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The Role of the Affective Sphere in the Emergence of Concrete Consciousness: A Phenomenological and Neurological Approach

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Abstract

The main aim of this article is to shed light on the origins of consciousness in the natural world by presenting elements of empirically related interdisciplinary research based on the phenomenological philosophy of Edmund Husserl and his followers. The main thesis of this paper is that affections and emotions have a central and foundational role in organising conscious mental life such that consciousness cannot be concrete without emotions. In the first part (Sections 2 and 3), we treat certain elements of the phenomenology of emotions; in the second part (Sections 4 and 5), we clarify certain features of the neurophysiological foundations of consciousness and emotions in particular, arguing for subcortical theories of emotions and consciousness that enable us to extend the capability of consciousness at least to all vertebrates.

Keywords: Edmund Husserl, phenomenology, affections, animal consciousness, minimal mind, subcortical theories of consciousness

1. Introduction¹

Living beings, down to the level of the most primitive bacteria, possess *three* strongly connected information-processing subsystems necessary for survival: subsystems which process *sensorimotor*, *affective-evaluative*, and *cognitive information* (Feinberg and Mallatt 2016a; Ginsburg and Jablonka 2019).² This paper, which tentatively forms part of a wider project,

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² Feinberg and Mallatt (2016a) argue that the three fundamental forms of consciousness – exteroceptive, interoceptive, and affective-evaluative – could be separated from each other, and could emerge in living beings separately. Peter Godfrey-Smith (2020) has a similar opinion, except that he thinks that exteroceptive and interoceptive consciousness both belong in the same category, namely, they are examples of *sensory consciousness*. But also Godfrey-Smith believes that sensory and affective-evaluative consciousness could appear

represents the view that the affective-evaluative signalling system of organisms plays a central role in organising the concrete embodied life of living beings – even in the case of supposedly non-conscious beings – as well as a crucial role in rendering concrete the consciousness of conscious creatures.³ The affective-evaluative system – even in the case of non-conscious living beings – has a so-to-speak *transcendental* function. It imbues raw information with meaning, provides direction to the actions of living beings, and reveals the ‘why’ of these actions. Further, it creates the motivational basis for the life and activities of living beings, without which survival and concrete action would not be possible.⁴

At this early point in the study, I must emphasise that I do not claim that every living being – even unicellular organisms – are conscious. To do so would be to follow a tenet of *biopsychism* (e.g. Bergson 1920, Margulis 2001, Thompson 2022), according to which every living being possesses a consciousness of its own, a conception that cannot be endorsed because it seems to be phenomenologically ungroundable. Instead, my contention is that consciousness

separately from the other. Ginsburg and Jablonka (2019) on the other hand think that these three forms of consciousness cannot be separated. I agree with the conception of Ginsburg and Jablonka on phenomenological grounds, and I suppose that a particular type of consciousness – sensory or affective – alone, separated from other fundamental forms of consciousness cannot be concrete on its own. It could be conceived as a form of “proto-consciousness” the best, but not as consciousness in the strict sense.

³ The viewpoint of the project offered in this article, as we will soon see, is an essentially Husserlian one. It is important to note that Husserl himself occasionally uses the term ‘concrete consciousness’ (e.g. Husserl 2001, 42; see also later). Furthermore, it is essential to recognise that Husserl often refers to the concrete subject or person (e.g. Husserl 2012, 380), with his notion of the ‘monad’ being particularly relevant for us in this context. For Husserl, the monad was ‘the full concretion of the Ego’ (Husserl, 1960, 67). Every mental structure, capability, and conscious content is embraced by the monad, which – in Husserl – ultimately refers to a concrete conscious, subjective functioning in the world. This article will use the term ‘concrete consciousness’ with reference to the Husserlian notion of ‘monad’.

“Abstract consciousness” in this context would refer to conscious capabilities and contents separated from the concrete, embodied way of life of a subject in the world (e.g. vision, independent from other mental functions and abilities). Our hypothesis that consciousness during evolution emerges as concrete consciousness, as a way of functioning of the ‘minimal mind’ indicates the assumption that during phylogenetic development did not organisms appear who had separate conscious functions (like vision, smell, or pain), but conscious functions on the minimal level appeared already *as interdependent parts of the very same organic structural whole*. More on this in Section 2.

⁴ The word ‘transcendental’ means here that it refers beyond the realm of the merely factual in such a way that it has fundamental consequence on the life of an organism as a whole – in such a way that has something essential to do with the question of why we call a living being living at all.

An organism – from a Husserlian point of view (which is essentially an Aristotelian view), but also from the perspective of representatives of Enactivism and Embodied Cognition – is a *teleological* being. It “wants” – in the widest sense of the word – to live and survive. Mere sensory data – either exteroceptive or interoceptive ones – do not directly inform the organism what to do in a particular situation. It is due to the affective-evaluative signalling system of organisms – even in the case of non-conscious living beings – that it “sees” an exteroceptive or interoceptive datum as a warning sign, or positive feedback, as a sign of something that endangers the living being’s existence, or – just the opposite – as something that supports and enriches its being.

The case is similar with conscious beings. Affective-evaluative signalling system, and the affective sphere have a fundamental role in *interpreting* certain events of consciousness and world for the subject. They interpret things for the subject with regard to the subject goals and aims in the world. I consider this interpretative function *transcendental*.

is intrinsically linked to a higher level of embodied being – specifically, the level to which the nervous system belongs – and that consciousness shares an essential connection with the nervous system (Marosan 2024a). Consciousness is thus, in principle, limited to the animal kingdom. Referring to the earlier statement concerning the assumed transcendental function of the affective-evaluative bodily system, I contend that the sphere of transcendentality – the sense-bestowing and disclosing capability inherent in all living beings – is, curiously, *more archaic than the sphere of consciousness* (Marosan 2024b).

The focus of the present study is the question of how phenomenological philosophy, and a phenomenological theory of affectivity in particular – especially as articulated by Edmund Husserl – could contribute to empirical research on the genesis of consciousness in the natural world and the role of the affective sphere in conscious mental life. Phenomenology, I contend, could play an important role in laying the theoretical foundations of a concrete empirical approach to consciousness in methodological and thematic respects. The former requires that we refer to the role of the *first-person perspective* in the phenomenological theory of knowledge. According to phenomenology, no theoretical or epistemological claim can be ultimately justified without first-person perspective experience, and especially not in the case of a theory regarding consciousness (Husserl 1983, 44–45). Regarding thematic issues, we must begin by highlighting all the prevailing phenomenological claims concerning the *concrete* or holistic and *embodied* character of subjectivity.⁵

Regarding affections and emotions, research shows that the affective and – on a higher level – emotional sphere is crucial to the adjustment and coordination of sensorimotor and cognitive systems in a living being, exerting an essential impact on them (e.g. Maiese 2011; Szanto and Landweer 2022). This sphere is best conceived of as the *general motivation basis* of a particular living being. Without this, phenomenal consciousness might be possible in the case of a highly developed somatosensory system, but *concrete* consciousness would certainly be unimaginable.⁶ Furthermore, without such a motivational basis, an organism would not even

⁵ There are phenomenologists who claim that *intersubjectivity* is a further, indispensable constitutive feature of concrete subjectivity, which might be necessary even for sheer phenomenal experience (e.g. Zahavi 1996, 1999). To this should be added that there are empirical researchers of the origins of consciousness who hypothesise that the increasing complexity of the social environment, with the challenges it posed, was a crucial factor in the genesis of phenomenal consciousness (see Verschure 2016). Furthermore, it is important to note that sociality is another type of phenomenon which can be found at the lowest level of life, in bacteria (thus the field of *sociobacteriology*), and even before life in the strict sense, at the level of viruses (thus the field of *sociovirology*) (see Erez et al. 2017, Landsberger et al. 2018). These might be quite valid and legitimate claims. The *focus* of the present article, however, is not the particular constitutive role of intersubjectivity in the genesis of phenomenal lived experience.

⁶ The notion of concrete consciousness will be further elaborated in Section 2 (see also footnote 3).

be able to *live* in the strict sense. It would be without motivations to act, make decisions, or sustain itself in any way. It would sink back into *complete passivity*, the hallmark of *death*. I will endeavour to show that we are emotional and embodied beings through and through, and that this applies not just to us humans – or even just to us and conscious non-human animals. Rather, I aim to demonstrate that the affective-evaluative subsystem of living beings plays a fundamental role in every single segment of the organic natural world from the very lowest levels (e.g. in bacteria) and even predates life in the strict sense (e.g. in viruses).⁷ Specifically, the focus of the present study will be the peculiar function of the affective sphere in the organisation of concrete conscious mental life and the role played by the affective-evaluative bodily system in the emergence of consciousness in the course of evolution.

Elsewhere, I have argued that the concrete organisation of our entire mental life is reflected in a holistic *functional architecture* of the body and that there is a bodily apparatus that activates and realises consciousness at the minimal level, known as *minimal mind* (Marosan 2022, Marosan 2023). This functional architecture is the entire information-processing system of the body, including every bodily part which receives, processes, transfers, and integrates sensorimotor, affective-evaluative, and/or cognitive information. This apparatus is a crystallisation of an evolutionary process through which an organism is adapted to its environment; it reflects an evolutionarily shaped and concrete way of life that becomes partially conscious at a higher level of development through a concrete and specifically organised functional architecture, or more precisely, through *certain parts* of the entire information-processing apparatus of the living being in question, namely, certain *neural* parts of this apparatus or functional architecture.⁸

This brings us to the last of the focal questions of this paper: on which grade of the evolutionary scale did concrete consciousness emerge, and which bodily parts were primarily

⁷ However, as stated earlier, I contend that the functioning of the affective-evaluative subsystem of the body could not be conscious outside the group of organisms within the animal kingdom that possess a nervous system.

⁸ By ‘functional architecture’ is simply meant that such bodily parts whose primary function is to receive or handle certain pieces of information or ‘messages’ regarding the internal or external environment of the organism. *We do not want to participate* in the functionalist–anti-functionalist debate.

Furthermore, by emphasising my wish in this project to contribute to empirical research on the *neural* basis of the fundamental form of consciousness, I do not mean to deny either that the nervous system is deeply embedded throughout the entire concrete embodiment of a living being or that it cannot be separated from the latter. So, I am in concrete agreement with Thomas Fuchs, who claims that the brain ‘is a gregarious, animated trading venue, where messages and items of all kinds are exchanged, and which is connected with other places through an extensive network. In short, the brain is as an organ of interrelations’ (Fuchs 2018, xvii–xviii).

While the specific focus of this project is, first and foremost, to clarify the role of the neural structures which are directly and primarily involved in the genesis of consciousness, I certainly do not want to deny that other, non-neural bodily parts are also involved in this process. The particular reason for this focus is the generally accepted view of clinical neurology that *no stimulus can enter the consciousness until it enters the central nervous system*.

and most directly responsible for its emergence? The phenomenologically legitimate empirical theory of the origins of consciousness that we seek must meet several criteria raised by phenomenology, including the following:⁹ 1) It must at least be indirectly verifiable from the first-person perspective. 2) Its conception of consciousness must accord with the results of phenomenological self-reflection; thus, it must be the conception of a concrete and embodied consciousness. 3) It must be *as extended* into the natural world *as possible*, but in a way that is still phenomenologically justifiable. This will lead us to certain subcortical theories of consciousness, in particular, to a model, articulated by Bjorn Merker (2005, 2007), and developed further by Andrew Barron and Colin Klein (2016a, 2016b), which enable us to extend the capability of concrete consciousness to all vertebrates, and possibly to certain invertebrates. I will argue that these models are surprisingly well-fitted to a phenomenological approach to concrete consciousness.

The remainder of the article is articulated in four sections: 2. The Phenomenology of Concrete Consciousness, 3. The Affective Sphere as the Organising Centre of Concrete Life and Consciousness, 4. Some Hypotheses regarding the Neurological Bases of Affections and Emotions, and 5. The Presumable Functional Basis of Concrete Consciousness.

2. The Phenomenology of Concrete Consciousness

With regard to phenomenology, this paper has two central claims: first, that phenomenology could serve as a general point of orientation for developing and elaborating a proper empirical theory of the genesis of consciousness in the natural world, and second, more specifically, that phenomenology could also facilitate empirical research concerning the nature of affections and emotions and their role in the organisation of bodily and conscious life. The main point of the

⁹ At this point in the study, we should highlight a crucial distinction regarding the term ‘phenomenologically legitimate empirical theory of the origins of consciousness’. This concerns the difference, explicitly brought to light by Amadeo Giorgi (1985), between Husserl’s purely philosophical phenomenology and applied phenomenology. Although Husserl frequently refers to the possibility of the empirical application of phenomenology, he mostly engages in purely or predominantly theoretical and philosophical phenomenology, which essentially amounts to a methodologically elaborate approach to the precise description of phenomena, alongside cautiously conducted self-reflections.

Even in Husserl’s lifetime, phenomenology found practical and clinical applications in the field of psychology – in the works of Ludwig Binswanger, for example. Since then, empirical applications of phenomenology have expanded significantly – especially since the early 1990s, in psychology, psychiatry, the cognitive sciences, and numerous other scientific areas – producing noteworthy results. An important branch of these applications falls under the heading of “naturalising phenomenology” (Petitot et al. 1999). The present study also represents an attempt at a systematic empirical application of phenomenology – featuring a phenomenologically grounded experiment based on awakening from deep general anaesthesia (outlined at the end of Section 5) – to explore the neurophysiological **origins of consciousness**.

present section is the first claim, that is, phenomenology's *general* contribution to empirical research on the origins of consciousness.¹⁰

As indicated in the introduction, phenomenology could serve to provide a general direction for empirical research on consciousness in its methodological and thematic aspects. Regarding the *methodological* aspect, we have already mentioned that the *first-person perspective* is essential to phenomenological investigations. Specifically, in phenomenology, the ultimate source and foundation of all legitimate knowledge is first-person experience. Make no mistake: if one hopes to verify a theory in a scientifically and epistemologically well-founded manner, one must find ways of gaining knowledge and acquiring information by systematically witnessing them from one's own first-person perspective in the form of direct experience. In phenomenology, *indirect evidence* is also of paramount importance. Phenomenologists are very well aware that not every important thing can be directly verified from the first-person perspective – such as the existence of other minds (Husserl, 1960, 109). From the phenomenological point of view, however, we need *very serious reasons* to assume the existence or so-being of something that cannot be directly accessed or verified. There must be apodictically given, directly accessible *indications* in first-person experience before we can accept an assumption concerning something that is directly inaccessible as genuine and verified phenomenological knowledge (see Schnell 2010; see also Marosan 2015).

Regarding the thematic aspect of empirical consciousness research, three crucial topics should be highlighted. First, every representative of phenomenological anthropology and biology¹¹ must agree that a proper and adequate understanding of mental life requires a *holistic approach*. This means that we should conceive of the sphere of consciousness or the conscious

¹⁰ As mentioned in [footnote 8](#), in this paper, I propose an empirical application of phenomenology. This implies that our investigations rely on a deeper grounding than the purely theoretical and philosophical conceptions of Husserl's phenomenology, which operates with the technique of the epochē and phenomenological reduction (e.g. Husserl 1983). According to this approach, the phenomenologist conceives everything that appears as pure phenomenon, *suspends* the question of whether the appearing thing has an extramental existence or not (this is the epochē), and even suspends the original and fundamental belief in the extramental existence of the world, without presupposing anything concerning that which appears to consciousness. For Husserl, the task of the phenomenologist is precisely to explore the process through which the consciousness attaches to a phenomenon the *sense* of extramental or mind-transcendent existence. In the second book of *Ideas* (1989), Husserl elaborates on the purely phenomenological basis that he provided in the first book (1983). He explores how empirical knowledge can be used within the phenomenological framework of the epochē and reduction, introduced in the first book, in a phenomenologically legitimate, albeit restricted and still hypothetical manner. In this context, Husserl discusses the bodily and intersubjective being of the ego, and even considers the possible role of the nervous system in constituting concrete, empirical consciousness (1989, 302–310, 354). As previously noted, we operate on this higher level as we attempt to apply phenomenology to the field of empirical research on consciousness.

¹¹ These include Husserl, Frederik Jacobus Johannes Buytendijk, Arnold Gehlen, Nicolai Hartmann, Martin Heidegger, Hans Jonas, Helmuth Plessner, and Max Scheler – just to mention a few.

aspect of our existence as a concrete, coherent, organic whole in which every instance of mental content, all functions, and all structures are interrelated and interdependent parts of this totality. No mental content, function, or structure can be concrete apart from this organic entirety. This view has crucial implications for empirical theories on the evolutionary origins of consciousness, namely that the fundamental modes of mental activity, such as exteroceptive, interoceptive, and affective-evaluative consciousness, in their concrete form, could not have emerged separately, apart from one another, but only as co-dependent modes of one coherent concrete system of structures.¹²

In this study, when referring to the ‘concreteness’ of concrete consciousness, I simply point to the intrinsically holistic character of the conscious being-in-the-world and the entire mental sphere of the conscious subject. We should note at the outset that Husserl does use the term ‘concrete consciousness’ (2001, 42, 216; also: “concrete life” [p. 69], “concrete ego-life” [“konkrete<s> Ichleben”, p. 199]). However, the references made here to “concrete consciousness” and the “concreteness of conscious life” actually imply Husserl’s *monadology* and his conception of *monads*. This concept was central to his notion of intersubjectivity, which emerged by 1905 at the latest and persisted through his last research manuscripts on the topic (1960, 1973a, 1973b, 1973c). By monads, Husserl means “the full concretion of the ego” (1960, 67–68). In my interpretation, his use of this term emphasises that the mental sphere and life are not an aggregate of contents and capacities but rather a concrete, coherent, holistic sphere in which every capacity and particular content affects every other and the whole as such.

The second point concerns the issue of *embodiment*. Again, numerous classical authors of phenomenological philosophy¹³ – and also many contemporary phenomenologists¹⁴ – concur that embodiment is a crucial feature of subjectivity. The specific articulation of this conviction and the particular emphasis might vary from author to author, but virtually every phenomenologist shares the opinion that a comprehensive, accurate, and adequate interpretation of subjectivity *must entail* the role of the *body*. In this project, as mentioned, we particularly choose a Husserlian standpoint.¹⁵ Elsewhere, we have argued that based upon Husserl’s

¹² In empirical research regarding the evolution of consciousness, this view could be attributed to scientists such as Bjorn Merker (2005, 2007), Andrew Barron and Colin Klein (2016), and Simona Ginsburg and Eva Jablonka (2019).

¹³ Such as Heidegger, Henry, Husserl, Levinas, Marion, Merleau-Ponty, Ricœur, Scheler, Sartre, Edith Stein etc.

¹⁴ The numerous examples include but are not restricted to Renaud Barbaras, Thiemo Breyer, Natalie Depraz, Thomas Fuchs, Saulius Geniusas, Sara Heinämaa, Sophie Loidolt, Dieter Lohmar, Ulrich Melle, James Mensch, Dermot Moran, Inga Römer, Nicolas de Warren, Maren Werle, and Dan Zahavi.

¹⁵ Someone, who is more familiar with Husserl, might warn here the role and function of ‘transcendental consciousness’ and ‘transcendental ego’ in his mature period. Just to make our standpoint here clear, when talking

considerations regarding the connection between the subjective and objective aspects of the body (i.e., between *Leib* and *Körper*), the functional role played by the nervous system in the realisation of ‘psychophysical dependency’, and the connection of soul and body (Husserl 1989, 304–310; see also Yoshimi 2010), with a little interpretative work, that which we called the ‘manifestation thesis’ could be derived (Marosan 2022, 2023). The gist of this thesis is that each and every instance of mental content, function, and structure refers to a bodily basis as its physical carrier and realiser. Accordingly, I contend that the entire bodily functional¹⁶ architecture that carries and realises one’s concrete mental life could and should be conceived of as an *external manifestation* of the internal sphere of consciousness.

Husserl had already emphasised the role of the body concerning subjective life, especially regarding the constitution of its lower layers (Behnke 2011, Moran 2010, Zahavi 1994, 2003, 98–109, Marosan 2024a). Phenomenologists after Husserl conceived the consciousness–body relationship as even more intimate and entwined than it was in Husserl. For Merleau-Ponty, embodiment – the bodily incarnated aspect of subjectivity – was reflected in every single moment of conscious life, not only in sensation and perception but also in imagination, memory, cognition, conceptual thought etc. (1967, 2002). Since the early 1990s, the phenomenologist followers of Embodied Cognition have also contributed copious detailed empirical support to the thesis that embodiment affects and determines our conscious life at every level and in its every segment (e.g. Varela et al. 1991, Thompson 2007, Gallagher and Zahavi 2008, Rowlands 2010, Fuchs 2018, 2020).¹⁷ These theoreticians attempted to lead the mind–body problem back to the body–body problem, meaning that they tried to explain the different aspects of embodiment in terms of *Leib* and *Körper* – the subjective and objective dimensions of bodily existence – *without reducing* the inherently qualitative character of consciousness to something which it is not. In these recent explanations of embodiment, circularity plays a crucial role – specifically, in circular relations between subjective aspects of the body (*Leib*), the objective physical aspects of embodiment, and the broader context, including the brain, body, and environment (e.g. Fuchs 2020). To the question of how consciousness can actively influence these further – essentially physical and objective – elements of this cycle, these authors respond, first of all, by interpreting consciousness as an *active* bodily stance and process (consciousness

about the genesis of consciousness and ‘minimal mind’ from a phenomenological point of view, we talk about *empirical consciousness*.

¹⁶ Once more, with the term ‘functional’, I neither refer to the functionalist–anti-functionalist debate, nor do I want to participate in it. The aim is simply to refer to their specific role in one’s concrete animate and mental life in a concrete bodily being-in-the-world, enabling certain particular bodily processes and actions.

¹⁷ These new, more recent endeavours in phenomenology, especially in their specific utilisation in cognitive sciences and psychology, could be regarded as examples to the empirical applications of phenomenology.

for them is essentially conscious *behaviour*) in which, moreover, the entire body is holistically involved. Although we already find the conception of circularity in classical phenomenologist authors, such as Husserl and Merleau-Ponty (see Moran 2013, Fuchs 2020, Wehinger 2024), these more recent theoreticians shed light on the details of circular connections between our embodied conscious life and a huge and ever-increasing pool of empirical data. As we will see in the next section (3) in detail, affections and emotions play a central role in the articulation of these active and circular relations of embodied conscious life.

The third thematic point refers to the maximal extendability of the capability of concrete consciousness in a phenomenologically legitimate manner, which ultimately rests upon Husserl's method of *eidetic variations* (e.g. Husserl 1969, 2012). For Husserl, eidetic variations served the purpose of grasping the essential features of particular sorts of entities and thus demarcating the maximal extension of the ontic region that contains every actual and possible member of that sort. This ontic region must be as extensive as possible to embrace all possible elements, but the essential features that delimit the boundaries of this region must be evidently demonstrable from the phenomenological point of view. From a phenomenological perspective, a *subcortical theory of consciousness* (such as Merker's) would grant maximal expendability to the region of conscious living beings. A cortex-based theory (such as global neuronal workspace theory), which delimits the sphere of conscious beings to include mammals and birds at maximum, would be too narrow.¹⁸ A subcortical theory would be extremely challenging to prove from the first-person point of view, but as I have endeavoured to show elsewhere, it is not impossible (Marosan 2023). Other than with indirect evidence – which is not to be underestimated even from a phenomenological viewpoint – such verification might be possible through experiments based upon emergence from general anaesthesia.

3. The Affective Sphere as the Organising Centre of Concrete Life and Consciousness

Very different conceptions of emotions and affections have emerged throughout the history of philosophy and science (e.g. Tappolet 2023; Scarantino and Sousa 2018). Phenomenologists, in particular, have made widely varying assertions about emotions and their significance to

¹⁸ According to Husserl, through the method of eidetic variations we construct the essence of a certain type of thing in such a way that this essence contains all the essential properties of the thing in question stripped down, and exclusively those. We cannot take away a single property without the thing ceasing to be what it is. It follows, however, that in defining the essence of a thing, we must aim at the minimum, including in the essence of the thing only what belongs to it, and see whether it is possible to construct an essential, eidetic structure more minimalistically than we have done.

subjective existence, although there have also been certain remarkable similarities and overlap between their theories (see Szanto and Landweer 2022). Despite the fact that the problem of animal emotions was rather marginal within the phenomenological movement, I contend that the main elements and features of phenomenological theories of emotions could be extrapolated to the case of animals without major difficulties. The phenomenological method, however – at least as it was formulated by Edmund Husserl – imposes a crucial constraint, according to which, in principle, it delimits this variety, prescribing that different phenomenological theories must share certain essential similarities and common features if we are to call them ‘phenomenological’ at all. Thus, in Husserl’s view, the applied phenomenological method must restrict this variety of possible, phenomenologically legitimate theories to the difference in emphases.

Regarding a phenomenology of affections and emotions in particular, perhaps the most important question is exactly which types of phenomena belong within this sphere. There is a large number of different related appearances that require closer consideration to determine whether they are part of this sphere or not (e.g. phenomena such as pain and pleasure, feeling-sensations, instincts and motivations, experiences of comfort and discomfort, background moods, and more sophisticated and explicit feelings and emotions). If we adopt a Husserlian standpoint – as we actually do in this project, and particularly in this study – every mental phenomenon belongs to the affective sphere, which has an essentially axiological and affectively interpretative character. (Husserl 1989). As he progressed in his career, the emotional, and more generally, affective sphere became more and more important for Husserl, who, in his late manuscripts from the 1930s, attributed a central, foundational role to this sphere in the organisation and concretisation of mental life (Husserl 2006; see also Lee 1993, 1998; Jardin 2022). This makes Husserl’s theory of emotions and affections an excellent point of orientation for this project. If we follow Husserl, we should answer the question posed above regarding the phenomena included in the affective sphere: whether elementary and primitive sensations of pleasure and pain, rudimentary feeling-sensations, as well as the most sophisticated and intricate moods and emotions, belong within it. Furthermore, in Husserl, we find every feature of affections and emotions that would play an important role in later phenomenological theories. For Husserl, affections and emotions had an embodied and enactive

character that was essentially evaluative, interpretative, or disclosive (in a non-conceptual way) (see Szanto and Landweer 2022; Jardin 2022).¹⁹

Based upon the considerations of the classical authors of phenomenology, and Husserl in particular, it can be asserted that within the sphere of pre-conceptual sensible experience, everything belongs either to the affective-emotional sphere, to interoception (the experiential report of bodily states), or to exteroception (the sensible experience of external objects or the world). Affections and emotions, such as – from a Husserlian stance – evaluative and non-conceptually interpretative experiences, impart a proper meaning to interoceptive and exteroceptive experiences, as well as cognitive states and processes. They interpret them as good or bad, evaluate how good or bad they are, and predict whether we can expect something to be good or bad.²⁰ In this way, affections and emotions function as an organising core in concrete mental life, and through them, we relate essentially actively to ourselves and the things around us. *Our goals and motivations stem from this sphere.* They relate interoceptive and exteroceptive experiences to the fundamental aims of a living being – on lower levels, to sheer survival and generic reproduction (generic survival), and on higher human and cultural levels, to get along in the world. Affections and emotions articulate and render concrete our *bodily being-in-the-world*.²¹

This immediately leads us to the next point, namely that affections and emotions also have an intrinsically *embodied* character (e.g. Maiese 2011). Affections and emotions, as previously stated, ultimately evaluate and interpret internal and external events – assessing whether they are actually or supposedly good or bad for the organism *as a bodily being*, and whether the states and events in question endanger or benefit the subject. The subject, as Husserl pointed out, is ‘an endangered existence’ that is *vulnerable* because of its embodiment (Husserl 1973c, 510, 601; 2008, 315–316). Affections and emotions inform the subject of possible courses of

¹⁹ Husserl provided his longest, most systematic and elaborate analysis of emotions in the affective sphere in his *Studies on the Structures of Consciousness* (2020), of which the main parts stemmed from 1900–1914, although he returned to modify, develop, and revise different parts of the work until 1934.

Husserl essentially elaborates in this work a three-level model of affective and emotional life. On the first level, there is a continuous flow of non-intentional feeling-sensations, which merge into a general mood that has a background-intentionality or *horizontal intentionality* directed towards the environment as a whole. This mood is the second level, and against this background appear explicit and well-formed intentional acts of emotions – which is the third level. In Husserl’s opinion, every level affects the other in a circular way.

²⁰ A closer analysis might show that affections and emotions have a *necessarily temporal character* – whose treatment exceeds the limits of the present paper.

In this context, however, we should refer to the theory of Hans Jonas, according to whom the sheer sensibility of organisms during evolution was differentiated into two senses: external senses that presented space, and internal senses, more specifically, emotions, that disclosed time (Jonas 1994, 181–194).

²¹ The later Husserl, from time to time, used the Heideggerian term (‘in-der-Welt-Sein’) (Husserl 2008, 462, 490).

action to protect its own existence, providing guidance on how to survive and persevere, optimise, and improve its life conditions. They thus gain their more concrete and specific meanings as mental phenomena of an essentially embodied creature. The peculiarly phenomenal character of affections and emotions, as well as their specific relationship to one another and the entire mental sphere, also reflects the specific embodied nature of the subject.

Affections and emotions are also reflected in the concrete bodily behaviour of animals. In Husserl's – and also Merleau-Ponty's – interpretation, emotions are expressed in bodily behaviour, implying that bodily gestures, movements, and emotions in particular serve as indicators for specific moments of internal mental life (Husserl 1973c, 662; Ms. K III 12;²² Merleau-Ponty 1967, 2002). The theoretical foundations for this consideration in Husserl rested on his idea of the unity between the subjective and objective aspects of the body, *Leib* and *Körper*, which we saw in the previous section. In Merleau-Ponty, its basis was the ontologically conceived conception of the mutual interrelatedness of subjective and objective moments of the body (2002), an idea that finds its roots in Husserl's philosophy. Pain, pleasure, joy, interest, curiosity, fear, anger, love, and other affections and emotions have their proper bodily expressions. Feigning affections and emotions – which appear on relatively high evolutionary levels, mostly on the level of primates, with only very rare examples on the lower levels of the animal world – represents a derivative mode of affective life and always refers to genuine, non-derivative bodily expressions of the particular affection or emotion in question.

More recent research on emotions, especially from a phenomenological perspective, has confirmed and provided additional empirical support for the conception that emotions are essentially embodied. The affections and emotions, whose concrete, specific meaning we treated above, cannot even be intelligibly conceived as disembodied phenomena. Thomas Fuchs (2023), for example, convincingly shows how deeply emotions affect our perceptions and the entirety of our daily activities, and, in turn, how intimately embodiment is present in our affective and emotional life – so much so that we cannot even imagine the particular affections and emotions without their embedment into corporeal and embodied existence. Fuchs integrates a substantial amount of newer empirical data and findings into his descriptions and analyses of affective and emotional life. Affectivity enables us to feel alive and actively participate in the social and non-social world. A significant proportion of mental disorders stem from different forms of disruption and confusion of affective, emotive life, and these issues are fundamentally connected to embodiment, manifesting as disturbances of *affective embodiment*. In Fuchs's

²² Unpublished manuscript of Edmund Husserl from 1935, 'Objektivität des Ausdrucks' (Husserl Archive).

account of embodied feelings and emotions, the motif of circularity – just as in his general conception concerning embodiment – is a crucial element (referring to the bidirectionality of emotions which are both directed towards the feeling and sensing body and, via expression and action, back towards the environment; together this forms an affective circle). In his interpretation, many problems of mental life can be traced back to disruptions and ruptures in the organic circularity of affections and emotions.²³

4. Some Conceptions regarding the Neurological Bases of Affections and Emotions

There is a large number of different, competing models and approaches regarding the neurophysiological foundations of affections and emotions. In this article, we obviously cannot treat all of them, not even the most characteristic or influential ones. I highlight only a few that are the most helpful in making my point: those proposed by Damasio, Panksepp, and Merker.²⁴

From a phenomenological perspective, there are certain constraints placed upon a neurological approach to affections and emotions. First, it must be in accordance with the results of phenomenological reflection on the affective sphere. Second, it must be as extendable as possible, but in a phenomenologically – and neurologically – legitimate way. It must embrace – as conscious, affective beings – as many animals as possible, but in a theoretically and scientifically justified manner. This also implies that an adequate phenomenologically based theory of non-human consciousness and emotions must avoid, on the one hand, the Scylla of anthropocentrism – which is a rather challenging but very possible task from a phenomenological viewpoint – and on the other, the Charybdis of anthropomorphism – that is, the assumption that the minds of non-human creatures are rather similar to those of humans.

Antonio Damasio's theory of feelings and emotions (1994, 1999, 2003) seems to be an appropriate point of departure for a phenomenologically based conception of an affective sphere of the type that we have in mind. First and foremost, it should be emphasised that he made a crucial distinction between feelings and emotions. In his interpretation, feelings have a subjective, conscious, experiential aspect, whereas he tends to conceive of emotions as

²³ Fuchs interprets emotions as being decisive features of the body–self–world circle: “In contrast to the common cognitivist picture in which our mental states including moods and emotions are located within our head, phenomenology regards affects as encompassing phenomena that connect body, self, and world” (Fuchs 2023, 626).

²⁴ For some it might seem like “cherry-picking.” However, I only wanted to treat such theories, which – in my opinion – best characterise a certain neurological approach of affectivity, regarding the main neurological level which, according to the particular conception in question, would serve as the proper neurophysiological foundation of affective or emotional consciousness. In other words, I just wanted to highlight certain characteristically cortical and subcortical theories, which are, moreover, also harmonious with a phenomenological approach.

objective reactions of living beings to certain situations and events. However, he attributes a central role to feelings or emotional feelings in the organisation of concrete conscious mental life. In his opinion, affective feelings deeply influence our entire mental life (including our cognitive and even conceptual processes), and they are embodied through and through, referring to our bodily involvement in the world in every moment. *Descartes' error* was that he separated rational thought from emotive feelings and conceived of our minds independently from our bodies.

Damasio, however, associates affective and emotional consciousness primarily with the neocortex; thus, he drastically limits the number of species which could possibly possess affective consciousness and, thus, concrete conscious mental life in the strict sense. Beyond neurological reasons, a possible consideration behind such a stance is to avoid anthropomorphism and to attribute human-like mental states to animals, which cannot be verified to possess them. With this, however, Damasio gets very close to the Charybdis of anthropocentrism. As Panksepp put it, Damasio 'seems to leave the door closed for perhaps too many other "higher" animals' (2003, 117).²⁵

Panksepp partly endorses and partly criticises Damasio's account of the functional role and neurological bases of affective feelings (2003). He is mostly positive about the central organising role of affective and emotional consciousness in concrete mental life, although he believes that Damasio sometimes goes too far when emphasising how deeply our thoughts and other cognitive processes are affected – or even dominated – by feelings (Panksepp 2003, 115, 118). Panksepp is also supportive regarding Damasio's idea of the fundamental embodiment of affective feelings. Regarding several other points, however, Panksepp also offers critical considerations on Damasio's views.

First, Panksepp is highly sceptical of the rigid separation of emotions from feelings, referring to this distinction as 'Damasio's error' (2003, 125). According to Panksepp, Damasio identifies consciousness as such with its extended form, which encompasses more sophisticated feelings and does not take into account a more fundamental form of 'primary' or 'core consciousness' where less elaborate *subjective* emotions are located. Second, he believes that Damasio's approach is all too cortex-based, and he neglects the fundamental, and – from a certain point of view – even foundational role of subcortical structures in the brain, such as the limbic system, the PAG (periaqueductal grey), and the hypothalamus, in the generation of

²⁵ To be fair, I should also add that there are articles in which Damasio hypothesises a connection between 'core consciousness' and the brain stem, one of the most evolutionarily archaic parts of the brain (see Parvizi and Damasio 2001).

conscious feelings and emotions *as conscious*. Thirdly, Panksepp thinks that Damasio's notion of feelings is prevailingly somatosensory-based and that he did not pay enough attention to the active role of feelings and emotions and the peculiar role they play in forming our actions and general behavioural structure. Feelings and emotions, Panksepp claims, are *not only passive evaluative reports*, but they could also be considered *certain types of action*.

Panksepp's assumptions and critical remarks could be completely justified from a phenomenological perspective. First, seeking the basis of conscious feelings and emotions on a lower level enables us to extend the capability of consciousness to more forms of life. Along with this, it is also entirely justifiable, from a phenomenological viewpoint, to make a distinction between an extended and a primary or core form of consciousness. Second, emphasising the active character of feelings and emotions is in accordance with an enactive account, which is also supported by a phenomenological approach (see Maiese 2011, Szanto and Landweer 2022).

Regarding Panksepp's own theory, he most importantly elaborated a discipline called 'affective neuroscience', which focused on the neurological foundations of affections and emotions and highlighted their importance in understanding concrete consciousness (e.g. 1998, 2005; see also Davis and Montag 2019). He emphasised the strongly embodied character of emotions and consciousness in general, and as previously mentioned, ascribed an essentially *active* character to affections and emotions. They are exhibited in actions and behaviour in general, motivate certain patterns of actions, and are present in them. In total, Panksepp identified seven 'core emotional systems' in higher animals (mammals) and humans, of which four are responsible for positive and three for negative feelings (e.g. Panksepp and Biven 2012). The positive ones are 'SEEKING, PLAY (playfulness), CARE, [and] LUST', and the negative ones are 'FEAR/ANXIETY, RAGE/ANGER, [and] PANIC/SADNESS'. These systems do not stand on their own, separated from each other, but rather comprise interdependent parts of one coherent whole. They work in close interaction, mutually supporting each other, facilitating more complex psychological and behavioural functioning, helping the individual to better cope in the world and thus improving chances of survival. Together, they articulate the concrete mental life of the living being.

According to Panksepp and his colleagues, the neurophysiological foundations of conscious emotional life for these core emotional systems could be found in certain regions of the midbrain (mesencephalon), interbrain (diencephalon), and limbic system. These scholars repeatedly emphasised the subcortical foundations of emotions in a number of publications (e.g. Panksepp 1998, 2003, 2005; Panksepp and Biven 2012; Alcaro, Carta, and Panksepp 2017;

Davis and Montag 2019). The problem for us is that if we included the limbic system in this model, then we would delimit the possible range of conscious animals to mammals and, maybe, birds.²⁶ Panksepp sometimes allowed for the possibility that structures deeper than the limbic system were sufficient for the genesis of subjective consciousness (Alcaro, Carta, and Panksepp 2017, 10), but I believe that we require a model is required that exclusively entails the deeper subcortical structures of the brain as, in themselves, necessary and sufficient conditions for consciousness if we want to extend the capability of consciousness at least to all vertebrates and perhaps to some higher invertebrates (such as cephalopods). The model of Bjorn Merker (2005, 2007) is exactly such an approach.

Merker, as we will see in the next section, elaborated a model according to which consciousness arises as a result of peculiar *neural logistics* performed by certain areas of the midbrain and diencephalon.²⁷ According to his model, these areas generate an intricate decision-making system that can be characterised by a ‘selection triangle’ comprising action selection, target selection, and motivation. In his opinion, this system was ultimately responsible for conscious experiences. What is particularly important for us to take away from Merker’s model in this section is his notion of the motivational basis of primary or core consciousness.

According to Merker, in the core of the decision-making system, which ultimately generates minimal consciousness, is the motivational basis, which is a composite subsystem consisting of the primitive consciousness of our needs, instinctive drives and urges, pain and pleasure, and other – evaluative – affections and feelings. The most important functional correlates or foundations of this motivational subsystem lie in the PAG (midbrain) and hypothalamic (diencephalon) regions of the brain. In this regard, this model partly overlaps that of Panksepp, according to whom the ultimate neurophysiological bases for the above-mentioned core emotional control systems could also be found in the PAG and the thalamic-hypothalamic parts of the diencephalon (Alcaro, Carta, and Panksepp 2017, 5, Figure 3).

Here, we might venture the assumption that the core emotional systems described by Panksepp and his colleagues are already present in a very rudimentary and primitive but already

²⁶ In one of his last publications, Panksepp – with his colleagues – wrote as follows: ‘a large amount of neuro-ethological evidence shows that non-human animals (mammals, birds, and perhaps also other vertebrates) also have forms of subjectivity that emerge from the activity of old evolutionary subcortical brainstem, diencephalic, and basal forebrain areas’ (Alcaro, Carta, and Panksepp 2017, 10).

This, however, does not alter the fact that if we include the limbic system as a necessary condition of lived subjective consciousness, it will make it very problematic to extend the capability of consciousness beyond mammals and, perhaps, birds. It is not an accident that Panksepp, in his experiments, focused on mammals.

²⁷ Merker especially emphasises four such subcortical structures in particular: the substantia nigra pars reticulata, PAG, hypothalamus, and colliculus.

conscious form on this mesodiencephalic level. In doing so, we would make a valuable contribution to Merker's own hypothesis by positing a complex, multilevel motivational regulating system – one that is already conscious on a very low level – that encompasses feelings of pain and pleasure, a vague awareness of needs and instinctual drives, and even certain more sophisticated affections and emotions that could serve as the basis for expectations and more intricate cognitive processes. Such an affective and emotional motivational basis could be conceived of as the organising core of concrete consciousness, in accordance with the phenomenological considerations of Sections 2 and 3.²⁸

5. The Presumable Functional Basis of Concrete Consciousness

Affections and emotions, as I have attempted to show, are at the heart of concrete consciousness. They make up the organising centre of our mental sphere and render it truly concrete. Already, before the emergence of consciousness, the affective-evaluative signalling system – including, for example, the rewarding/punishing and alarming apparatuses – in every creature was indispensable to its survival; it imbues every piece of sensorimotor and cognitive information with concrete, specific meaning. It is a motivational system which motivates creatures to strive after survival and to live and act in particular ways. Without such an affective and evaluative system, no concrete life or consciousness is possible; thus, it plays a crucial role in the genesis of concrete consciousness.

In the previous section, we treated certain hypotheses concerning the functional architecture of the affective-evaluative sphere. Then, endorsing certain parts of Jaak Panksepp's and Bjorn Merker's theories, we ventured the conception that the ultimate neurological foundations of concrete affective and emotional consciousness are found in the mesodiencephalic regions of the brain, first and foremost in the PAG and the thalamic-hypothalamic segments of the diencephalon. The question of the origins of lived affective and emotional experiences, however, is embedded in the more general question of the origins of concrete consciousness as such. Thus, in this last section of this study, we take a closer look at what is presumably the ultimate physical and functional basis of concrete consciousness in general.

²⁸ It is also highly relevant that we are speaking here of interdependent, closely entwined structures that deeply affect the functioning of the whole and other structures – which is in accordance with the idea of *circular* relations in the embodied affective life, which was emphasised earlier (see Section 2) as a fundamental feature of conscious bodily being-in-the-world.

Since for the present approach, phenomenology serves as a perpetual point of departure and orientation when explaining the origins of concrete consciousness in the strict sense – as lived phenomenal experience – in the natural world, I contend that a proper empirical theory regarding its origins should be restrained by certain fundamental phenomenological insights. In the previous sections, four key related insights were noted. First, *consciousness must be concrete*, consisting of a coherent system of various mental capabilities that, in turn, reflects a concrete being-in-the-world, a concrete bodily life in a specific environment. Second, this concrete mental sphere refers to a bodily basis as its carrier and realiser. In other words, the concrete mental sphere is externally manifested in *a concrete bodily and functional architecture*. Here and elsewhere, we have called this the ‘manifestation thesis’ (Marosan 2023), which – in my interpretation – directly follows from the phenomenological insight regarding the strong embodiment of conscious experience. Third, a theory regarding the origins of consciousness must be as extendable as possible within the animal kingdom, but in a fully legitimate phenomenological and empirical way. Fourth, such a theory, in one way or another, directly or indirectly, must be verifiable from the first-person perspective. A phenomenologically based empirical theory of the evolutionary origins and biological foundations of consciousness must follow the above-mentioned principles.

There is a large number of contemporary theories on the origins of consciousness (e.g. Seth 2007, 2018; Bayne and Seth 2022; Signorelli et al. 2021)²⁹ – so many that it is not possible within the confines of this investigation to summarise even the most important and influential ones, let alone the majority. Perhaps the two most popular are integrated information theory (IIT), proposed by Giulio Tononi and his colleagues, and global workspace theory (GWT), developed by Bernard Baars and his collaborators. IIT attaches a certain grade of consciousness to every form of information processing and integration. GWT conceives of consciousness as a form of ‘broadcasting’ of information on a general cognitive platform, which is – according to global neuronal workspace theory (GNWT; Dehaene 2015) – mostly realised by the cortex, or more specifically, thalamo-cortical columns.

From a phenomenological perspective, both theories are all too general. By ascribing consciousness to all forms of information integration, however rudimentary, IIT is potentially open to panpsychism (Tononi and Koch 2015) – a view which, on phenomenological grounds,

²⁹ In such a context, one should also refer to ‘Neural Correlates of Consciousness’, which is rather a specific study of particular conscious contents than a general theory (Crick and Koch 1990), and also ‘Neurophenomenology’, which is also primarily devoted to the research of particular mental content, but in a phenomenologically refined and elaborate manner (Varela 1996; see also Gallagher and Zahavi 2008, 33–38).

I would rather avoid as all too generous and, ultimately, phenomenologically unverifiable. The cognitive architecture of GWT, on the other hand, although undeniably incredibly elegant and sophisticated, is still very formal from the phenomenological point of view. Furthermore, GNWT, with its cortical bounds, is highly restrictive. If the cortex were in reality indispensable to the realisation of consciousness as such, then only mammals and perhaps birds could be conscious beings. Instead, we seek a theory that embraces at least every vertebrate animal – and possibly certain higher invertebrates too, such as cephalopods – as conscious, and explains their consciousness as a concrete phenomenon. The subcortical theory of Bjorn Merker seems to be a good starting point for such an attempt.

According to Merker, as mentioned in the previous section, consciousness emerges as a result of the neuronally accomplished ‘selection triangle’: action selection, target selection, and motivation. This selection triangle represents a complex decision-making system that involves an ego-centric perspective of the world. This latter entails an intricate model of the internal and external environment, as well as a dynamic modelling of the subject’s moving body as a whole in space. In Merker’s interpretation, all this is accomplished by certain crucial neural circuits found in the mesodiencephalic regions of the brain (2005, 2007). More specifically, the substantia nigra pars reticulata is the source of the collicular action-selection signal; the hypothalamus and PAG are the sources of motivation; and the colliculus itself is the source of target-selection information.

Andrew Barron and Colin Klein (2016a, 2016b) refined and completed this model, and they attempted to extend it to lower-level invertebrates, namely to *insects*.³⁰ Barron and Klein substantially modified Merker’s model by including the *basal ganglia* in the basic neuronal apparatus, which they held responsible for the emergence of consciousness. In their view, the basal ganglia are indispensable to *action selection*. They based their opinion on the fact that there is intensive back-and-forth communication between the basal ganglia and the superior colliculus/optic tectum (see also Feinberg and Mallatt 2016b). It should be noted that Barron and Klein’s approach implies the contribution of a substantially greater number of neurons than that of Merker. Barron and Klein’s model involves approximately eight billion neurons (in humans), while Merker’s conception calls for only approximately five billion. Both models could, however, embrace all vertebrates – and Barron and Klein’s explicit ambition was to extend their version to insects.

³⁰ It should be mentioned that Bjorn Merker already allowed the possibility that according to his model, insects might also be conscious beings.

However, a growing body of evidence suggests that the basal ganglia play a crucial role in action selection (Gurney, Prescott, and Redgrave 2001; Stephenson-Jones et al. 2011; Grillner, Robertson, and Stephenson-Jones 2013; Barron et al. 2015). However, the current state of research does not make it possible to decide unambiguously whether the basal ganglia have an inevitable role in the genesis of primary or minimal consciousness. Thus, it remains a rather hypothetical and theoretical question. Only further empirical studies and experiments can provide a basis and additional support for either position. Specifically targeted animal experiments could be helpful in this regard, in which the basal ganglia of the animals in question are either pharmacologically or surgically deactivated. This could be followed up by confirming whether the animals are capable of complex decision-making, learning, and action without the contribution of basal ganglia.

Because of the lack of sufficient evidence, it would be premature to take a position in this debate around whether the basal ganglia are necessary parts of the neuronal foundations of the deepest level of consciousness. Both theories – Merker's on the one hand and Barron and Klein's on the other – can be extended at least to all vertebrates, which is enough for the purposes of the present article. Merker outlines such a functional architecture for minimal mind or minimal consciousness. It involves fewer functional elements than Barron and Klein's model, and it is more economical than the latter. However, more experiments are needed to decide whether a subcortical conception of minimal consciousness is feasible without the basal ganglia.

There are scholars, of course, who criticise subcortical approaches to consciousness; one such scholar is Brian Key. He explicitly connects feelings of pain to cortical processes, referring to cases when damage to (e.g. by hemiparesis) or deactivation of certain parts of the cortex lead to the loss of pain experience in humans (2016, 9). Accordingly, Key denies that fishes can feel pain because they 'lack the neural architecture for feeling pain' (2016, 14). Others criticise such a view, stating that fishes might not have such intricate and high-level conscious feelings as we humans do, but this provides no theoretical foundation to deny that they can have any sort of rudimentary conscious feelings (Sneddon and Leach 2016). Joining this latter line of criticism of cortico-centric views, we should say that although fishes and other lower-level vertebrates might not have such complex and exquisite feelings as we humans do, this does not preclude them from having any conscious lived subjective experience and feelings. Fishes can dynamically change their behaviour, learn, and anticipate based on rewarding and punishing sensory inputs. When they are out of the water, they desperately try to get back in. Certain parts of the fish brain entail a complex rewarding/punishing, affective-evaluative system. I contend

that given the known cases of humans with damaged cortices and experiments on animals whose cortices have been surgically removed, we have a sufficient experiential basis to assume that even fishes could experience vague and primitive pleasant and unpleasant feelings (Merker 2007; Barron and Klein 2016a, 2016b).

In my opinion, the selection triangle model of consciousness offered by Merker, Barron, and Klein is currently the most empirically suitable for a phenomenological approach toward concrete minimal mind as a minimally conscious manner of life as it seems to harmonise with the principles of phenomenology most fully. If the neural circuits that allow the selection triangle to function could be regarded as the neuronal foundations of minimal mind in reality, then the main parts of such an architecture would be the following cerebral regions: the PAG and hypothalamus as the motivational basis,³¹ the colliculus for target selection, the substantia nigra and perhaps the basal ganglia for action selection, and finally, the thalamus as a common centre of coordination and information integration.

Although, as stated earlier (see Section 2), it could be incredibly challenging to verify a subcortical theory of consciousness from a phenomenological viewpoint, there are nevertheless sources of indirect (e.g. animal experiments) and direct (e.g. specially arranged human experiments based on emergence from general anaesthesia)³² pieces of evidence which could support such a conception. Such a theory would ensure the maximal possible extendability of the capability of conscious experience beyond humans to the animal world in a phenomenologically legitimate way.

6. Conclusion

³¹ Perhaps also the ventral tegmental area of the midbrain (mesencephalon), which is responsible for reward cognition and has a crucial role in associative learning, memory, motivational salience, and the formation of positively valenced emotions.

³² I should add that systematic experiments to determine the neural correlates of consciousness through emergence from general anaesthesia have been conducted for at least 20 years, since the early 2000s. Nevertheless, these experiments rather support the GWT, more specifically the GNWT of consciousness, so they seem to prove that test subjects recover their consciousness when most parts of the cortex are at least almost fully operational (see Mashour et al. 2021). Elsewhere (Marosan 2023), I proposed a rather specific modification of such experiments, which – to my knowledge – has never been executed in this form so far. According to this modification, during such an experiment, a particular anaesthetic ‘cocktail’ should be used, one which deactivates most of the cortex and blocks the communication between the thalamus and the cortex (propofol could accomplish this). In conjunction with this, another drug should be used, at least at the initial and early phases of emergence, that would increase subcortical activity, such as Levodopa or amphetamines. During the early stage of emergence process, when the cortex is not fully operational, I suggest that certain audio-visual stimuli should be transmitted to the test subjects, a certain specific, easy-to-remember pattern. If the test subjects at the fully awake stage could remember any element of said pattern, it would represent very strong first-person-related empirical support for subcortical theories of consciousness.

The main aim of the present article was to provide (first and foremost based upon the philosophy of Edmund Husserl) elements of a phenomenologically grounded, empirically related, and systematic research project into the origins of consciousness – or minimal mind as the capability of having minimally conscious experiences – in the natural world. The central idea of this study was that the affective and emotional sphere plays a fundamental role in the organisation of concrete consciousness and that without it, no consciousness could be really concrete. In the first part (Sections 2 and 3), we treated certain crucial insights of phenomenology regarding the fundamental nature of subjectivity, according to which it is embodied, concrete, and of an essentially holistic character (i.e. all segments, layers, capacities, and particular instances of content are interrelated within it). Also in this part, certain elements of a phenomenology of affections and emotions were provided.

The most compelling result of the analyses concerning a phenomenology of emotions (in Section 3) is that they enact and create a world for us. They furnish things and our very existence with meaning and sense, and they essentially enable us to act and behave *actively* in the strict sense of the word. Emotions and affections disclose themselves in actions, and through actions they reveal the world around us. In this regard, I proposed the idea that every living being which is conscious in the strict sense must have conscious affective feelings in the first place. Affective consciousness³³ is, in a certain way, foundational to other (exteroceptive and interoceptive) forms of consciousness, and forms the constitutive core of consciousness as such in its concreteness. For a phenomenology of affections and emotions, we took our orientation from Husserl's corresponding theory (as presented in his posthumous *Studien zur Struktur des Bewusstseins* [2020]). According to this, on the deepest level (which can be equated to the level of *minimal mind*), one finds a stream of affective feelings, which – on a higher level – can merge into an affective background for perceptive consciousness (*the mood* [Stimmung]), taking the form of horizontal intentionality, which relates to the environment as a whole. Based on this second level, the concrete emotions can finally emerge on a third level as concrete and focused emotional intentional acts (concrete, focused emotional reactions to certain situations or developments). Although Husserl regarded affections as belonging in the sphere of passivity in comparison to higher, intellectual acts (such as conceptual and linguistic thought), the active-disclosing role and character of affections, especially in his later period (in the so-called C-manuscripts and *Experience and Judgement* [1992, 2006]), were always empathic for him. In

³³ As indicated in the Introduction, in my interpretation, emotions form a higher level of affections, but taken together, emotions belong to the affective sphere in the broad sense.

his final work, *Experience and Judgement*, on which he worked right up until his death in the hospital,³⁴ Husserl conceived affectivity and receptivity as “the lowest level of activity” (1992, 79). For Husserl, the sphere of subjectivity is thoroughly active and alive, with affections playing a crucial role in maintaining this dynamism. Without affections and affectivity, there can be no concrete conscious bodily being-in-the-world.³⁵

The main conclusion of the first part of this paper was that this concrete, embodied, and affectively organised consciousness necessarily refers to a functional architecture, a concrete bodily basis, as its carrier and realiser. This concrete, conscious mental sphere – with an affective core – is, so to speak, ‘*manifested*’ or ‘*reflected*’ in this functional and bodily architecture (hence the ‘*manifestation thesis*’). The circular and mutually founding relations between the different layers and segments of embodied affective life were also a significant motif in this study. The second part of this work (Sections 4 and 5) attempted to unfold certain features and parts of this functional and bodily architecture. I argued for a subcortical theory of consciousness (first and foremost for a model based on Bjorn Merker’s ideas) despite the fact that such a theory is incredibly challenging to prove from a first-person, phenomenologically legitimate perspective – although it is nevertheless possible. To test this idea, I proposed an experiment focused on emergence from deep general anaesthesia. Finally, I claimed that such an approach could ensure a phenomenologically maximal and legitimate extension of the capability of consciousness in the natural world beyond humans.

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³⁴ See Husserl 1994, 376.

³⁵ For a more recent interpretation of how affections play a crucial role in organising the lowest sphere of mental life, see Horváth 2024.

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