

I'm gonna turn things now over to our moderator,  
Mark- Who's that? Mark Siderits, sorry.

**MARK SIDERITS**

00:02.34                   Ok, our target essay is by William Waldron who is  
chair of the religious studies department at  
Middlebury College and ok, we all heard this  
morning that the author of the target essay is  
the one with the big, red circle painted on them.

00:02.54                   Now, some of us are good at visualization. Can  
anyone actually pick out which of the other three  
people up here is the target essayist? Well, no.  
Ok. It's William Waldron.

**WILLIAM WALDRON**

00:03.06                   Alright, thank you. I will follow the lead of one  
of our earlier panelists and read my paper. I  
believe that will be much more precise and  
concise if I do so. It will be accompanied with  
some PowerPoint slides, which I hope will make a

lot of these abstract concepts, will give you representations for these.

00:03.31

So, thank you very much for inviting me to speak to you today. Is this too loud? Ok. I hope you find that these ideas, though tentative and exploratory, as intriguing as I do. I also hope that they contribute to the ongoing collaborations between Buddhist scholars and cognitive scientists to come to a better understanding of mind.

00:03.52

The basic problem I want to address today is how we might understand human experience without postulating an unchanging subject of that experience. This is a problem shared with science in general and cognitive science in particular, which almost universally disavows an essential unitary autonomous self.

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This leads to a disjunction between systematic analyses of experience - in terms of purely

impersonal forces, as typically practiced in the sciences - and the sense we all have of experience as deeply personal and subjective.

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After all, don't we all balk at the idea that we fall in love just because our genes, hormones and gender roles made us do it? But aren't we also loath to simply ignore these influences on our behavior? The teachings of the Buddha suggest that these problems arise from the way that we frame our questions.

00:04.49

And that they might be avoided if we changed our terms of analysis. If we stopped asking who does what to whom and start asking under what conditions, what recurrent patterns of interaction does such and such occur. Someone asked Buddha, "Who is it that craves?" "Not a fit question," the Buddha said. "I do not say someone craves. But if you were to ask, conditioned by what is craving, this would be a fit question."

00:05.21 This form of questioning is precisely the mode of analysis, the causal syntax, if you will, of dependent arising - the most distinctive teaching of the Buddha. This approach is succinctly expressed in the well-known formula, when this is, that comes to be. With the arising of this, that arises. When this is not, that does not come to be. With the cessation of this, that ceases.

00:05.46 It would be hard to exaggerate the importance of this view or to exhaust its implications. The implications I wish to explore today pertain to the dependent arising of consciousness or cognitive awareness. And I will use these two interchangeably.

00:06.02 As they are first found in the teachings of the Buddha from the 5<sup>th</sup> century before the Common Era and finally, in the Yogacharya school of Indian Buddhism in the 5<sup>th</sup> century of the Common Era with some attention in between to the constructive

role that consciousness plays in the patterns of circular causality, called samsara.

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If we follow the implications of this view, we shall see not only that our experience, but also our worlds of experience, can be systematically analyzed in terms of dependent arising without postulating a substantive, unchanging subject of experience.

00:06.43

In this analysis, cognitive awareness, vijñāna in Sanskrit, arises from two main conditions. Visual consciousness arises dependent upon the eye and visual form. More precisely, cognitive awareness arises when a stimulus appears in its appropriate sense field, impinging upon its respective sense organ with attention there.

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Attention, awareness is always intrinsic, as Georges was talking to, to vijñāna. Human modes of cognitive awareness are classified according to our six faculties - eyes, ears, nose, tongue,

body, and mind. These modes of analysis all occur due to contact between the faculties and their correlative objects.

00:07.28

Though simple, this analysis entails several interesting implications. First, unlike most philosophical traditions, cognitive awareness here is not a faculty that actively cognizes objects. It is merely a result of dukkhat\_, of the coming together of an appropriate stimulus with its respective sense organ.

00:07.51

Second, cognitive awareness is an event which only occurs when the sense organs are stimulated. But stimuli are not objects, per se, they're whatever brings about a change in the sense organ in relation to its respective sense field. Without such change, there would be no cognition.

00:08.10

We are, for example, effectively blinded in the white out of a blizzard, since there are no contrasting shades or colors. And we scarcely

notice the steady hum of a refrigerator until it stops. A stimulus is thus like a spark. It has to be distinctive enough, both spatially and temporally for it to instigate a moment of awareness.

00:08.32

These contextual and temporal distinctions are not so much the resulting product of cognitive awareness as the requisite conditions for it. A perfectly camouflaged insect has to move to be perceived.

00:08.48

Third, the kind of distinctions that can stimulate awareness depends upon the responsive structures of the sense faculties. We do not see ultraviolet light that bees do, nor hear the ultrasonic sounds that bats do. Without equipment, they are not part of our world. This necessary correlation is neatly captured by the expression "visible object."

00:09.10

But this also means that the contours of our world are effectively defined by the range of our possible cognitions. And these depend upon the structure of our particular faculties. Like the visible object, ours is an experienceable world. And this is exactly how the Buddha defined world - loka.

00:09.32

This is from one of the early Pali texts: "In this fathom long body with its perceptions and thoughts, I proclaim the world to be, likewise the origin of the world and the destruction of the world, likewise the method leading to the destruction of the world."

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And thus it also follows our fourth point is since cognitive awareness only arises with a contact between a sense faculty and its correlative objects, it does not occur with either of them separately. Without a sense faculty, there would be no cognitive awareness,

to be sure, but just as surely, there would be no awareness without a stimuli or object.

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Cognitive awareness, then, is neither purely subjective, nor wholly objective. It might be the concept Ned Block wants. Wherever he is. Rather, it arises at the interface, the concomitant of a sense organ and its correlative stimuli. Cognitive awareness is thus transactional, as well as temporal.

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This is remarkably similar to the modern understanding of color perception. According to cognitive scientists Lakoff and Johnson, quote, "Colors are not objective. There is in the grass and the sky no greenness or blueness independent of retinas, color cones, neural circuitry in brains. Nor are colors purely subjective, they're neither a figment of our imaginations, nor spontaneous creations of our brains.

00:11.01                   Rather, color is a function of the world and our biology interacting," end quote. In short, ordinary awareness is an event that occurs supported by specific sense faculties, which are only triggered by distinctive stimuli and whose correlative coming together defines our world of experience.

00:11.22                   The world that we experience is thus both constructed and ephemeral at the same time. This is the only way that I can make sense of the otherwise incomprehensible notion that the world and all of its dharmas arise from nowhere and go to nowhere. As the Buddha liked to say, "It is like a dream, a phantom, a flash of lightening."

00:11.46                   But we don't usually experience things this way and further analysis suggests why. First, although cognitive awareness depends upon disjunction - vijñ\_ana is literally a knowing separately - in Buddhist analysis it is always accompanied by saüs\_ra, a knowing together. This-

I have a quote here from the Pali texts that I think addresses a little bit of what was discussed earlier.

00:12.12

This is, the Buddha was saying, "Feeling, conception and perception - these factors are conjoined, not disjoined and it is impossible to separate each of these states from the others in order to describe the difference between them. For what one feels that one apperceives and what"- I'm sorry - "that one conceives and what one conceives that one perceives."

00:12.38

And so, in the Buddhist analysis, vijñāna is always accompanied by saṁsāra, a going together. And this is the apprehension of a distinctive quality or characteristic mark, typically defined as recognizing blue or red or green. Such marks are thus not just cognized disjunctively, they're also re-cognized, recognized categorically as identifiable kinds or classes of objects.

- 00:13.07                   And this, too, is similar to modern analysis. Cognitive scientist Christine Skarda, for example, observes that "The receptor neurons of the sense organs are stimulus specific in terms of their response characteristics. Each responds maximally to a specific type or class of stimuli, such as certain ranges or intensities of light, temperature, sound, et cetera."
- 00:13.30                   "And every feature," she continues, "acquires its unique nature by being contrasted with another," end quote. Lakoff and Johnson thus conclude that, quote, "Categorization is a consequence of how we are embodied. It is not a purely intellectual matter occurring after the fact of experience. Rather the formation and use of categories is the stuff of experience," end quote.
- 00:13.59                   Experience, in other words, is already formed by the implicit categories that give rise to cognitive awareness in the first place. While the map may not be the territory, our world is

unavoidably a mapped world. This mapped world takes on its familiar qualities, though, with the advent of reflexive awareness and language - both associated in Buddhist analyses with the sixth cognitive mode, mental cognitive awareness.

00:14.28

Like the forms of sensory consciousness, mental awareness is also an impersonal process that arises with specific conditions. First, it arises stimulated by a previous moment of sensory cognitive awareness, as a mental awareness of that sensory awareness.

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As one 5<sup>th</sup> century text, Abhidharma-ko\_a, puts it, "Visual consciousness is aware of blue, but not that it is blue. Mental consciousness is aware that it is blue." Mental cognitive awareness also arises instigated by its own objects - mental phenomena such as ideas, thoughts and reflections, which are considered forms of speech and are also closely associated with the mental

faculty, mind - the basis for all mental  
cognitive awareness.

00:15.20

In the formula here, these mental phenomenon are called dharmas. As systematically developed in the later abhidharma tradition, dharmas were the basic factors into which all pertinent aspects of experience could be analyzed. Although often considered elements or constituents of existence, it makes more sense - to me at least - to understand dharmas as any factor affecting experience, insofar as it belongs to a system of analysis.

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These are systems of mapping the totality of experience into discrete semantic units that, like spaces on a chess board, are formally distinct from each other and like phonemes of a language, represent totality of differences that make a difference.

- 00:16.08                   At least, for that system. This suggests that self-awareness - a reflexive awareness of awareness - is deeply dependent upon categorization, especially linguistic categorization. But this entails its own set of problems. For like language itself, there is no natural end to reflexivity.
- 00:16.28                   Sensual experience and mental reflection upon it - as no doubt we all know - readily turns into a series of recursive, discursive thoughts, which early Buddhists called papañca. And what is it that constantly provokes such proliferating, discursivity? According to the Buddhists - our self. A view of our own existence, satk\_yadçuñi.
- 00:16.52                   The idea that we have or are an underlying self. One early text states that the thought, "I am," is a proliferation. "I am this," is a proliferation. "I shall be," is a proliferation. Another text calls the thought, "I am," the very root of proliferation. In fact, the underlying

disposition toward the sense, "I am," *asm\_tī-*  
*anusaya*, is so deeply ingrained that it is  
thought to continue, albeit subtly, until the  
last stages of liberation.

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So far, we have analyzed our sense of  
subjectivity without postulating a substantive  
self as subject. But this raises other questions  
- how can such an evanescent consciousness,  
without substance or self, have any causal  
efficacy at all if it indeed is like an illusion,  
a dream or a soap bubble?

00:17.42

Is it simply epiphenomenal? A mere shadow on the  
wall, made by the light of more basic forces?  
Although in Buddhist analyses, cognitive  
awareness is only the result of certain  
conditions and not itself a cause. It is *apala*  
(ph), not *ahatu* (ph), in Sanskrit. It elicits  
reactions that do have causal efficacy. And  
therefore, insofar as the implicit  
categorizations and classifications that give

rise to consciousness serve to elicit these reactions, they may come to have causal influences in their own right.

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This is aptly illustrated in an early Buddhist text, "The Questions of King Milinda." "The elder monk traced a circle on the ground and spoke thus to King Milinda: 'Is there an end to the circle, Sire?' 'There is not, Reverend Sir.' 'Even so, Sire, are those cycles that are spoken of by the Lord Buddha. Visual consciousness arises because of "I" in visual form. The meeting of the three is sensory impingement.

00:18.43

Conditioned by sensory impingement is feeling. Conditioned by feeling is craving. Conditioned by craving is karmic action. And vision is born again from karmic action. Is there thus an end to this series? There is not, Reverend Sir.'"

00:18.59

This portrays a recurrent cycle in which ordinary cognitive processes elicit physiological

responses, such as feeling or sensation, which tend to evoke afflictive emotional responses, such as craving or aversion that, in turn, typically lead to karmic actions, such as grasping for pleasure or repelling pain, that themselves lead to further results, such as more cognitive processes, feeling and so on.

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This is a classic model of positive feedback, whereby recurrent patterns of actions, results and reactions become physiologically and psychologically reinforced and hence, self-reinforcing. In other words, they become habits. For Buddhists, though, these cyclic patterns of cause and effect - and samsara literally means the going around - not only describe how habits develop in this lifetime, but also how living beings develop over multiple lifetimes.

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This body, the Buddha says, is the result of former actions that have been constructed and intended and are now to be experienced. Once

constructed, our bodies define the forms in which awareness and feeling arise, which evoke the afflictive responses of lust and aggression, et cetera, which lead to actions that reinforce those same bodily structures.

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As another sutra states, "Action, craving and ignorance are the causes of living structures -saüsk\_r\_ - in the future." And if the structures of this fathom-long body, with its perception and thoughts that define- And if it is the structures of this fathom-long body, with its perceptions and thoughts that define the origin and destruction of our experienceable world, then we can readily see why the great 5<sup>th</sup> century Buddhist philosopher Vasubandhu, says that

00:20.51

"The world in its variety arises from action, karma, and it is due to the power of the afflictive dispositions that the result of these actions accumulate." Our world, in other words, comes about through the recurrent patterns of

action, of karma, instigated by the afflictive dispositions.

00:21.11

And the deepest of these dispositions, the last to be removed before liberation, is the misguided view of our own existence, *satk\_yadçùñi*. In short, the categorical distinctions that inform cognitive awareness, such as conceptions of our own self-existence, have been instrumental in the arising of our human world.

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Notice that all this is still couched in terms of impersonal causal relationships. A sense of self is fully acknowledged here, indeed it plays a central role, but only as a function of advanced cognitive capacities, not as a substantive entity itself. Surprisingly, this is also the conclusion of many evolutionary biologists and cognitive scientists.

00:21.53

And I must be exceedingly brief here. In Darwinian theory, evolution occurs through

differential reproductive success, in which organisms who reproduce more prolifically pass on more of their heritable characteristics. Over multiple generations, this gradually reinforces whatever physiological and psychological characteristics lead to more reproductively successful interactions between organisms and their natural and social environments.

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As they develop, these characteristics both enable and encourage those same behaviors, leading to further reproductive success, and so on. A pattern that is widely recognized as a circle of positive feedback. Central among these are whatever activities preserve one's personal existence and result in reproductive success and sufficient craving for and defense of the means to achieve these ends.

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Here, too, self-view and afflictive dispositions, such as lust and aggression, exert a crucial causal influence in the evolution of a species-

specific world. As Vasubandhu rightly says, "The afflictive disposition should be known as the root of existence."

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The means whereby this takes place in Buddhism and biology - through karmically driven rebirth or through natural selection - differ radically, of course. At least I think so. But their basic causal patterns are analysis, as are the causal roles they attribute to embodied categorical distinctions.

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And the most important locus of such categorization - one that gives rise to our sense of individual personal existence, for whose promotion we commit all kinds of actions thereby perpetuating the arising of the world - must surely be language. Or, more precisely, linguistic forms of symbolic representation used in human interaction.

00:23.47 Language is instrumental to our distinctively human world in two ways. From even before we are born, language learning affects the neurological structures of our developing brains, creating the physiological and psychological conditions, the saüsk\_r\_, for the arising of distinctively human forms of consciousness.

00:24.06 As a result, neurophysiologist Terence Deacon suggests, argues, that, quote, "We cannot help but see the world in symbolic, linguistic, categorical terms. Dividing it up according to opposed features and organizing our lives according to themes and narratives," end quote.

00:24.25 Language has also affected the evolution of our cognitive processes. By most accounts, our uniquely human brain structures co-evolved with language, which reciprocally reinforced each other, radically and irrevocably transforming the structures and processes of human cognition. Deacon argues, quote, that

00:24.46 "Brain/language co-evolution has significantly restructured cognition from the top down, such that its secondary effects have also ramified to influence the whole of human cognition, even when our linguistic abilities are uninvolved."

00:25.03 Language is not just added on to human consciousness. It is constitutive of it. And since language is an inter-subjective phenomenon, so, too, is our linguistically constituted cognitive domain. "We live our lives in a shared virtual world," Deacon declares, "because the evolution of linguistic communication created a mode of extra-biological inheritance that is intrinsically social."

00:25.30 "One that evolved," he continued, "neither inside, nor outside brains, but at the interface where cultural evolutionary processes affect biological evolutionary processes," end quote. This sheds a different light on that most

important byproduct of our shared virtual world - our special, but specious sense of self. For it is only through shared linguistic categories that we are able to fully objectify ourselves in contrast to others and in relation to pasts and futures.

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Contextual and temporal relationships that belie the very autonomy they appear to affirm. "It is the final irony," Deacon concludes, "that it is the virtual, not actual, reference that linguistic symbols provide, which gives rise to this experience of self."

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Most of this, though, occurs quite without our knowing it. This shared virtual world is so deeply engrained, so utterly habituated that it occurs almost automatically and nearly unconsciously in every moment of mind. All of these ideas came to a head in a concept of unconscious mind, developed within the Yogacharya

school of Indian Buddhism in the 4<sup>th</sup> to 5<sup>th</sup>  
centuries of the Common Era.

00:26.46

Couched in the same causal syntax of dependent  
arising, as earlier Buddhist analyses of  
consciousness, the subliminal form of cognitive  
awareness - laya-vijñāna -is said to arise  
continuously in a stream of instants and in  
dependence upon physiological and psychological  
structures that have been built up over time to  
the constructive, cyclic processes of samsara.

00:27.13

Specifically, it arises based upon the two  
traditional conditions of cognitive awareness -  
the faculties and their correlative objects. And  
in addition, as one text puts it, "The  
predispositions towards proliferation and terms  
of conventional usages of images, names and  
conceptualizations." These subtle conditioning  
factors, for their part, facilitate a new kind of  
correlative object -

00:27.40

the shared external world whose aspects are indistinct. We live in a world, a cognitive domain, whose predominant structuring influences, the texts say, are subtle and hard to perceive, even for the wise. Now, this accumulating realm of unconscious mental processes, which like our brains is said to metaphorically store the seeds or potentiality of memories and dispositions from the beginning-less past, might seem the epitome of the personal, the individual and the subjective.

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Certainly, this is how we typically take it. For, occurring along with this subliminal awareness is an equally subliminal sense of self called afflictive mentation, *kliùña-manas*. This is a process whose mode is "I"-making in the conceit, "I am." And which always arises and functions simultaneously with subliminal *\_laya* consciousness, taking it as its object, conceiving "I am this and this is I."

00:28.41 This subliminal sense of self is just that innate self-centeredness whereby we constantly, but unconsciously think, feel and act in terms of the conceit, "I am." In terms of "self" and "other." In Buddhist analysis, of course, this is tragically mistaken. There is no such thing as a permanent, unchanging self and this subliminal \_laya consciousness is neither unchanging, unitary, nor even wholly individual.

00:29.07 Rather, like cognitive awareness in early Buddhism, it only arises at the interface, the concomitance of faculties and objects. And so, it, too, is transactional and transient. Moreover, one of its major conditioning influences - the predispositions towards expressions of images, names and concepts - is hardly personal.

00:29.29 For language is nothing if not public domain. It only works when it evokes effortlessly and mostly unconsciously, common states of mind. How else

could it possibly work? Accordingly, Yogacharya thinkers distinguished between- Oops, I've lost one.

00:29.59 Sorry. That was there. Excuse me, I'm not real good at this.

00:30.23 Damn it. Oh, ok, I want this one right now.

00:30.58 Sorry about that. I hope you caught two winks. Accordingly, Yogacharya thinkers distinguished between those individual aspects of subliminal awareness associated with one's bodily faculties and those collective aspects that belong to a shared cognitive domain - bh\_jana-loka.

00:31.20 This distinction allows us, as Deacon and others have concluded to, quote, "live in a world that is both entirely physical and virtual at the same time." This virtual world is a shared cognitive domain, precisely because we have similar faculties that have been influenced by similar

linguistic categories and classifications, both phylogenetically and ontogenetically, as well as, of course, socially and culturally.

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Human consciousness is therefore distinctively human consciousness. It is therefore never simply individual because it is always at bottom, subtly, even subliminally, informed by the shared categories of language. We not only live in a world whose structuring processes we cannot fully discern, but one that is collectively construed through the common influences of the predispositions towards conceptual proliferation of conventional expressions of images, names and concepts.

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As Deacon observes, "The origins of a person's symbolic experience of consciousness is not within the head. This part of personal identity is inter-subjective in the most thoroughgoing sense of the term." We might rephrase the

Buddhist question from the beginning -  
conditioned by what does the world arise?

00:32.39

It is our common, yet unconscious habits of body, speech and mind to which we are habituated that give rise in the long term and in the aggregate to the habitat we inhabit. To my mind, this is a powerful set of ideas. Like modern physics, it helps to see how the apparent solidity of selves and worlds can come about by the mere occurrence of evanescent events, sparked by insubstantial distinctions. And the actions that follow there from.

00:33.09

This is counterintuitive for most of us, I suspect, but it forces us to reconsider what it means to say that our world is like an illusion, a dream or a bolt of lightning. What is more intuitive, no doubt, is the analysis in terms of impersonal causal forces. What distinguishes Buddhist analyses though, and makes them seem scientific and thus so appealing and persuasive,

is not just that they use a similar causal discourse.

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The idea that karma is a natural law is a perfect example of this. But that they use it to explain experience, not explain it away. Instead of reducing experience to the side-effects of genes, neurons and social forces, Buddhist analysis focuses on the causal relations of experiential categories, themselves - awareness, feeling, sensation, action, et cetera.

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It thus appears to bridge the depersonalizing discourses of scientific analysis and the experiential discourses of religion and psychology and of everyday life. And this is one of the main reasons, I think, why Buddhist thinkers can now collaborate with scientists and philosophers in understanding mind and why I hope we can continue to learn from each other.

00:34.22                   And since my paper has been so conceptually  
proliferating, I will now sit down. I am sitting.  
And to learn from my fellow panelists. Thank you.

\*\*\*APPLAUSE\*\*\*

**MARK SIDERITS**

00:34.40                   Thank you very much. Ok. We are going to have  
three of our panelists responding and they're  
going to be in alphabetical order. Our first  
respondent is Joseph LeDoux who is a  
neuroscientist. He is Professor at the Center for  
Neural Science here at NYU.

**JOSEPH LEDOUX**

00:35.15                   Thank you Chris and the other organizers for  
inviting me. I think I'm the token neuroscientist  
at the meeting, so I have a big job, but I'm not  
gonna try to carry that out. So I want to tell  
you about something that I know a little bit  
about, which is emotions in the brain and try to  
relate that to Bill's talk.