

BOOK REVIEW

Joy, Guilt, Anger, Love

By Giovanni Frazzetto

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Four decades ago, I reviewed Irenäus Eibl-Eibesfeldt's marvelous book, *Love and Hate* (Eibl-Eibesfeldt, 1974; Kalat, 1975). I approached Frazzetto's similarly titled book hoping to observe how far the field has progressed in the ensuing years.

Initially, the comparison fails, as the two books deal with such different aspects of emotion. Eibl-Eibesfeldt dealt with ethology: What emotional expressions are the same for cultures throughout the world? How might emotional expressions have evolved? Do humans have innate tendencies to cooperate? Does it make sense to talk about human nature? Frazzetto does not deal with any of those issues.

Nevertheless, in a sense Frazzetto's book does show us how far the field has progressed, precisely because it deals with different questions. His main interest is in the extent to which neuroscience can enlighten us about the experience of emotion. Forty years ago it would have been difficult to ask that question. First, psychologists were still enough under the influence of behaviorism to be nervous about discussing the experience of emotion. Emotional expressions or behaviors were okay, but the personal experiences were still to a large degree off limits. Second, what we knew about the physiology of emotions was very limited, even in comparison to the small amount we know today. We knew that the limbic system was important for emotions and that strong emotions activated the sympathetic nervous system. We also knew that electrical stimulation of certain brain areas was reinforcing.

Today, as Frazzetto elaborates, we know a good deal more. Refreshingly, he doesn't limit the discussion to psychologists' "big six" emotions (happiness, sadness, fear, anger, disgust, and surprise). Chapters include guilt, grief, empathy, and love, as well as more conventional anger, anxiety, and joy. In each case he briefly discusses neurological findings that are potentially relevant. Anger relates to a variant of the MAOA gene in interaction with an abusive environment. For guilt, he discusses some fMRI data, although he rightly regards them as not very informative. Anxiety relates to activity in the amygdala. He compares grief to depression, for which the relevant data include antidepressant drugs, although the relationship to grief is tenuous. Empathy he relates speculatively to mirror neurons. (I would have recommended omitting the assertion that activity in the dorsomedial prefrontal cortex roughly corresponds to Freud's ego!) For joy, the relevant findings include the roles of dopamine, opioids, the left hemisphere, and cardiac vagal tone. Love relates to

oxytocin, vasopressin, reward systems, and deactivation of the amygdala.

Throughout, Frazzetto's point is that neuroscientists have discovered interesting connections between brain activity and emotion, although today's neuroscience is far from explaining the full range of emotional experience. It is hard to imagine anyone who would disagree.

The book's discussion of neuroscience is short on detail, certainly better suited to a non-specialist audience than to most readers of this journal. The strength of the book is in its descriptions of emotional states. The author elaborates with personal experiences and erudite references to literature and history. To explore what it feels like to experience love, grief, guilt, and the others, this book does it about as well as words can possibly do.

REFERENCES

- Eibl-Eibesfeldt I (1974). *Love and hate*. New York: Schocken.
Kalat JW (1975). Original sin and/or original virtue. A review of *Love and Hate* by I. Eibl-Eibesfeldt. *Contemporary Psychology* 20: 705-706, 710.

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