

The Reptile Brain, Mammal Heart and (Sometimes Perplexing) Mind of the Juror: Toward a Triune Trial Strategy

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In our quest to perfect our trial skills and improve outcomes, lawyers and trial consultants have, for at least 30 years, turned to science. Our understanding of it is incomplete and our implementation imperfect, yet we make progress. But sometimes our incomplete knowledge does a disservice, as does the treatment of the triune brain in David Ball and Don Keenan's *Reptile: The 2009 Manual of The Plaintiff's Revolution*.

In the Reptile Manual, the authors frame trial strategy in terms of reptilian survival. Why? Because, they say, (a) jurors see you, plaintiffs' counsel, "as a menace to their survival";¹ (b) "it is too late to respond with logic alone or even with emotion";² and, therefore, (c) to prevail, plaintiffs' attorneys must frame their cases to activate jurors' reptilian survival mode.³ In Ball and Keenan's approach, your (the attorney's) survival is at stake because jurors think you threaten their survival; therefore, you need to show jurors that the defense is the real threat. You need not be in terror mode, but otherwise the reptilian angle is not a bad trial strategy, but it is a one-dimensional strategy.

The Reptile, the authors say, invented, built and runs the brain and abandons emotion and logic when survival is at stake.⁴ Its tools are dopamine and anxiety and terror.⁵ Since emotion and logic are "too late", counsel must demonstrate the immediate danger of acts like those of defendants because "[w]hen the Reptile sees a survival danger, even a small one, she protects her genes by impelling the juror to protect himself and the community."⁶ The "method and purpose," the authors say, "is to get jurors to decide on the entirely logical basis of what is just and safe, not what is emotionally moving."⁷

As a marketing tool, this conception of the Reptile is brilliant (it was, after all, developed by marketing guru Clotaire Rapaille). But for the lawyer who might literally apply the admonition to appeal only to the "logic" of the Reptile, it is folly. Ball and Keenan mention emotions, altruism and hypocrisy, among other non-reptilian characteristics, but their methodology is expressly based on triggering the reptile's fear reaction. But the reptile is only one aspect of the human brain; to ignore the others, the emotional and reasoning parts, is to ignore what makes us human.

The Three-in-One Brain In Three Parts

"[I]n its evolution, the human brain has developed to its great size while retaining the chemical features and patterns of anatomical organization of the three basic formulations characterized as reptilian, paleomammalian and neomammalian."

-Paul D. MacLean

Dr. Paul D. MacLean, taking an evolutionary approach to neurobiology, proposed that the human brain has three distinct evolutionary parts or layers, which he described as

reptilian, paleomammalian and neomammalian.⁸ MacLean began using the term “triune brain” meaning three-in-one [tri=three, une=one] to illustrate that the three parts “intermesh[] and function[] together.”⁹ Thus, although they can operate “somewhat independently,” they cannot function autonomously.¹⁰

The Primitive Reptilian Brain

The reptile brain, or R-complex, is composed of the most primitive structures of the brain. It regulates the organism’s daily routines and its display behaviors (its means of communication), which include territorial and mating displays.¹¹ It contains “[p]rimitive systems related to fear, anger and basic sexuality.”¹² MacLean believed it is also involved in the “struggle for power, adherence to routine, ‘imitation,’ obeisance to precedence and deception.”¹³ These are innate, instinctual routines and behaviors that enable the organism to survive and procreate.¹⁴

Not surprisingly, automatic fight/flight or freeze reactions to danger are also part of the reptilian brain, although not exclusively. It is this response that Ball and Keenan focus on—the innate fight/flight instinct of the Reptile—that which needs neither emotion nor logic. In extreme cases, it can, indeed, take over the brain. That response to acute stress triggers a shift in blood flow from upper areas of the brain to the body, preparing it for escape. (The opposing reaction is freezing, another adaptive behavior.) Ball and Keenan counsel that contrasting safety with danger, even danger remote in time or probability, will impel the juror to act for her own survival.

However, given that trials differ significantly from the kind of immediate threat that triggers a fight/flight response, it is possible that a different kind of reptilian response could be provoked. Based on MacLean’s description, if we only appeal to the Reptile’s survival instincts, we could conceivably trigger undesirable responses in jurors. The reptilian brain independently might interpret a lawsuit as a power struggle of no relevance to itself. It might refuse to abandon precedent (“they met federal regulations, why require more?”) or see deceptive practices as entirely natural. Instead of activating the fight/flight mode, the Reptile might simply freeze; fighting expends valuable resources better conserved for the self. The Reptile is, after all, first and foremost interested in survival—for itself and its progeny.

The Emotional Paleomammalian Brain

Man becomes man only by his intelligence,
but he is man only by his heart.
-Henri Frederic Ariel

The paleomammalian brain (“paleo” meaning ancient or primitive), also referred to as the limbic system, sits above the rudimentary reptilian brain. Its components are critical to the experience of primary (innate) emotions: fear, anger, happiness, sadness and disgust.¹⁵ Emotion occurs when this part of the brain detects something present or occurring (even before the mind overtly recognizes it) and it triggers both a change in body state and thought process.¹⁶ As that process suggests, the limbic system acts on the reptilian brain just as the reptilian brain acts on the limbic system; they are

interdependent—it is not just a one-way relationship as Ball and Keenan suggest.¹⁷ The paleomammalian brain evolved because it helped mammals survive. Therefore, we must reach not just the Reptile but the Old Mammal, as well.

It is important to recognize that both the reptilian and the paleomammalian brains are preverbal and much of their processing is unconscious.¹⁸ We often only gain awareness of that processing indirectly through a behavior or emotion.¹⁹ At least one study has shown that our brains arrive at decisions before we are consciously aware of them.²⁰

Rapaille talks about pre-conscious emotional processing and explains that, because words are only layered over what we experience, we “can’t believe what people say.”²¹ For that reason, he seeks to understand the emotional imprinting that occurs within the limbic system.²² His emphasis on the emotional part of the brain reveals that he subsumes the paleomammalian brain in his use of “Reptile”. (Reptile is, after all, much catchier than “the Old Mammal.”)

We must not underestimate the importance of our emotional paleomammalian brain. It brought sophisticated vocal communication. It enabled learning by linking emotions with experiences and storing them in memory so we could categorize them, which led to the formation of secondary emotions—feelings—that required a larger, more complex brain.²³

In initiating the development of secondary emotions, the paleomammalian brain also gave us the recognition of self and, consequently, the recognition of others’ *selfness*.²⁴ As a result, we developed social consciousness, which, according to the Social Brain Theory, also necessitated a larger, more complex brain.²⁵ Its processes help us understand others’ thoughts and predict their actions. Thus, emotions were critical to the development of the neomammalian brain, the part that gives words to our thoughts and all manner of higher functioning.

With the evolution of the paleomammalian brain came a new hormone, oxytocin.²⁶ It acts as a neurotransmitter and is exclusive to the mammalian brain and it is critical for bonding with our children and with other people.²⁷ It also counteracts the reptilian response to stress.²⁸ In addition, it fosters trust and empathy in men and women.²⁹ Empathy motivates us to act in others’ interests and not solely our own; it is what gives us “heart.”³⁰

The Reasoning Neomammalian Brain

The neomammalian (or new mammalian) brain is the cerebral cortex. It is an amazing learning, problem-solving, and deliberative organ.³¹ It evolved to control instinctive behavior because we must be flexible to deal with our complex and variable environment.³² It is creative and enables us to think abstractly, deal with ambiguity and take different perspectives.³³ Together, the caring, emotional paleomammalian brain and the reasoning, elaborative neomammalian brain formulated moral codes.³⁴

Moral codes should not be confused with Rapaille’s Culture Codes that Ball and Keenan recommend using. Rapaille defines a “Code” broadly as “the unconscious meaning we

apply to any given thing."³⁵ For example, the code for health in the U.S. is "mobility".³⁶ Codes are culture-specific and therefore time-specific. They are, essentially, frames developed from the collective experiences of individuals in specific settings. They are not immutable. Take, for instance, the positive Code for doctor, "Hero." In some cases, doctors share the Code identified for nurses, "Caregiver."³⁷ Jurors who feel a doctors "are" Caregivers become angry when they fail to meet up to that standard. Such frames are very useful and provide a reference for framing evidence and judging conduct. Using frames that are culturally accepted is advantageous.

It bears repeating that Rapaille identifies Codes by looking at emotional imprinting—the early emotional associations we acquire with positive experiences.³⁸ We use emotion-linked Codes or frames to make emotional associations with present objects and events. When we anticipate certain behavior and it does not meet our expectations, i.e., it does not fit our frame, we have an emotional response. Yet Ball and Keenan say we do not want to appeal to emotions. To be fair, they do acknowledge that we may evoke jurors' emotions. But their premise—provoking the Reptile to action by exposing risks to its survival—is based on the idea that we do not want jurors to decide on the basis of emotion. Instead, they say, appealing to the evolutionarily important Reptile produces an entirely "logical" self-preserving response.

Their deemphasis of emotions ignores the reality that emotions, both positive and negative, were an evolutionary adaptation of the Reptile brain that *enhanced* survival. Moreover, problems with emotional processing can be *detrimental* to survival.³⁹ Ball and Keenan are not alone in this deemphasis; our cultural emphasis on the rational brain pervades nearly every intellectual field.

Indeed, Courts also tend to neglect emotion; American rules of evidence permit the exclusion of relevant evidence from trial on the basis of "undue prejudice," the "undue tendency to suggest decision on an improper basis, commonly, though not necessarily, an emotional one."⁴⁰ But what of error caused by lack of emotion? Do we ever recognize the potential that the exclusion of emotion-inducing evidence can deprive jurors of the rational emotional information they need? Antonio Damasio would point to Descartes as the source of this error, faulting his statement, "I think, therefore I am." Damasio's point is not merely that I feel, therefore I am. It is that I am, therefore I think.

The (Sometimes Perplexing) Mind of the Juror

Higher-level thinking, the domain of the neomammalian brain, is the pinnacle of human development. Culturally, we have long viewed the cerebral cortex as a fount of transcendent rationality, albeit self-interested rationality, in an irrational world. In that view, the cerebral cortex disengages from emotions and the body (which is largely governed by the reptilian brain).⁴¹

That is one reason the minds of jurors can seem so perplexing to trial lawyers. We have an intellectual misconception of what the mind is. But the conscious mind is the product of the combination of the body and the triune brain—reptilian, paleomammalian and neomammalian. We have been educated to speak to a "rational" brain that does not, in reality, exist. If we speak to jurors as if they have a purely reptilian brain, we make the

same mistake.

Summary of the Three Parts of the Brain

	Reptilian Brain	Paleomammalian Brain	Neomammalian Brain
Primary Function	Regulate the body and generate immediate survival reactions	Generate basic emotions and memories and vocal communication	Process information from and direct the rest of the brain, using sophisticated reasoning
Characteristics	Generates the fight/flight and freeze responses, shifting blood flow from the cerebral cortex for fast physical reaction or immediate survival	Gives fear, anger, happiness, sadness and disgust, a sense of self, and bond with and empathy for others	Allows us to learn complex concepts, reason about our experiences and develop a moral framework

The other reason is that our understanding of others’ minds is entirely inferential—and the inferences come from our own subjective description of unconscious thought processes.⁴² To be sure, many of those processes are highly accurate. We have mirror neurons that enable us to understand the intent of others’ actions and the emotions they are experiencing.⁴³ We use heuristics (rules-of-thumb frames) in decision-making with surprisingly accurate results.⁴⁴ But our—and their—processing is largely pre-conscious, shaped in part by life experience, and it is highly influenced by our contemporaneous feelings.⁴⁵ It is difficult enough to try to relate to people under those circumstances; to misunderstand, overlook, or misdirect jurors’ emotions can create an additional impediment, for emotions play an important role in jurors’ appraisal of others’ conduct and in jurors’ decision-making. Therefore, it is important to understand jurors’ neurologically-based moral foundations.

The Three Human Ethics

There are many theories of morality, but just one is based on the evolved triune brain structure. Triune Ethics Theory, developed by Darcia Narvaez, posits that evolution has yielded three ethics, the Ethics of Security, Engagement and Imagination, corresponding to the reptilian, paleomammalian and neomammalian brains, respectively.⁴⁶ Being neurological, these Ethics are immutable; their application may vary, but their essence does not change.

When the Security Ethic is engaged, security needs can trump the other moral perspectives. The reptilian brain’s influence can manifest in maintaining ingroup hierarchy and standards, often through shaming, threat and deception, and following precedent and tradition. Without the influence of the other ethics, “it is prone to ruthlessness and attaining a security goal at any cost,” inflexibility, intolerance of outgroups, and reduced helping behavior towards others.⁴⁷ At its extreme, a reptilian response can lead to “tribalism, rivalry and mob behavior.”⁴⁸

The Ethic of Engagement “is rooted in the mammalian emotional systems that drive us towards intimacy such as play, panic (encompassing sorrow and loneliness from social separation), and care.”⁴⁹ Conformist and submissive behaviors may come from this Ethic because of the need for connection. Unlike the Security Ethic, the Ethic of Engagement is shaped in part by early life experience, particularly nurturance. When

the Engagement Ethic is operating, we exhibit empathy and altruism; to engage, we must understand and genuinely care for others.⁵⁰ This may be why this part of the brain is believed to be “a primary force behind moral behavior.”⁵¹

The Ethic of Imagination, like the Ethic of Engagement, is very involved in moral judgment and is also shaped by developmental influences. In dangerous situations, it can problem-solve rather than reflexively react. It is also outward focused, so it enables us to have a sense of community and a desire to act for the good of others. When engaged, it is the master.

The Ethic of Imagination masters the other Ethics because the neomammalian brain processes the emotions that are generated by the paleomammalian brain and the signals it receives from the reptilian brain. It is the only part of the brain connected to every other distinct part of the brain. It is there that we *integrate* internal and external information and signals from the reptilian and mammalian brains. The prefrontal cortex is also the most involved in the cerebral cortex’s emotion processing. Because the role of the prefrontal cortex in emotional processing is so great, higher level thought is inextricably linked to emotions.⁵²

It has “the ability to countermand instincts and intuitions with ‘free won’t’”—the ability to choose how we react to particular events, which seems to be an exclusively human ability.⁵³ It can explain and reframe behavior. Notably, it may do so through the use of narrative.⁵⁴

Higher level thought is only “rational” when it combines our conscious thought with our emotions and all of the unconscious processing that has taken place and can override instinct. We can deliberately reframe our perceptions and reactions. As mentioned earlier, the failure to process emotions properly (or the loss of ability to do so) can produce decidedly irrational behavior.⁵⁵ This is equally true when behavior relates to moral judgments. “[T]o make a good judgment one must feel the meaning of the judgment.”⁵⁶ Therefore, in evolutionary terms, we are “most moral ... when the Ethic of Engagement is linked with the Ethic of Imagination.”⁵⁷

Summary of the Three Ethics

	Security	Engagement	Imagination
Positive Characteristics	In extreme circumstances, overrides other brain systems to preserve the body and, in less extreme circumstances, heightens awareness and vigilance	Promotes intimacy with care, play, and panic (discomfort in social separation); gives us empathy and altruism	Outward focused; generates complex feelings; allows us to make choices about how we react; enables reflective thought, appraisal of conduct, and creative problem-solving
Negative Characteristics	Use of shaming, threat and deception to maintain ingroup standards; intolerance of outgroups, inflexibility, and reduced helping behavior	Submissiveness and conformist tendencies; emotional extremes	Indecisiveness; unnecessary elaboration of and rumination on emotional states

The Triune Trial Strategy

“We are, and then we think,
and we think only inasmuch as we are,
since thinking is indeed caused by the
structures and operations of being.”

-Antonio Damasio

We are at our best operating in both Ethics because our sense of being is combined with the desire to understand others' being and we are reasoning from the conscious brain that is creative, flexible, abstract, and reflective.

From this moral perspective come the weightiest verdicts. We harshly punish murderers because they've deprived another of the ultimate *being*—living. We punish child molesters harshly because they've violated the most innocent form of *being*. We award huge damages against people and corporations when they carelessly or callously harm someone's *being*, whether by death or irreparable damage. (In some cases, the damage is seen as worse than death—suffering in *being* can be torture.) When the violation is perceived as willful, the harm needn't be great. The violation of another's *being* is the ultimate moral lapse.

Such violations offend us, then outrage us, and compel us to right the wrong—unselfishly, solely for the other. Is there an evolutionary benefit to that? Surely. Does that make our emotional-rational decision less real? Not in the least.

However, as we know from personal experience, we do not always operate in our highest moral state. Moreover, individuals differ in the way they draw on their moral foundations. We each can be predisposed to use one Ethic or another, depending on the situation.⁵⁸

The impact of formative life experiences on mammalian brain development explains some of our predisposition. Situational or affective priming can also affect our predisposition.⁵⁹ We likely have genetic predispositions as well. For example, research has shown that women across cultures tend to be more altruistic and, consistent with the Social Brain Theory, have more gray matter volume in the cerebral cortex than do men.⁶⁰ Similarly, research has shown that in stressful or dangerous situations, women tend to attend to their emotions and behave accordingly (dubbed “tend-and-befriend”) while men tend to attend to visual stimuli and have a greater fight/flight response.⁶¹

Given the multiple bases for our predispositions to use one Ethic or another in varied situations, the best trial strategy is a triune strategy: appealing to all Ethics, all aspects of the triune brain.

A rules-based strategy, such as that recommended by Ball and Keenan, will engage the Security Ethic, which is oriented toward rules and maintaining order. Because rules appeal to the Security Ethic, when we frame and communicate issues in terms of rules, the danger is neglecting the Engagement and Emotional Ethics, which are critical to making moral judgments.

Rules do not always trigger a “danger” signal. We break rules all the time without dire consequences. Rules are malleable; they are highly situation-dependent, so sometimes they yield to other rules. They are also very susceptible to rationalization. In cases where the likelihood of harm is low, for instance, we may minimize rule breaking. In addition, rules invite comparison of fault because we are all rule-breakers. When delivered without passion, rules are a big yawn. Defense attorneys do not want jurors to be in touch with their emotions. They want your delivery as dry and uninspiring as possible.

A fully developed narrative, with both emotional and rational elements designed to arouse our shared sense of humanity and feelings of empathy and altruism, will inspire the Engagement and Imagination Ethics. This incites a moral response.

Moral judgments motivate jurors and yield weightier verdicts; mere rule-breaking does not rise to that level because the reptilian brain does not care for others. This is why Ball and Keenan’s admonition to appeal only to the Reptile’s safety interest is flawed. Their “harms and losses” approach should appeal to the Engagement and Imagination Ethics, but this requires attorneys to take a more empathic, emotionally-connecting approach than Ball and Keenan advocate.⁶² That is not to say we should disregard the tendency of people who feel endangered to operate out of the Security Ethic.⁶³ We simply need to speak to all three Ethics.

Consider an example: if a manufacturer complies with federal regulations but does not take steps that would protect one person out of 100 million, even though we have a rule that we owe a duty to prevent a foreseeable harmful event, jurors might decide it is economically and practically infeasible for manufacturers to prevent every conceivable danger. But if we frame the argument in terms of the manufacturer’s knowing disregard of the danger because it increases profit, jurors will have a different reaction—the company failed to value human life more than money! We may disagree about how bad a rule violation is, but the violation of the Ethics of Engagement and Imagination is a moral violation.

We do not want to fall into the trap of believing that emotions do not matter. Incorporating emotions and morality requires both procedural and substantive approaches; the structure of the message (narrative and/or rules-based) must match the content of the message (empathic and/or rules-following). These approaches are also relevant to jury selection; plaintiffs will generally fare better at trial with jurors who operate from the Engagement and Imagination Ethics; defense attorneys will generally fare better with people who predominantly come from a Security Ethic. Plaintiffs and defendants in cases where harms are less obvious, where either side could be the violator or the victim, can be more challenging to frame in the Engagement and Imagination Ethics. But that is what we have the Imagination Ethic for.

Interestingly, the distinct characteristics of people operating from the combined Engagement and Imagination Ethics and those of people operating from the Security Ethic correspond well to Jonathan Haidt’s “five psychological foundations” which appear to be evolutionarily based as they are consistent across cultures. They are Harm/Care, Fairness/Reciprocity, Ingroup/Loyalty, Authority/ Respect, and

Purity/Sanctity.⁶⁴ These values are a good starting point for designing jury selection questions, especially in personal injury cases. People who are politically liberal tend to prioritize the Harm/ Care and Fairness/Reciprocity foundations (factors of greater importance in the Engagement and Imagination Ethics) when making moral judgments. The politically conservative (and pro-tort-reform) also value Harm/ Care and Fairness/Reciprocity, but give more consideration to Ingroup/Loyalty, Authority/ Respect, and Purity/Sanctity (factors of greater importance in the Security Ethic) than do liberals. The more conservative the decision-maker, the more important the last three factors become.⁶⁵

Not surprisingly, there is some evidence that political attitudes correlate with genetics and with physiological responses to stimuli.⁶⁶ For example, conservatives or “absolutists” tend to have stronger disgust reactions, which arguably relates to the Purity/Sanctity foundation.⁶⁷ They also have greater physiological responses to threats.⁶⁸ In addition, absolutists have more persistent habitual responses, in keeping with the reptilian preference for rules.⁶⁹ Liberals, or “contextualists,” tend to be more open to new experiences and more willing to attend to and resolve conflicting information and moral choices.⁷⁰

When thinking about these differences, the labels absolutist and contextualist are beneficial because they are less prone to stereotype and bias. Contrary to what one might expect, “liberal” and “conservative” genetic traits are not associated with party affiliations; party affiliation appears to be socialized.⁷¹ Therefore, rather than fixating on political affiliations in jury selection, it would be better to consider orientation toward Haidt’s five foundations and Narvaez’s Triune Ethics Theory and formulate questions accordingly. Haidt’s five foundations can help in the development of trial themes, as well. Keep them in mind when doing focus group research so you can identify which moralities people are drawing on in assessing your case. We may need to incorporate a rules-based frame to speak to those who predominantly think in reptilian terms, but, ideally, every juror will gain a moral perspective and motivation. We want all jurors to judge from their highest and best selves.

The Triune Trial Strategy encourages analyzing cases from the perspective of all three brains. In preparation for trial, develop structure and content that appeal to all three of our brains. Gear voir dire toward eliminating people with an Ethic that is less beneficial for your clients. Use your own Ethic of Engagement to connect with jurors and encourage candor. Use that Ethic throughout trial with your client, witnesses, the judge and jurors. But most importantly, prepare your cases imaginatively to meet all jurors’ Ethics. Speak to them as they are.

¹ David Ball and Don Keenan, *Reptile: The 2009 Manual of The Plaintiff’s Revolution* 26 (2009).

² *Id.*

³ *Id.* at 18, 30.

⁴ *Id.* at 17-18.

⁵ *Id.* at 25-26.

⁶ *Id.* at 8, 19.

⁷ *Id.* at 39.

⁸ Some have criticized MacLean's conception of the triune brain as being too simplistic. See, e.g., the discussion by Jaak Panksepp, *Forward: The Maclean Legacy and Some Modern Trends in Emotion Research, The Evolutionary Neuroethology of Paul MacLean: Convergences and Frontiers* (2002).

⁹ Paul D. MacLean, *The triune brain in evolution: role in paleocerebral functions* 9 (1973).

¹⁰ *Id.*

¹¹ *Id.* at 16, 100.

¹² Darcia Narvaez, *Triune ethics: The neurobiological roots of our multiple moralities*, *New Ideas in Psychology* (2007) [doi:10.1016/j.newideapsych.2007.07.008] retrieved July 4, 2010 from <http://neuroanthropology.net/2009/05/15/triune-ethics-on-neurobiology-and-multiple-moralities/>.

¹³ *Id.* at 100.

¹⁴ Rapaille essentially conflates the reptilian brain with the paleomammalian brain. Rapaille, *The Culture Code: An Ingenious Way to Understand Why People Around the World Buy and Live as They Do* (2007). However, in an earlier work, he accurately described the triune brain and properly attributed emotion to the paleomammalian brain. Gilbert C. Rapaille, *7 Secrets of Marketing in a Multi-cultural World*, 96 (2001).

¹⁵ Antonio Damasio, *Descartes' Error: Emotion, Reason and the Human Brain*, 149 (1994) (Other scholars have identified other innate or "primary" emotions).

¹⁶ *Id.* at 131.

¹⁷ *Id.* at 119.

¹⁸ See, e.g., J.A. Bargh, & T.L. Chartrand, *The unbearable automaticity of being*, 54 *American Psychologist* 462-479 (1999).

¹⁹ Damasio, *Descartes' Error*, *supra* n. 15, at 116.

²⁰ Chun Siong Soon, et al., *Unconscious determinants of free decisions in the human brain*, *Nature Neuroscience* (April 13th, 2008).

²¹ Rapaille, *The Culture Code*, *supra* n. 14, at 13-14.

²² *Id.* at 5.

²³ Damasio, *Descartes' Error*, *supra* n. 15, at 134.

²⁴ See, e.g., Antonio Damasio, *A Neurobiology for Consciousness, Neural Correlates of Consciousness: Empirical and Conceptual Questions*, 111-120, 117 (2000); Yoshiya Moriguchi, et al., *Empathy and Judging Other's Pain: An fMRI Study of Alexithymia*, 17 *Cerebral Cortex* 2223--2234 (2007); and Arnold B. Scheibel, *The Origin and Evolution of Intelligence* 31 (1997) (describing "Theory of Mind.").

²⁵ Robin I. Dunbar, *Brain and cognition in evolutionary perspective*, *Evolutionary Cognitive Neuroscience*, 21-46 (2007).

²⁶ Ball and Keenan discuss the role of the neurotransmitter dopamine. *Reptile*, at 41-43.

²⁷ See, e.g., R. Hurlmann, et al. *Oxytocin enhances amygdala-dependent, socially reinforced learning and emotional empathy in humans*, 30 *J. Neurosci.*, 4999-5007 (2010); A. Meyer-Lindenberg, *Impact of prosocial neuropeptides on human brain function*, 170 *Progress in Brain Research* 463-70 (2008); P. Kirsch, et al., *Oxytocin modulates neural circuitry for social cognition and fear in humans*, 25 *J Neurosci.* 11489-93 (2005).

²⁸ Narvaez, *Triune ethics*, *supra* n. 12, at 9.

²⁹ James C. Harris, *Social neuroscience, empathy, brain integration, and neurodevelopmental disorders*, 79 *Physiology & Behavior* 525-531 (2003); Paul J. Zak, *Oxytocin Increases Generosity in Humans*, *PLoS ONE* 2(11): e1128. doi:10.1371/journal.pone.0001128, retrieved July 12, 2010 from

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0001128#pone.0001128-Sober2>.

³⁰ See, e.g., Gerald A. Cory, Jr., *Reappraising MacLean's Triune Brain Concept*, *Evolutionary Neuroethology of Paul MacLean: Convergences and Frontiers*, 21 (2002). Although other-serving behaviors contribute to our own self-preservation and perpetuation, that does not render our emotions of love and affection or motivations to help others false or nonexistent. Damasio, *Descartes' Error*, *supra* n. 15, at 125.

³¹ Narvaez, *Triune ethics*, *supra* n. 12, at 10.

³² Damasio, *Descartes' Error*, *supra* n. 15, 124.

³³ *Id.*

³⁴ Narvaez, *Triune ethics*, *supra* n. 12; Joshua Greene, *An fMRI Investigation of Emotional Engagement in Moral Judgment*, 293 *Science* 2105-2108 (2001).

³⁵ Rapaille, *The Culture Code*, *supra* n. 14, at 5.

³⁶ Ball and Keenan, *Reptile* at 78.

³⁷ *Id.* at 82, 93.

³⁸ *Id.* at 5. It is also worth noting that Rapaille says in sales, relationships are paramount; "Connection is the magic word." Rapaille, *7 Secrets of Marketing in a Multi-cultural World*, *supra* n. 14, at 25 (emphasis in original).

³⁹ Damasio, *Descartes' Error*, *supra* n. 15, 53. Damasio discusses a number of cases of patients with brain lesions. Other examples include sociopathology/psychopathology, i.e. the absence of empathy, which has been linked to deficits in the limbic system. R.J. Blair, *The amygdala and ventromedial prefrontal cortex: functional contributions and dysfunction in psychopathy*, 363 *Philos. Trans. R. Soc. Lond. B Biol. Sci.* 2557-2565. 2008. Autism, which is detrimental to individuals, is linked with deficits in the limbic system. James C. Harris, *Social neuroscience, empathy, brain integration, and neurodevelopmental disorders*, *supra* n. 26.

⁴⁰ Federal Rules of Evidence, Rule 403, Notes of Advisory Committee on Rules. Most states have adopted some form of the Federal Rules.

⁴¹ Damasio, *Descartes' Error*, *supra* n. 15, at 119, 123, 247-250.

⁴² Alfred Korzybski, *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics* 326 (5th Ed. 1994).

⁴³ Marco Iacoboni and John C. Mazziotta, *Mirror neuron system: basic findings and clinical applications*, 62 *Annals of Neurology*, 213-218 (2007); Marco Iacoboni et al., *Grasping the Intentions of Others with One's Own Mirror Neuron System*, *PLoS Biol* 3(3): e79.

doi:10.1371/journal.pbio.0030079 (2005) retrieved from <http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0030079> July 12, 2010; G. Rizzolatti and L. Craighera, *Mirror neurons: a neurological approach to empathy*, *Neurobiology of Human Values*, 107-121 (2005).

⁴⁴ See, e.g., Gerd Gigerenzer, et al., *Simple Heuristics that Make Us Smart* (1999).

⁴⁵ Norbert Schwarz, *Warmer and More Social: Recent Developments in Cognitive Social Psychology*, 24 *Annual Review of Sociology* 239-264, 247 (1998).

⁴⁶ Narvaez, *Triune ethics*, *supra* n. 12.

⁴⁷ *Id.* at 5.

⁴⁸ *Id.* at 4.

⁴⁹ *Id.* at 6.

⁵⁰ Ball and Keenan erroneously attribute altruism to the Reptile because of the evolutionary advantage altruism confers. But, again, in doing so, they discount the enormous role emotions have in influencing the mind and behavior. (*Reptile*, at 42.)

They also say the Reptile “is about community” because of its self-interest. However neurobiology shows the Reptile is about ingroups and outgroups rather than emotional engagement in “community.” (Id. at 27.)

⁵¹ Narvaez, *Triune ethics*, *supra* n. 12 at 10.

⁵² Id.

⁵³ Id. at 11 (quoting R. Cotterill, *Enchanted looms* (1998)).

⁵⁴ Id. at 12.

⁵⁵ Damasio, *Descartes’ Error*, *supra* n. 15, 52-53; Michael Koenigs, et al., *Damage to the prefrontal cortex increases utilitarian moral judgements*, 446 *Nature* 908-911 (2007) [doi:10.1038/nature05631].

⁵⁶ Narvaez, *Triune ethics*, *supra* n. 12, at 10.

⁵⁷ Id. at 11.

⁵⁸ Id. at 2, 12.

⁵⁹ Id. at 13-15.

⁶⁰ Hidenori Yamasue, *Sex-Linked Neuroanatomical Basis of Human Altruistic Cooperativeness*, 18 *Cerebral Cortex* 2331-2340 (2008) [doi:10.1093/cercor/bhm254] (This may also explain the low frequency of autism in females.)

⁶¹ J. Wang et al., *Gender difference in neural response to psychological stress*, 2 *SCAN* 227–239 (2007) [doi:10.1093/scan/nsm018] retrieved from scan.oxfordjournals.org on July 16, 2010; Radiological Society of North America, *Men and women may respond differently to danger*, *ScienceDaily* (Nov. 30, 2009), retrieved July 12, 2010, from <http://www.sciencedaily.com/releases/2009/11/091129125131.htm>; American Institute of Physics, *Neuroscientists Find That Men And Women Respond Differently To Stress*, *ScienceDaily* (Apr. 1, 2008), retrieved July 12, 2010

http://www.sciencedaily.com/videos/2008/0403-men_are_from_mars.htm; University of Pennsylvania School of Medicine, *Brain Imaging Shows How Men And Women Cope Differently Under Stress*, *ScienceDaily* (Nov. 20, 2007) Retrieved July 14, 2010, from <http://www.sciencedaily.com/releases/2007/11/071119170133.htm>;

⁶² An empathic approach will also help counsel connect with jurors and their own clients.

⁶³ Narvaez references American behavior after 9/11 as an example. Narvaez, *Triune ethics*, *supra* n. 12, at 5.

⁶⁴ Jonathan Haidt, *The New Synthesis in Moral Psychology*, 316 *Science* 998-1002, 1000-1001 (18 May 2007).

⁶⁵ Id. at 1000.

⁶⁶ David M. Amodio, et al., *Neurocognitive correlates of liberalism and conservatism*, 10 *Nature Neuroscience* 1246-1247 (2007) [doi:10.1038/nn1979]; Douglas R. Oxley, et al., *Political Attitudes Vary with Physiological Traits*, 321 *Science* 1667-1670 (2008) [doi: 10.1126/science.1157627]; John R. Alford, et al., *Are Political Orientations Genetically Transmitted?* 99 *The American Political Science Review* 153-167 (May 2005).

⁶⁷ Oxley, *Political Attitudes Vary with Physiological Traits*, *supra* n. 66, 1667-1670.

⁶⁸ Id.

⁶⁹ David M. Amodio, et al., *Neurocognitive correlates of liberalism and conservatism*, *supra* n. 67.

⁷⁰ Alford, *Are Political Orientations Genetically Transmitted?*, *supra* n. 66, at 157; Amodio, *Neurocognitive correlates of liberalism and conservatism*, *supra* n. 66.

⁷¹ Alford, *Are Political Orientations Genetically Transmitted?*, *supra* n. 66, at 159.