

Stephen T. Asma and Rami Gabriel  
*The Emotional Mind.*  
*The affective roots of culture and cognition*  
Harvard University Press 2019, pp. 448

Elena Pagni

*The Emotional Mind*<sup>\*</sup>, hereinafter called *tEM*, is an important book, not only because it offers a synthetic and syncretic sketch of theoretical perspectives, experimental data and empirical evidences recently achieved in the “mindbrain sciences”, but also because it throws a new look and a greater awareness concerning the evolution of the mindbrain, focusing on questions and themes that have marked the historical path and development of philosophy, psychology and biology.

*tEM* also offers an original research program to understand the nature of emotions, their non-linguistic structures and cognitive value; in other words, the way in which, from an evolutionary point of view, the system of emotions is located at the interface between physiology and cognition, also showing how the development of language and concepts, and in general, of the human cultural evolution, is the complex result of a strengthening/reinforcement and enhancement of the biological value of brain-based social emotions, emerged together with ecological pressures (behaviors), lastly refined and extended over time by the frontal and neocortical abilities of *sapiens* cognition (219). “Representational abilities were decoupled from perceptual tasks, expanding possibilities for simulation and executive cognition abilities” (153). All this leads the authors to throw doubt on the assumptions of the rational choice theory (rational action theory) and, conversely, to rethink the evolution of human reason as based on their view of affective dominance (218).

I would like to stress the richness of this work and the correlative remarkable research program outlined; nevertheless, especially with regard to Descartes, I would have expected more interest towards his book *The Passions of the Soul* (1649) that represents, to my opinion, the great *ante-litteram* precursor of this approach to the emotional mind. Certainly, Descartes’s conceptualization of emotions, in 1649, is comprehensively out of any evolutionary epistemological context. However, I would like to emphasize its importance for the cognitive value associated with emotions and the “plasticity” (in this time thought as

change of habit) assigned to the functioning of the mind in the activity of coding and recoding, and then interpreting, the emotional data.

The “affective turn” framework defended in *tEM* pursues the main objective to shed a new light on the evolution of the mind and the biological roots of emotions, “deeply rooted in what we know about the brain as a biological reality” (2); the assumption, that is, that the development of the emotional system is to be considered pivotal to understand the evolution of the human (and nonhuman) mind, in view of a new archaeological insight concerning the processes that led to the sedimentation and stratification of the different functional layers, ultimately overturning the assumed hierarchy of values.

Our approach in this book is to show how the lowest layers of mind permeate, infiltrate, and animate the higher layers. The evolution of mind is the developmental story of how these layers emerged and acted as feedback loops on each other (10)

What is even more important to foreshadow, as Asma and Gabriel point out, is that such feedback is not a brain process, but “an embodied, enactive, embedded and socio-cultural process” (10). Hereinafter clearly referred as the formulation of a bottom-up cognitive model (that relies upon evolutionarily earlier manifestations of mind and social intelligence), as distinct from a top-down model of the mind (76).

It appears immediately clear, therefore, the attempt by the authors to situate themselves in opposition to the computational mindbrain metaphor and against social constructionists, by proposing a biological view of the roots of the mental that may assign an eminently adaptative value to the physiological-perceptive, emotional and cognitive components of the mental. “Affects are adaptations [...] in two ways : phylogenetically (as evolved dispositions) and behaviorally (as real-time responses that may be a product of genes, learning, or cultural shaping). Affects are adaptations to regular environmental (ecological and social) challenges” (72).

What is also really important is the fact that the whole book tends to emphasize that the evolution of the mind in humans and nonhuman primates takes place as a mosaic of developmental systems, by seeing populations as ever recurring of stable resources (genetic, phenotypic and environmental, 5) and transforming shared mammalian mental capacities (i.e. *aboutness* as homologous property across mammals). From this latter standpoint, *tEM* is absolutely indebted “to the revolutionary affective neuroscience paradigm” of authors’ mentor Jaak Panksepp, especially regarding his conceptualization of the common emotional systems in all mammals who share seven foundational affective systems: fear, lust, care, play, rage, seeking and panic/grief (7-9; 28;33; 37-38; 73). Finally, the top layer of the mindbrain (tertiary level), responsible for

cognitions (language, symbols, executive control and future planning) is energized by the lower-levels emotion: i.e. the *primary-process layer*, largely housed in subcortical areas of the brain and responsible for sensory and homeostatic affects and the *secondary-process layer*, responsible for social emotions, sculpted by learning (associations and mnemonic schemas) and conditioning (largely upper limbic). At this third level “we arrive at uniquely human emotions” (very high and elaborate level of introspective thoughts and imagination). However:

Here the emotions are still connected to the primary and secondary processes, but they are intertwined in the cognitive powers of neocortex (9)

Accordingly, primary emotions engage deeper and older brain areas and may be activated without the intervention of the cortex and conscious process (28). Emotions in primary and secondary layers are indeed largely unconscious (9).

*tEM*'s approach to mind, its correlative epistemological orientation and ontology, is developed in nine chapters. Given the extent of the covered topics and their speculative richness, in connection with the large amount of experimental data showed up and the almost impossibility to take a vision of synthesis without (inevitably) missing other relevant information, my decision was to take an overall view of the work than to focus on a detailed enumeration of topics.

*tEM*'s affective approach underlines that mind is saturated with feelings (3) and that “*meaning is foundationally a product of embodiment, our relation to the immediate environment, and the emotional cues of social interaction*” (4). By underpinning the fact of not abstract correspondence between sign and referent, Asma and Gabriel announce, more or less unconsciously, the intention to bridge a gap with the phenomenology (Husserl, Heidegger, Merleau-Ponty: 29; 31; 157; 185) and the contemporary Biosemiotics (152: “linguistic brain is not the best model for thinking about how animals or our hominid ancestors engage with meaning”; 157), for which the relational nature of meaning is described as mutual dependence between body and environment.

The most interesting challenge that this book offers is to sketch a speculative (epistemological) and experimental (ontological) context that may explain the way in which the system of emotions can act and constitute “an information-rich niche for human learning” (4), that is to say, how the animal's world, or *umwelt*, is intrinsically emotional (6).

CHAPTER 1 “Why a new paradigm” (21-42) offers an historical synopsis of the epistemology of the mind (assumptions concerning the nature of mind) by reviewing the two major methods discussed in the early and the late twentieth century: the behaviorism and the cognitive sciences, by recognizing that beyond the value of both practices, they “do not adequately take into account the role of emotions in the mind” (21).

[...] both approaches reveal different levels of mental functioning, but while the former (*behaviorism*) is not flexible enough to explain the adaptability of the mind, the latter (*cognitive sciences*) is neither subtle nor tender enough to explain the heat of consciousness (21)

Among the various paradigms/metaphors of the mind, Asma and Gabriel recall the *associationism* (ideas are copies of sensations) and its main scholars (J. Mill, J.S. Mill, A. Bain). By adopting the idea by which the mind is essentially passive because “it reacts through conditioned reflexes” (23), like association laws, habits, relations of similarity and contiguity, by the work of J. Watson, D.Hebb and B.F. Skinner, this approach developed directly into the *behaviorism*, which focused on stimulus-outcome relationships (23). As argued by Asma and Gabriel, even in the most recent contributions, behaviorism considers emotion secondary with respect to behavior, maintaining the idea that “conditioning is crucial for social cognition and emotional learning” (23).

The emergence of the cognitive paradigm coincides with the advent of the computer era and the rise of a “rational *geist*” (24); the instrumental *ratio*. Behaviors would correspond to internal information states. This is the idea of the computational mind that aims to discredit the cognitive value of other mental processes necessary to the evolution of the human mind: affect, context, culture, history. As *tEM* points out, critics of cognitive sciences underline “its nonbiological approach, its reductionism, and its disinterest in phenomenology and ecological context” (25).

Conversely, post-Darwinian New Synthesis and the Extended Evolutionary Synthesis have elaborated accurate explanations about the adaptive and biological value of the behavior of the perceiver (humans/nonhuman animals): as pointed out by the perceptual psychologist J.J. Gibson, indeed, the environment can be detected “by perceptual systems toward action-responses” (26).

On the other hand, *tEM* also shows how psychology has so far treated the role of emotions ambiguously: emotions can be conscious or unconscious; furthermore there is uncertainty in explaining the generative process leading to the development of properly human emotions and those that would preserve homologous characters with other species (27).

The major contribution of our book is to put forward a philosophy of affective neuroscience that clarifies the exact role of emotions in a way that may orient future empirical works” (27)

As a case study of emotional intelligence in a prosopagnosic patient seems to suggest (34-37), “perception and affect are bound and actionable before tertiary-level conscious appraisal” (36), by arguing that the affective information in the experiment functions as an unconscious form of recognition (321, note 66).

The experimental results provide evidence that, notwithstanding MJH's overt non-recognition (i.e. lack of awareness of identity), information about the face's identity is available to an affective reaction system (35).

CHAPTER 2 "Biological aboutness" (43-73) consists in a brief conceptual history of teleology before Darwinian revolution. Especially, Asma and Gabriel focus on three teleology traditions, that is, three types of teleology that are "logically distinct, but the history of biology reveals profound confusion among them" (44): 1) natural teleology as opposed to theology and vitalistic obscurantism, 2) teleology that argues for goals in natural processes and for a naturalistic paradigm of matter's self-organization (i.e. Aristotelian entelechy and autopoiesis) and 3) teleology that argues for searching of goals inside agents (biological aboutness or intentionality).

This last tradition explores goals that guide animal behavior and can be of two major types: a) representational and b) non-representational. [...] Our claim is that there are at least two forms of non-representational intentionality: (i) perceptual affordances and (ii) affective or emotional intentionality (45)

Perceptual affordances are discussed in chapter three, while affective or emotional intentionality in chapter four.

*tEM*'s attempt is to present a paradigm of teleology in terms of a post-Darwinian reconsidered ontology (14). The major purpose is indeed to capture the truly remarkable feature of the mind, namely its teleological orientation by emphasizing "its embodied active involvement with unique ecological context" (65).

We need a theory of mind, then, that does not deny intentionality to mind by stipulating purely mechanical or computational modules sculpted by external forces. We also need a theory that does not idolize the mind as a mystical layer of Cartesian consciousness (64)

With reference to this point, as I have already mentioned, I feel a little bit constrained with the simple taking for granted "the mystical layer of Cartesian consciousness", hypothesis that certainly encounters a not insignificant problematization in light of the treatise on *The passions of the soul* (1649).

As the authors suggest, "intentionality is affective firstly – grounded in the adaptive emotions – and only derivatively ideational. [...] As such, aboutness is a homologous property across the mammalian clade, and probably all the way down the chain of biological phylogeny" (66).

The reasons why the authors believe that affect can be (not consciously) intentional are the following:

<sup>1</sup> A patient diagnosed with face-blindness or PA.

- 1) affects are adaptations (phylogenetically and behaviorally) to environment and challenges. “They are about this problems” (72);
- 2) affects are mediating and motivating causes, such as lust, seeking (“affects target goals unconsciously when homeostatic imbalances encounter specific environmental conditions”, 72);
- 3) affects have the unique intentionality structure that places their *raison d’être* outside themselves.

Finally, Asma and Gabriel recognize the existence of some affects that are referential, that is, which have a classic conscious structure, as emotions that agents are aware of (73).

CHAPTER 3 “Social Intelligence from the Ground Up” (74-90) stresses the need to sketch a theory of cognition by arguing for a deeper understanding of the evolutionary processes. Also it suggests a model of social intelligence that relies on perception and affect (75).

These social interactions are embodied – the perceptual system being the mode in which they occur – and require motivation from the affective systems. Whether they are conscious or not, social behaviors constitute a type of intelligence insofar as they demonstrate integration of knowledge about the past, [...] the present situation and an appropriate understanding of the consequences of action for the future (75)

Accordingly, *tEM* argues for an explanation of both social and emotional intelligence as embodied systems that firstly and promptly require motivation from the affective systems: primary emotions (seeking, rage and fear), secondary/social emotions (lust, care, panic and play) and tertiary cognitive emotions (angst and aesthetic feeling) (77).

Stemming from the fact that social animals need of 1) communicating their homeostatic states, 2) these internal needs are externalized by perceptive and motor equipments (body movements, gestures, sounds, facial expressions) and 3) that they are equipped with an affective system to mediate reception and communication of events, Asma and Gabriel infer that social intelligence may be described as a unit arising from the intertwining of homeostasis, bodily display and affect (82).

CHAPTER 4 “Emotional Flexibility and the Evolution of Bioculture” (91- 121) offers a very interesting comparative analysis of some primate social behaviors – three primary emotional systems such as seeking, lust and care – as resulting forms of bioculture intelligence (118) and embedded in their ecological niches. Especially, seeking, lust and care are described in a context of precognitive notion of social intelligence; that is, as prosocial affordances and affective systems (98). As *tEM* suggests, the seeking system would be classed as a master emotion and truly motivational system. Among the main targets of searching

behaviors, authors make reference to hunting, foraging, procreation, exploration of the environment, the act of paying selective attention (97). Seeking may be outlined as a subjective feeling that “matches those homeostatic imbalances that drive the organism toward resource exploitation and satisfaction” (97). Especially referring to hunting, recent data from “comparative ethology of different primate species and other mammals shows that cooperative hunting does not require cognitive sophistication” (99).

Definitely:

many behaviors that look cognitively coordinated, like chimpanzee hunting parties, can be explained sufficiently by affective/emotional systems (like seeking), which are channeled by ecological and cultural constraints into dedicated action patterns. Early human seeking is not a different kind of process, but it received its own cultural channeling and evolved into a feedback loop of social learning (99).

In humans, the emergence of such cultural expression of seeking produced the unique effect of (the culture of) curiosity (99; 104). Accordingly, *tEM*'s model requires that the “affective system can be decoupled from their dedicated targets and recruited in new functions, ultimately giving rise to cultural loops” (114). Asma and Gabriel's major objection to cultural evolutionists is that they “have not sufficiently factored emotions into their model of cooperation and group commitment” (116) when really, “affective neurosciences shows that individual mammals already display deep group commitment from the very start, via the care system and imprinting” (117).

CHAPTER 5 “The Ontogeny of Social Intelligence” (122- 152) aims at describing the ontogeny of social/emotional intelligence that we share with other animals, through the infant-primary caregiver relationship and the developmental impact of early experiences.

In my view, there are at least two very remarkable observations stemming from this analysis: the former concerns the assumption that one of the main important element of our social nature – trust and its cognitive meaning (“probably assembled in the late Pliocene or early Pleistocene period”, 123) –, could be considered in terms of “an exaptation of an ancient psychological mechanism” (123). Thus, the overwhelming evidence for the fact that “mimicry and the evolution cooperation provide guidance for rethinking a causal story of what makes humans and human culture unique” (123). Beyond the several neuroanatomical changes that paved the way for the “unique ontogeny of social intelligence in humans”, indeed, “homo sapiens emerged with some of this social intelligence already pre-adapted from our ancestors” (124).

The latter consideration is about oxytocin, found only in mammals (110). Especially, the oxytocin system is described as a paradigmatic example of a

plastic and adaptive interface between nature and nurture (130-133), since it “plays an important role in priming mammals to form social bonds, but in turn, the early social environment may also be able to shape the development of the oxytocin system” (132), so much to produce, in adult life, possible dysfunctions in social intelligence as a result of an inappropriate infant-caregiver relations (as demonstrated in both schizophrenia and orbitofrontal-damaged patients, 134). Finally,

Recent understanding of phenotypic plasticity (genetic flexibility in response to environmental change), neuroplasticity [...] and epigenetics (heritable gene-expression switching) have restored developmental biology to a place of pride after a long twentieth-century romance with molecular biology (139).

In CHAPTER 6 “Representation and Imagination” (153-183), Asma and Gabriel describe two main transitions: 1) the first from “perception’s automatic behavioral affordances to bodily simulation for action and perception in spatial navigation” (16); 2) the second from “affective reconsolidation of memory in dreams to conceptual and linguistic symbol systems” (16) engaged by voluntary and involuntary imagination.

Definitively, how affect came to be decoupled from its primary and secondary-level functions? And how this led to *sapiens*’s unique cognitive realm of symbols and executive thoughts, to well-structure conceptualization and categorization? To put it another way: “how representational abilities were decoupled from perceptual tasks”, thus expanding possibilities for (imaginative) simulation<sup>2</sup> and cognitive abilities and maps? (153; 161-164; 168-183).

Eventually, representational processes and intentionality evolved atop and interleaved with the affective mind, and the whole nature of the equation became transformed by new dialectical interactions between newer and older parts of the mind (156).

Against nativists, *tEM* emphasizes that Gibson’s ecological psychology (Gibson 1977; 1979) seems to offer a very interesting model to understand the relation between mind and niche in bioteleological and bioteleosemantics terms (157). Accordingly (Gibson 1979), affordances<sup>3</sup> and effectivities should be intended as implying one another:

Affordances are dispositions given by features of the perceived environment to support behaviors, and effectivities are a given animal’s dispositions to undertake afford-

<sup>2</sup> Asma and Gabriel distinguish between “weak” simulation mode, allocated in Pleistocene, and « strong » simulation faculties pertaining to Upper Paleolithic (179).

<sup>3</sup> *Ibidem*, 160: affordances as “imperative forms of informational transfer between creatures and environment”, perception and action.

ed behaviors in the appropriate circumstances. Effectivities complement affordances in an informational coupling between perceiver and perceived; [...] proprioception and exteroception imply one another (157).

Since affect may be interpreted as a mode of presentation accompanied by intentionality as based-niche/environment component, the authors are proceeding to describe a possible evolutionary history for the decoupling of affect from its “here-and-now functions” (so called “offline processing of information”) to enable (and mediate) complex representational functions (voluntary/involuntary imagination, symbolism, abstraction, referential thought, bonding sense/referent/representamen, etc...). Decoupling is defined “the process that cleaves present-tense perceptual indicative percepts from instrumental proto-beliefs” (159).

One of the pivotal suggestion, supported by the mentioned experimental data is that affect provides a motivating internal context, thus playing an important role in promoting concentration, selective attention and memory retention (163). Against the modular computational model, approaching to mind through essential information-processing, *iEM* recovers and put at the heart of its proposal the fundamental “action” of the mind (172), by considering the elements of body grammar mediated by the cerebellum and the empirical evidence that, albeit “most bodily sequencing may be simple stimulus and responses, it can also be decoupled from immediate stimuli” (174). As decoupled, “sequences must reside in the loop of muscle memory, ecological trigger, and affective intentionality. We might think of these motor sequences as ‘premodern concepts’ because they are not linguistically grounded, but they have the potential for organizing kinds of experience. Procedural memory, for example, is a form of implicit (often unconscious) memory that consolidates motor responses in long-term memory” (174).

Our ability to coordinate our bodies into sophisticated action sequences, such as in rhythmic entrainment or tool use, stems in large part from cerebellum. [...] Primate cerebella, especially ours, are not just relatively larger than in other mammals but also extremely dense in neuronal connections. [...] Using a comparative study of monkeys and apes, Barton discovered that cerebellum evolution happened six times faster in apes than in other primates. Gorillas, chimpanzees, and humans had a rapid cerebellum expansion that might be uniquely important for explaining our unique mental and cultural advances. [...] The cerebellum is important in modelling, predicting, and organizing behavioural sequences. [...] It is also important in fine-visual-motor dexterity. [...] The ability to string together such behavioral steps is facilitated by cerebellum (not higher cognition) and it makes social learning possible, but is also improved by social learning. We consider the elements of body grammar mediated by the cerebellum to be an important element in the manifestation of the action-oriented representations discussed above (172; 173).

In CHAPTER 7 “Language and concepts” (184-203) is presented the entanglement between emotion, language and concepts, by proposing a biological approach to emotion and an evolutionary comprehension of language in the context of its affective social value (186). Imagination and language co-evolved as much intertwined systems, by assuring higher monitoring and control abilities over internal affectivity (195). As outlined in chapter 6, Asma and Gabriel’s suggestion is that “image-based thinking may have dominated our prehistory and formed another domain of premodern concepts, but such a modality is still with us, albeit obscured by the propositional dominance of modern mind” (176).

In CHAPTER 8 “Affect in Cultural Evolution” (204-263), the examination of social structures is considered by the role of affect in evolution, showing the way how societies relate to affective forces. Evolution of society is viewed as based on three stages of social institutions, all present and nested in contemporary society, and suggesting an evolutionary model to interpret the rise of collective behaviors : 1) the basic economic unit of nuclear families, 2) regional groups, as it happened with agrarian model society (due to intensification of economy, technology and sedimentary organization) and 3) the urban global society. “As social institutions become a part of our lived environment” – Asma and Gabriel claim in the introduction – “culture serves as a secondary niche for the species” (17), then arguing the key role of affective adaptation to the specific ecological and cultural niches as causal factor in transformations of social norms .

Reaching the apex of a very speculative pyramidal reflection, in CHAPTER 9 “Religion, Mythology and Art” (264-314), Asma and Gabriel explore the evolutionary paths associated with the emergence and the assembly of transcendental and spiritual emotions and of the all variety and complex range of affective-based adaptations and exaptations assigned to the evolution of art and religion as possible responses to sociocultural problems. “Systems that culturally manage our emotions, like religion, were selected for because they helped early mammals flourish” (19). Behind the feelings of wonder and curiosity, Asma and Gabriel argue about the emotional landscape to explain how moving “from basic affective sources like the seeking and play systems, these spiritual emotions functioned to temper intense feeling of fear and grief in the context of the neocortical imaginative elaboration of culture” (20), then contributing to emotional-based strengthening of the bonding among individuals and groups.

The book is provided with an excellent set of REFERENCES (365-412) and NOTES (317-363), the latter rich in itself of important details that the authors evidently considered not advisable to be introduced in the body of the text, to

avoid weighing it down excessively. Actually, this critical apparatus constitutes a theoretical and speculative appendix complementary to the text, nearly to constituting a continuation of the history, often providing clarifications and historical explanations of the background and suggestions for possibly future research programs.

Elena Pagni

[elenapagni@gmail.com](mailto:elenapagni@gmail.com)

Institute of Human Sciences, Federal University of Juiz de Fora, MG, Brasil