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The Madness of the Gods

I study the brain in love. My colleagues and I have put forty-nine people who were madly in love into a brain scanner (fMRI). Seventeen had just fallen happily in love; fifteen had just been rejected in love; seventeen were men and women in their fifties who maintained they were still "in love" with their spouse after an average of twenty-one years of marriage. All showed activity in a tiny factory near the base of the brain that pumps out dopamine — the neural liquor that gives you the energy, focus, craving, and motivation associated with intense romantic passion — what the ancient Greeks called "the madness of the gods."

But before I launched these brain-scanning projects, I searched the academic literature for the constellation of psychological symptoms linked with romantic love. More exciting to me, I also read poetry from around the world. As other anthropologists have studied fossils, arrowheads, or pot shards to understand human thought, I studied poetry to understand the lover's besotted brain. I wasn't disappointed: everywhere poets have described the emotional fallout produced by the brain's eruptions as one becomes engulfed with romantic fervor.

Take "special meaning." As you fall in love, you begin to regard your beloved as special, unique, unlike any other. In Shakespeare's classic play, Romeo exclaims, "Juliet is the sun." Kabir, the Indian poet, writes: "The lane of love is narrow — there is room for only one." And in *The Jade Goddess*, the twelfth-century Chinese fable, Chang Po says to his beloved, "Since heaven and earth were created, you were made for me and I will not let you go." Then the lover begins to dote on every tiny aspect of the beloved. Most can list what they do *not* like about their sweetheart. But they sweep these details aside to concentrate on what they adore. The car the beloved drives is different from every other car in the parking lot. The street this person lives on; the music he listens to; the books she reads: everything related to the beloved grips the lover's attention. As the ninth-century Chinese poet Yuan Chen wrote:

> I can not bear to put away
> the bamboo sleeping mat:

that night I brought you home,
I watched you roll it out.

"Love is blynd al day," says Chaucer. And as the passion grows, this brain bath of dopamine fills the lover with restless energy, euphoria when things are going well, mood swings into despair when shunned. "This whirlwind, this delirium of Eros," Robert Lowell called it. Bodily responses accompany this mental storm. Ono No Komachi, a ninth century female Japanese poet, wrote, "I lie awake, hot/the growing fires of passion/bursting, blazing in my heart." These bodily insurrections — from butterflies in the stomach to sweaty palms, weak knees and a pounding heart — are probably the result of norepinephrine, a chemical closely related to dopamine.

So begins a physical and mental addiction to another human being, an addiction often portrayed in verse. "Oh, I willingly stake all for you," were Whitman's words. And an anonymous eighth-century Japanese poet summed up this craving, "My longing has no time when it ceases." But I think Plato best expressed what is happening in the lover's brain. In *The Symposium* he writes that the God of Love "lives in a state of need." Romantic love is a need, a want, a craving, a homeostatic imbalance, a *drive* that arises from primitive regions of the mammalian brain, giving us the energy, focus and motivation to win a mating partner — life's greatest prize.

In fact, I think romantic love is one of three different brain systems that evolved for reproduction. The *sex drive* urges us to seek a range of partners; *romantic love* motivates us to focus our mating energy on just one individual at a time; and feelings of *attachment* enable us to remain with this person at least long enough to raise a single child through infancy together. Each is associated with different primary brain chemicals and brain pathways; each evolved to spread our DNA on toward eternity. But of these three basic reproductive drives, romantic love is the best described — perhaps because dopamine is linked with creativity. And as this chemical courses through the brain, it produces the sleeplessness, energy, and creativity that drive the impassioned lover to compose.

"Mind is primarily a verb," wrote philosopher John Dewey. The mind *does* things. And poets capture these workings of the brain with words, enabling me to touch, feel, and understand some of the complex emotions that the brain produce as we fall in love.