

## On the origins of cultural minds and cultures: a subjective review of a crucial explanatory framework

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The origins and becoming of the *cultural minds* represent an essential question for the understanding the human condition and for its future. This is a question that challenges both the explanatory power of humans and the individual and collective responsibility for our long-term becoming. In his landmark recent work *The strange order of things: Life, feeling and the making of cultures*, Antonio Damasio approaches in an original, complex, creative, transdisciplinary and persuasive mode this question advancing a powerful theoretical framework that provides key answers and invites to further inquiry. One of the key ideas in this book is that “minds arise from interactions of bodies and brains not from brains alone” (2017, p. 199). Societal cultivation and self-cultivation of minds is not, as many theories assume, caused only by the progress of knowledge, intellectual resources and cultural tools: there are at work also vital life forces that did precede and guide these mainly intellectual forces. Crossing the evolutionary threshold from the first forms of life to more complex ones, from mainly chemical (biological) processes to cultures and continuing the cultural journey is based, according to Damasio, to some intrinsic features of life processes that offer the chances to endure and prevail while coping with internal and external pressures. Anticipating the strong argument of this fascinating book, as a reader who had the joy to read it, I think that this novel approach illuminates by its focus on homeostatic imperative on one of the major, and up to present neglected causes of the origins of cultural minds.

According to Damasio, in addition to, and even to a deeper explanatory level, the complex dynamic interaction genes-selection and the coevolutionary processes involved, it is necessary to explore the functions played by elementary life processes and elements such as “homeostasis”, “feelings” (as part of the affect – a territory that has been explored by Antonio and Hanna Damasio in their previous crucial studies), and “substrate” (pp. 3-6, 21, 71, 201).

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Without claiming that I can trace the main moments of the biography of the major idea(s) of this groundbreaking approach it might be useful to remind, besides the prior studies carried out by Damasio on affect, and self, for instance, a moment related to the intellectual ecology, or using at plural Bateson's concept "ecology of minds" within which he has been engaged through the encounter with a scientist he considers to be his mentor, "due to several quirks of destiny". The name of his mentor is Warren McCulloch. Let us recall that McCulloch has been one of the scientists, such as Norbert Wiener, Claude Shannon, G. Bateson, Von Neumann, Lazarsfeld, who participated in the birth of cybernetics. Among McCulloch's landmark contributions, one regards his concept of *heterarchy*. In contrast with the concept of hierarchy, so much used within Western thought in organizational design (churches, armies, financial, economic and governmental organizations), in information classification systems and categorical thought, the concept of heterarchy provides a new perspective that takes into account that "multiple competing regimes of evaluation" can emerge in the simplest up to the most complex systems. Despite the fact that McCulloch, as a neurophysiologist, exemplified the concept coined by him with the relationships among neurons, his model applies to all systems and the reality of competing hierarchies that co-exist within a system. It seems that McCulloch's novel perspective that has at its core the construct of heterarchy might have both a formative functions besides its possible implications for understanding the dynamics of homeostasis in more and more complex living systems, as I will discuss later.

Damasio takes a very long-term perspective in order to explore the critical stages that can be identified from the origins to the present complexity of the cultural minds. He asks: "How does one get from the deceptively simple life of nearly 4 billion years ago to the life of the past 50.000 or so years, the life that harbors human cultural minds? To say that natural selection and genetics are key to the life transformation is entirely true but not enough. We need to acknowledge the presence of the *homeostasis imperative* – put to the beneficial use or not – as a factor in the selective pressures" (p. 71, italics added).

Reminding to the readers, most of whom do not have to take Latin and Greek languages in high-school, that within the concept of homeostasis, *homeo* does not mean "same" (identical), but *similar*, which gives more place to fluctuations and changes, Damasio posits that "homeostasis, acting under the cover of feeling, is the functional thread that links early life-forms to the extraordinary partnership of bodies and nervous systems" (p. 6). During this extremely long evolutionary process *pains*, discomfort produced by pressures on homeostasis processes by their temporary disruptions played an essential role while the patterns of sensing and responding (from chemical levels up to cognitive and cultural levels) evolved. Feelings are "motives, monitors and negotiators of the process" (pp. 14-15) and remain "integral" to the evolution of cultures.

As achieved in his previous landmark work on Descartes' error, Damasio makes a paradigmatic correction to the dominant explanatory framework: "Connecting cultures to feelings, homeostasis, and genetics counters the growing detachment of cultural ideas, practices, and objects from the process of life" (p. 6). Intellectual creation has its roots within feelings. In terms of the most known and scientifically accepted motivational theories (Atkinson, Baumeister, Leary, Claparede, Deci, Ryan, Eccles, Heckhausen, Kruglanski, Lewin, Maslow, McClelland, Nuttin, etc.) the homeostatic imperative, in its "homeodynamics" (p. 51), is a basic need of living systems, humans included. However it is amazing that motivational theories do not explicitly include among the basic needs (such as thirst, hunger, shelter) the homeostatic imperative despite the obvious fact that

humans, based on feelings of discomfort and pain, do respond to changes of temperature (too cold, too hot) or blood pressure (too low, too high), among others, caused by internal, external or combined factors. Such changes monitored by feelings are basic causes for motivating a wider range of actions.

Damasio analytically explores the main physiological conditions that result in feelings" making the distinction between "spontaneous feelings" and "provoked feelings". According to his theoretical model, spontaneous feelings that are "homeostatic feelings, arise from the background flow of life processes in our organisms, and constitute the backdrop of our mental lives" (p. 107).

Damasio's approach reveals the continuous, pervasive and vital functions of feelings that are considered to be "primarily about the *quality of the state of life in the body's old interior*, in any situation, during repose, during a goal-directed activity, or, importantly, during the response to thoughts one is having whether they are caused by perception of the outside world or by a recollection of a past event as stored in our memories" (p. 105, italics in the original). Damasio's conception makes a fundamental epistemic choice regarding the possible competing forces during the evolutionary process: "replicator first" or "metabolism first". Damasio's choice is clear "metabolism first" that is in tune with the core function of homeostasis" (p. 39). I think that for humans, for the cultural minds and all cultures, Damasio's option is very resourceful: various homeostatic conditions necessarily trigger a wide variety of responses, from routine ones to responses that require and feed "creative intelligence" and higher levels of agency.

It is necessary to stress out that historically homeostasis is prior to feelings: "homeostasis has existed since life began. But feelings – the subjective experience of the momentary state of homeostasis within a living body – did not emerge when life did. I propose that they emerged only after organisms were endowed with nervous systems, a far more recent development process that began to occur only about 600 million years ago" (p. 27). Based on a wide range of studies, Damasio's integrates within his theoretical approach features of simple life forms, as the social processes, that are significant for the emergence of cultural minds. Studies on the "high social complexity of bacteria", for instance, and on the qualitative changes produced in the case of multicellular living systems, such as the "programmed cell death", are suggesting "an emerging self-aware behavior of cell populations" (Grigore, 2011).

According to Damasio, "the march toward minds began with elementary sensing and responding, and sensing and responding are still at work today in the world of bacteria that live inside our organism and every animal, plant, water, and even the depths of the earth" (p. 73). The second evolutionary threshold is marked by the organisms with many cells that faced the challenge to achieve "a global coordination" among all the cells that has been mainly carried out by "the endocrine system via chemicals" (hormones) and "by the immune system". The difficult challenges posed by the coordination of all the multiple cells of organisms are associated with the emergence during a very long period of time (few billion years) of the simple nervous system. It helped life to persist and project itself into the future. The nervous system has become "capable of sensing different parts of the environment-physical objects, other living creatures" and long after it was capable to respond to traits and movements of various objects a critical ability developed" "the ability to *map* the objects and events being sensed" (p. 72, italics in the original). This led to a big achievement – Damasio calls it "conquest" – related to the ability to generate images and the possibility to represent the world around the organisms (including

other organisms) as well as to “represent the world inside each of them” (p. 73). *Images* require nervous systems and their production is a critical evolutionary step toward the genesis of human culture long time before the word, the languages and the reasoning abilities emerged. Maps of each sensorial modality are the “basis for the integration that makes images possible and those images as they flow in time are the constituents of minds. They are a transformative step in the existence of complex living organisms; a fine consequence of the body-nervous system cooperation... Human cultures would never come to pass without this step” (p. 75).

Damasio’s innovative explanatory framework is neither reductionist nor does it minimize the role of cognitive processes, of language, of formal reasoning in the development of cultural minds and cultures. It does search for, identifies and uses a process that looks as being continuously present and developing during the evolutionary changes: this is homeostasis in its dynamics. The *Homo sapiens*, the invention of the phonetic alphabet, of many tools, and the functions of the central nervous system, the role of social interactions, and the complexity of the human brain are well recognized and integrated in Damasio’s approach. However this integration uncovers the function of basic life processes and substrate that have been much neglected and did precede and support these later on developments. It is not by chance that Damasio resorts to the “enteric nervous system”, the second brain, that has between 100 and 600 million neurons (pp. 133-135) and it is working mainly under its own control. By the way the initial estimations, in the ’60’s, of the number of the neurons in the human brain did refer to a much smaller number: only 14 million neurons.

Let us pose a bit. World cultures nowadays, as they function daily and are represented by science, served by technologies, and expressed through many communicational tools even images – so widely used and abused by all media – are conceived mainly as disconnected from the body, from the substrates and basic life processes. On the other side we know that science, and, in general, human understanding depend on images and measurements. However the old connections between maps, images, body and the emergence of cultural minds have been overlooked: “All mind is made of images, from representations of objects an events to their corresponding concepts and verbal translations. Images are the universal token of mind” (p. 90).

The images are considered with a complex and dynamic context that includes all their forms (visual, sound, a torrent of metaphors...) that are “inspectable”, they being part of a unique theater, *the theaters of our minds*. Damasio writes: that this is “your own Cartesian Theater” and as a critical element part of its setting has: *an audience. YOU*” (p. 144). I have to notice that I opposition with the frequent use in many American textbooks Damasio uses “YOU” in a dialogical mode, not in lecturing mode. The importance of these processes and ability is undeniable: “all happens as if there were either a theater or a gigantic Cinerama screen, and as if there were a me or a you in the audience. It is perfectly fine to call it an illusion provided we acknowledge that there are firm biological processes behind it and that we can use them to sketch an explanation of the phenomenon. We cannot dismiss it as if illusions did not matter” (p. 144). This perspective is factually and theoretically in tune with the mode in which Damasio defines subjectivity – experiences that are owned by the person who lives them and perspective that are essential for the construction of consciousness. I make an invitation to the possible readers to search for Damasio’s older studies on the structure of self: the proto-self, the core-self and the autobiographical self (2000).

Damasio's persuasive argument stresses the functions of affect (it means feelings, emotions, and situations and mechanisms that trigger actions that result in feelings). Images themselves are hungry for "affective company" and "even the images that constitute a prominent feeling can be accompanied by other feelings" (p. 100). As a matter of fact, learnability, and educability, that are essential within the acculturation process and acquiring the most diverse skills and are institutionalized, cared in all human societies, depend on feelings. Not just the formal and institutionalized learning, but the "the natural learning is difficult to conceive without properties of reward and its attendant... feelings" (p.101). The "machinery of affect" is involved in "deploying drives and motivations and responding to varied stimuli and scenarios emotively" (p. 170). Because feelings are so important as monitors, arbiters and negotiators even in relation to other affects it seems obvious that not all feelings are equal. If there is a hierarchy of feelings it seems reasonable to assume that within complex living systems the heterarchical principle is active too.

Homeostasis as the universal imperative is common to life processes of different complexities and functions and implies a "zone of comfort" within each organism avoids pain and dangerous conditions and reaches positive feelings. Due to the natural process of life regulation, organisms "operate within the range of parameters compatible with life maintenance and flourishing" (p. 171). If the organisms are forced to "operate outside the well-being range" then feelings, negative feelings (pain!) are "powerful disturbances that inject into the thinking process a striving for desirable homeostatic range", serving as arbiters of the quality of the response to such emergencies, dangers, pains. During a long evolutionary process feelings did become "the judges" of the quality of the creative process: "in great part the merits of the cultural inventions end up being classified as being effective or not so by feelings interface" (p. 171). From a natural process that protects and projects life into the future – homeostasis becomes also an essential cultural process named "cultural homeostasis" (pp. 48-49), which involves complex processes as subjectivity, consciousness and a wide scale coordinated actions, among other things.

I think that the homeostatic imperative of life processes and its more complex structures and functions in the case of "cultural homeostasis" invite also to re-think some of what are called "universal human needs" – both biological (thirst, hunger...) as well as psychological (the need to relate/belong, for instance). The homeostatic imperative seems active in relation to all these needs. It is obvious that an organism will be "outside the well-being range" if deprived of air, sleep, water or food and/or under strong pain. At the same time, deprivations of psychological needs, such as the need to relate, can be well conceived as a departure from cultural (relational homeostasis) produced by interpersonal conflicts and the tendency to restore the previous desirable state of the relation or to find other solutions even to terminate it. At the same time I think that the Damasio's use of the construct of motivation is closer to that of needs and it invites a few questions.

"Distinctive human cultures" are the result of a complex evolutionary process which involved the ability of "producing homeostatic corrections" (p. 172). Damasio's perspective approaches the individual "in the context of others" that is helped and nurtures the process of generating images not just about objects and events but about others and their images. The satisfaction of "fundamental needs", including the need to relate (at least mate), have been supported by a series of "intelligent inventions" in the field of tool-making (from hunting, attacking, defense and construction to learning and play) and other areas. Damasio points out to a much neglected factor during this process: "[T]hese needs

first came to be known to the respective humans by way of **spontaneous homeostatic feelings** such as hunger, thirst, extreme cold or heat, malaise, and pain, which pertain to the management of *individual* life states and signify **deficient homeostasis**" (p. 172, italics in original, bold added). "Creative intelligence" (i.e., knowledge, reason, imagination) processed the homeostatic feelings and worked out solutions, which in their turn are assessed by feelings. At the level of human social interactions it is plenty of evidence that suggests that "beneficial sociality is rewarding an improved homeostasis, while the aggressive sociality does the opposite" (p. 173). The frequently invoked issue of "equilibrium of arm forces" that is measured also by the force of lethal destruction of each side (see Galtung, "The true worlds", and also his work on transcend method) is a form of cultural (political) homeostasis. Cultures developed a variety of instruments, codes, procedures and structures that influence the quality of homeostasis: "Certain cultural instruments can actually worsen homeostatic regulation or even be the primary cause of dysregulation" (p. 184). Based on many strong facts, experiments (biology, physiology, neuroscience, economy, psychology), on field studies, observations, and valid records (earth sciences, history), Damasio's exploration enters also into the realms of the political ideologies, morals and religions in order to test his novel theory. I think that his explanation that adds an essential cause, i.e., the homeostatic imperative in its dynamics, which marked the genesis of these cultural forms and processes is not only valid but opens new gates for a promising future inquiry.

The issue of "algorithms", inclusively of algorithmic processes and solutions, seems to me to exemplify both the explanatory power of Damasio's novel theory of the origins of culture as well as the invitation of this new theoretical framework, which by the way is extremely parsimonious especially in the relation to the dimensions and depth of the puzzle to open new ways for future inquiry.

Before this, let us look to an issue intimately related to medicine, a first front line of human answers to pain, suffering, dysregulations that threaten not just the well-being of humans but life itself. This is a central area of Damasio's formation, and I would dare to say for his soul. As a matter of fact, arguments coming from medicine are used many times along this outstanding scientific narrative of the origins of cultures and of the cultural minds. Humans, in all cultures, are dealing in a distinctive way with mortality, with the individual mortality but also with the extinction of cultures and populations being at the same time aware that groups, communities, people and their culture are real, reliable and strong signs of the persistence of life. They are incommensurably more powerful than the individual resources and life expectations. They give a glimpse of eternity at human scale. Immortality, everlasting life has been a very old cultural question that puzzled individuals and communities. Gilgamesh's story and question is just one example and the oldest story that reached us about death and immortality. Damasio approaches this deep puzzle also via homeostasis: "In terms of basic homeostasis, *immortality is perfection*, the realization of nature's undreamed dream of life perpetuity. The early conditions of homeostasis were such that they promoted the ongoing life and, unwittingly, life into the future" (p. 198, italics added).

At this point Damasio asked a question focused on the evolutionary destiny of this extremely resilient process, which is, through its substrates, functions and structures, an enduring engine in the case in which the cultural minds will create immortal beings. Damasio does not use the syntagm "immortal beings" – but these imaginary systems, which we did see in many myths, are implied in his question: "*Immortality will eliminate*

*the most powerful engine of feelings-driven homeostasis*: the discovery that death is inevitable and the anguish that the discovery generates. Should we not worry about the loss of such an engine? Of course we should worry" (p. 199, italics added). The challenge is posed by "transhumanism", which assumes that the human mind can be downloaded onto one or more computers and launched on an eternal trajectory that might look alive. This assumption is in great part supported by the power of algorithms and by the rapidly and seemingly limitless algorithmization processes. Let us first recall that researchers in computing science are exploring *qualitative computation*, including *natural computation* (Chatelin, 2016, pp. 189-193) and are confident that almost nothing, including the most complex life puzzles, can remain outside algorithmic power, and "formal methods, in particular the verification methods" (as stated by R. Wilhelm, who refers to *The Formal Manifesto Methods* – 2010, 2016, p. 422). Much more, it is assessed that the artificial recreation and development of "human intelligence" and even the "challenge of natural death" did become "computing problems" and they "*are solvable*" (Calude, 2016, p. 430). On the other hand, the same experts strongly warn us that these solutions are not always necessarily wise and that creative imagination and intelligence have an endless working realm.

I made this detour because Damasio reiterates within the context of what he calls "the algorithmic account of humanity" one of his basic ideas supported along his argument: "The idea that living organisms are algorithms helps perpetuate the false notion that the substrates used [involved] in the construction of an organism, be it living or artificial are not a relevant issue" (p. 201). Damasio considers this time the "phenomenology of feeling" that "reveals that human feelings result from the multidimensional and interactive imaging of our life operations with their chemical and visceral components. Feelings reflect the *quality* of those operations and their *viability* (pp. 201-202). Many mathematicians and computing scientists, alongside with those mentioned above, insist on the fact that innovation, intuition, dreaming are absolutely necessary for advancing computing science, and, as a matter of fact, any science and form of inquiry. This is an intersection point in complete agreement with Damasio's approach that points to the vital role of "creative intelligence" – that cannot be limited to computing being at its roots and going beyond it. Damasio clearly acknowledges the powerful role of algorithms: "One remarkable development of twentieth century science is the discovery that both physical structures and the communication ideas can be assembled by algorithms that make use of codes" (p. 200). We know that humankind for a very long time has felt the need for various codes, including legislative and moral codes. Hammurabi's code (some 1700 BC), the oldest known written code, aimed to keep balance, within acceptable limits for the well-being of individuals and communities, the civil state has not only been inscribed in a stela, but this stela has been reproduced and placed in the central markets of many settlements. This huge invention, that asserts, among its 282 or so rules, the reciprocity principle (eye for an eye, or a good for a good) and punishes false witnesses (lying) as the wrongdoing about which is deceptively accused an innocent person provides also a paradigmatic example for the cultural replication and their participative reinforcement. However, Damasio considers that the life processes, including the cultural minds are not governed just by algorithms.

As already discussed, Damasio's theoretical model accounts in a persuasive mode for essential traits of artistic, moral and religious processes that otherwise remain uncharted by previous explanatory attempts. There is huge evidence, especially after the anti-religious

terror waged by the totalitarian systems and by communism especially, that religions are a reality that is much needed and not a useless illusion as it has been claimed even by some creative minds. Why? Damasio's theory on the vital role of homeostasis provides a strong argument. When suffering, either individual and/or collective, is so unbearable, and far beyond the curative limits of spontaneous self-regulation, of perseverant self-efforts, beyond the existing scientific knowledge and means, beyond the resources that can be used by politicians, social institutions, and informal networks, then religious beliefs, spiritual and moral values are the major avenues to cope with the existential sufferings. This is one of the causes why religious beliefs are not only so resilient and flourish in so many cultures, but also a cause for the emergence and dissemination of religious-like forms that do not aim to help those who suffer, and face existentially threatening homeostatic dysregulation, but to manipulate, abuse and exploit these sufferings. This perverse abuse of the needs of religious equilibration might resort to otherwise well-established and highly functional forms, such as yoga and transcendental meditation, Zen practices and so on not just under the form of cults. I did for long time observe this in my country of origin (Romania), as I did observe it in Iowa where I am living since 1990, as I noticed it in many places within the USA and all over the world. The fundamental need of homeostasis (from biological to cultural forms) can be abused, and it is, as other fundamental needs, abused for various goals.

Regarding the algorithmic account I would like to stress, an ideological and political question that is discussed by Damasio but many times avoided by many political scientists for reasons that might not be always immanent to the search for truth. The question refers to the devastating consequences of Marxist ideological and political solutions provided to deep sufferings of humankind. Damasio posits: "Marx had no idea of how dehumanized and soulless the world would become, especially the world he was responsible for inspiring" (p. 178). I think that no theory could be considered accountable for the way it is applied, as no innovation of new tools (out of so many created by human imagination) can be blamed for their criminal use. At the same time, Marxism poses an additional question because beyond the theoretical construction there is the ideological and political program. More precisely, this is the case with the action-oriented texts as the manifesto created by Marx and his ideological friend Engels. At the top of them is *The Manifesto of the Communist Party (MCP)*. Darwin did not write, did not even dream of a "Manifesto of Natural Selection" as a cookbook for the application of his theory as Marx and Engels did with the MCP that is explicitly linked by them with the Marxian theory. The critical point is that MCP prescribed a lethal algorithm that has been considered by its author as being generally applicable. Most of the measures of the MCP have a violent orientation, are achievable through violent means and are conceived as a blueprint for "political praxis", of course for the revolutionary one. Von Mises considers it as similar to the Nazis' political blueprint. This is an epistemic arrogance with devastating political consequences. I think that for understanding the unpredictable side-effects (collateral damages, which might be political mega-disasters!) and limits of the political algorithmization it might be useful to recall that Thoreau, who tried to find a solution to terrible sufferings such as slavery, the Indian situation and so on, worked an imaginative, creative mode to solve such painful issues. His road is not algorithmic but heuristic. It uses universal moral principles and at the same time offers a wide space for the social imagination of each individual who accepts the costs to separate oneself from evil and to participate to its removal. Thoreau, Gandhi, Martin Luther King Jr., Mandela, Havel or Patočka never



used violent means. Theoretically and practically in the genetic order heuristic is the first one, and the algorithmic solution is second, but the life processes, cultures and cultural minds remain open, if they try to project themselves into the future, to heuristic solutions that are always risky and imply unpredictable outcomes but offer chances for development. We must be grateful that in the social, political and moral realms as well as in the scientific inquiring processes carried out by truth-seekers and creative minds Archimedes' cry that marks the feelings generated by reaching a creative, novel solution – "eurika" – is still a guiding force and sturdy hope.

Any theoretical framework of major significance for universal processes, as it is the case of Damasio's explanation of the origins of cultures and cultural minds, invites many questions and opens new areas of inquiry. Based on my limited knowledge and expertise I feel the need to submit to discussion a few issues regarding motivation, which is a concept frequently used by Damasio in his comprehensive and original approach.

From a motivational perspective I think that among the theories that are closest to Damasio's claim is the self-determination theory (Deci, Ryan, 1985). This theory accepts Piaget's (one of the major psychologists, his initial formation has been biological sciences) idea on self-regulating and reinforcing processes that consider that self-maintenance and self-enhancement are immanent life processes (1971). Without going into details it is useful to recall that the self-determination theory, which assumes the inner active nature of humans, considers that in the field of human motivation "development follows a general pattern in which one distinguishes specific elements of one's internal and external environments and then brings those elements into harmony with one's existing structures, thereby elaborating and refining the structures. We use the term *organismic integration* to refer to this general process" (p. 114). In many experiments, field and cross cultural studies on a wide range of human activities (parenting, education work, leisure and so on) the SDT's claim on the functions of intrinsic motivation (quality of motivation) and the strive for autonomy is well supported. Of course this is not the only theory that has deep connections with the model proposed in the book I am talking about. I will mention, mainly due to the importance posed within the model on the origin of cultural minds on bistability and multistability the theory of psychological reversals worked out by Apter, which, has at the core of reversals the dynamics between hedonic tone (pleasurable feeling) and arousal that are part of four basic motivational styles; such as telic and paratelic, between which reversals take place.

I felt the need for a conceptual clarification of the notion of "motivation" as used in the book and its relation to needs. This seems to me necessary due to the role played by motives originated in feelings and to the fact that Damasio refers explicitly to the importance of "valence". The model considers that feelings apply both to the "energy" (in Apter's reversal theory the used notion is "arousal") of the even to the possible pleasure (pain, in reversal theory "hedonic tone"): "Feelings are primarily about the quality of the state of life in the body's old interior, in any situation", including recollection of stored memories (p. 105). Within Damasio's theory valence is understood as "the inherent quality of the experience, which we apprehend as pleasant or unpleasant, or somewhere along the range that joins those two extremes". The terms "sensed" and "perceived" belong to the non-feeling realm, while the representations experienced as "feelings are felt, and we are affected by them" (p. 105). It is obvious that Damasio's approach to valence is in consonance with the mode in which this concept is defined by most motivational theories and used in critical experiments (Eccles, Heckhausen, Higgins, McClelland, Vroom).

This invites the question: is valence the only essential feature of motives (fundamentally an invisible reality, as small particles, in physics)? The obvious answer is no. On the other hand, it is true that feelings, emotions, needs have a motivational function. However in the case of humans once motives take off (as vectors that provide energy and direction for human action) they become more complex infrastructurally and structurally. Infrastructurally they have valence (the feeling, the affect side), are cognitive (subjective probability to reach the desired outcome/conditions state, including the homeostatic range) and the represented agency (how much control does the actor have over the action and its outcome, inner versus exterior locus of control). I think that from this perspective it is necessary to distinguish theoretically, experimentally and practically between feelings and needs that can trigger responses (push the organism toward a coping response) and motives that are much more complex and integrative vectors of human actions. As such motives appear to become more and more important as more complex homeostatic processes are involved from biological homeostasis up to cultural homeostasis. It seems to me that the homeostatic imperative, with its wide range for the well-being that implies creative and adjusting transformation, remain a common denominator for feelings, emotions, needs and motives that are however distinct. Motives are developed within personal, interpersonal and societal fields with various tensions among different hierarchical levels and among competing hierarchies, as suggested by McCulloch's concept of heterarchy. The provisional end states of homeostatic processes could be co-developmental, co-regressive, or inbetween. In a much needed, and well grounded, complementary approach to "mind" that has been studied mainly from a logical and cognitive perspective, Damasio's quest strongly pleads for the vital role of feelings, emotions and affect in the phylogenetic and ontogenetic becoming of the cultural minds. If McCulloch and Pitts restored the existence of the "mind" – dislocated from the research fields for a while by the focus on the brain – Damasio's conception advances in this field by exploring the functions of feelings and affect in close connection with the substrates of the living systems. Is it mere chance that McCulloch, who is recognized by Damasio as his mentor and generated major creative ideas for modern science, had a poetic gift visible in his written poems, as Kay (2002) reminds us?

The cultural homeostasis, it's potential to evolve and to increase the comfort zone seems to depend more and more, as the complexity of cultures and cultural minds increases, on learning abilities, styles and persistence. This are suggested by Li's innovative approach to learning (2012) and its cultural foundations that are focused on distinctive features of various "cultural learning models". Going beyond the accepted view that knowledge, including its practice, is a clear learning goal, Li considers that the essential question is "What are humans to know? However the term *know* might be defined" (p. 41) and what is the function of this life-span and intergenerational process, and specifically of that of "self-cultivation" (pp. 35-36, 41, 54-56, 238, 261) within different cultures and historical contexts. Learning seems to be the major way of the individual and collective actors for adjusting to the existing cultural homeostasis, for the well-functioning within it as well as for transforming it if felt dangers, sufferings, threatening dysregulations emerge. This perspective on leaning is in tune with Damasio's approach of the question: "How does one connect the stat of homeostasis to the making of a cultural instrument capable of correcting homeostatic deficit?" (p. 167). Addressing the issue of the "biological roots of the human cultural mind, Damasio argues that "homeostasis has been responsible for the emergence of behavioral strategies and devices capable of ensuring life maintenance and flourishing, in simple as well as in complex organisms, humans included. In early

organisms, homeostasis generated the precursors to feeling and subjective perspective in the absence of mental processes" (p. 167). Subjectivity, perspective, with the sense of ownership are not reduced to the roots of processes of autonomous self-organization, the roots are neither all the processes necessary for the birth of the cultural mind nor the end product itself. Even subjectivity is not enough in order to be able "to attend the show of ourselves attending a show". It is necessary to have the ability of "integrating images and the respective subjectivities", i.e., consciousness is necessary (pp. 153-144).

The book *The strange order of things: Life, feeling and the making of cultures* by Antonio Damasio (2018) unfolds a crucial, novel and integrative explanation of the emergence and making of cultures. It cannot avoid and it does not avoid critical questions and possible answers for the becoming of human condition. It enriches the field of inquiry and the minds of the readers and opens new avenues of research.

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