

## **The Dalai Lama at Stanford University November 5, 2005**

The Stanford School of Medicine hosted a dialogue between the Dalai Lama and neuroscientists from Stanford and other universities, as well as Buddhist scholars in a day long discussion of the nature of the phenomena of craving, suffering, and choice. Tickets were sold out almost the instant they were made available in June. What got me originally interested in this, besides an opportunity to hear the Dalai Lama again, was that the topic was going to be the nature of consciousness. Over the summer that topic morphed into something else, but it was equally enlightening. There was strong resistance to the seminar from some people in the Medical School who felt that science should have nothing to do with religion. Sadly, there are unaware people everywhere. Being able to witness the exchange was one of those rare (albeit somewhat pricey) privileges of a lifetime. At the lunch break, we met people who had flown up from L.A., and they knew of people who came from Chicago -- Dalai Lama groupies?

The conference was titled "Craving, Suffering, and Choice: Spiritual and Scientific Explorations of Human Experience", a Dialogue between Buddhism and Neuroscience on the Potential for Common Understanding and the Alleviation of Suffering. According to neuroscience, brain defines mind. What we think and feel, our sense of who we are, how we respond to our world, our minds – all are manifestations of our brain. The next and perhaps ultimate frontier for human discovery (from neuroscientist perspective) is discovering the workings of the nervous system – to understand the intricate weaving together of biological processes that extend from genes to circuits of interconnected cells to behavior.

Tibetan Buddhism and neuroscience use very different methods to understand how the mind works and how to treat its disorders. The Buddhists, with their 2,500-year-old tradition of introspective inquiry into the nature of the mind, are thought to have much to offer to neuroscience. Conversely, Western research tools and concepts may help to test the insights that come from Buddhist practice and better understand the mental states achieved through meditation.

The two-hour morning session was on Craving and Choice; the afternoon session concerned Suffering and Choice. Each session opened with a neuroscientist giving a presentation on some recent neuroscience research, and then an expert on Buddhism would describe Buddhist philosophy related to the same topic. It was like taking some condensed graduate level courses in each discipline. So cool. It was also fun to be with such a well-educated audience who could fully appreciate what they were being allowed to experience. The following definitions of craving and suffering were provided by some of the participants.

Buddhists define craving as a kind of desire in which one falsely superimposes agreeable qualities upon an object, cognitively screens out its disagreeable qualities, and then desires the object as a true source of pleasure and wellbeing. Common objects of craving include wealth, sensual objects, praise, and the esteem of others. None of these objects

are actual sources of genuine wellbeing, nor does the experience of such objects have an invariable correlation with the experience of pleasure of any kind. Genuine wellbeing, unlike the stimulus-driven pleasures that may arise as a result of contact with the above objects, has its source not in the objects of our senses or imagination, but in a healthy and balanced mind. So it is crucial to cultivate desires leading to genuine wellbeing for oneself and others and to attenuate craving that is based on misconception.

In neurobiology, craving is the subjective correlate of strong motivation for any goal. The goal could be something needed to maintain a state that is necessary for individual survival, including food, drink, warmth, or rest. The goal could be something needed for species survival, e.g., exploration, reproduction, friendship or parenting. In addition to motivation to achieve these instinctive goals, individuals can develop motivation for actions that are clearly unhealthy: overeating rich foods, drinking alcohol or using tobacco or addicting drugs. Whatever the goal, the neurobiological view is that cravings arise from chemical changes in the brain that lead to activity in neurons that are in pathways that receive input from sense organs and that are required for behavioral actions. The activity of specific groups of these neurons leads to the unhealthy actions and to the subjective experience of strong craving. The key concept is that the immediate cause of both the craving and the actions directed to the desired object or state is the activity of specific groups of neurons.

Neuroscience defines suffering as activation of neural subsystems that trigger emotions associated with distress: pain, fear, sadness, depression, anxiety. They are often tied to primary external sensory experience involving body damage (pain), threat (fear), grief and loss (sadness), and then have secondary elaborations more removed from such trigger stimuli that yield a more pervasive result from a less specific stimulus – states of anxiety and depression. Western scientific notions of suffering, including pain, depression, and anxiety, treat suffering as a problem to be eliminated by reducing noxious input or the brain mechanisms that perpetuate it.

From the Buddhist perspective, we incur pain and suffering but we create unhappiness. Suffering can be triggered by numerous causes over which we sometimes have some power, and sometimes none. Being born with a handicap, falling ill, losing a loved one, or being caught up in war or in a natural disaster are all beyond our control. Unhappiness is altogether different, being the way in which we experience our suffering. Unhappiness may indeed be associated with physical or moral pain inflicted by exterior conditions, but it is not essentially linked to it. Just as it is the mind that translates suffering into unhappiness, it is the mind's responsibility to master its perception thereof. The Sanskrit word *dukha*, usually translated as affliction, misery or, suffering does not define simply an unpleasant sensation, but rather reflects a fundamental vulnerability to suffering and pain. It can also be a profound state of dissatisfaction that endures even in favorable external conditions. In its deepest sense, *dukha* is intimately linked to a misapprehension of the nature of reality.

In his opening remarks, the Dalai Lama said that Buddhists can learn from science and that it was ok to reinterpret Buddha's teachings. You'll probably never hear something like that from other religious leaders of his stature. He also related how at first, he was

the only high-level Buddhist interested in science, but gradually, he won over skeptical senior Buddhist scholars. The session on craving ended with a bit of time not well spent on semantic differences in the meaning of craving. But the rest of the session was highly insightful. The Buddhists acknowledged that introspection is not infallible, but it can be trained. The Dalai Lama noted that Buddhists have no problem with throwing out teachings if they are found to be untrue by science! Both disciplines found common ground in their unwavering commitment to empiricism and seeking the truth. They felt science and religion could inform each other. Both groups agreed that the Buddhists could provide great insight in helping to frame experiments and hypotheses that can be tested.

The Dalai Lama did talk here and there, but I think he was really more interested in hearing what the neuroscientists had to say. He's very interested in science, as evidenced by his new book, "The Universe in a Single Atom: The Convergence of Science and Spirituality". I've looked at this. It's not real deep in terms of the science. But it does show the DL's intense interest in the scientific basis for consciousness. He has said that if he were not the DL, he would have liked to be an engineer, although he didn't elaborate upon which kind. His translator was awesome as usual. I was fortunate enough to hear him translate the Dalai Lama's four-day Heart of Wisdom teachings in Mountain View in 2001. They sold VHS tapes of the entire four-day teaching. I've reviewed the tapes a few times, getting more and more out of them each time. I just discovered this week that the translator, Thupten Jinpa, has put out a book ("The Essence of the Heart Sutra") on this particular teaching. I think he went back through the tapes and basically transcribed everything and then added clarifications here and there, in discussion with the Dalai Lama, the co-author. If you could only read one book on Buddhism, this would be it because it explains emptiness, which is the heart of Buddhism (at least, Mahayana Buddhism).

Neuroscience can discover the neural networks and biochemistry implementing emotions (read the incredible "Molecules of Emotion" by Candace Pert, and don't miss the animation of same in the movie What the Bleep), but it cannot figure out how to get a handle on the consciousness behind the emotions. Several neuroscientists humbly acknowledged over and over that their science was in its infancy compared to the obvious depth of Buddhist introspection and spiritual dialogue on various topics such as suffering and compassion.

The scientists challenged the Dalai Lama's belief that meditation could induce happiness and reduce problems in people with conditions such as suicidal depression or that the mind could override a serious illness in the brain, especially one that is biochemically based. On the other hand, they did agree that hypnosis and biofeedback can be useful for people suffering from pain and that psychotherapy can help treat negative thinking associated with depression. This was part of a larger discussion about what constitutes a healthy state of mind. A healthy state of mind is required to deal with what life brings. This is well being. It isn't just the absence of suffering. The discussion revolved around content vs. process: The content being the sensory perception, e.g. pain, and the process,

which would be the processing of the thoughts associated with the pain in the higher regions of the brain.

The neuroscientists felt that their understanding of distortions of reality was different from that of the Buddhists, but they both agree that we distort reality. The neuroscientists shared research that leads them to the conclusion that the brain processes emotional aspects of such phenomena as pain and depression, and that brain circuits tend to amplify or perpetuate feelings, such as sadness and pain. There's this idea that the mind is "hijacked" so that it cannot deal with the pain. Essentially, the limbic system (your emotional processing circuits) enslaves the cortex, and the mind cannot participate in recovery from such afflictions as suffering and depression. That's the neuroscience view. The Buddhists argued that the hijacking could be stopped through the interpretation of the emotions. They are basically intercepted (i.e. recognized as thoughts) and transformed. Essentially, in order to increase cognitive flexibility, the Buddhists described how we could reconfigure our experiences through meditation.

The neuroscientists observed that it was difficult to bring these contemplative and meditative practices on-line, even if you aren't afflicted with suffering. They argued that you have to push the pain down first, even through drugs in some severe cases, and then the mind and brain can properly engage the pain for recovery. They described how a never-ending pain cycle could get set up between the hippocampus (which processes memory), the limbic system (your emotions), and the pre-frontal cortex (higher-level cognitive functions). This is the cycle that needs to be broken. So one of the neuroscientists shows a picture of a father holding a young child. By their facial expressions, it's obvious that the child is in pain, and his father is upset because of this. The neuroscientist's comment was: "The strain and pain is mainly in the brain. [Sung to the tune of your favorite jingle from My Fair Lady]. Those neuroscientists are such comedians. Actually, they were pretty quick on the uptake and provided a lot of humor to what could have been some pretty dry discussions.

One of the neuroscientists (Howard L Fields at UC San Francisco) gave a really great summary of some of his and his colleague's research. He reported that there is a chemistry of altruism and described the nervous system as a "cost-benefits decision system". He noted that you don't require a body to feel like a body; only nerve cells are required. This is right out of What the Bleep: your brain is just a computer, and it doesn't know the difference between what is real and what it imagines. Nerve cells are electrical switches, and perform logical operations. He showed models of circuits made from neurons that looked like they were lifted from an Electrical Engineering 101 textbook. Also right out of What the Bleep was Field's team's observation that actions and sensations depend upon groups of connected neurons. One of the other neuroscientists added an interesting note that the same set of neurons can process different emotions.

However, perhaps of most interest to Qigong enthusiasts is Dr Field's profile in the conference brochure: "He discovered and thoroughly described a neural circuit that selectively controls pain. Furthermore, he and his colleagues discovered that pain relief due to placebo administration could be blocked by an opioid antagonist drug, opening the

way to a neurobiological explanation of placebo analgesia. Essentially, placebos have come out of the neuroscience closet and are now a legitimate topic for research. This has interesting ramifications for Qigong, since Qigong is a mind-body science and health therapy. Field has recently turned his attention to the problem of addiction. This problem can be understood as a defect in decision making based on motivation and reward. His team has discovered nerve cells that selectively encode the magnitude of a reward. They have also shown how the neurotransmitter dopamine contributes to motivation and choice.”

There was a discussion on how to enhance wellness. The Buddhist side felt that all change occurs according to nature (that appeals to the Taoist in all of us). Change takes time. Through manipulation of energy (prana) in the body, you can manipulate emotions and change the quality of experience. Everyone agreed that the earlier you start preventing suffering, the better. We are not born with knowledge of working with the mind and teaching emotional balance and preventing suffering. We must work at it and through practice we can become cognitively and habitually prepared for suffering. One of the Stanford neuropsychologists wondered about how to bring such a practice to young children. I wanted to stand up and say the obvious (Qigong), but then I also wanted to stay and see the rest of the talk.... They went on to talk about wellness involving the healthy and correct way to see things. The Buddhists felt that there has to be a realization that what goes through the mindstream is not you, but it is a glimpse of how the mind works. Even a rudimentary awareness of how the mind work can be very beneficial in depression therapy after only a few months. There was recognition that the mind-brain connection/relationship cannot be empirically tested by neuroscience.

The Dalai Lama had an idea for a scientific experiment: Determine the region of the brain that experiences empathy, and whether it is the same place if your empathy is for a loved one or your enemy. He felt that if the two places in the brain were the same that there would be something terribly wrong with us.

The Buddhists said that happiness, truth, and virtue must be cultivated together.

The Dalai Lama closed by saying that he’s now had 15 – 16 years of dialogue with scientists. He said that Saturday’s talk confirmed that these discussions are leading to a betterment of the world, humanity, and all species, in spite of the fact that we create problems for all of them. Compassion will not solve all the problems, but it is his hope and belief that it will reduce the problems.

One of the issues resonating in my mind following the symposium is how important it is for society to cultivate "well being" (i.e., clear mind, healthy body, emotional balance, positive self image, optimism about the future, etc). This should form the foundation of our culture, and be a main focus of parenting and social institutions.