

TSC TUCSON TABLOID

APRIL 13–17, 2010, TUCSON, ARIZONA

JCS Reporter: Bill Faw

MINDS DID WANDER AT TUCSON-2010



BREAKING NEWS! BREAKING NEWS!

**William James anticipated everything
— but resolved nothing!**

**Mind-Wandering is wonderful — except in the driver of
the 18-Wheeler barreling toward you!**

**Ash-Wandering by Mt Eyjafjallajokull strands
European visitors ...**

**... while Governor signs
legislation to take care of *other* international visitors!**

The Singularity is Near – or Not!

Hard Problem Solved by Sci Fi! Non-Dual is Cool!

Beware of opening personal mail from the Dalai Lama!

Enlightenment is the ‘Duh!’ moment!

**Beware of interviewers asking you
to describe your ego-less ‘self’!**

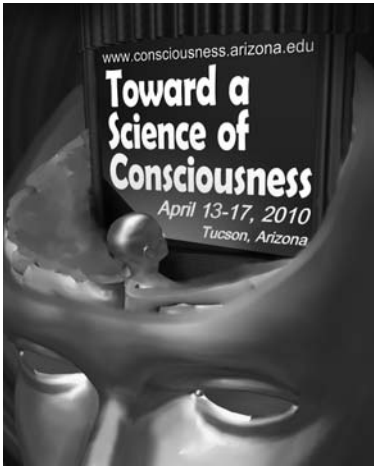
How to change a yellow P to an orange R!

These were the headlines inside and outside the Tucson Conference.

For details look inside this TSC Tucson Tabloid >>>

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Journal of Consciousness Studies, 17, No. 5–6, 2010, pp. 189–212



Tucson's Plus Factor

Perhaps a dozen people stood when Stuart Hameroff (in introducing David Chalmers at the beginning of Tucson 2010) asked how many *other* people had been to each of the biennial Tucson 'Toward a Science of Consciousness (TSC)' conferences since their beginning in 1994. This was only my fifth of the nine conferences, so I could not stand. Still, as *JCS* official reporter (for the third time at Tucson as well as Budapest

TSC in 2007), I attended every moment of every plenary session and of each concurrent session (within non-quantum limitations of being at only one session at a time), took copious notes, and was very happy to be there.¹

I have attended at least as many conferences of the Association for the Scientific Study of Consciousness (ASSC), beginning in 1997, and have written as many *JCS* reviews on them. My dual set of conference reviews since 2001 may have contributed to the image of ASSC conferences as being more 'scientific' and Tucson conferences as being more 'weird'.² So let me set the record straight for any of you serious scientists or philosophers who might be reading this with apprehension: *The Tucson conferences are not 'ASSC-minus', but are 'ASSC-plus'*.

Tucson conferences have as many major scientists and philosophers as ASSC conferences — and often the same ones — but have, in addition, a wider range of topics related to literature, quantum mind, meditation, altered states, the transpersonal, and para-science. If you want serious science and western philosophy of consciousness, then go to *either one or both*. But if you want the wider range of topics, then go to Tucson. Plan now for TSC in Tel Aviv in May 2011 as well as in Arizona in April 2012!

- [1] I only tuned out of — while remaining physically present during — two plenary talks, but that was close to the end of a brain-filling week.
- [2] In fact my wife — who accompanied me to the previous two Tucson conferences and Budapest as well as ASSC conferences at Cal Tech and Oxford, and has been polite enough to read some of my reviews — asked me just before I left home for Tucson, 'Let's see, this is the flakey one, right?'

Basic Schedule of the 2010 Conference

Tucson conferences are long. This year's ran from Monday April 12 through Saturday April 17 — even without the stay in Tucson being extended by days for most European attendees by the Mt Eyjafjallajokull volcanic eruption delaying flights home. Conferences begin with three sets of pay-per-view workshops on Monday morning and afternoon and Tuesday morning; 19 were scheduled this year, but not all 'made'. From Tuesday afternoon through Saturday evening, there is a mix of Plenary, Concurrent, and Poster sessions, plus various extra-curricular events. A brief sketch of these this year will give you a sense of the big tent that Tucson is. After sketching this, we will look at some of the major 'leitmotifs' of the conference, interspersed with some of the humorous statements and events. Hopefully all of this will lead you to start saving up for Tel Aviv and the next Tucson!

The conference proper began **Tuesday** afternoon, with a William James Centennial — this patron saint of psychology, philosophy, and consciousness studies died in 1910. Eugene Taylor, Bernard Baars, and Bruce Mangan spoke. Following this was the first set of seven concurrent sessions, followed by the Welcome Reception in a recessed Hotel Arizona courtyard; and then the first of a new series: 'Club Consciousness 1' — a cultural presentation based on consciousness-related sketches or songs. The concurrent session and poster session themes are reported below.

Wednesday began with Plenary 2 on the so-called Default Mode Network. The initiator of that interpretation of the functioning of a major brain network, Marcus Raichle, was not able to attend due to illness. Robert Shulman did speak on this as scheduled. Three people filled in for Raichle: Stuart Hameroff (stepping in at the last moment), and Adriene Prettyman and Steven Briggs, who moved their talks forward from Saturday's schedule. This was followed by Plenary 3 on Bodily Awareness, with Henrik Ehrsson and Frederique De Vignemont presenting. After lunch was Plenary 4 on Computational Models of Consciousness with Dharmendra S. Modha, Ben Goertzel, and Marc Ebner. Then the second set of concurrent sessions; followed by the first poster session. Conference attendees who had not already lost consciousness had the opportunity to close out the day at Club Consciousness 2.

Thursday was a shorter meeting day. Plenary 5 was on Multimodal Experience. While two of the speakers did not show, the audience was enthralled by synesthete Patricia Duffy's first-person. She also gave a good third-person report on synesthesia research. Michael Proulx

spoke on various aspects of cross modal mapping. Plenary 6 was a ‘singular’ keynote by David Chalmers on ‘The Singularity: A Philosophical Analysis’. The rest of the day was devoted to side trips and the Conference Dinner — this year at the Westin La Paloma Resort and Hotel.

Friday was another full day. Plenary 7 dealt with the Transformation of Consciousness, with Cassandra Vieten, Jeffrey Martin, and Za Choeje Rinpache, speaking on transformation; study of Claims to Enlightenment; and Tibetan Buddhist Perspective on Consciousness, Enlightenment and Reincarnation, respectively. Antonio Damasio gave the Plenary 8 keynote on The Neural Self. Plenary 9 was on Theories of Consciousness with Sid Kouider, Robert Van Gulick, and Galen Strawson. Then the third set of seven concurrent sessions, followed by the second poster session, and then by Club Consciousness 3 — the classic poetry slam.

Still more on **Saturday**. Plenary 10: New Directions in NCC Research, with Michal Gruberger, Moran Cerf, and Anirban Bandyopadhyay. Plenary 11 was a keynote by Robert Sawyer (developer of *Flashforward* and other science fiction concepts) on ‘Science Fiction and Consciousness’. Plenary 12 was on ‘Mindwandering and Consciousness’ with Malia Mason and the two Jonathans from the UC Santa Barbara group: Schooler and Smallwood. This was followed Saturday night by the traditional ‘End of Consciousness Party’ at Maynards at the Depot. This used to be held in David Chalmers’ desert home, before he left to live in another desert nation. It was fun to see Dave liven up this party by drawing people onto the informal dance floor. Even I danced a bit. The train whistles from trains at the Depot seemed to me quite appropriate to this gathering, since I had mentioned (in my concurrent talk on Wednesday) Thomas Huxley’s ‘steam whistle’ analogy for the epiphenomenalism of consciousness.

Concurrent and Poster Sessions

There were three sets of seven Concurrent Sessions (Tuesday, Wednesday, and Friday); with each of the 21 concurrent sessions giving five presenters 25 minutes to speak. The themes of these concurrent sessions were (in conceptual, not chronological, order): Five sessions dealing with thinking and perception: Consciousness, Representation, and Thought; Introspection; Mind Wandering; Phenomenology and First-Person Approaches; and Ontology of Perception. Another pair on philosophical theories: Materialism, Dualism, and Higher-Order Thought; and Panpsychism and Epiphenomenalism.

Another set on neural issues: two on Neurobiology and Theories of Consciousness; and ‘Neural Correlates of Consciousness’. Another pair on Unconscious Processes and Dreaming; one session on AI and Computational Models; a session on Consciousness and the Self; and one on Evolution of Consciousness.

Tucson-plus Concurrent Sessions

The session with three speakers on panpsychism might be considered part of the Tucson-plus. Several others are clearly in that corner: one on Art, Media and Conscious Perception; and another on Quantum and Subcellular Approaches. Three sessions on non-pedestrian states: Contemplative, Spiritual and Religious Approaches; Psychotherapy and Transformation; and Altered States of Consciousness. Finally, number 21, on Nonlocal and Anomalous Phenomena. I ended up chairing #21, with more than 100 participants who seemed quite eager, receptive, and filled with questions — at the end of talks and at the end of the session.³ This was one of the sessions which had the wrong venue listed in the booklet. I suggested to the group that that seemed quite appropriate to this ‘non-local’ group. Gary Schwartz talked on the effects of distant healing on cosmic rays. Pim van Lommel dealt with nonlocal consciousness in Near-Death Experience. Mark Boccuzzi on animal micro-psychokinesis on quantum effects; Julie Beischel on survival psi and somatic psi by research mediums. Arnaud Delorme talked about Shaktipat-Related Synchronization Between Brains.

Posters

The two Poster Sessions contained about 200 posters divided each night (Wednesday and Friday) among the following six categories: Philosophy, Neuroscience, Cognitive Science and Psychology, Physical and Biological Sciences, Experiential, and Culture and Humanities.

Leitmotifs at this Conference

I appreciate classical music with prominent leitmotifs, such as the Morse-code ‘dot dot dot dash’ of Beethoven’s ‘V’; the recurrent ‘dun dun dun, dun-dun-dun, dun-dun-dun, dun dun dun dun dun’ of Moussorsky’s Pictures at an Exhibition; and the ‘Goin’ home, Goin’ home, I’m a goin’ home’ from Dvorak’s New World Symphony — the other great Ninth! While Tucson-based TSC conferences are not

[3] This would not have been my choice of sessions for my professional interests, but it was probably the one I needed to be at.

organized around themes (as some TSC-abroad are and as ASSC conferences were for several years), a few leit topics tend to dominate any given conference. Instead of covering all talks in all themes, I would like to play some of these leitmotifs — and the ways they kept recurring. Most reports will be from plenary talks and discussions, with a few brought in from concurrent talks.

Leitmotif 1:

St. James Anticipated Everything but Resolved Nothing

Plenary 1 focused on William James, but James was ‘channeled’ many additional times during the conference. In the first few minutes of the conference, **David Chalmers** heralded James as being perhaps the greatest figure in the Science of Consciousness, for introducing such themes as stream of consciousness, inner eye, religious experience, temporal consciousness, report, panpsychism, neutral monism, the darkside, and combating elimativism. In some ways **Eugene Taylor** agreed, by listing James’ successive models of consciousness: 1865: human consciousness evolving through the mind of geniuses; 1890: cognitive and attentional consciousness; 1896: states of consciousness beyond the ‘waking’; 1902: mystical states of transforming consciousness; and 1904: Radical Empiricism — non-duality of consciousness. Charles S Peirce changed his middle name from Sanders to ‘Santiago’ — St James — in honour of his benefactor. Yet Taylor suggested that James’ 1904 ‘Does Consciousness Exist?’ undercut the very term ‘science of consciousness’ by rejecting consciousness’ existence as an object of a preposition. **Bernard Baars** addressed this as well, maintaining that that undercutting contributed to the rise of behaviourism. **Bruce Mangan** did not touch this debate but spelled out James’ views on the fringe of consciousness.

Later **Stuart Hameroff** noted that James talked about sensation involving the object and what comes out of the head; **Jonathan Schooler** traced his own current research on mind wandering as a constructive mode of consciousness, to James’ work on attention with objects and trains of thought. **Antonio Damasio** referred to James’ writing on ‘the self’. Picking up the para-scientific interests of James, **Robert Van Gulick** mentioned an occasion when James had a profound experience under the effects of nitrous oxide, but noticed later that one of the ‘profound’ things he had written down was: ‘creosote pervades the universe’. A questioner to the Buddhist monk’s talk mentioned an occasion when James saw a monk in robes while James was speaking. James pointed to the monk and said: ‘This is the psychology

everyone will be studying 25 years from now'. **Julie Beishel**, in her concurrent talk on survival psi and somatic psi by research mediums, showed a picture of James and mentioned his study of ESP and mediums. On an even lighter note, **Taylor** mentioned that James hung out with Ernst Mach, a reductionist: as a 'pluralist' James could be a reductionist on Tuesdays and Thursdays. Taylor also mentioned that he has heard Dan Dennett say that he hasn't read William James since college. **Mangan** mentioned that Germanic thought gave William James dry heaves, and that there was no connection between Dan Dennett's functionalism and James' functionalism.

Leitmotif 2:

Mind Wandering is Wonderful: Default Mode Network

Brain Energy in Two Modes: Plenary 2 laid the basis for a second major leit motif this year: Marcus Raichle's Default Mode Network. **Robert Shulman** laid out several basics on this. It has been known for a long time that 20% of the body's energy is devoted to the brain; but until the 1980s it was believed (based on our cousins: the squid) that perhaps less than 1% of the brain's energy was used for neural firing. Now it is known that *most* of the brain's energy supports neural firing; involving two types of firing. About 80–85% is used as baseline energy in the resting wakeful state — what Koch calls NCCe, the enabling neural correlates of consciousness. Anaesthesia, deep sleep, coma, vegetative state, minimal conscious state, recovery from VS, and brain death represent brain conditions in which this baseline energy is diminished — having about 50% lower global brain energy. A second type of neural firing involves about 10–20% of the brain energy — added as incremental energy when the brain performs cognitive or sensory tasks. The *contents* of consciousness depend on these small incremental energies. Most of the focus up to now has been on this second type of firing, for it is this which is picked up in fMRI studies.

Hameroff on Raichle's Two Brain Modes: Marcus Raichle could not come because of illness, so **Stuart Hameroff** gave Raichle's views and added some reflections.⁴ There are two modes of cortical processing. The thalamo-cortical switch is involved in sensory and attentional task-oriented processing, but might not be needed for consciousness, itself. The second mode (default mode network: DMN) is an internally generated state of task-free daydreaming and mind

[4] Hameroff began by promising not to talk about Quantum Mechanics or Microtubules in this talk.

wandering, which had been considered ‘noise’ until they discovered brain-wide correlations in the ‘noise’. The DMN seems to be involved in autobiographical memory, envisioning the future, theory of mind, moral decision making, gauging others’ perspective, contextual filling in, meditation; and maybe even James’ ‘fringe’, and Freud’s Id. The task-oriented circuit tends to involve lateral prefrontal and parietal areas, while the DMN tends to be a more medial frontal-parietal circuit. DMN functioning is markedly reduced in Alzheimer’s, schizophrenia, and even anxiety and OCD. The Thalamo-Cortical Switch and the DMN are called anti-correlation networks because they tend to be negatively correlated with each other. We flip between the two modes about every 10 seconds, perhaps because of the locus ceruleus in the brainstem, based on the saliency of sensory input.

Hameroff’s Critique: Raichle says that the DMN is a ‘get set mode’ for response to the outside world. But for Hameroff, the DMN does not represent basic waking consciousness. It can be conscious or not; it is not the consciousness homunculus. When we first wake up from anaesthesia, we are at 50% firing — ‘zombie mode’. When we are more awake, consciousness switches between the two modes. From this point we heard classic Hameroff. Consciousness versus non-consciousness relates to gamma signaling. Consciousness is not tied to neural networks, but to dendritic trees and gap junctions between dendrites. Dendritic synchrony moves through the brain to mediate consciousness. *Being in the cockpit* is to be in the Thalamo-cortical mode; while DMN is *wandering around the plane*. In his Q/A he stated that anywhere in the brain can be conscious. Microtubules are going on — ‘but I am not going to talk about it — come to my poster’.

‘Consciousness’ as Mental-State-Marker Versus as a Concept: In a panel discussion at the end of the plenary, **Shulman** asked Hameroff about anaesthesia. **Hameroff:** as a patient wakes up from anaesthetics, the patient can respond but is not conscious. Even zero to any consciousness needs an explanation. **Shulman** noted that Hameroff is looking for a definition of consciousness, while Shulman is not interested in a person’s state of consciousness. Shulman continued: philosophically they are very different. When you introduce psychological assumptions, you lose reliability of physical experiment. Raichle introduced psychological discussion as if concepts are explained. **Hameroff:** I am interested in understanding consciousness. **Shulman** asked Hameroff, when do you tell the surgeon to operate? **Hameroff:** I’m kind of old school: I look at BP, HR, breath, etc:

old school signs.⁵ **Shulman**: we need to define this better. In response to a different question **Hameroff** said that if the brain ran out of energy we would be in deep trouble; that would be very bad.

Brain Scanning the Default Mode: Adrienne Prettyman addressed the difficulties in measuring the default mental state, because it is the low-level *control state* in fMRI: the brain activity that is ‘subtracted out’ from brain imaging in response to stimuli. The Uniform Oxygen Extraction Fraction (OEF) in MRI is remarkably homogenous in rest; it is a global property. A task disrupts rest. **Steven Briggs** suggested a way to brain scan DMN functioning through the subconscious processing that solves problems after we stop thinking about them. The subconscious is better than conscious processing if we need to keep touch with many different facts in solving a complex problem quickly. Briggs suggested a set of experiments in which subjects receive a complex problem. In condition one, subjects are told to give an answer in 10 minutes. In condition two, subjects receive a distracter task for 10 minutes. In the third condition subjects are told to give an immediate answer. Experimenters can probe the DMN through OEF measures: as we shift in and out of baseline. Then ask for an answer; and repeat for many tasks. In other experiments, tasks are given without definite answers. Then they can measure the percent of time in DMN in correlation with success. During a panel discussion, **Hameroff** suggested to Briggs that DMN might be involved in long-term percolation. Briggs did not feel that was true for all tasks.

The Core of the Brain Seems to be Default: Another speech that ended up talking about default mode networks was by **Dharmendra Modha** (Plenary 4) on ‘Network Architecture of the White Matter Pathways in the Macaque Brain’. They have taken the CoCoMac 2000 database with about 40,000 connective details from research articles on the macaque nervous system. They spent 4 years standardizing names of various brain areas and connections. They came up with 383 brain regions and 6,602 projections. When they saw which areas were connected to the most other areas, they basically came to the core of the DMN, which seems linked with consciousness. In response to a question by **Chalmers**, Modha said that having a core is surprising and improbable: the brain is a *small* world; the core is a *tiny* world.

Zap the DMN to Stop Thought and Disturb the Self: In Plenary 10, **Michal Gruberger** spoke on ‘I think therefore I am: Alterations in the sense of self by stimulation of the prefrontal cortex’. Spontaneous thought is a large part of mental life, except for neurological cases

[5] Can you really imagine Stu Hameroff being ‘old school’ about *anything*?

where patients experience not thinking in words. Gruberger inhibits the functioning of a key part of the Default Mode Network, the medial pre-frontal cortex (MPFC), through deep Transcranial Magnetic Stimulation (dTMS) to see its effects on spontaneous thought and sense of self, using several standard measures. Fifty-six subjects would either rest or work on a task for 7.5 minutes and then be tested. They would receive TMS or sham TMS. Rest primed self-related concepts and led to self-related words. Inhibition of TMS prior to rest robustly lowered self awareness and led to a sense of dissociation. Rest after TMS felt weird: 'I wasn't thinking during this time'. Such findings of causal relations between DMN and spontaneous thought in rest implies the need of *thought* for a sense of *self*. In the Q/A, I suggested that *spontaneous* thought might derive from superior temporal and *deliberative* thought from Brocas area — but that the MPFC might activate those areas when dealing with 'self'. Gruberger felt that might be possible; and that one would need brain scans to differentiate activation in the MPFC from those lateral areas.

Mind Wandering and Consciousness: This motif was the focus of the last Plenary (12) as well. **Jonathan Schooler** spoke on 'Implications of considering the mind from the inside out'. Consciousness research, on 'the easy problem' contents of consciousness, has assumed that attention is driven by exogenous cues, thus neglecting mind wandering and introspection. About 25% of working hours are spent in mind wandering. Schooler, Raichle & Halpen (2004) gave subjects a definition of mind wandering (MW). had them read five chapters of War and Peace, gave them a press bar to signal self-caught MW, and probed randomly for probe-caught MW. Mind wandering and comprehension had a negative correlation of .51; but probe-caught correlated with self-caught a mere .06. Self-caught leads to repair; if MW is below the radar, there is no repair. Self caught implies meta-awareness. Under the influence of alcohol, there is more mind wandering, but we notice it less. Several brain areas are more active at rest: such as MPFC (mentioned in the TMS experiments above) and posterior areas: precuneus/posterior cingulate, and posterolateral parietal. Using vigilance tasks, where there is meta-awareness of MW, performance is disrupted and there are changes in these brain areas.

Attention Deficit May Now be Cool: Malia Mason spoke on 'Wandering Minds', noting that it was nice to present with 'the Jonathans'. Why does the mind wander? Because it *should* — that is adaptive. We may mind-wander when the Central Executive has a failure or when it is asked for information of personal import — with open goals. Perhaps 65% of MW deals with open goals. We remember

better what is unfinished or incomplete. The Central Executive *should* be hijacked by information of personal import. Imagine a world where we couldn't mind-wander: 'I would kill myself'. Hundreds come into the lab and sit in an easy chair. We ask them what they did in there? Ninety-six percent mind-wander throughout the day. A lot of folks are doing that this week. In novel tasks the DMN activation is very low; in practiced tasks, in-between; and when sitting in the lab, very high. We may mind wander to avoid squandering attention resources, and to enable flexibility. In the Q/A, one person suggested that we professors need help in the *other* direction — to increase the *focus* of students. Mason suggested that that happens through fear and through minimizing low quality goals. In response to another question, Mason reported that some studies of long-term meditation leads to less DMN activity.

The Other Jonathan: Jonathan Smallwood asked how thoughts work and where they come from; with a special focus on task-unrelated-thought. External and internal information comes into a central executive, perhaps modulated by the locus-caeruleus (LC) norepinephrine system. The LC is turned off while we are asleep {in deep or dream sleep}. Phasic LC activation helps optimize exploration with robust P3; while tonic LC disengages from the current task and searches for an alternative. Executive tasks and working-memory load lower mind wandering — and under those conditions mind-wandering leads to errors. The P3 evoked-response-potential is a measure of context update in working memory. There are small P3's in ADHD and depression. Pupilometry is an index of NE activation. Smallwood ended with an ironic tip-of-the-Scottish-hat to the 'hard problem' with the question: Do Zombies' minds wander? During the Q/A **Hameroff** asked if the Smallwood's LC is the same as Mason's central executive. **Smallwood**: perhaps. Someone asked **Mason** about mind-wandering and multi-tasking in terms of use of cell phones when driving. In a separate response, **Smallwood** mentioned that elderly people tend to have less mind wandering.⁶

Damasio's Autobiographical Self: Antonio Damasio gave the Plenary 8 keynote on the Neural Self. After excellent treatments of his Proto-Self and Core-Self, Damasio outlined his Autobiographical Self.⁷ He tied autobiographical self to a brain circuit with major

[6] Perhaps this is why I was able to take such copious notes at this conference!

[7] In his writings Damasio clarifies that a person with severe amnesia is quite conscious of her surroundings but lives in the moment, having Proto and Core Self, but no

convergence on posterior-medial cortex (PMC), which he mentions is a part of the DMN. He differentiated the superior part of the PMC as relating to physical state; and the inferior to mental state. In the Q/A he mentioned that Raichle is fond of the DMN.

How Cool is Non-dual! Non-dual Awareness and the DMN: **Zoran Josipovic** gave a fascinating concurrent talk (Concurrent Session #3) on the ‘Influence of Non-dual Awareness on Anti-Correlated Networks in the Brain’. As mentioned above, the extrinsic-oriented Thalamo-Cortical Switch and the intrinsic-oriented DMN are called anti-correlation networks because they tend to be negatively correlated with each other, with switching back and forth between them. Josipovic is trying to discover whether such anti-correlation relationship is an inherent property of brain organization or whether it is subject to cognitive control and learning. If the latter, then the brains of long-term practitioners of focused attention ‘*mindfulness*’ meditation should have *strong* anti-correlated external/internal brain networks, while practitioners of ‘*non-dual awareness*’ (open presence) meditation — with cessation of habitual fragmenting of the field of experience into inside vs. outside, self-directed vs. other-related processes — should show *less* anti-correlation. Josipovic has found such decreased anti-correlation in non-dual meditators and increased anti-correlation among the focused attention meditators. The non-duality brain is not merely suppressing self-related processing; both self-related and other-related processing are active. This shows a trait effect for open-presence meditation and neural mechanisms for holistic experience. A questioner suggested studying the brains of narcissists. Josipovic suggested that their minds were more disturbed than focused. At the same concurrent session, **Kevin Brown** also talked about DMN. He suggested the 32,000-neuron LC as the gatekeeper. In the Q/A, **Hameroff** asked whether there was gamma synchrony in mind wandering. Brown did not know.

Leitmotif 3:

Are the Hard Problem and Singularity Anti-Correlated?

The Singular **David Chalmers** rarely gives Tucson speeches but always is co-chairing, present, and provocative. His 1994 Tucson speech inaugurated sensitivity to ‘the hard problem’ in the consciousness community — related but not identical to Levine’s Explanatory Gap. His other two Tucson talks seem *anti-correlated*, if not

Autobiographical Self. Those who also have autobiographical self have past memories and the ability to anticipate the future.

antithetical, to the Hard Problem. They have been on Sci Fi philosophy: dealing with the Matrix movies (in I think 2008, filling in for an absent speaker) and Singularity at this conference. **Hameroff** wondered aloud on two occasions if Dave was giving up the Hard Problem. Let us pick that up after leading up to Chalmers' speech at this conference.

Did James' Hard Problem Lead to Behaviourism? In Plenary 1, **Taylor** mentioned the 'Hard Problem' as the relation between brain and mind. **Baars'** complaint, about William James opening the door to psychological Behaviourism by cutting off any coherent approach to the science of consciousness for those coming after him, seems to relate to the Hard Problem. To continue Baars' narrative: James was enmeshed in the mind-body problem, but psychologists did not want to wrestle with James' philosophical issues. The problem with philosophical problems is that they never get resolved. There are no definitive answers. Today we study specific parts of the brain, but this has no effect on people doing philosophy. The two mindsets don't meet much — perhaps they should not. Scientists no longer hope to solve the mind-body problem — they leave it to philosophers.⁸

The Hard Problem Leitmotif at this Conference: In Q/A, **Damasio** mentioned that feelings relate to the Hard Problem. With brainstem and body sense, how is there feeling at all? Damasio does not feel the Hard Problem has been solved. **Sid Kouider** in Plenary 9 portrayed 'hard' vs 'easy' as one example of a *dissociative* approach to consciousness. He sees *unified* approaches as either denying the Hard Problem or only doing the easy tasks. In response to a questioner in Plenary 9, **Galen Strawson** said that the Hard Problem was gone if you do not see anything to be non-experiential. **Chalmers** responded that to see panpsychism as a potential solution to the Hard Problem is such a different intuition. In that same Q/A, a questioner noted that with the Hard Problem, consciousness is a dependent variable. **Jonathan Schooler** described the Hard Problem of consciousness as related to brain, external world, and internal world and said that we have not solved the Hard Problem — but, what we know for sure is experience and the flow of time change. Experience is fundamental. What if a scientific panel were to conclude that you lacked consciousness? You would not accept that! At the end of the last session,

[8] In at least a broad sense, Baars seemed to be saying that if James had remained satisfied with the 'easy problems' of consciousness, Behaviourism might not have taken over so easily. Related to this, before the conference began, someone with many years relationship with the Tucson conferences opined to me that the Hard Problem is a sham — it is used to end discussion.

Chalmers joked that Stu and he have resolved their differences over Singularity and microtubules and solved the Hard Problem.

Machine Consciousness: In Plenary 4, **Ben Goertzel** spoke of the possibilities of the emergence of self and focused consciousness in embodied artificial general intelligence. Goertzel had mentioned to some of us at lunch just before his talk that he represented ‘very strong AI’ — more precisely AGI (Artificial General Intelligence) versus narrow AI. In his plenary talk, he asserted that systems eventually become conscious and that computers will become smarter than people. He is an AI person who is a panpsychist. He asked the question burning on many of our minds for 16 years: ‘How do I know that Stu (Hameroff) is conscious right now?’ The first questioner in his Q/A asked the ethics question: the Department of Defense is interested in your work for defense and war. **Goertzel:** humans are known to have unpleasant ethical urges. However, AGI increases the odds of our survival. The second questioner affirmed the ‘other minds’ similarity argument in regard to Hameroff — it is easier to see Stu as conscious, than some machine. Goertzel’s response was curt: it is not worth arguing with you any more than a religious guy who believes in 70 virgins when he dies. Goertzel went on to say that we will get super intelligence before we convince all philosophers.

Ebner-Hameroff Neurons: The next speaker, **Marc Ebner** presented on work he has been doing with Hameroff. He reviewed several theories of what makes it possible for specific stimuli to become conscious, and then focused (surprise, surprise!) on gamma wave synchrony and gap-junction models, especially Hameroff’s ‘conscious pilot’ image. He maintained that gamma synchrony is mediated largely through dendritic-dendritic gap junctions. Thus one has two thresholds: a firing threshold and a gap-junction threshold. He has worked on simulating this through ‘Ebner-Hameroff neurons’, in a single layer artificial neural network where forward-spiking neurons are connected laterally/sideways through gap junctions — which may be open or closed based on temporal and spatial processing.⁹

Goertzel, Ebner, and Hameroff Panel Discussion: **Goertzel:** we do not know if the universe is primarily deterministic. **Hameroff:** Penrose’s problem with AI was that machines would be deterministic — and therefore could not become conscious. **Goertzel:** qualia are non-algorithmic, but we believe we could still create a conscious system. **Hameroff:** you lost me on that last step. **Goertzel:** perhaps create

[9] Ebner and Hameroff, of course, make no claims that this simple machine is conscious because of these gap junctions.

a hyper-conscious mind field and attach self to the program. **Hameroff**: sort of like our theory. **Goertzel**: but not quantum. **Ebner**: perhaps a non-sensory system is as good as conscious. **Goertzel**: does it have to evolve to have feelings? That is very strange. **Hameroff**: feelings in a universal mind field — if information is Platonic. I admire you that you combine AI and panpsychism: this table is conscious but not much conscious. Why should consciousness be discrete instead of continuous: a Lego versus Gumby view of consciousness. A bit later someone asked how **Goertzel** would deal with super intelligence. He said that we should create the AGI system as benevolent. **Ebner**: is it ethical to shut down a conscious machine? Perhaps if we still have the data. **Goertzel**: is it ok to knock you unconscious? The super-intelligent machine has to have the same rights. Someone asked about the Singularity — which leads us at last to Chalmers' talk.

The Singular David Chalmers: Plenary 6 was a keynote by David Chalmers on 'The Singularity: A Philosophical Analysis'. This deals with an ultra-intelligent machine which could create a more intelligent machine, leading to an intelligence and speed explosion, leading to The Singularity (Yudkowsky, 1996). AI = human intelligence or more; AI+: greater; AI++: far greater. If we achieve AI, before long — absent defeaters — we should have AI+, which should lead to AI++. One of Chalmers' premises is that the human brain is a machine. Evolution led to human-level intelligence; we can produce AI. *We do not require consciousness, just behaviour*. It could even be a *biologically-based machine*. AI leading to AI+ assumes that we can create AI by an extendable method. We don't even need 'intelligence' as a concept; only self-amplifying capacities. However, we might be near the upper limit of capacity space. For instance dogs are not at the state to create dog+ intelligence, except through evolution. *Or, perhaps intelligence explodes, but consciousness does not*. Motivational defects may be the most important potential obstacle. Perhaps we are the last generation dumb enough to make AI smart enough. At a recent talk at West Point Academy on this it was mentioned: if we don't do this, the Chinese will do it first.

Negotiating Singularity: Chalmers continued — How do we create benign AI which shares our values. Some at the Singularity Institute assume that there will be friendly AI. Perhaps we need to make AI without motor effectors and give 'them' no information about us. Otherwise they will tell us they can solve global warming and poverty if only we give them some information. Pretty soon they will be running the world! We need to prevent information from leaking in. We must

go slow; if the machines are not benign, we can try again. How do we *integrate* into a post-singularity world? By uploading and self-enhancement we can become super intelligent. Uploading can be destructive (serial sectioning) or non-destructive (brain scan); perhaps even reconstructive from records. Will the uploaded system be conscious? Will it be *me* or a *copy* of me? In terms of consciousness, *we don't know how the brain supports consciousness*, but it does. *No difference in principle — the gap is as wide in both*. Will consciousness fade or disappear? *I will stay constant*. An exact copy represents two different persons: Dave becomes BioDave and DigiDave. The science fiction writers are ahead of us. How can you encourage AI++ to reconstruct us? By writing articles and giving talks about this!¹⁰

Are the Hard Problem and Singularity Anti-Correlated? Hameroff led off the Q/A with a bombshell: after your 1994 presentation on the Hard Problem, I don't know you any more. How do you reconcile this with the Hard Problem? **Chalmers:** I have *always* been supportive of AI. *You* think biology is privileged. Which aspects of matter are involved? Organization? *You* focus on quantum — so get quantum computers and upload microtubules. Maybe AI++ machines don't have values as well — perhaps they only have a paper clip fixation.

Why Might They be Anti-correlated? Hameroff raised the question that was in my mind when Chalmers spoke: if something like The Singularity is even *conceivable*, does not that contradict the assumption that there is a Hard Problem to consciousness? In this and his Matrix speech, Dave sounds more like a '*machine-consciousness functionalist*' for whom the '*vehicle*' is trivial as long as there is the right '*connectivity*' for consciousness. The Hard Problem does not include all of the various components of the '*mind/body*' problem, as suggested by many speakers. Much of those can only be '*solved*' by analytical intuitions — and are thus '*impossible problems*'. The '*hard, but perhaps possible*' part is in understanding how the *vehicle* could ever lead to consciousness — with the *mere connectivity* being the *easy* problem. After finding all of the brain circuits involved in various aspects of consciousness, one still needs to explain how the grey and white matter of the brain and its underlying molecular and atomic structure could produce conscious experience. Then one would need to apply that to construct a machine which somehow has those hard-problem-principles embedded in it. In distinction, *the machine-conscious functionalist* assumes that once one works out the *connectivity* of the

[10] Go for it, Dave, we'll let you be the *first* to be uploaded!

brain, one could theoretically be able to produce comparable *connectivity* in a computer or robot and it could become conscious.

Thus, from the Hard Problem perspective, to create a conscious machine involves four steps: **(1) easy reverse-engineering**: understand the connectivity of how the brain supports consciousness; **(2) hard reverse-engineering**: understand what is in the brain-vehicle that allows the brain to support consciousness; **(3) easy forward-engineering**: create the connectivity in a machine; and **(4) hard forward-engineering**: create in the machine the vehicle-characteristics (perhaps including ‘wetware’ with microtubule-quantum properties, gamma-waves, etc.) that allow the brain to support consciousness. In contrast, the machine-consciousness-functionalist assumes that we **only need steps 1 and 3**. Chalmers’ statement which I transcribed as follows seems to be classic machine-consciousness functionalism: ‘In terms of consciousness, we don’t know how the brain supports consciousness, but it does. *No difference in principle — the gap is as wide in both*’. If there is a Hard Problem (HP) in moving from *understanding* ‘brain-connectivity’ to understanding what in the brain-vehicle undergirds consciousness, then there should be an **HP-squared** in being able to *create* both that connectivity and vehicle-properties in conscious robots — if biologically based. If it is *not biologically based*, it would be more like **HP-to-the-4th-power**, because ‘hard reverse-engineering’ of an evolved vehicle should be much ‘easier’ than ‘hard forward-engineering’ of those vehicle properties into silicon, steel, and wire — substances which have shown no evolutionary urge toward consciousness. If my pared-down portrayal of Dave’s argument does him justice — my actual notes have much more detail — then it would seem that Chalmers needs to present at Tucson-2012 on ‘creating hard-problem-vehicle-properties into conscious machines’.

Does The Singularity Require Machine Consciousness or Only Super Intelligence? In this year’s talk, Chalmers did hedge on whether Singularity machines had to be conscious or just super intelligent — and whether increases in consciousness were correlated with increases in intelligence. But the scary aspects he mentioned of such machines clearly seem to imply *consciousness* and not merely *intelligence*. We would not worry about non-conscious machines running the world. I think we could sneak around them! And Chalmers would surely not want to be uploaded into any non-conscious super-intelligent can-opener!

The Final Word on Singularity: Flash Forward’s Robert Sawyer: In the next to last plenary (11), science fiction writer **Robert**

Sawyer spoke on ‘Science Fiction and Consciousness’, with Chalmers chairing. He referred to Chalmers’ Singularity speech, saying that it was an excellent introduction to something that Science Fiction conventions have been dealing with for 15 years. His own work is *anti*-singularity. He raised the question as to whether AI can have emotion: is there something that it is like to be the chess computer Deep Blue? Yes and no, in that *preferences* lead to *emotions*. He stated that we can copy consciousness without understanding it (a clear statement of easy-problem machine-consciousness-functionalism). In his Q/A, Sawyer feared that Asimov’s Law of Robotics would not be honoured by conscious robots — we can’t be sure the robots will be benign.

Lietmotif 4:

Enlightenment is the ‘Duh!’ Moment

Transformation of Consciousness: In Plenary 7, **Cassandra Vieten**, from one of the long-standing ‘Tucson’ patrons IONS (Institute of Noetic Sciences), spoke on ‘Transformations in Consciousness Through Spiritual Engagement’. Vieten defined ‘consciousness’ as subjective internal reality, with both explicit and implicit awareness — the way we perceive the world and ourselves. Consciousness matters — is important and real. ‘Transformation’ is a profound shift. There is good and negative transformation. Surveying 1500 people and giving in-depth study to 50 people in transformation, IONS has developed a working model of transformation: (1) noetic experience with internal changes; (2) denial of that experience; (3) seeking (either continually or finding a practice); and (4) establishment of that practice through top-down training and/or bottom-up insight. The Great Religions are systems of these practices, but that there has been a *trend toward ‘spirituality’ instead of ‘religion’*. Then (5) practice can become an end in itself — or one can adopt life as practice; (6) this can become all about me or ‘I to we’; and (7) then one can forget the we and revert to me, or learn to live deeply immersed in life (at this point Vieten showed a picture of her daughter immersed in the mud). Several things can change/transform: one’s stance to experience, sense of self, place in the world, temporal location, conscious intention, and values, which naturally emerge. The mechanisms involve stress reduction, emotion regulation, coping; closeness to God/sacred source, and metacognition. Change is inevitable, except for vending machines! During the Q/A, **Hameroff** noted that transformation is like PTSD, but in reverse. Vieten picked that up: PTSD is associated

with cortisol; we could look for the biochemical marker of transformation.

Beware of Interviewers Asking you to Describe your Ego-less ‘Self’: Almost as if to pop Vieten’s bubble, **Jeffrey Martin** followed with a rather ironic talk on ‘empirically testing purported claims of enlightenment using standard psychological methods and instruments’. For the past few years he has traveled around and given standard tests and surveys to people claiming some types of non-symbolic states. After the batch of tests he interviews folks for 3–5 hours, matching their language to their purported transformation. He has a 300+ database of non-duality ‘awakenings’, with two fifths of them in the US — with 40% of those in California (‘very surprising!’). The ‘purported claim’ refers to people who claim states with ‘no self’ but use ‘I did’ statements as much as anyone; no one at work notices the difference; and they show the same bodily conditions, anxiety, and racial and gender bias. They *claim* reduction in thought, but it is not true. They claim lack of agency with no doer, that things pass through with no ‘I’ to catch them, and that their eyes lock onto an attractive person but there is no follow through. Martin: ‘Not a lot of introspection in this crowd!’ During the panel Q/A **Vieten** asked Martin why he is doing this interviewing. **Martin:** I am curious and no one is doing it, because it has become hard to publish on these topics. **Vieten:** why is it important — it might be a benign psychosis. **Martin:** I have an open mind. One could possibly deem them crazy, but it seems to be a positive state.

Beware of Opening Personal Mail from the Dalai Lama — Spam is Ok: Then we had a special treat. **Za Choeje Rinpoche** in Buddhist robe spoke on ‘Tibetan Buddhist perspective on consciousness, enlightenment and reincarnation’. In monasteries, Buddhist monks study for years on what is consciousness and three years on Mind. Many spend 25 years in monasteries. Za spent 10 years. Before he became a monk, when he was 16 years old in boarding school, his dad received a letter from the Dalai Lama and traveled 35 hours by train to see Za. It was shocking: he bowed to me nervously and gave me the letter. Za had been divined as the 6th Reincarnation of a particular Lama. It was a huge transformation. Father looked at me differently, being who I was told to be. It took 2–3 years to accept this. I was sceptical: why didn’t I know I was this person? I joined a monastery. I don’t remember my past life (as the 5th Reincarnation). If I did, I would not need to wait for someone to tell me. However, I do get theological studies fast, as if I had studied it before.

Enlightenment is the ‘Duh!’ Moment: Za went on to explain a Buddhist view on consciousness, enlightenment, and reincarnation. (I will just present some of this.) Every thing is conscious: all sentient beings, including insects and billions of sentient plants. Somewhere some day all will be enlightened. Once enlightened, always be. Enlightenment is a state of how to remain unstruggled in a struggling world. The historical Buddha, when he first achieved enlightenment laughed and giggled. He had searched for it many lifetimes. When you get there, you realize that you have always been here — like forgetting you left your glasses on your face. ‘A duh! moment’. You feel very silly. **Enlightenment is the ‘duh! moment’.**

Religious versus Spiritual Transformation: There were several interesting things from the panel Q/A regarding Za. As noted above, a questioner mentioned an occasion when William James saw a monk in robes while James was speaking. James pointed to the monk and said: ‘This is the psychology everyone will be studying 25 years from now’. Another questioner asked if we can train children in enlightenment and they not grow out of it? **Za** said ‘no’: the ego is necessary for human development and safety. It is difficult to be egoless. Children need to develop egos before they can work toward egolessness. **Vieten** affirmed that and talked about ‘mindful motherhood’. Another questioner asked if Za had met His Holiness before that letter. **Za:** I had only seen him in talks. I don’t think he knew I existed. He did a divination for a 15–16 year old from South India, calling for the names of boys. When he came to my name, he knew ‘this is the boy!’ He didn’t know me personally. Za acknowledged that he had no internal sense of calling. He was called by divination from without.¹¹

The Unusual Suspects

At Tucson, more than at other conferences, there are speakers who give striking first-person reports. We have already met Za Choeje Rinpoche, the 6th Reincarnated Lama. We will meet Patricia Duffy, several persons I happened to talk with at the conference, our fearless conference leaders, some notable quotes, and who knows what else.

[11] Referring to Vieten’s observation that there has been a shift from ‘religious’ to ‘spiritual’, this seems to me to be the core of ‘religion’ versus ‘spiritual sense’. A ‘spiritual’ person might change his life after a personal epiphany experience, but not because someone else ‘divined’ that he had a specific identity and role. Perhaps those fleeing from religion to spiritual are moving from corporatism to individualism — at the same time that many of them extol the corporate and interpersonal.

How to Change a Yellow P to an Orange R

Patricia Duffy, Private Eye: A characteristic feature of Tucson conferences is to have a prominent ‘first-person report’ by someone who has some special irregular aspect to her/his conscious life — but is coping quite well and has studied a lot in consciousness studies. This year’s first-person report was by synesthete **Patricia Duffy**. Duffy was 16 in 1968 when she found out that most other people do not see letters, words, numbers, etc., in specific colours. She was musing to her father about when she first found out how to make the letter R by just adding a stroke to P. She had been surprised that a single stroke would turn a yellow letter to an orange letter. Her father asked her what she meant. You know: the colours of the letters! She was quite pleased that her father did not treat her as mentally impaired. Instead he ‘suspended disbelief’ and researched her condition. He found reference to synesthesia in *Yoga Digest*. Patricia picked up that research, telling us about various research labs, synesthete notables throughout history, and characters in novels. There is even a *Synesthesia Jackson* comic book super hero. As a result, Patricia feels ‘validated’, rather than ‘silly’ or being accused of making up her reports. In the Q/A, Duffy mentioned that when she adds the stroke to the yellow P to create the orange R, there is an abrupt change in colour: as soon as I see it as an R, the colour changes.

Conference Friends and Acquaintances

In addition to a number of folks who I know on a first-name basis because we have palled around at a number of conferences, I met a number of new folks at this conference, many of whom were at their first ‘consciousness conference’. The conference Hotel Arizona had a nice set up of a free continental breakfast each morning (as long as you gave your ticket to Maria). A lot of personal and conference cross-talk occurred there, including most of my contact with the following folks. While the food was modest, the serious fast-breaker could catch a supplemental breakfast burrito at Quesadilla Grill en route to the sessions. With apologies if I get some of their names wrong, mentioning them gives a sense of the trans-personal aspects of the conference.

Peter Viegnaud from Nova Scotia, first time at a Tucson; rode from the airport to the Hotel Arizona. **Leon Hardy**, a professor of physics and maths from the University of South Florida, who described to us at the breakfast table the neurohydrodynamics of his poster. **Elizabeth Briony** and **Rita Carter** from England and for the first time here; Rita talked on Self in a concurrent, before they were stranded by Mt

Eyjafjallajokull. **Adel Behar**: a long-time friend of the Tucson conferences, with whom I talked outside the conference venue while waiting for registration to begin. **Ivan Havel** from Carolina University in Prague — brother of the former Czech president; and **Pim van Lommel**, an absolutely charming retired cardiologist from Holland and author of a major book on Near Death Experiences, who spoke on that in CC 21. He was also stranded by Mt Eyjafjallajokull. Someone suggested to Pim that he have an extended Out of Body Experience to get himself back to Amsterdam. But I guess he wanted for his body to go with him. **Zoran Josipovic** gave the quintessential Tucson talk combining meditation, brain scanning, and the Default Mode Network — the hottest new direction in consciousness research. I asked so many questions during his and another DMN talk, that he came over at the end to look at my name tag. He was glad to meet me, because he has been using in his classroom an article I wrote years ago in *Consciousness and Cognition*. We then had a long time to talk in the shuttle back to the airport.

Conference Leaders

Doing Most of the Work: Behind the scenes, pulling together the conference and making it run was **Abi (Arlene ‘Abi’ Behar-Montefiore)**, the Conference Management/Media Liaison. She was even crucial in my lost credit card being returned. Abi is hard at work setting up things for Tel Aviv in May 2011. At the closing social event, Stu Hameroff could not say enough good things to me about Abi!

The Stu and Dave Show: Tucson conferences are more defined by their out-front leaders than most conferences. I have found that to be a strong positive in the five ‘Tucson’s’ I have attended. Out front and in your face are **Stuart Hameroff** and **David Chalmers**. Hameroff was the director and David Chalmers, Bernard Baars, Alfred Kaszniak, and Uriah Kriegel — all of whom played a role in the conference program — were Associate Directors. But Stu and Dave are the ones out in front. They moderate a number of plenary sessions and take advantage of their chances to get in the first question — which I confess I also did during the one plenary session I chaired. They frequently get in their major themes (Quantum Mind and The Hard Problem) in other Q/A sessions. Science fiction writer **Robert Sawyer** noted the inter-disciplinary nature of this conference: where else would you have a philosopher and an anaesthesiologist on the stage together?

While **Chalmers** gave the Singularity talk so amply analysed in this review, **Hameroff** was only scheduled for a poster, but filled in

admirably for Raichle on DMN. He began that talk with a take-off on Holiday Inn Express ads: ‘I’m not Marcus Raichle, but I slept in Hotel Arizona last night!’ In addition to Stu’s own speech and his dialog with Chalmers over Chalmers’ speech, you have noticed several other Stu questions and comments in the narratives above. Hameroff suggested to Briggs that DMN might be involved in long-term percolation; asked if the Smallwood’s LC is the same as Mason’s central executive; and asked Kevin Brown whether there was gamma synchrony in mind-wandering. Goertzel wondered aloud: ‘how do I know that Stu (Hameroff) is conscious right now?’ Hameroff noted that transformation is like PTSD, but in reverse. He quipped somewhat gratuitously in the Computational Models Q/A: ‘I don’t know if George Bush was conscious’. At the very end of the conference he referred to ‘His Daveness’.

Notable Quotes (in addition to those incorporated above)

Eugene Taylor: Behaviourism kept us in diapers for 100 years.

Bernie Baars: Plato was a Platonist, as you might guess.

Bruce Mangan: I am close to a neurological ignoramus. I am the mechanistic bastard here. Mangan read a number of (seemingly isolated) statements and then said that they all related to flying a kite. He then asked how many of us said to ourselves ‘oh, they relate to flying a kite?’ Then he said he would speak to the ‘phenomenologically elect’ who raised their hands — the others flunked phenomenology 101.

Robert Shulman: Referred to the philosophers’ dare-I-say-it ‘game’.

Robert Sawyer: Canada should have British culture, French cuisine, and American know-how. Instead Canada has British cuisine, American culture, and French know how! Scholars ask me if I do any research before I write my science fiction books. I ask them if they do research before they write papers or do they pull them out of their a***? You can argue with me: write your own damn book and argue! Editing audio with a razor blade ranks just above philosophy in terms of marketable skills. Science Fiction: Bush or Gore win in 2000; Fantasy: Nader win.

Jeffrey Martin cartoon titled ‘Gullibility Test \$1.00’: a vending machine with that title where persons were to insert \$1.00 with no noticeable product.

Za Choeje Rinpoche: The Dalai Lama has said that he might be reincarnated as a woman next time.

Plug For Future Scribes

I suspect — but don't promise — that this will be my last Tucson review. At the very beginning Hameroff warned participants to pace themselves. I set my priority to getting to all plenary and concurrent sessions, but ended up skipping both poster sessions and the cultural events and socials — except the opening reception and closing End of Consciousness party. Perhaps the next scribe should have less jet lag, be younger, be assigned to give a poster, and be more of a party animal. The next scribe should also have some characteristics that I *do* have: not be too extreme in philosophy, be able to sit for long hours over several days, have broad knowledge of many fields within consciousness studies to have some idea of what is being said; and have an ear for the bizarre — to catch the jokes in the sessions and see the lighter side of informal conversation and arrangements. If Tucson remains Tucson, you should not run out of material to write about. Write to Anthony Freeman at this fair journal to tell him why you should be assigned the next conference, rather than that Faw character. Please, please write to him!

Plan Your Tucson Pilgrimage

Perhaps a dozen or two people stood when Stuart Hameroff asked how many people had been to each of the biennial Tucson 'Toward a Science of Consciousness (TSC)' conferences since their beginning in 1994. Let me close with a related question to each JCS reader who is reading this review: how many of you have made even one pilgrimage to these conferences? *JCS* publisher Keith Sutherland attended the first Tucson conference and published the first issue of *JCS* within months of that meeting. Since then *JCS* has been the unofficial journal for these conferences and most times has printed its conference booklet. Serious *JCS* readers ought to take it as one of their sacred duties to make at least one pilgrimage to Tucson — or at least to a TSC-overseas conference (the next of which will be in Tel Aviv in May 2011 — have I mentioned that?).