Article

Anatomical Correlates of the Main Levels of Consciousness

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ABSTRACT

Consciousness has scientists baffled, and the search to understand it has been described as the Holy Grail of science. However, the hypothesis that different levels of Consciousness, which can be encountered through phenomenological introspection, might be correlated with different layers of our anatomical development, which unfolds in gradational degrees, offers a new way of looking at our body, our mind, our nature, and Consciousness. Here Pure Consciousness is considered a non-physical intelligence that gives rise to life, expresses itself through all forms, prompts our anatomical development, and in humans, manifests itself through a by-product called 'mind' comprising of several levels. As we are part of this intelligence, we can explore the deeper levels of our consciousness using the cursor of our mind. The search for the deeper Self is consistent with the phenomenological perspective used by somatic heart-based meditation methods, as opposed to the modern Western phenomenological standpoint, which is the study of 'phenomena'. As our body unfolds in gradational degrees linked to layers, we suggest there might be a relationship between these layers and the levels of consciousness we can encounter in our search to know our deeper Self. These different aspects are addressed in this paper.

Keywords: Consciousness, anatomy, correlate, levels, layers, mind, intelligence, self.

1. Introduction

One of the enigmatic frontiers of science is understanding consciousness. Disciplines that study consciousness, especially those disciplines which are still based "on the Newtonian-Cartesian paradigm of mechanistic science" (Grof, 1985, p. 65), are inclined to support a materialistic point of view. Western science has stripped the original view of Newton and Darwin of their belief in divine intelligence underpinning all of creation and replaced it with one of radical philosophical materialism. This has given rise to the belief that consciousness is a product of the brain, which is understandable, as clinical and experimental neurology demonstrate there are close connections between various aspects of consciousness and physiological or pathological processes in the brain, such as traumas, tumors, and infections. "However, they do not necessarily prove that consciousness is produced by the brain" (Grof, 1985, pp. 21–22).

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This model of reality is now being supplemented:

> By quantum-relativistic physics [which] has transcended the concept of solid, indestructible matter and separate objects and shows the universe as a complex web of events and relations . . . However, the physicist has very little to say about the variety of the different forms the cosmic dance takes on various other levels of reality. The experimental insights from unusual states of consciousness suggest the existence of intangible and unfathomable creative intelligence aware of itself that permeates all realms of reality. This approach indicates that it is pure consciousness without any specific content the represents the supreme principle of existence and the ultimate reality. From it, everything in the cosmos is derived. (Grof, 1985, p. 72)

In this paper, I look in more detail at the 'cosmic dance' this creative intelligence takes in humans by suggesting there is a relationship between different levels of consciousness which we can encounter through phenomenological introspection and our anatomical development which unfolds in degrees.

Whether we like it or not, and whether we acknowledge it or not, in Psychology whatever statement we make rests on our metaphysical perspective. Materialistic science has influenced our thinking, and the philosophy of Descartes still affects us by creating a mind-body split. In Transpersonal Psychology, the influence of Buddhism has always been strong (Berkhin, 2014) and some authors are investigating the transplantation of Buddhism in the West (Clasquin, 1999). However, we must remember that Buddhism and more particularly Theravada Buddhism, does not recognize the existence of the Self (Buddha, n.d.; Ruparell & Markham, 2001). The position I adopt here is that Pure Consciousness[1] is a non-physical intelligence giving rise to life that is expressing itself through all forms. As such we are a fragment of that entity, and we participate in its nature, a position known as qualified monism. This intelligence also prompts our anatomical development, and in humans, it manifests itself through a by-product we call 'mind' comprising of several levels (Arka, 2013). Here I look at how these levels might be correlated with the unfolding of our anatomical development which develops in layers in gradational degrees.

Like material scientists, many biologists consider individual organisms as consisting of "separate systems" (Grof, 1985, p.22) where the whole is the sum of the parts. Here we take the view that the body of a living organism is an interconnected whole that develops in gradational degrees. It can be considered as a special type of container (Arka, 2003) with which we and the environment can interact, but it is also under creative cosmic influences. In Biology, we talk of anabolism, metabolism, and catabolism. It is these forces that are behind the development, maintenance and destruction of the material body of a living organism including cells (Bhakti Niskama Shanta, 2015), all of which are unfolding individually and collectively as a single unit in time. As this is a process, it makes the analysis of the body difficult as any investigation involving measurement collapses the wave of unfolding time and transforms the body into a

[1] Consciousness, Self, Soul, and the Self of Nature, all similar concepts, are used here interchangeably and are written with capitals to distinguish them from soul and self which is a fragment of Consciousness. Pure Consciousness is also known as Spirit Consciousness.

static entity. I do not negate the importance of genes but suggest that as identical genes are present in every cell, they cannot be the intelligence behind deciding how, when and where to activate what needs to be done in each moment in the organism. In this, I concur with Blechschmidt (2004), who also suggests the "form of the organism differentiates under biodynamic forces, not chemical-genetic information" (p. 18).

As background material, I also briefly outline some fundamental differences in approach to consciousness between the modern-day Western phenomenological perspective and the phenomenological perspective used by people in the search for the deeper Self or Pure Consciousness using somatic heart-based meditation methods. I then outline the Theory of the Six Main levels of Consciousness which is coherent with this latter approach. It was developed by Srinivas Arka (2009; 2013) and is based on explorations into the nature of his consciousness and the experiences of his pupils using a somatic heart-based method of meditation known at Intuitive Meditation. Although the inner experiences of each person are unique, according to this theory each level has an inherent characteristic, quality or commonality which can be accessed and experienced by the practitioner when investigating the nature of his or her deeper self. It is this commonality that I hypothesize is correlated with certain phases in our anatomical development.

As the hypothesis regarding levels of consciousness and different layers of our anatomical development is linked to Arka's theory, it is important to also establish the validity of this theory. It is testable, at least in principle, by making his statement regarding consciousness as an entity that takes different forms and activates several levels in humans into various hypotheses where each level consists of a separate hypothesis. Among other corroborating evidence, I present scientific findings in support of the third level of this theory, insights from other approaches including analytic psychology, and information based on another heart-based meditation method known as Prayer of the Heart. Support for the anatomical correlates with the different levels comes from Arka's (2013) descriptions of the levels, and the reverse order of the distinct anatomical phases our body undergoes during our embryonic development. I therefore also describe this development and how our body unfolds in gradational degrees linked to layers; a process referred to as gastrulation, so we can better understand the suggested correlates between our anatomical development and different levels of Consciousness I am suggesting here.

These different aspects are addressed in more detail in this paper, as are the many implications of this approach, theory, and hypothesis.

2. Background

The nature of consciousness can be looked at from various lenses. India has a long history of investigating consciousness and its nature using the "inside out approach" (Lindhard, 2019). This involves meditating on the Self and contemplating its nature. The people who were successful in their search became known as philosophers, *rishis, seers,* and *yogis* and to help others undertake this inner inquiry, they developed methods, known as meditation. However today most methods of meditation have little to do with this original intention (Arka, 2013; Lindhard, 2016).

One thing that these early methods have in common, is the withdrawal of the senses from their objects in the outside world. This is one of the fundamental differences between the modern-day Western phenomenological approach and that of India. In the Indian tradition, the aim is to know one's deeper nature or Self and the object of ones' inquiry is "the origin of consciousness expressing itself through the human body" (Arka in Lindhard, 2016, p. 147).

This approach was not only undertaken in India but was also used by other people in the ancient world such as Egyptians, Persians, Jews, people in the Mediterranean area, the Desert Fathers in the Christian tradition and later by the Sufis (Louchakova 2004). As many of these people practiced a somatic heart-based method known as Prayer of the Heart to discover through "experimental phenomenological introspection, the living topological construct of the Self " (Louchakova, 2007, p. 82), I prefer to use the term *'Yogic tradition'* rather than Eastern to collectively refer to all the traditions which meditate on the Self. *Yogic* traditions stem from the root of the Sanskrit word *yoga*, meaning to Yoke by "uniting the individual spirit with the Universal Spirit" (Ayush, n.d.para. 1).

The experiences that arise as one progresses with one's investigation into one's inner nature, are unique to each individual. However, Arka (2009; 2013) maintains that certain levels are common when a person goes below his or her (thinking) mind using a heart-based method. He identifies the part of the individual that undertakes this inner journey, as the "I awareness," "I ego conscious awareness," or "I ego awareness". This part of us is the pivot of our memories which make up our personality (Arka, 2009). Human awareness is a fragment of Consciousness, and it is the part of us that, like a cursor, we can direct at any activity or object we want, including exploring the deeper nature of our own consciousness or Self. In the journey to Self-realization, Arka (2013) talks about the need of the person to reverse all that has happened to him or her whereas other heart-based meditation approaches that meditate on the Self, talk of *ego transcendence* (Louchakova, 2006; 2007; Louchakova & Warner, 2003; Louchakova-Schwarz, 2014).

> In the West, modern-day phenomenology is considered the study of structures of consciousness as experienced from the first-person point of view. The central structure of an experience is its intentionality, it's being directed toward something, as it is an experience of or about some object …. literally, phenomenology is the study of 'phenomena': appearances of things, or things as they appear in our experience, or the ways we experience things, thus the meanings things have in our experience …. phenomenology studies the structure of various types of experience ranging from perception, thought, memory, imagination, emotion, desire, and volition to bodily awareness, embodied action, and social activity, including linguistic activity. The structure of these forms of experience typically involves what Husserl called "intentionality", that is, the directedness of experience towards — represents or "intends"— things only *through* particular concepts, thoughts, ideas, images, etc. (Smith, 2018)

Philosophers refer to phenomenal introspectively accessible raw, direct subjective aspects of our mental lives as qualia (singular quale) (Tye, 2017).

In comparing the modern-day Western and Yogic phenomenological approaches to consciousness, we can see they are essentially two different undertakings both involving inner inquiry but where each has a different intention. The Western phenomenological approach involves the study of the appearances of things or things as they appear in our awareness, whereas in the yogic approach, one has to withdraw one's senses from objects in the outside world to go below or above one's surface (thinking) mind consciousness to discover one's true nature or Self through experience. This is achieved by rewinding our surface consciousness.

WESTERN PERSPECTIVE	YOGIC PERSPECTIVE
Directed towards something: it is an experience of or about some object.	Withdrawal of the senses from objects in the outside world.
The study of 'phenomena': appearances of things, or things as they appear in our experience.	The study involves going below or above our thinking mind consciousness..
Intention: Learn about the meaning things have in our experiences.	Intention: Learn about the topographical nature of one's consciousness or self .
Discover the structure of various types of experience ranging from perception, thought, memory, imagination, emotion, desire, and volition to bodily awareness, embodied action, and social activity, including linguistic activity.	Discover through experience the true nature of one's Self. The mystical union between the individual self and the Self of Nature or Pure Consciousness which pervades everything.

Figure 1. Outline of the Principle differences between the Western and the Yogic approach to Phenomenology

3. The Theory the Six Main Levels of Consciousness, Definition of Consciousness, our Anatomical Development and Possible Anatomical Correlates of the Main Levels

The following sections involve different facets of the Self and Self-inquiry using Arka's theory of the Main levels of Consciousness as a starting point.

3.1. The Theory the Six Main Levels of Consciousness

This first section deals with the main levels the practitioner will discover when going below the mind using a heart-based method such as the Intuitive Meditation method. It is consistent with the Yogic approach which involves the search for the Self. The main levels Arka outlines in his theory are:

> **M (Mind) – Consciousness:** Mind is the first layer, which manifests on the surface of the cerebral region. As it becomes sharpened by the cultivation of learning, it evolves into a faculty called intellect.
>
> **SM (Subliminal-Mind) – Consciousness:** The second level, which is below the surface mind, is the subliminal or subconscious mind. We are unaware of its potential and capabilities, which may seem incredible to the surface mind. Many daily activities are governed by the subconscious mind.
>
> **F (Feeling-Mind) – Consciousness:** The third level is the feeling mind. This feeling-consciousness generally prevails in the heart area and can thus be called the Heart of Heart-Consciousness. It includes an emotional faculty called intuition. Almost all mothers have this faculty naturally available and readily accessible to help them understand the intense needs of their children and the people they care about.
>
> **H (Emotional-Heart) – Consciousness:** The fourth layer is the deeper heart where you feel emotions with even greater intensity. This can be called the spiritual heart, or your inner consciousness. The presence of the surface mind is reduced and the presence of subliminal or subconscious mind is enhanced. It is formed by impressions gathered through what you have learned and experienced along with the memory of your personality.
>
> **HS (Heart-Soul) – Consciousness:** The fifth level is between the deeper heart and the ultimate essential being (Soul). Here you experience inner-space and the Mystical Universe, where the laws of physics start reversing and lead you to experience many alternative realities and possibilities that give access to your soul. Here you become more connected with Nature and the forces of the Universe.
>
> **PS (Pure-Self) – Consciousness:** The sixth layer is Core-Consciousness. This is the very essence of your whole presence and of everything that you feel, think and do. It is addressed as Soul or Self. (Arka, 2013, pp. 37–38)

3.2. Arka's Definition of Consciousness

Fundamental to Arka's theory is his definition of Consciousness.

> Consciousness manifests itself through physical matter. Similar to bacteria that are able to survive with a complete lack of oxygen and in high temperatures,

> consciousness lacks boundaries, can take any form or shape and can emerge under challenging life conditions. In spirituality, consciousness is mainly a non-physical yet powerful entity that is the pivotal point of all life and activates the senses in every living being. It is highly responsive and expressive and activates many levels, especially in humans. (Arka, 2013, p. 37)

This definition is consistent with those based on the Vedic tradition of India but Arka amplifies it by adding the notion of levels. In the Vedantic tradition, life and Consciousness are interrelated. "Life is essentially cognitive and conscious. And consciousness, which is fundamental, manifests itself in the gradational forms of all sentient and insentient nature" (Bhakti Niskama Shanta, 2015, abstract).

Clarifying it further, Arka says "Consciousness is a highly resourceful non-matter-based intelligence with the capacity to create and dissolve any form and body according to certain laws and principles. To reduce itself to material existence Consciousness creates a by-product of itself which we call mind. The extension of consciousness from the heart center is mainly brain-based" (private correspondence 10.9.2019).

3.3. Our Anatomical Development

To follow the suggestion that levels of consciousness might be related to different layers of our anatomical unfolding, we first have to have a clear idea of the phases we undergo during our embryonic development and how our body develops in gradational degrees linked to layers; a process referred to as gastrulation.

3.3.1. The Anatomical Phases

In this section, we look at the development of the heart system and the CNS. However, we must remember the body is a single growing unit and it is only our analysis that separates the various systems when we collapse the wave of time at specific moments to study the different aspects in more detail.

3.3.1.1. Development of the Heart System

The outer body: After fertilization, the developing zygote goes through various phases where the outer body, also known as the ectocyst (outer egg), or placenta, develops first. This lays the ground for the development of the endocyst, inner egg or inner body which gives rise to our physical body, including the brain. The development of the inner body is linked to blood and the formation of blood islands and blood vessels (capillaries) that originate within extra-embryonic *meso-(derm)* in the outer body. Van der Wal (2003/2014) reminds us that *meso-(derm)* is not a derm, but an inner layer which "creates space and connects at the same time" (p. 42) and for this reason, he prefers to write "*meso-(derm)"* (p. 42); a convention I follow here.

Blood: Blood is the first functional differentiation of the *meso-(derm)* in the ectocyst and can be considered as a form of "liquid connective tissue" (Hill, 2019a, Introduction) which links the

meso–(derm) of the ectocyst with the *meso–(derm)* of the endocyst during embryonic development. Even though the embryo's blood and the blood of the mother do not directly touch, blood can be seen as our direct link with our mother via the placenta, and also with our mother, father, and ancestors via genes. Although in the adult, red blood cells have no nucleus, fetal blood does (Hill, 2019a). In the embryo, red blood cells can be seen as transporters of our lineal history and also carries of life in the form of oxygen and nutrients. As such, in the embryo blood forms a bridge between the outer and inner environment and the development of the new being with their ancestral past.

Blood flow: In the developing embryo, blood flows from the metabolic periphery of the trophoblast, or extra-embryonic *meso-(derm)* to the body stalk, which is at the caudal end of the germinal disc. It then proceeds toward the cranial end of the embryo, running alongside the "flanks" of the bi-laminar germinal disk, then dorsally along the amniotic cavity (only very little) and ventrally along the yolk sac (some more). At the central point, which van der Wal calls the "centripetal junction of blood vessels," it comes to a halt and then flows back to the periphery through other capillaries. "This point of reversal, where the flow comes to a standstill, turns about, and takes on a rhythmical character, is the first indication of the origin of the heart" (van der Wal, 2003/2014, p. 44). It must also be noted that "the movement of blood flow is primary; the emergence of the heart is secondary. First, there is flow, and where this comes to a standstill, the form arises" (van der Wal, 2003/2014, p. 44).

Pulsation, a new phase: When the heart begins to pulsate on about day 17, it heralds a new phase, as through the pulsating heart the wave of life becomes tangible. Pulsation is "the underlying core principle and property of universal existence, cosmic existence, and local existence" (Arka in Lindhard, 2016, p. 87). This is in accordance with the quantum physicist de Broglie who held "a particle at rest not only possessed a localized heartbeat but was also accompanied by a widespread pulsation forever in step with it and extending all over the universe" (Hoffman,1959, p. 75). Pulsation seems to be the commonality between the material world consisting of particles and the human world including animals for "at the core" all pulsate (Arka in Lindhard, 2016, p. 87).

This is in keeping with some spiritual traditions which recognize "the essential nature of the Lord (non-physical intelligence) is perpetual *spanda* (creative pulsation). He is never without *spanda.* Some hold that the Highest Reality is without any activity whatsoever. But in such a case the Highest Reality being devoid of activity, all this (i.e. the universe) will be without a lord or Creative Power (Singh, 1992, p. 10).

Planck too assumed that there was "a conscious and intelligent mind" behind the force that brings "an atom to vibration (pulsation) and holds this most minute solar system of the atom together" (Planck, 1944, p. 47).

Looked at from this perspective, the heart takes on new relevance, for, through pulsation, it is the representation of the highest creative force behind the Universe. "God" made manifest. As G-O-D is also an acronym standing for Generation, Organization and Destruction, we get back to the biological forces of anabolism, metabolism, and catabolism.

Descent of the heart: During the next phase, the heart begins its descent to its final position in humans at the center-left in the upper chest. This phase takes many days where the morphology of the human embryo undergoes numerous changes. During this descent, *cardiac morphology* repeats a pattern of development that "occurred in millions of years from worms to mammals" (Corno, Kocica, & Torrent-Guasp, 2006, p. 562). At the same time, the initial tube-like nature of the heart at the cranial end of the germinal disc begins to form itself into a double helix. That the mature heart consists of a band known as the helical ventricular myocardial band which folds itself into a helix, was established by Torrent-Guasp (1973) after spending many years of literally unraveling the heart through blunt dissection (2011)

Gastrulation: A helix means a curve in space and to fully grasp the importance of descent of the heart from its position at the top of the bilaminar germinal disc, requires comprehending a process known as gastrulation, which involves the development of different layers. Although the body is a single unit or interrelated whole, understanding the layers may help us unravel some of its mystery and how the development of our body is prompted or propelled by Consciousness through biodynamic forces to develop in a certain way. In the human embryo and most animals, gastrulation follows the blastula phase and corresponds with the "formation of the three primary germ layers – ectoderm, endoderm and mesoderm" (Lim & Thiery, 2012, p. 3472). Gastrulation is followed by organogenesis, which is when individual organs develop within the newly formed germ layers. Each layer comprises certain elements, for example, the outer germ layer or ectoderm includes skin, hair, nails and the nervous system. The interior endoderm includes all of the cell systems which line our organs and vessels. The layer in between, known as the mesoderm, includes "the great muscle masses, both the voluntary muscles which underlie all of our work, actions and behavior, and the involuntary muscles which make up the walls of all of our organs such as heart and blood vessels, respiratory and gastrointestinal systems, and our bones" (Course Hero, n.d., Early Brain Development). As stated earlier, *meso-(derm*) is not a derm but "creates space and connects at the same time" (van der Wal, 2003/2014, p.42). Essentially during gastrulation, the rudimentary body of the bilaminar two-dimensional germinal disc transforms into a three-dimensional body with an inner space where the first organ is the pulsating heart. The heart system can also be considered as extending throughout the body for the "heart" is not only the organ but consists of the whole circulatory system, the involuntary muscles that make up the walls of the heart and blood vessels and blood. Where the heart as organ stops and starts is a decision; does the artery when it leaves the heart as organ no longer form part of the heart? Although the heart as 'organ' can be considered the center of the heart system, the formation of blood in the extra-embryonic meso-(derm), is the precursor of this system.

3.3.1.2. Development of the CNS

The midline of the organism which forms into the backbone unfolds in parallel with the looping of the heart. The notochord starts to form on the same day the heart *primordium* starts pulsating (Moscoso, 2009). "One of the first tasks of the primitive *meso-(derm)* is coming together to form a long cylindrical structure. In doing this, they are recapitulating the earliest event in the transition from invertebrates to vertebrate forms, a transition which occurred at least six hundred million years ago" (Braintour, n.d., Early Brain Development).

Delamination: Delamination or folding takes place over several days starting day 18/19 (Moscoso, 2009) and consists of two main stages: longitudinal folding and transverse folding during which the flat tri-laminar disk is slowly changed into a three-dimensional cylinder.

CNS: In the trilaminar embryo, the notochord consisting of *meso-(derm)* tissue, initially lies ventral to the ectoderm, out of which the neural plate and finally the neural tube form. The notochord is "a transient embryonic anatomy structure, not existing in the adult, required for patterning the surrounding tissues" (Hill, 2019b, Introduction)
The neural tube is a visible dorsal line that curves inwards giving rise to the neural fold, the sides of which finally meet to form the neural tube that lies beneath the ectoderm layer. The anterior end of the neural tube will develop into the brain, starting on about day 25, and the posterior portion will become the spinal cord (Rice University, n.d.) This basic arrangement of tissue structure will eventually develop into the CNS and the brain comprising of neural ectoderm.

Electrical Potential: These midline structures are probably related to the inherent electrical potential discovered by Burr discovered in unfertilized eggs or ovules of various species. In chicks, his studies seemed "to indicate that the potential gradients also are associated with the development and differentiation of the nervous system" (Burr & Hovland, 1937, p. 255).

Main Division of the Brain: The three main divisions of the brain at the anterior end of the neural tube can be distinguished while the neural groove is still completely open (The Virtual Human Embryo, 2011) These are primarily just bulges but by day 29 "three brain vesicles or neuromeres can be clearly identified on close examination: the prosencephalon (forebrain), the mesencephalon (midbrain) and the rhombencephalon (hindbrain)" (Moscoso, 2009, p. 15), although strictly speaking the word rhombencephalon translates as four-sided-figure-brain. At this stage, the head has become larger than the cardiac loop and these structures continue to develop throughout the rest of embryonic development and into adolescence. The brain vesicles are the basis of the structure of the fully developed adult brain. The primary vesicles differentiate into five secondary vesicles with the prosencephalon (forebrain) differentiating into the telencephalon and the diencephalon; the mesencephalon (midbrain) stays the same, and the rhombencephalon develops into the metencephalon and myelencephalon. The telencephalon becomes the cerebrum and the diencephalon gives rise to further structures such as the into the thalamus and hypothalamus. The metencephalon gives rise to the pons and cerebellum and the myelencephalon corresponds to the adult structure known as the medulla oblongata. Except for the cerebellum, these latter structures make up the brain stem.

Human Neuroaxis. As the human being is two-legged, the neuroaxis has a bend between the brain stem and the diencephalon, along with a bend in the neck, so that the eyes and the face are oriented forward.

The Cranial Nerves: The cranial nerves are paired and can be mixed (motor/sensory), The trigeminal nerve (CNV) develops first and is connected with touch, and as such, is the 'mother sense'. Whether sensor or motor, most of the cranial nerves are related to our sense system through which we receive information about objects in the exterior world or orientates us to act or react to these objects. The cranial nerves are the brain equivalent of the spinal cord spinal nerves. (Hill, 2019c),

While the brain is developing from the anterior neural tube, the spinal cord is developing from the posterior neural tube. The basic structure of the neural tube remains long and straight. In addition to being defined as anterior and posterior, "it also has a dorsal-ventral dimension" with dorsal being the side closest to the surface and ventral being the deeper side (Rice University, n.d.). The former is to do with sensory functions, and the latter with motor functions. The spinal cord retains its tube-like structure which has a hollow center becoming a very small central canal through the cord which connects with the rest of the hollow open neural tube spaces within the brain called the ventricles, where cerebrospinal fluid is found.

Bioenergetic and environmental forces: Neural development is a "protracted development that begins in the third gestational week" (Stiles & Jernigan, 2010) and the last system to be completed after birth. Because of the long-time period, in-utero insult during pregnancy such as adverse environmental factors can later give rise to later anomalies in the fetus. But beyond environmental factors, the synchronicity in development between the morphology of the heart, which repeats a pattern of development that "occurred in millions of years from worms to mammals" (Corno, Kocica, & Torrent-Guasp, 2006, p. 562) and midline development, which "recapitulate the transition from invertebrates to vertebrate forms" (Course Hero, n.d.) suggests an intelligence which manifests itself through bioenergetic forces where the pulsating heart plays a role in changing a static system into a dynamic system occurring in waves which unfold in time.

3.3.2. Our ontological development

Ontologically, the heart is primary with the CNS including the brain developing later. The heart system is also the deeper system that exists below the surface neural ectoderm system of the brain and is separated from this deeper layer by the blood-brain barrier. From this perspective, the 'brain' is another division, for below the neurons of the brain (neuroectoderm), lie the whole of the heart system which extends throughout the body as well as other components which make up the *meso-(derm)* layer. Although it is not directly relevant to the topic presented here, some parts of the brain do not have a blood-brain barrier: the area postrema, the median eminence, the pineal gland, the neurohypophysis of the posterior pituitary gland, and the choroid plexus.

3.4. Relationship between the Anatomical Layers and the Main levels of Consciousness

Arka's theory and comments lend themselves to speculation about possible anatomical correlates with the main levels of consciousness he mentions in his theory. When we start to explore the nature of our consciousness to discover our true Self, we start from where we are at the moment, and this is the reverse order of that of our anatomic development which develops over time and involves different layers. The suggestion that there might be a relationship between levels and layers is in keeping with Arka (2013) statement that discovering our true Self requires rewinding our surface consciousness.

3.4.1. The First Two Levels

The first two levels he mentions can be seen as being associated with the reverse order of the development of the neural system which as we have seen, began its development from the neural tube with the anterior neural tube developing into the brain and the posterior neural tube into the spinal column.

Mind – Consciousness: Arka links the first level with the surface of the cerebral region. The cerebral region consists of the frontal lobes, parietal lobes, occipital lobes, and temporal lobes. The frontal lobes are the last to develop in young adulthood and the most recently evolved part of the brain. The cerebral region is associated with higher brain functions such as thought, speech, and action. **Mind – Consciousness** is most important as it enables us to communicate with the world and with others. Thinking with training as we grow up, develops into intellect, a topic which is of great interest to neuroscientists. Although no single region in the brain has a dominant effect on intelligence, the parietal frontal interaction theory offers a solution that has been supported by various neuroimaging studies. Recent studies suggest "each core region for intelligence works in concert with other regions" (Yoon, Shin, Lee, et al. 2017). Through the senses, the cranial nerves enable us to obtain information about the world outside of us.

Characteristic: awareness of the thinking mind

Subliminal-Mind – Consciousness: If we descend from this outer cerebral layer related to thinking, we get to more primal layers of the CNS which make up the cerebellum and the brainstem. The functions of the cerebellum are to coordinate muscle movements, maintain posture, and balance. The brain stem "acts as a relay center connecting the cerebrum and cerebellum to the spinal cord. It performs many automatic functions such as breathing, heart rate, body temperature, wake, and sleep cycles, digestion, sneezing, coughing, vomiting, and swallowing" (Mayfield Brain and Spine, 2018, Brain).
Both these areas can be associated with the subliminal mind which performs many actions that are normally beyond or beneath our conscious awareness. Some meditation methods direct attention to the breath, bringing this activity into conscious awareness.

Characteristic: awareness of automatic functions not normally under our control

3.4.2. Levels Connected with the Heart

To access the next levels which are related to the **mind of the heart**, we have to withdraw our senses from the outer world and go below the neural layer to contact with the heart. This requires entering into the inner or *meso-(derm)* layer, which joins and creates space (van der Wal, 2003/2014). We can divide the phase involving the formation of the heart system into three phases or waves, pre tangible pulsation, tangible pulsation and the development of the whole heart system which is linked to the formation of the body. The order of these phases is reversed as we descend from our thinking mind in our phenomenological quest to discover our true Self.

Feeling-Mind – Consciousness: This level can be associated with the whole of the heart system including the heart as an organ and the circulatory system made up of the involuntary muscles

which make up the walls of the heart and blood vessels and the oscillating heart. The level of consciousness is to do with feeling, hence its name. The feeling-consciousness that generally prevails in the heart area can be "called the Heart of Heart-Consciousness" and includes "an emotional faculty called intuition" (Arka, 2013, p. 37).To tune into this level, we need to go below our thinking minds which enables us to open to intuition. The pulsating heart is an oscillatory or vibratory system intrinsic to the mesoderm layer and it seems that through the heart, we may become sensitive to other vibrating fields. The heart's electromagnetic field is the biggest in the body, changes under different circumstances. This system can be considered a sensory guiding system that we can access by tuning into these fine changes through feeling and intuition. Mothers understand the need of their children and loved ones using this faculty (Arka, 2013). Armour (1991; 2007; 2008) has shown that the heart has an intrinsic nervous system of its own and McCraty (2009) found that the heart sends more signals to the brain than vice versa.

Characteristic: awareness of feelings giving rise to intuition

Emotional-Heart – Consciousness: This level is somewhat similar to the previous level but more intense. It can be seen as being made up of the pulsating heart. Pulsation, we will recall, is the underlying core principle and property of universal existence, cosmic existence, and local existence. Arka (2013) refers to this level as "the spiritual heart", or one's "inner consciousness". One is more aware of inner space and one feels emotions which are like "waves in the sea of consciousness", with even greater intensity. According to Arka (2003) "feeling is like water, emotion is like waves in the lake of consciousness" (p. 18). At this level, "the presence of the surface mind is reduced and the presence of subliminal or subconscious mind is enhanced and that "this level is "formed by impressions gathered through what you have learned and experienced along with the memory of your personality"(Arka, 2013, pp. 37–38), which suggests that this system is to do with memory. The fact that between 5 and 10 percent of the people who receive a transplanted heart report changes in their tastes, personalities, and most extraordinary, in their memories (Skofield, 2012) may support this assertion. During this fourth level, the practitioner also starts to become aware of the connection of their heart with the highest creative force behind the Universe. By tapping into this source, one receives guidance through intuition (Arka, 2013)

Characteristic: awareness of inner space, intensity of emotions, memory of one's personality and impressions of what one has learned as well as the ability to receive guidance.

Heart-Soul – Consciousness: I connect the next level "between the deeper heart and the ultimate essential being (Soul)" (Arka, 2013, p.38), with blood. Blood, as we have seen, first developed in the ectocyst and can be considered as a form of "liquid connective tissue" (Hill, 2019a, Introduction) which links the *meso–(derm)* of the ectocyst with the meso–(derm) of the endocyst during embryonic development. Blood can be seen as our direct link with our mother via the placenta, and also with our mother, father, and ancestors via genes. Blood also forms a bridge between the outer and inner environment and the development of the new being with their ancestral past.

We can say through blood we are connected with our parents, the environment, life, nature, our ancestors, and the Universe. When accessing this level "you experience inner-space and the Mystical Universe, where the laws of physics start reversing and lead you to experience many

alternative realities and possibilities that give access to your soul. Here you become more connected with Nature and the forces of the Universe" (Arka, 2013, p. 38).

Characteristic: awareness of one's connection with Life, Nature and the Universe and its various dimensions.

3.4.3. Pure-Self – Consciousness

Consciousness is present throughout the body and beyond. Here you first realize your 'self'– as a unique being living in a time-bound body which is part of Consciousness. The soul/self is the "is the very essence of your whole presence and of everything that you feel, think and do" (Arka, 2013, p. 38). When this level is reached many different possibilities and choices open up such as the mystical union of awareness with Consciousness or the Self of Nature permanently or temporarily by choosing to return to inspire others on their path to self-realization. During this experience, the practitioner goes beyond his or her ego identity and mystically merges with the consciousness of the Universe. This has some parallels with near-death experiences (Moody, 1975; van Lommel, 2010; Sleutjes, Moreira-Almeida, Greyson, 2014). Another option is to choose to explore different dimensions of reality. It seems "Nature is infinitely compassionate in giving us freedom of choice in our unfolding and destiny" (Arka, personal correspondence, 2.9.2019).

Characteristic: awareness of oneself as a soul, a unique being which at the same time is a fragment of Consciousness expressing Itself as Life which is manifesting itself through the body. This can lead to the mystical union between the individual self and the Self of Nature or Pure Consciousness which pervades everything.

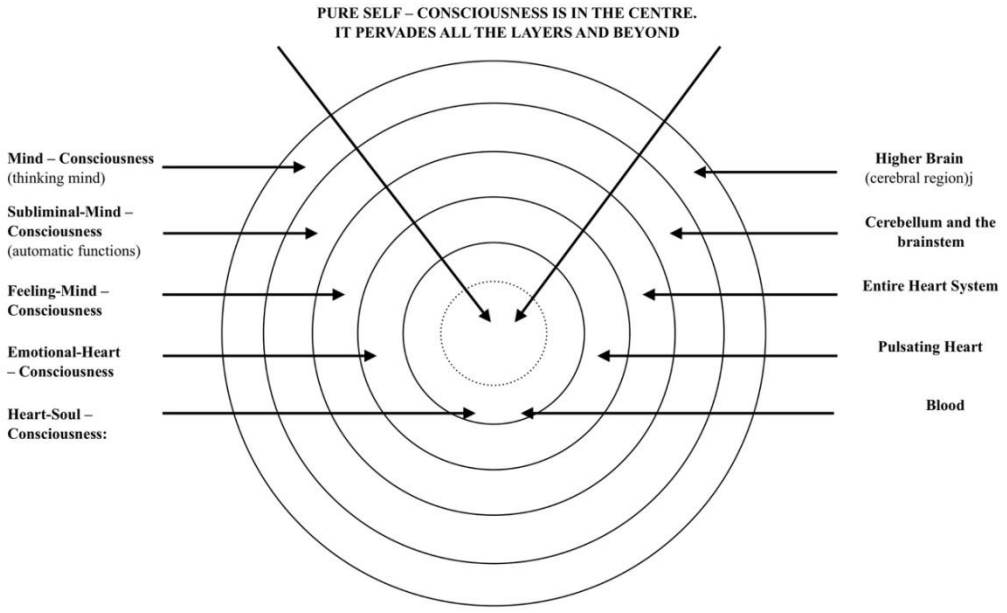

Figure 2. Outline of the Main Levels of Consciousness and Possible Anatomical Correlates

4. Discussion

The discussion is divided into two sections: support for the theory and the implications **of** the possible anatomical correlates of the main levels of Consciousness.

4.1 Support for the Theory, Conundrums, and Suggestions

4.1.1 Support based on Research: Using a repeated measures design to test the third level of Arka's theory, Lindhard (2016; 2017; 2018) found a significant difference in scores of participants as measured on the Feeling Consciousness Scale (FCS) after receiving five Intuitive Meditation training sessions spread over six weeks (a total of 13.5 hours). The scale items were based on Arka's theory, the literature, and descriptions by people who had practiced the Intuitive Meditation for about 2 years. Qualitative comments of the participants supported the test results. Although this study needs to be repeated using a bigger sample size, it does indicate it is possible to explore the different levels through quantitative and qualitative means. In her study Lindhard (2016) suggests that Feeling-Mind Consciousness might be related to the consciousness of the very young and the very old when they return to a more heart level of functioning.
It would also be interesting to establish if there is any connection between the levels and the brain waves like alpha, beta, theta, and even delta. Adding technologies like the MCG, ECG, EMG, EEG, MRI or the SQUID to investigations into the different levels using a qualitative and quantitative approach, might give us interesting insights into the levels. Like with dream research, instruments do not tell us about what the person is experiencing or the characteristic of their experiencing consciousness, but they can tell us more about corresponding brain waves or heart rates. Combining an 'outside-in' and 'inside-out' approach can give us a bigger and more complete picture.

4.1.2 HeartMath: HeartMath's scientific investigations into the heart have done much to dispel the notion that the heart is just a pump. Largely what goes on in the area of our Feeling Heart is below our awareness. Nevertheless, the heart has been found to send more signals to the brain than vice versa (McCraty, 2009). Research investigating the role of physiological coherence and intuition has shown the heart is involved in the processing and decoding of intuitive information (McCraty, Atkinson, & Bradley, 1998). Although the HeartMath technique does not involve the contemplation of the Self but "self-induced positive emotions" (McCraty & Zayas, 2014, Abstract), positive thinking and creative positive scenes, they have done extensive research into the different ways the heart communicates with the brain. According to them, there are four communication pathways: neurological, chemical, biophysical, and energetic (HeartMath Institute, 2016, Heart Brain Communication section, para. 1).

4.1.3 Heart Sounds: The hearts ubiquitous sound provides a continuum of sound and vibrational energy for the whole body throughout the entire lifespan" (Burleson & Swartz, 2004, p. 1112). The rhythm the heart emits can also be changed through changing our respiratory rate as in meditation and this can affect cognitive states and abilities (Peng, Mietus, Khalsa, et al., 1999). Vibrational heart sounds also seem to have a role in maintaining bodily function in the adult (Burleson & Swartz 2004). The Intuitive Meditation method rests on three pillars: touch, one's own vibratory sound, and breath but how these collectively affect heart rhythms still needs to be researched.

4.1.4 Prayer of the Heart: The oldest well-known heart-based method of meditation is known as Prayer of the Heart. It was practiced by many ancient traditions (Louchakova, 2004, p. 35). Prayer of the Heart is said to uncover "the inner structure of consciousness within this 'mind of the Heart' as opposed to 'mind of the head'" (Louchakova, 2005, p. 295). Based on data from focus groups, Louchakova (2005) distinguished between intentional consciousness associated with the head which usually consists of self-reflective, analytic/synthetic, logic-based constructs as opposed to the lived experience of 'mind of the Heart' in the chest which is gnostic or knowing (p. 295). This distinction is similar to the differences between the first and third levels of Arka's theory. Prayer of the Heart also increases intuition and is said to open practitioners to their emotional layer and feeling level of experience where silence leading to insights starts prevailing (Louchakova, 2005; 2007). However as little scientific research has been done on Prayer of the Heart, one does not know if this method opens the practitioner to all the levels outlined in Arka's theory.

4.1.5 Hydranencephaly

Although some of these children might have a more enlarged head at birth, many are of normal appearance and exhibit typical spontaneous reflexes such as sucking, crying, and movement of the arms and legs. But after a few weeks, symptoms like seizures, impaired vision and/or hearing, lack of growth, spastic quadriparesis (paralysis), and intellectual deficits appear. It is a developmental malady where the cerebral hemispheres in the cortex region of the brain, are completely or partially filled with a membranous sac filled with cerebrospinal fluid (Global Hydranencephaly Foundation, 2019). Considered as a cephalic disorder either of genetic or environmental origin, it occurs early in pregnancy. Neuroscientists describe the behaviors of these children as 'vegetative', but 69% indicate that, like normal children, they are interested in their mother's voice, music, bells, and stories, 81% show awareness of their surroundings, and 96% were observed to feel pain (Rays of Sunshine survey, n.d.). Although these children do not develop their cognitive abilities, they are conscious and aware, which raises questions regarding the theory that consciousness is a product of the brain. Pereira (2016) suggests that consciousness is beyond the brain and applies a quantum model where "alternative or capability transfers through quantum computation of consciousness as a means of survival" (p.614). For him, consciousness needs to reside in "every inch and cell of the body" (p. 616) for these individuals to survive. Although we agree that consciousness is present throughout the body, Pereira's model does not help understand or explain the experiencing consciousness of these children. On the other hand, the model we present suggests children with hydranencephaly possess an emotional-heart and feeling-based consciousness as well as subliminal-mind consciousness, but the extent of the latter depends on the severity of their handicap. For a variety of reasons which still need to be clarified, they do not develop thinking-mind consciousness linked with the cortex. This model is also able to throw light on the type of experiencing a consciousness of individuals not only with hydranencephaly but who have other types of cephalic disorders.

4.1.6 Heart-Transplant Patients: Between 5 to 10 percent of heart transplant patients can tap into memories of their donors and even adopt some of their habits (Pearsall, Schwartz, & Russek, 2005; Skofield, 2012). This seems to lend some support for the fourth level, which is said to be also related to memories of our personality. Observations concerning patients with other organ

transplants such as kidney and liver, also manifest changes in sense of smell, food preference, and emotional factors, but these seem to be transitory and could be associated with medications and other factors of transplantation (Pearsall, 1998). These observations need to be verified as they imply the heart has a special role regarding memory (Pearsall, Schwartz, & Russek, 2005). Reports from some heart transplant patients lead to many questions concerning memory and its storage. Is it stored in the heart circulatory system below the neural ectoderm layer of the brain, the whole of the mesoderm layer, the heart as an organ, or even outside of the system where the heart plays a role in its recovery? It is also possible that there are different places for long and short-term memory.

For Oschman (2000) the heart plays a modulating, perhaps even coordinating, role in the body's electromagnetic, potential and quantum fields acting through the living matrix. For Maret (n.d.) biological systems, including the heart, exhibit non-local, global properties, which are consistent with their ability to function at the quantum level (Maret, n.d., para. 3). Living systems are dynamic organizations of intelligent information expressed in energy and matter (Swartz & Russek, 1997; 1998). When modern systems theory is applied to biophysical energy, known as the 'dynamical energy systems approach', the biophysical consequences of organized energy have far-reaching implications for the role of the heart. Whereas living systems theory posits that all living cells possess "memory" and "decide" functional subsystems within them (Miller, 1978), the dynamical energy systems approach posits that all dynamic systems store information and energy to various degrees (Swartz & Russek, 1997; 1998).

It seems that many aspects might be involved in the storage of memory and I am not going to venture an answer to this conundrum in this article except to say Arka's theory and its possible anatomic correlates provides a new way of looking at our bodies which are comprised of various systems and where the heart as organ and as a sensory vibratory or oscillating system probably plays a much bigger and more important role than is realized by science at present. Although these theories talk about how memory might be stored, they do not tell us how the heart recipient retrieves the information, although the sensitivity of the person seems to be a needed quality. Another mystery that needs to be addressed.

4.1.7 The Unconscious Mind of Freud and the Collective Unconscious of Jung: Although the term 'unconscious' was first coined in 1896 by the German philosopher Schelling, Freud popularized it in his psychoanalytic theory. It seems that it might have a relation to the above topic about heart transplants as the unconscious (mind) is said to consist of processes that are not normally available to our surface consciousness and include thought processes, forgotten memories, interests, motivations and repressed desires (Western, 1999). For Freud (1963) these past experiences direct our feelings and are the primary *source* of human behavior. As such, the heart as a sensory vibratory system that lies below the neural system might be related to Freud's unconscious with memories being held in the mesoderm layer which includes all major muscles, both those under our control and those that are not. These muscles especially those of the heart, could form into fixed patterns depending on our habitual way of doing and reacting to the world. Nummenaa, Glerean and Hietman's (2013) investigation into emotions could be related to this, as are the effects of our emotional thoughts on our bodies (Lindhard, 2015). Indirectly these investigations give support for the third and fourth level of Arka's theory, as well as suggesting they might provide a possible location for the unconscious of Freud.

Jung recognized the personal unconscious of Freud but claimed there is another level which he referred to as the Collective Unconsciousness where a person could tap into archetypes and memories of a collective nature (Jung, 1969). This could be related to the fifth level of consciousness where blood as a carrier of our past via genes, plays a major role in forming the body and is the early connection between the outer and inner world.
Unraveling all the implications of these suggestions is a challenge that is beyond the objective of this article.

4.2 Implications of the possible anatomical correlates of the main levels of Consciousness

Although many of the implications of Arka's theory and the possible anatomical correlates of the main levels of Consciousness have already been touched on indirectly in this paper, below we consider several of them from a biological, neuroscientific, cognitive, socio-cultural, scientific, and philosophical perspective.

4.2.1 Biological perspective: Correlating levels of Consciousness with anatomical layers invites one to contemplate the creation and maintenance of the body and how it functions. During our embryological development, the descent of the heart possibly plays a role in creating the inner space or dimension between the ectoderm and endoderm layers and the oscillating heart probably has a dynamic function in creating the wave of time (Lindhard 2016). Through the pulsating heart, it seems Pure intelligent Consciousness plays a major role in creating and maintaining the body. This does not exclude the role of DNA and RNA, and the environment in this undertaking; instead it invites exploration into how these different factors interact to form and maintain a body that is unique to each individual. Looking at the possible relation of different levels of Consciousness to different layers of our anatomical development opens science to a new way of looking at the human being. This relationship also permits speculation about the levels of the experiencing consciousness of animals and other living beings.

4.2.2 Neuroscientific perspective: The approach presented here does not distract from the research already done on the brain and the correlates between structure and function. However, it indicates that below the neural layer is another layer and network which is predominately made up of the heart system that extends throughout the body. This division opens new avenues of exploration regarding how the various parts of the brain are influenced and possibly coordinated by this underlying layer.

4.2.3 Cognitive perspective: It seems as though we have two main epistemological ways of knowing, one to do with the thinking mind and one to do with deeper feeling-heart mind which gives rise to intuition. This suggested separation brings clarity to an area that has long fascinated philosophers and psychologists alike. The next step is researching how one can access and develop intuition consciously and the possible role of heart-based methods like Intuitive Meditation in this ability.

The role of bringing our unconscious memories and suppressed emotions to the light as a possible necessary prerequisite in not only fine-tuning our intuitive abilities but also accessing even deeper levels of consciousness also needs to be clarified and investigated.

4.2.4 Sociocultural perspective: The Intuitive Meditation method is said to be a natural way of investigating one's inner world and undertaking the search for one's deeper Essence, Self or Soul. This has wide implications. One does not have to be religious to undertake this inner journey, however one needs to want to know the truth and experience it. It is not an easy journey as one has to re-wind one's history however for those who want to do this, there is a theory that gives clear guidelines about some of the levels one will experience that can be tested by the person undertaking the journey.

Many modern-day meditation methods claim to be secular and are often directed at transforming the practitioner but are not focused on knowing one's true self or soul. When comparing meditation methods, these differences need to be taken into account and also investigated.

4.2.5 Scientific perspective: Although it is not possible to scientifically prove that Consciousness is primary and is an entity taking different forms, Arka's suggestion that it activates different levels in humans, enables the levels to be researched through quantitative and qualitative investigations of people undertaking the inner journey and by using technology from the outside-in position. This theory, and the possible anatomical correlates, is also open to investigation by various disciplines through which we might be able to obtain a more complete understanding of the human being as a self or soul living in a time-bound body, how the body is formed, the role of memory and how and where it is stored, and also how to retrieve our past.

4.2.6 Philosophical perspective: In Eastern philosophy, Buddha removed the soul as an entity experiencing life by claiming all states are impermanent and the idea of a self or soul is an illusion (Buddha, n.d.; Ruparell & Markham, 2001). In the West, Descartes's *cogito ergo sum*, 'I think therefore I am', created a mind-body duality which associated the soul only with thinking. As such, for him, animals have no souls. Descartes's thoughts still influence us today and the neurological search to find consciousness in the brain seems to be a reflection of this.

Arka's theory admits to a personal self or soul, which is seen as a part of Consciousness, also known as Self, Soul, or the Self of Nature. Here consciousness is considered as being omnipresent throughout the body, as well as promoting its development in gradational degrees linked to layers. As suggested, these layers might be related to the different levels of Consciousness outlined in Arka's theory and where each level shares a certain commonality. We cannot be sure if the experiences of practitioners who undertake the inner quest are the same as when they were embryos. However, experiences during Holotropic Breathwork, indicate that there might be a relationship between experiences in therapy and what occurred to the person during his or her embryonic past (Grof & Grof, 2010).

After discovering our personal self as a fragment of Consciousness manifesting through our body and beyond, this approach admits to the possibility of the mystical union of our individual self with Consciousness or the Self of Nature, either permanently or temporarily. Arka's philosophical stance is suggestive of a position known as qualified monism. He also seems to hold a soul-body duality where the incarnated soul interacts with the body but is not the body which is seen as a special kind of container (Arka, 2003).

5. Conclusions

Arka's (2013) theory brings back the concept of Self and soul to a secular world where these concepts are often ignored. The idea that Consciousness is a nonphysical intelligent entity manifesting through all forms which actives different levels of consciousness in humans, makes Consciousness primary, rather than just a product of the brain. Being a fragment of consciousness, we can discover our true Self by using our surface awareness or cursor of the mind, to explore our inner world. We can undertake this investigation as a personal inner quest, but, as suggested here, it can also be investigated through the scientific study of others engaged in the search for the topographical nature of their inner Self.

The hypothesis that the main levels of Consciousness mentioned by Arka might be correlated with our anatomical development opens science to a new perspective, which may lead to novel insights about the interconnection between consciousness and the development of the body. It also might clarify the origin of some of our abilities, such as intuition, and point to a location related to the unconscious of Freud.

The approach highlights the relationship between the heart and feeling and, therefore, presents the possibility that embryos, babies, young children, infants with hydranencephaly, and even other species, have different levels of experiencing consciousness to people who have developed their intellectual abilities linked to their thinking mind.

There is much to explore, and this article is only an introduction to this new way of looking at our body, our mind, our nature, and Consciousness.

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