

# Levels of Control in the Brain: Emotional-Affective Systems

## 1. Primary-Process, Basic-Primordial Affects (Sub-neocortical)

1. Emotional Affects (Emotion Action Systems: *Intentions-in Actions*)
2. Homeostatic Affects (Brain-body interoceptors: Hunger, Thirst, etc.)
3. Sensory Affects (Exteroceptive-Sensory triggered pleasurable and unpleasurable/disgusting feelings)

## 2. Secondary-Process Emotions (Learning via Basal Ganglia)

1. Classical Conditioning (e.g. FEAR via basolateral and central amygdala)
2. Instrumental and Operant conditioning (SEEKING via Nucleus Accumbens)
3. Behavioral and Emotional habits (largely unconscious-Dorsal Striatum)

## 3. Tertiary Affects and Neo-cortical "Awareness" Functions

1. Cognitive Executive Functions: Thoughts and Planning (Frontal Cortex)
2. Emotional Ruminations and Regulations (Medial Frontal Regions)
3. "Free-Will" (Higher Working-Memory functions-*Intentions-to-act*)

A summary of the global levels of control within the brain: (1) Three general types of affects, (2) three types of basic learning mechanisms, and (3) three representative awareness functions of the neocortex (which relies completely on loops down through the basal ganglia to the thalamus, looping back to the neocortex before it can fully elaborate both thoughts and behavior)

From *The Archaeology of Mind: Neuroevolutionary Origins of Human Emotions*, by Jaak Panksepp and Lucy Biven, page 10

### An example from real life:

When my Dad was hungry, he would become even more taciturn and silent. You might not notice, because he was generally pretty quiet. He would grow moody and grumpy; his face would become dour and his gaze would turn inward. Then he would say something disapproving and critical. These days we have a new word to describe this state: *hangry*. You can distinguish the three levels. He might or might not be aware of his hunger (Primary-process), but he certainly couldn't control it. His grumpiness and facial expression (Secondary process) was unconscious. If you asked about it, he would be completely unaware that he was feeling moody. Where he had some conscious control was in how he then acted on what he was experiencing. But still we recognized it before he did, and we learned to get him something to eat when we noticed him sliding into a grim silence.

### Nature or Nurture?

My younger brother was both a genetic offspring of my father and a close observer of him. He was, of course subject to the same physical experience of hunger. He developed the same pattern of silent moodiness and grumpiness, leading to disapproval and criticism. I think this is an example of Secondary-Process Emotions. The original Primary-Process (hunger) is the result of hard-wired sensory experience. Then we learn, very early, a pattern of conditioned responses to that experience. This early learning and the habituated response are unconscious to us. Finally, we react in ways that we actually have some control over, if we are awake to it.

# The Practice of Zen and Human Emotion

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Emotions are not only unavoidable facts of human existence and evolution; they are unparalleled opportunities for spiritual insight and development. We should not lament the fact that we experience the full range of human emotions, in all of their complexity. We should not favor some emotions and reject or suppress others. After all, emotions provide the energy, the fuel, the challenges, and the joy in spiritual practice and liberation. The stoic solitary monk, unmoved by feelings or human suffering is a mythical mirage, a false projection of a life removed from living. The Bodhisattva path is never separate from lived human experience in all of its fullness and its pain. So there is plenty of work with emotions on the practice path.

Zen meditation makes it possible for us to better understand the emotional reactivity we experience, and to make wise and compassionate responses that reflect our aspiration, no matter what our conditioned habits might be. First, as Dogen says, we *study the self*, learning to recognize even subtle indicators of emotions as they rise and fall. *Caught in the self-centered dream, only suffering.*

We pay attention in the still, silent place of meditation as well as in our everyday lives so that we can observe our patterns and habits of reactivity that create our sense of "self." *Holding to self-centered thoughts, only the dream.* This is conditioning. It limits our view and our spontaneous freedom. We do not get rid of it; we learn to see through it. *Each moment, life as it is, the only teacher.*

We can then turn our awareness to how we can best use the energy of emotions arising in us for the benefit of all beings. In this way, we *forget the self*. And we are astonished to discover, as we do, that we are *awakened by the myriad things*. No longer caught in the trance of our own conditioning, we are dazzled by the brilliance of the world in its magical display, a spectacle far beyond our limited sense of our own being. We realize our connection with all being. The energy of our emotions is in this way transformed into beneficent activity in the world. *Being just this moment, compassion's way.*

I believe this is a worthy aspiration for our spiritual journey. We support and challenge each other not so that we can abandon our emotions for "higher consciousness," but to expand our capacity to hold more and more of our experience in its powerful immediacy. As ambassadors of the dharma, we demonstrate, through lived experience, the potent teachings that offer liberation not *from* the trials of our existence, but right in the very midst of them.