we as possessors of physical brains *produce* in a physical world. But to enjoy this top-down, in-control view of cognition we must fully invest in the primacy of brains and in the sovereign reality of self-models. This investment results in an analysis that allows us to continue thinking of the empirically experienced products of those brains and self-models as equally sovereign, immutable, and absolutely true. In this version of consciousness and reality, the physical, measurable, quantifiable, empirical world is regarded as absolutely true (despite it being discredited within physics itself). Warning: Many physicalists may actually only experience the world as a physical system with measurable coordinates. It gives me shivers to think of it, but I suspect it must be so given the way some of them talk with such smug certainty about what can and cannot be known, what is and isn't real, what is science and what is nonsense, etc. The more flexible sort of physicalist will admit that the empirical world that we experience is not necessarily a correct correlation to what exists *out there* "but it is all we can know so what's the difference?"

But if consciousness is instead seen through the eyes of anti-physicalists (i.e., characterized as a 'symbiotic, emergent process' rather than a product) then the soup of experience we enjoy (the physics, spirituality, private thought, sensation, intuition, emotion, social structures, meanings, associations, purposes, etc.) all come out the other end of our analysis as merely useful constructs and NOT as absolute truths − mere qualia resulting from an appropriate interpretive-structural recipe that is only meant to result in a specific kind of useable world-model, the one that suits our unique purposes. In this scenario consciousness does NOT deliver freestanding truths and thus we can readily admit we are not separate enough from the experiential products of this process for us to accurately use the product (the empirically experienced world in particular) as the basis for understanding and measuring what consciousness is or is up to. And, the anti-physicalist will point out, this is *not* the end of the road of analysis (does not constitute cognitive closure). It is the beginning of many new forms of analysis that can do many wonderful things for us – particularly once we begin to recognize that all mental models are aligned with purposes for which they were created. When we glean the relationship between purposes and models we have a whole new ballgame (physical models of reality for physical purposes, spiritual models of reality for spiritual purposes, sociological models of reality for sociological purposes, and so on).

But perhaps something of ingrained personal preferences will continue to inform our communal outlook. For those who constitutionally prefer the purposes of control and certainty the physical model is going to be their ticket to reality; and for those who constitutionally prefer to validate interrelational dynamics and meanings the anti-physical approach will be the obvious choice. Where does this superposition of purposes and worldviews leave us on the long and winding road toward a science of consciousness? As it stands, the dominant mind-set, informed by control and certainty (and inescapably fostering the rampant materialism that attends this ethic on the cultural level) continues to collapse reality toward its own shallow purposes, despite that these purposes no longer accurately represent a logically tenable world-view in the intellectual, social, psychological, emotional, economic, political, physiological, or ecological realms. Best we place our bets and hopes on the anti-physicalists whose high valuation of inter-relational

dynamics (over and above a valuation of objects, substances, and forces) holds out the only hope of transforming a radically fractured world into something more sustainable and ethically refined.

Thus, instead of mere measurements, we must do the harder work of discerning how, why, in what way and for what purpose our experiences of reality (including the physical and spiritual models) are cognitively constructed from more fundamental aspects of awareness: from self-concepts in relation to world-concepts; from perspectival awareness based on the self/world inspired self-model formulation; from organic purposes facilitated by perspectival self-model awareness; from experiential dichotomies that emerge from the perspectival nature of self-models in order to serve self-models caught up in organic purposes, meanings, signals, signal concepts, etc . The harder work is all ahead of us and clearly it does not help to always defer to or refer to the physical world-model, nor to the logic of strict empiricism. We need an analysis utilizing an association of meanings, cognitive models, incremental adaptations of awareness in nature, inescapable imperatives of living systems, etc. The physical model of the world, so good for so many things, is not going to help us here so the assumptions about reality that our physicists assert are unhelpful. What became most apparent at this conference was how our communal notion of reality must be wrested from the physicists, like a rugby ball in play, and then refashioned and re-adapted to the tasks at hand – which are the tasks of understanding our conscious condition on its own terms (rather than in terms borrowed from physics or religion) and then evolving as a global culture utilizing this new form of self-and-world understanding.

The implication of the underlying tension at this conference is that science, in its strict empirical methodological manifestation, can no longer be the sole arbiter of a reality that must now include our conscious condition as well as our physical (and/or spiritual) one. Thus we need to rethink what science is and how we wish to use it. The difference between the physicalist and anti-physicalist world-models can be used to define the direction of our modifications to the scientific endeavor. The science-defining metaphors must shift from physical causation (determinism) to process interrelation (holism). And fortunately, this is already occurring to people. "Science works very well as a *social process* when we can come together and find flaws in each other's reasoning. We can't find the problems in our own reasoning very well. But, that's what other people are for, to criticize us. And together, we hope the truth comes out," says Jonathan Haidt, in a recent interview with *The Edge*. This aptly describes the TSC conferences, at least from the perspective of the anti-physicalists. The problem and the tension is that the physicalists refuse to see that their empirical beliefs can *also* fall under the scope of critical scrutiny.

And thus the odd disjunctive dynamic occurring on the high-wire at this conference would occur in and around any assemblage of physicalists and anti-physicalists. In general, the physicalist mounting the parapet and grabbing the swing in the middle of the big top is concerned with control and certainty and exhibits a strict devotion to a well-tested methodology based on doubt and mistrust. He or she tends to be an inflexible animal, impervious to new ideas and new approaches, smug in his or her certainty of the facts as they relate to his or her beliefs, which are not considered beliefs at all but hubristically touted as the 'real deal' the only and absolutely true version of reality. In general, the anti-physicalist grabbing the swing at the short end of the tent, is motivated by and informed by an awareness of an inter-relational process-oriented reality (rather than a reality of objects and causal forces), is constitutionally open to new ideas and to alternative perspectives on old problems. He or she is pervious, flexible, willing to try any

new angle to see what can be worked from it. The close encounter mix of pervious and impervious animals at the Stockholm TSC produced a palpable field-tension of which only the pervious species was aware. Will these two animals meet in the middle, clasp paws, exchange momentum and go off together on a single swing, or will they … miss one another… again… with the physicalist swinging past the anti-physicalist, oblivious to his own role in the mishap, gleeful at the spectacle of the anti-physicalist falling heavily into the net below.

The physicalist, discounting his or her own more subtle senses as quickly as he or she invalidates the sensibilities of others, easily disregards the significance of the trapeze-coordinating information he or she might receive were his or her beliefs broad enough to allow a non-causal impression to squeeze through and be registered as valid. The physicalist only sees one possible world-view with one small set of possible proofs while the anti-physicalist is open to as many worldviews as it takes, including the physical/empirical one, until the answer to a problem is meaningfully (rather than merely computationally) resolved.

That, in a marshmallow circus-peanut nutshell, is what occurred on the high-wire at this conference. While the anti-physicalists are actually the more agile ones, they look less so because the physicalists, preening their stolid reputations for empirical excellence, yet unable to actually get a grip on the central subject matter of the conference, and unable to recognize the unusual skill of those who *can* get a grip, cannot coordinate their own efforts toward the tasks at hand. An expeditious way to correct this habitual misconnect would be for someone with a reputation in the sciences (Leonard Mlodinow, for example) to stand up and say something different about the relationship between consciousness and physics, acknowledging the ingrained cognitive structures of living systems as the source of physical models, and agreeing to look at these ingrained structures from a non-physical perspective. That would be a show-stopper. Until then, if one can stomach the main-stage matter-versus-mystery antics as a necessary evil, reduce the overly brain-focused plenary activities to a consciousness-status/conference-legitimizing side-show (while elevating in ones focus the varied and unexpected minutia on the peripheries) one can better intuit the underlying innovative impulses of the age and glean the potential future orientation of an emerging consciousness culture.

Thus, at this conferences wisdom dictated one disregard the chunks of personality, reputation, and fame floating on the surface of the soup and look to the copious broth astir below in the non-brain-focused plenary talks and in the peripheral and plentiful concurrent sessions, workshops, posters presentations, and art installations, where alternative ideas about consciousness are explored in minutia from so many different angles as to cause the head to spin on both its lateral and vertical axis. At any rate, since the plenary speakers are likeliest to show up in the journals anyway, why renew your passport, stuff a suitcase, book a flight, and pay exorbitant conference fees and hotel rates just to glean what you can read at home. Down in the lower-level conference mix, the pitch and moment felt particularly ripe with possibility. Here one feels a sense of the urgency, seriousness, immediacy, ubiquity, and endless wonder of the subject matter. The multitude of experiential, philosophical, spiritual, biological, and non-material scientific approaches is rich indeed and ripe for anyone with an eye toward innovative cross-pollination. Combine the insights and concerns of any two presentations at the concurrent and poster level and you'd

have an entirely new field of endeavor. And many a presenter already combined several approaches to great effect.

Charles Whitehead explored altered states through the rubric of social anthropology and arrived at an inspiring formula for comprehending and applying the transformational spirit of *communitas*; Heather Christ correlated rigorous statistical analysis of spiritual intelligence to model more efficacious methods of spiritual leadership; Naama Kostiner combined neurophysiology with innovative narrative-based psychotherapeutic techniques to facilitate mind-expansion and to address drug addiction in a unique way; Marcelo Mercante combined altered states achieved through the use of ayahuasca in a ceremonial context to form an effective real-time on-the-ground clinical solution to drug addiction and alcoholism in Peru and Brazil. Imants Barušs (a long-time touter of physicalism's irrationality) applied empirical methods and flow charts to his own recent training in remote healing methodologies. And many others followed equally innovative paths for equally noble reasons. Peter Fenwick's two presentations of research into near death experiences (coincidentally scheduled at the start and finish of the conference) managed to calm the instinctual death-fears in even the most skeptical of us, and gave one and all cause to privately reconsider the possibility of an immortal conscious state. These were not the kinds of thoughts one had after Penrose spoke.

In the great clashing mix of worldviews at this conference the underlying physical/anti-physical tension continually re-emerged. Can the physicists maintain their stranglehold on our global culture's understanding of reality or will a sufficient loosening of our over-dependence on measurement-based empirical certainty occur so that we can begin to accommodate the true nature of conscious experience on its own terms? As in the examples above, many presenters were doing their earnest best to accommodate the expectations of empirical science, applying clinical standards and quantifiable statistics to what would otherwise be distinctly separate *unscientific* endeavors. And many, driven by the kind of real-time concerns within the human condition that cannot await a full on transformation of the physicalist paradigm, are unapologetically cutting lose from the constraints of science and showing pragmatic results of alternative methodologies. One cannot help but admire the flexibility and dexterity of those who can adequately apply the grain of science to legitimize new fields of endeavor and analysis. And one cannot help but cheer on the sensible determination of those who are willing to go against the grain of science for the sake of more rapid progress in real-time social problems.

One very present real-time problem for the science of consciousness is the question of what consciousness is. Neil Theise, in a concurrent session on panpsychism, made an astounding argument for the presence of sentience across many levels of organizational structure, from the quantum foam, to atoms, to cells, to organisms, to social units, to the ecosystem, to the universe. I say *astounding* with my tongue in my cheek because I made a similar argument in a poster presentation on the Origin of Cognition while intentionally limiting my analysis to living systems (from single celled organisms to human brains) in order to first comprehend how, why, in what context and in what character awareness arises in beings like us, before we can adequately approach the question of consciousness in quantum effects and cosmological properties.

Theise's presentation brings up an important question that needs to be decided if we are to establish a unity of scope and terminology in the field of consciousness studies. Where does one draw the line for the use of the word "conscious"? Do we discuss, measure, and validate what awareness is doing in all living and an non-living systems or only discuss, measure, and validate what it is like to be conscious ourselves, focusing on the centrality and know-ability of human subjective experience? Can the same terms be used for both kinds of explorations? As possessors of brains, are we the makers of conscious experience or merely more articulate manipulators of conscious experience occurring in all living and non-living systems throughout the natural and physical world? Does ownership of brains and linguistically-enhanced self-reflexively self-aware self-models make us special? Do other animals with less complex brains and languages also enjoy equally vital conscious experience and abilities, subconscious archetypal worlds of dreamlike intensity, unconscious coordination of morphology, movement, and metabolism? Does over-focusing on the human brain cause us to lose more (in terms broad but vital analysis) than we gain (in terms of finer-tuned but uncontextualizable data)? A reality-model confined to the empirically provable configuration-space constrains not only our imagination and opinions it renders incognizable everything about consciousness (and physics) that falls outside the causal-physical explanatory scope.

In the face of such extensive creative enterprise and deep questioning occurring in the peripheries at this conference, the physicists and the strict empiricists looked a bit smug, shallow, and foolishly unaware. One foresees a future wobbliness in their currently firm footing. The strict empiricists continue to maintain their weightiness for the while, which is reflected in their dominance in the brain-science-oriented plenary sessions, but something else of uncommon energy and momentum is certainly on the rise. Unfortunately the pride, certainty, and control responses of the strict empiricists prevent them absorbing these other more interesting perspectives. They do not show up to the concurrent sessions and poster talks where cross-pollinating anti-physicalist exchanges are steadily raising the level of creative inquiry. Though always present in some form at these conferences, in Stockholm the underdog undercurrent of the anti-physicalist resistance seem to have finally emerged in greater numbers and with a higher degree of communal impatience.

Despite some P. T. Barnum-like self-marketing antics and the stark objective material monism of the physicists and brain scientists, if one arrived open-minded, open-hearted, intuitively attuned to the moment, and truly interested in witnessing a world of new ideas in their ideological and creative infancy, this conference in Stockholm was indeed the greatest show on earth. Nowhere else in the universe but at a TSC conference can one witness the showman and the shaman, the physicist and the psychic, the artist and the anesthesiologist, the social scientist and the spiritual leader, in all their varied and full-fledged beauty, busily expanding the cognitive territories on this wondrous new map of the human adventure.