

THE EMBRYO IN US

A PHENOMENOLOGICAL SEARCH FOR SOUL AND CONSCIOUSNESS IN THE PRENATAL BODY

Wine got drunk with us, not the other way.
The body developed out of us, not we from it.
We are bees and our body is a honeycomb.
We made the body, cell by cell we made it
Rumi (1207 - 1273)

Lost body

In the last two decades we have seen a new onslaught of materialistic thinking in biology, psychology and philosophy. Truly, it could be described as a tsunami. Based upon concepts about the function of our brain according to modern neurophysiology, a new perspective about the human soul and consciousness is introduced and apparently accepted by the general public. To summarize the gospel of modern brain philosophers: the brain rules the mind. All that we feel, think, do – well, it's just the "brain." Everything that we are able to experience is attributed to the brain and reduced to 'nothing but' the activity of hippocampi, cerebral cortical areas and so on. The post-Cartesian soul which still was more or less defensible as the imponderable *res cogitans* dimension in our mind has been abandoned. Neurophilosophers claim that Cartesian dualism of body and mind is overruled by the evidence of the brain as the definitive physical substrate for our consciousness, our speech and our mind. Implicitly, however, and without any modesty, a false new dualism is introduced in the form of a body–brain split. The brain is a 'special' organ in the body and there our consciousness occurs and is performed by neuromachinery. The Dutch neuroscientist Swaab proclaims that the body only serves three purposes: to feed, to move and to reproduce our brains. "We are our brains" is the message. It leaves us with a very private and subjectivist view of reality, because you have to consider that everything you feel or experience as a 'non-body' or imponderable reality in your head or in your body (like the pain in your toe) is merely an "illusion produced by the brain."

Lost soul

What is the defense against this pure reductionistic materialism? It is: become a phenomenologist! Don't just conform to the view of the scientific onlooker (observer) but take the primary stance that life offers to all of us: be a participant. As a participator, take for true your own sense experience and what you experience in, and by means of, your body. This is the primary reality. The "world of senses" is reality before the Cartesian split of mind and body. A phenomenological approach not only takes as true what your experience is telling you, it also includes the virtual and secondary reality of the "brain facts." Modern neurophilosophers make the philosophical and methodological mistake of assuming that primary reality is only the reality that we observe through our instruments. But this is not so. Reality is not just that which we can observe through physical onlooker-instruments, but it is reality *as we experience it*. Consciousness and soul are also experienced realities. Although imponderable and therefore, not measurable, they are yet evident for everyone. It is a strange form of modern asceticism in science to deny the real world that we all experience! In fact, the statement that "I am my brain" is not a fact – it is a choice. More precisely, it is a paradigm choice: that is, a choice that scientists and philosophers make about how they will see the world. Modern "brain thinkers" nearly always confuse the means with the message: because we must have the *means* –that is, the vehicle, for thinking and experience in the form of the brain – that signifies to them we are only experiencing our own brain. . !

But this view gives rise to a number of problems. For example, scientists claim to have found the substrate for consciousness in brain activity. But no one has ever been able to measure *what* you are experiencing when you are performing mental experiments under the scan of the onlooking scientist. He/she registers the condition for a phenomenon (e.g. consciousness) -- not the phenomenon itself. He/she even cannot register that, because only you are the one who knows, who realizes (!) what it is to think those thoughts, to live that particular body, to experience that given awareness. No neurophysiologist can bridge that gap between the primary reality of the '*Lebenswelt*' or the 'world of senses' as the philosophers call it and the secondary reality of the body after the Cartesian split of mind and body. In the reality of the body that you live, mind and body, spirit and matter, are never separated. Discriminating these two areas for the purposes of precision and understanding was the great philosophical contribution of Descartes. There is an acceptable methodological reduction for the purpose of clarifying what role each plays in human perception and thinking. But as A. T Still states: "Human form (matter) and function (spirit) are inseparably intertwined." And to make the assumption that mind is an illusion created by an organ of that same body, is an intolerable and fatal philosophical accident and reduction of our reality.

We do not *have* a soul, we *are* soul

Neurophysiologists study the substrate for soul and for consciousness. But finding an anatomical, physiological or genetic phenomenon ('body') apparently connected and associated with a certain mental activity ('soul') does not mean finding the phenomenon itself. Apparently brain activity is a necessary but not sufficient condition for consciousness. Still, there is a risk of confusing the condition for a certain matter (body, brain, gene) for the matter itself (soul, mind, feature). Such reductionism prevails in genetics today. As biologist I have never perceived genes (I mean here the modern concept of 'gene' as a formulated DNA-structure) to be the active and causative principle in a living organism. This is not to deny that genes play an important role in the phenotypic appearance of organisms. Yes, organisms have features and properties. Sometimes, they become ill. But I have never seen an "ill gene" or a gene with a certain specified property, like being able to move or to digest. But yet, seemingly without discussion, people seem to believe that genes are active principles and that they *cause organisms*. As a phenomenological embryologist I reject that view completely. Only in pathologically abnormal or experimentally manipulated conditions (and of course in the evolutionary process of mutational changes in the genome) it appears to be the deviation of the normal pattern that causes the related different 'new' phenotype or phenomenon. In the normal integral and integrated situation of the functioning organism, however, it is not the genes that cause the phenomena. It is the organism itself performing the biological activities and functions that characterize it.

Modern genetics and neuropsychology try to convince us that thinking is synonymous with brain activity, inheritance is synonymous with gene, and that memory is no more and less than a hippocampus process. Process and structure, phenomenon and condition, are thus thrown into a confused jumble. We become walking brains, competing genes. After four centuries of Cartesian reductionism, this is what is left of our soul. A secondary reality has overtaken what we live and experience, the life and the awareness that we really are. Instead, what is left is an observed and analyzed anatomy of brain and body. Thus with great certainty and persuasion do modern psychologists pronounce that our experience, the reality of our feeling and awareness, to be illusionary. Pain is an illusion, it not in your toe that you feel your pain that is only an illusionary projection by your brain. And free will? Forget it! Your brain knows better and milliseconds before you make a choice cortical reflexes already have 'predicted' what you are going to do.

Mind in an embryo?

What about an embryo? In the modern view of neuropsychology the embryo does not have much chance to be accepted as a being with a mind or soul. In an embryo, the least manifestation of a functional brain is completely absent. When a first brain organization becomes discernible in the embryo, we must wait for the fetal phase in order to see some substrate of a brain physiology like movements or deducible EEG activity. Like the human body in the modern somatic philosophy -- 'you are not present there in that body', 'there is no self or soul living this body,' -- the body of the embryo has been 'emptied' or 'ghosted.' Thus has the embryo been proclaimed a brainless and therefore unconscious being?

I became embryologist in the sixties and seventies of the last century. In those days the debate about soul and mind still was open and not yet terrorized and beaten to death by colorblind one-eyed neurophysiological thinkers. There you could hear a famous psychiatrist rephrase questions like "Is it possible for the cells, before and after specially neural tissue arises, to reproduce in later phases of the life cycle transformations or variations of our first experiences?" (R.D. Laing in *The Facts of Life*). Some psychologists claim the possibility of a prenatal subconscious experiencing of traumatic events.

It was in this context that I encountered the work of the German embryologist Erich Blechschmidt (1904 – 1992). Many osteopaths and craniosacral therapists consider the biokinetic model of embryonic development that Blechschmidt developed to be a good explanation of the processes that rule the formation of the body and the organs. As a phenomenologist, I am not so much interested in causes and explanations but in understanding and finality. I am an embryologist on the search for spirit, i.e. for an active principle 'behind' the formed organs and body. I search for the '*en-act*' principle (spirit) that is trying to realize itself through, and by means of, the realized '*ex-act*' dimension of the body¹. The body as an act and the psychosomatic entity that we are as the 'actor'. The realiser ('maker') and the realized. I consider the body as the appearing result of a formative act, a creative act.

An embryo with a soul

I began to ponder leading questions concerning the embryo: such as, Who or what is realizing itself? What are we actually doing when we are an embryo? How do we exist there and then? As a being of soul and body, of course, because that is how I experience myself every second of my life. Not my muscles move me, I move my arm. Apparently I do that with my body (a locomotion apparatus as necessary but not sufficient condition), *not* "my body is moving me." One may extend the concepts of E. Blechschmidt in recognizing that an embryo behaves. It is (still) shaping its body, it moves, it performs (literally). The first manifestation of behavior we exhibit as the psychosomatic body-mind being that we are, is our *morphological* behavior – that is to say, our body. The gestures we make on the physiological level are also performance, the *en-act* dimension in us. Going upright, finding the balance, centering: these are acts of the soul, of the human Self or spirit. Before we can do these psychologically we perform them physiologically at about one year of age, as in, trying to get upright in a playpen. And even that is not the first time. The first time you found your balance was when you shaped and organized the bodily organization as an embryo. The human body is the only primate and mammalian body where the gravity center is organized inside and within the body. To come to yourself as a human being you need the organization for that, i.e., a body (not only a brain) that can do so. This is exactly what you do in the growing and shaping of your body as an embryo: you perform here the act of going upright and balancing in a morphological way.

¹ 'En-act' like ex-act 'is derived from the Latin word *act* or *actum* which means 'deed' and 'made'. 'Ex-act': what has been made, realized, 'en-act; that what makes or realizes (itself).

“Soul is pre-exercised in the body” is my rephrasing of the concepts of Blechschmidt. Our body is behavior, human behavior, to be explicit. The body is not a thing, an anatomical substrate; it is a performance, a function, a behavior. Soul does not have a body, it is body; body does not have a soul, it is soul. Read the words of Rumi at the beginning of this article. Even your skeleton and brain (organs that for example are nearly structuralized to death and physical substance) are ‘on the move’, are processes. I learned from embryology: Motion is

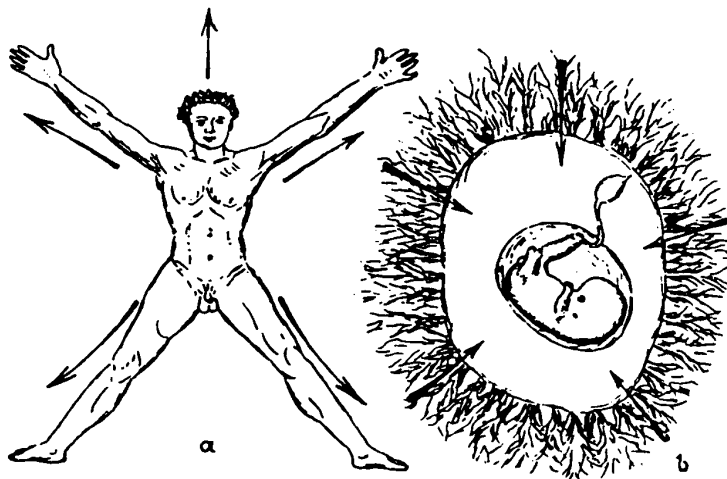


FIGURE 1

Revolution of the orientations of being between an adult (a) and an embryo (b).

From: *Dynamische Morphologie*, O.J. Hartmann, Frankfurt/M., 1959.

primary, form is secondary! Form arises out of motion (and not the reverse as reductionistic thinkers always propagate). In that motion a behavior is performed. The transparency of your lens is not a material property, it is a lifelong activity exercised by those lens cells in the transparency of the crystallines they produce. Your body is an act and in the embryonic phase you act your body as a pre-exercise of what later is a physiological and psychological capacity.

Centripetal existence

Within the embryo form and function are still related and linked together firmly. The fact that the form and function of an arm, for example, are tuned so perfectly and harmoniously can be seen even in the embryonic stage, when the function of the arm as an instrument for grasping is pre-exercised embryonically while growing out. In the adult organism function is ‘released’ (liberated) on another higher level: physiological function can be seen as a released growth gesture. Erich Blechschmidt even takes a step further and applies this principle of releasing function from the growing structure to the level of psychological gestures and functions. Bodily and physiological functions are pre-exercised as growth gestures and as growing movements in the embryo. In this respect a human being has already breathed long before he has taken his first breath after birth. The dynamics with which lungs, thorax and diaphragm are developing and unfolding may be considered as a type of breathing because these dynamics are already breathing movements. Considered in this way, an embryo looks, grasps, walks. This can be called *morphological behavior*.

Considerations like these give new perspective to the direction and orientation of embryonic existence. Usually, embryonic existence is considered to be solely a biological process producing or resulting in human behavior. We think from inside to outside, from center to the periphery, in other words: centrifugally. In this view there is a fertilized egg cell at the beginning², which next grows up to be a human individual body and next a psychological individual: man, including his mind or soul, is a product of this process. Mind is a consequence of the body and body formation. In this view, the embryo may be granted

² Which is nonsense, we do not start ‘as a cell’. You are not built up from or by cells. The unity of life is not the cell, the particle, but the unity of life is the organism, the whole. The embryo organizes itself in cells and via that in organs and tissues, not the other way around. Your first appearance is a zygote, an unicellular body.

something like a general non-individual human status, but in the embryonic phase there is no talk yet of individuality or personal existence.

The embryonic existence, however, may be characterized as the orientation from outside to inside, i.e. centripetally (See FIGURE 1). As an adult human we express ourselves by means of our body: the world is our aim and the body is the instrument for this purpose. The embryo, by contrast, 'impresses' itself into a bodily organization. Embryonic existence is a kind of silent, introverted existence. The idea that an embryo is not doing anything and not acting is a great misunderstanding and devaluation. The action, the performance, is directed towards itself, inward. In this view embryonic performing also represents the expression of a human being and its soul as primary. The human being manifests itself in the first order by means of growth gestures and form movements, afterwards by means of (released) physiological processes (behavior) and later on by means of psychological behavior and gestures.

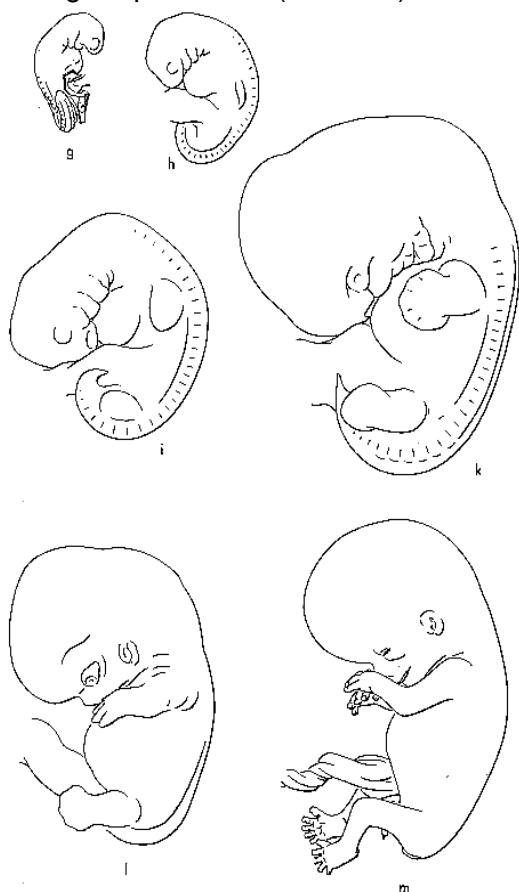


FIGURE 2. Embryonic stages of the human embryo. In series: age of 26 days (g), about 4 weeks (h), about 5 weeks (i), about 6 weeks (k), about 7 weeks (l) and 3 months (m). From: *The human embryo*, E. Blechschmidt, Stuttgart 1963.

The embryo is still in you

In FIGURE 2 the so-called cranio-caudal gradient of embryonic development is represented. What this term signifies is that the cranial pole or domain of the body development is always ahead of the developmental processes in the caudal pole or domain of the body. This also relates to the fact that in the cranial pole the development of organs tends to reach earlier the more or less 'final adult' stage or organization than in the caudal domain of the body. Your head so to say becomes 'old' or 'adult', your viscera stays 'young' or 'embryonic'. In FIGURE 2 for example one can observe that the development of arm and hand is always ahead of the development of foot and leg. This phenomenon will also become manifest and 'repeated' in the physiological and psychological ripening of the limbs and locomotion. Another body axis where one may observe such a gradient is the disto-proximal gradient in the limbs: hands and feet are 'older' than shoulder and pelvic region, the latter for example as the domain of the limbs where you indeed go on with growing and formation far beyond your childhood.

One could describe the cranio-caudal gradient as the polarity between movement and form, between embryo and adult, between process and structure. Actually in the caudal pole of the body the processes tend to continue the embryonic way of life as described here before, i.e. exhibiting morphological behavior with the physical body still in process, in metamorphosis. On the opposite side one may observe in organs the tendency to come more and more to structure and to 'anatomy,' so to say. There (brain and nervous system, for example) function becomes more 'released' from morphological (growing and metamorphosing) activity. A good way to notice this gradient or polarity is comparing a liver (caudal) with a typical 'cranial organ' like the brain. In the liver, function and form are still in motion, while in the brain

anatomy and structure becomes essential for the physiological function. In the liver embryonic phase, the *en-act* dimension still remains active in a morphological process, deeply involved and intertwined with the matter. In the cranial area, in the possibility for mind, the *en-act* is to become released from the material and bodily process and to function more body-free or intangible state. Think on the 'imponderable' mobility in your mind. This shows that the embryonic way of being is not a *past*, not a phase in our life you left behind. It is actual and living -- in a great part of our body the interaction between body and mind is 'still' centripetal.

The return of the soul

Could this be the expression of a polarity in our organism as to 'interaction' between the *en-act* and *ex-act* dimensions of our psychosomatic being? In the 'caudal' ('visceral') dimension of our body our mind seems to stay connected and intertwined with the body (matter) as is the general gesture in the embryonic phase. In the opposite pole, the body tends to become more structuralized, to become, so to say, 'anatomy.' Is it that where mind and body are more or less disconnected and disconnecting, that the mind is enabled to function in a more 'body-free' or purely 'conscious' way? Could it be that the embryonic way of being is the way a sleeping consciousness enacts the body's life? And that when this process tends toward becoming a formalized and hardened anatomical structure this is where the embryonic vitality and regenerative power reduces and even sometimes disappears ('death')? Or even this: this 'death' is what enables awakening consciousness! What a fantastic idea: vitality and consciousness as oppositions, the more vitality the more we sleep, the more death and structure the more we awake! In this view mind is everywhere in the body as acting principle but levels of consciousness occur in relation to the degree in which the embryonic processes becomes subdued to the structure tendency. In this view, the whole body is a psychosomatic manifestation with a great range of levels of consciousness. The will sleeps in the caudal pole, in the limbs and muscles – the cognitive soul awakens in the head and sense organs!

This may sound like a global concept. Nevertheless, the gradient we are describing may be observed in not only a craniocaudal 'direction' but in more than eight different bodily dimensions: dorsal-ventral, parietal-visceral, distal-proximal in the limbs, centripetal and centrifugal. Actually this gradient is everywhere. And 'nowhere': it is a fundamental principle of polarity that rules the psychosomatic organization in all directions, levels and dimensions. For me, the magnet or holographic principle of craniocaudal gradient overcomes the Cartesian error to localize soul, psyche, consciousness in a given organ or region. Not only is the brain the domain of soul, mind or psyche. The several 'head organs' like liver, heart, kidneys exhibit to some degree a similar function. But the brain does represent the functional possibility of a high degree of awaking, that is, self-consciousness.

The phenomenological approach can yield great insight and renewal to the study of the human form and body. For it reveals that the body is not merely an appendage of the brain but that it is an instrument of the soul from the very first day of life. Consciousness is not synonymous or congruent with 'soul'; it is a function, an activity, of the mind. The whole range and palette of consciousness shows that our soul is not a nebulous concept or illusionary 'something' but a 'soul body' just as complicated as our physical body. There is not one specialized organ in psyche, but perhaps several – such as brain, sense organs, etc. – function also. But mind is everywhere. The body is not a machine that functions; it is function, a function of the mind. Such an 'anatomy' would give us the body back that we are, that we live, where we do not have hippocampi at all in our heads, but where we think with our heads, feel also in our heart and suffer pain in our toes. We are a consciousness and have a body.

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Dynamension – Understanding ourselves as embryo

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