

Implantation Journey: The Original Human Myth (Part I)

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Abstract: The implantation journey of the blastocyst/embryo is traced throughout its many biologic/embryologic transitions and transmutations. Possible psychological impacts that may arise from early stresses, imprints, and other experiences are discussed. The journeying blastocyst/embryo is sometimes portrayed as a protagonist in the transcript of each human being's personal past. Events confronted and subsequent coping or survival styles during the journey are examined in reference to adult behavior patterns and belief systems. The relationship between myths (as reflections of the human psyche) and the consequences of a human being's individual implantation journey (as the basis for templates of the human psyche) are explored.

Keywords: Blastocyst, Embryo, Implantation, Imprints, Myth, Behavior Patterns

With Freud we accepted that our early childhood essentially shapes and is therefore the architect of our adulthood. With Jung we accepted that forces from the collective unconscious structure and order our lives, motivate us, and influence our condition as individuals. Why then is it still taboo to appreciate the impacts of early prenatal life upon every human system, including the psyche? Prenatal life, especially before the second trimester, is the bridge between the collective unconscious and human experience.

Our mothers rarely know when they conceive or when implantation occurs, so for the human blastocyst, the events of these early hours and weeks occur alone and in darkness. As a world culture, we haven't given much credence to this little window of human development.

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But increasing evidence suggests that we human beings repeatedly act our primal cellular and biologic journeys, as children and adults, in our day-to-day lives. Even our myths, music, and art reflect back to us our primal feelings, biologic sensitivities, longings, and fears. What is it that we can learn from our primal journeys so that we can continue to evolve and better know the human condition as well as our individual selves? If we can understand the forces that shaped us, then we have a better chance of catching a glimpse of the "Self" behind our persona. The "Self" is the unexplained mystery behind individual human consciousness, sometimes called the soul.

As evidenced by recent world events, human beings and human cultures are often still trapped in the impoverished attitude of reacting to our environments, or acting out from over-established patterns like mice who learn a single route through a maze. What would change if we understood the origins and inefficiencies of our unsavory behavior patterns: aimless repetitions, inefficient routines, narcissistic materialism, and destructive competitiveness? By looking into our own individual pasts, we can review the forces that molded us into who we are now, and distinguish our vital, inspired activities from our dreary or destructive routines. If we are compassionate and patient while looking into this mirror, we will recognize a deeper, inspired self, a deeper meaning and harmony underneath the layers of rote.

Every man's condition is a solution in hieroglyphic to those inquiries he would put. He acts it out as life, before he apprehends it as truth.

~ Ralph Waldo Emerson

Introduction

Throughout our school science books, the Bible, the theory of evolution, primitive creation myths and modern physics, there is little agreement about the origin of the universe, our world, or ourselves. Yet all human beings do hold something in common—an origin in the cellular biology of two gametes coming together, followed by an impressive and perilous journey as we develop into a human fetus. The sciences of cellular and molecular biology, embryology, and prenatal psychology suggest that our earliest "journey" exerts meaningful influences on how we develop into a person and how we experience ourselves as human. The impact of these influences can last a lifetime and can reside in all human

systems, from the genes to the tissues to the psyche.

Who we are as individuals is as much a result of the events that shaped us (especially in our earliest days), as it is an expression of our genes. Probably more profound than any other event that shaped us, our implantation journey is a distinct personal process that can be approached and understood from many scientific, psychological, and spiritual perspectives. Perhaps we begin as an unconscious batch of living cells, then, according to a grand genetic blueprint, we sequentially undergo processes until at some point we develop into the most intelligent and complex of living beings. Or perhaps this journey is undertaken by a trembling incarnating (or re-incarnating) soul. Whatever our orientation toward origin, creation, or creator, the imprints from these earliest hours and days are likely precursors for individual and collective human myths: our reference point for self-discovery and the calling to life. Greek mythology, as a reflection of the human experience,

tell[s] how the world came into being and how cosmic order was established . . . how the principal gods were born and acquired their individual prerogatives . . . how the first humans came into being . . . and why the quality of human life is such as it is." (Hansen, 2004, p. 4)

My aim is to describe the implantation journey of the human blastocyst as the original human myth. The human zygote, created at conception, divides into a two-cell (or two blastomere) organism, and then goes through various stages becoming a blastula, morula, blastocyst, embryo, and fetus. In this essay I will refer to the human organism, after the zygote stage and up to implantation, as a blastocyst for the sake of simplification. I intend to strike a balance between a soulful and humanistic portrayal and a clear scientific approach honoring the respectable skepticism of practical thinkers. Descriptions of the processes and stages of implantation will include metaphorical images and allusions to mythic parables to convey relevant psychological and sociological implications of the phases of implantation.

First we must consider that from the point of view of cellular biology, specifically embryology, implantation is a "miracle." That is to say, implantation is a phenomenon not fully understood at a chemical and molecular level; it is a biological transition that theoretically should not happen at all. The maternal immune system ought to be hostile to the human blastocyst, recognizing it as an invader and destroying it because it contains the paternal

genome. Our implantation site is our "first home," (Nilsson, 1990, p. 66) and the task of implanting can be likened to establishing a site of order and safety in the wilderness of the uterus. Throughout mythology, such a task is frequently portrayed as when:

A god wishing to establish his cult or a hero wishing to found a city often encounters danger at the site in the form of a hostile creature, whom he must slay before he can construct his sanctuary or city. . . . [the gods or heroes establish] a temple or town, a little cosmos where once there was found only the dangerous chaos of wilderness. (Hansen, 2004, p. 18)

Along the early human journey and within the entire prenatal realm with all its perils, the most deadly transition is implantation. It is well known that prenatal mortality is a more likely outcome than a birth. The big business of in vitro fertilization (IVF) is booming in our era, not just because it is hard to conceive, but mostly because it is hard to implant. During the prenatal stage of implantation alone, the biologic dangers are real and in fact only about 55% to 60% of implantations are successful, where the early human creature is accepted, tolerated, and nurtured by the maternal environment (Moore & Persaud, 1998, p. 44; Bradford, 1998, p. 18). Even in these successful implantations, the blastocyst will have experienced core starvation, later must transmute (or die) several times, and must survive biochemical hostilities from its environment.

Although implantation is a completely natural biologic phenomenon and happens every day, the genesis of individual human life is profound and mythic. Imagine the impact of harrowing physical experiences upon stem cells that will one day comprise the brain and body in which an individual psyche resides. Even as prenatates we have a self-identity, and specific (conscious and unconscious) behavior, reactions, and emotional patterns. How does our adult consciousness express or experience itself as a consequence of preceding biologic events? If we accept the theory that a soul is present at conception, does this mean that each embodying soul is forged and formed just as its physical body is forged and formed in these early times? If there is no such thing as a soul, the consequences from this primal and universal biologic path, the gateway to human life, can be viewed as each individual's archetypal human myth, arising out of the most basic human experience.

Why are two brothers or two sisters so different from each other? Identical twins, presumably coming from the exact same gene pool, can be diverse, one becoming an artist, the other a mathematician. What conditions personal diversity and why is each individual unique in character? "It's in the genes." "It's one's parents." "It's wealth or poverty." "It's diet." "It's because of what happens in one's childhood." Such typical suggestions don't reach far enough into the biological reality of our human experience. When we look into the oldest archives of our personal journey, we begin to understand that basic individual human responses are programmed beneath our consciousness, even before we have a brain. Our basic interactions with our world are set up before we are offered the breast or the bottle, before we are given our names, long before we are even born. The effects of the implantation journey are relevant to the future human being, its behavior, reactions, and interactions.

Darwin stated that his greatest error when he wrote "The Origin" was "not allowing sufficient weight to the direct action of the environment, i.e. food, climate, etc. independently of natural selection..." (as cited in Lipton, 2005, p. 30). Food, climate, and environment are the essential elements of the implantation journey. Each newly formed human organism is conceived in the environment of its mother's fallopian tube. As it struggles and maneuvers via creative means to obtain sufficient food for survival and growth, the blastocyst transmutes through many progressive forms—each a sort of evolution, and in combination, these evolutions result in the human individual. Throughout this time, the primal human being marinates in its environment. Fertility and embryological researchers, through ever improving technological methods, continue to observe cell behavior and the early human in relation to its environment. They are learning with conviction that the environment has far reaching impacts on any group of cells, whether it is a complete human being consisting of up to 100 trillion cells, whether it is a human blastocyst, or whether it is a group of cultured cells acquired for biological research. As Bruce Lipton (2005), a cellular biologist explains, "...when the cultured cells you are studying are ailing, you look first to the cell's environment, not to the cell itself for the cause" (p. 49). And the environment has direct impacts even upon single, isolated cells: "Single cells are also capable of learning through these environmental experiences and are able to create cellular memories, which they pass on to their offspring" (p. 49). Let me point out that you, the reader, are the offspring of your

blastocyst's cells and your original environment was the body of your mother.

William Irwin Thompson (1981) notes, "Science wrought to its uttermost becomes myth. History wrought to its uttermost becomes myth" (p. 3). Our journey toward our birth when wrought to the uttermost becomes myth and it is reasonable to view the implantation journey as an epic myth. It consists of complex and rapid physiological transmutations. Multiple transitions and tests of integrity are encountered as in mythology where "...bizarrely evil characters, each with a special trick [challenge] passerbys for their lives" (Hansen, 2004, p. 18). It is a journey where the stakes are high (life or death), and one that most blastocysts will not survive. It is a process through which the primal human endures the greatest of challenges: hunger, struggle, and commitment—testing the organism's right and ability to exist.

The protagonist, the human blastocyst, is the hero of the story, begotten from the miracle of conception. As it is for all epic heroes, ours undergoes substantial evolution—from an unattached wanderer to a creature who becomes stationary, taking up rather permanent residence once a wellspring of nourishment is discovered. New sources of nourishment are discovered after implantation and further development ensues as the blastocyst develops into a living human fetus. Even as we are transitioning through implantation, the embryonic disc is busy organizing and preparing to construct what will become our brain, our heart, our adrenals, even our fingerprints. The most formative, dangerous and important part of the prenatal journey is the first trimester when we pass hundreds of biological milestones, when our bodies are formed. After the first three months of life, the complexity and danger of gestation subsides. The body has been more or less completely established, risk of spontaneous miscarriage is low, and all we have to do for the next six months is grow.

Human beings (no matter what age) exist and are present within the internal environment of the body and mind and within external environments, including those other human beings in it. The body of the mother is our first external environment and the first human being with whom we have direct contact. Our interpretation of and reaction to the world is heavily influenced by what is internally present at each moment: our predispositions, attitudes, beliefs, and neurological programming. What we bring to each moment is a rich, diverse, and complex

mixture resulting from everything that has come before. In other words, our own personal myth colors everything.

In any particular moment, who we are and who we think we are is layered upon our cellular history and the early cellular responses that led to our most basic biologic functions. The early human cells, like primitive or simple organisms they were, grew and survived and learned while engaging in challenges and transitions marked by chemical and cellular processes. When challenges occur, transitions are faced, and successes achieved in our experiences as children or adults, we feel an intensity of life. Stimulating experiences translate into emotions and thoughts that echo our primal experiences: desire, hunger, hope, fear, struggle, and success—all of which are elements of myth. "Like humans, single cells analyze thousands of stimuli from the microenvironment they inhabit. Through the analysis of this data, cells select appropriate behavioral responses to ensure their survival" (Lipton, 2005, p. 38). Yet unlike the simple creature that learns (or acts out of instinct/biological intelligence) to find food, procreate, and avoid danger, the stem cells of the human blastocyst evolve into the most complex organism on earth.

Isn't it ironic that despite all its complexity, the basic functions of the human being are the same as those of an individual cell: to find food, procreate, and avoid danger? Perhaps all the variations of our complex behavior and thinking patterns, our interpretations, emotional responses, and reactions are not so complex after all when viewed through the lens of myth. Our behavior, the gyrations of the human psyche, our thinking, and our emotional processing can be more easily understood if we know the origins behind them. Discovering how we survived the environment to which we were originally bound in implantation can give us some understanding. It is in the body of our biological mothers, our first environment and first human contact as human seed, that our story and thus our understanding begins.

To comprehend this journey, which we have each already made, it is best to acknowledge the basic storyline and the biologic processes that comprise the myth. Individual human creation normally originates in the landscape of the ampulla, the curved upper third of the fallopian tube.

The implantation journey begins after conception, upon the first mitotic division, when the single cell zygote shape-shifts, giving birth to a two-cell blastocyst. How this transmutation happens is still not completely understood by science, and therefore remains in a phenomenological realm beyond our

immediate grasp. The two-cell blastocyst replicates and morphs into a four-cell blastocyst and the four-cell blastocyst then becomes the eight-cell, and so on. Leaving the ampulla, a colony of cells makes its way down the narrowing part of the tube, called the isthmus, and then into the interstitial portion of the tube that leads to the uterus. Upon arriving in the geography of the uterus, the blastocyst must then hatch out of its protective skin, and seek a site suitable for sustaining itself.

Technically, implantation is the process whereby the newly hatched blastocyst adheres to and then merges with the epithelial surface of the endometrium—the uterine wall. As it enters deeper into the uterine wall, the blastocyst and endometrium react to each other creating a syncytiotrophoblast, an area of merged, shared physical space where the body of the blastocyst and the body of the mother are intermingled. Tendrils growing out of the leading part of the blastocyst, the trophoblast, explore the area of the syncytiotrophoblast and encounter pockets containing pools of blood and other nutrients. Utilizing the newfound source of support, like a band of weary travelers settling down near a spring, the blastocyst next concentrates on self-propagation. Finally the chorion, placenta and umbilical cord begin to form as implantation is successfully completed.

Mission accomplished at long last, the hero(ine) has truly arrived and is likely to survive the remainder of its prenatal life to be born an individual human being. Because we are so vulnerable in our early life, human individuality is forged more by the implantation journey than by any subsequent prenatal, perinatal or childhood events. To discover who we are we must understand what shaped us into ourselves as individuals. "The subjective experience of individuality is a profound mystery that we cannot hope to encompass by rational understanding... the experience of individuality is primary; it cannot be analyzed or reduced to simpler elements" (Edinger, 1972, p. 162).

Whether it is viewed as a hero's epic journey or as a biological/embryological phenomena, the implantation journey is best understood by organizing the process into the following main stages, each of which has thematic impacts upon the organism and the human being who evolves from that organism:

1. Post Conception Fallopian Tube Journey
2. The Fall (into the uterus)
3. Hatching
4. Uterine Exploration
5. Implantation and its Sub-stages

Post Conception Fallopian Tube Journey

At conception, the membrane of the oocyte (the egg) has the intelligence to become impermeable to all sperm but the conceiving sperm. Otherwise the cell would be filled with too many chromosomes and could not function. Called the zona pellucida, this membrane remains as the outer covering of the blastocyst during the fallopian tube journey. As the new cells continue to replicate and divide, the zona pellucida contains them. Except for a lining of cilia to help transport the blastocyst, the inner surface of the fallopian tube is similar to that of the uterus itself, and this surface secretes a substance called "uterine milk." The zona pellucida is permeable to this uterine milk, which contains water-soluble proteins, gasses (including oxygen), sugars, other nutrients, and other elements from the mother's system. In the early stages after conception, all of the blastocyst's cells are able to absorb and utilize the uterine milk since the cells are few in number and all proximal to the surface of the zona pelucida.

Within each cell, the many magnificent intracellular organelles and "machines" are at work, breaking down the uterine milk and delivering the components where they are needed. As with most body fluids, uterine milk contains, besides nutrients, many other elements present in the mother's system, including traces of any exogenous toxins she has ingested, adrenaline, corticosteroids, other hormones, and neuropeptides expressive of her emotional condition. Each and every diverse component in the uterine milk will have an impact within the body of each of the new blastocyst cells: toxins will make the cells have to work harder; varying cortisol levels will impact the density and plasticity of the cellular tissues; adrenaline will affect the rate at which the cell respire and processes its metabolic functions; and neuropeptides can penetrate their receptor sites sometimes even into the core of the cell (Pert, 1997). According to Lipton (2005), receptor "antennas" on cell surfaces can even "read" the vibrations of nearby cellular or biologic activity and the energy fields emanating from cells and organisms. Imagine the biophysiological impacts of a blastocyst marinating in the uterine milk of a drug-addicted mother who suffers from severe depression, smokes three packs of cigarettes a day, and eats only packaged preserved foods. Compare this to the uterine milk of a healthy young mother

who wants to become pregnant, who exercises regularly, and who eats home-cooked organic meals.

Each uterine environment is unique to the individual mother, and unique to a given time in her life reflecting her diet and her emotional state. Endlessly diverse possibilities converge to manifest a specific uterine environment, or landscape, that is present during the few days of the fallopian tube journey. Each myth has a background against which it is played. Imagine the interior of your own mother's body, many years ago when she was young, and most likely completely unaware she was about to get pregnant, it was within this realm that you took your "first steps" in human form.

Because the fallopian tube is so similar in quality to the uterus, one could say that the time spent in the fallopian tube is essentially the first contact with the uterine environment. We know that the environment in which cells, or clusters of cells, reside has immediate and long lasting influence. To better understand these influences, it makes sense to classify uterine types based upon the general themes. Listed below are uterine types, identified by their varying qualities.

Lush

A lush uterine environment is one in which there are plenty of high-quality nutrients available, but few toxic elements. Blood flow has been directed to the uterus because the mother-to-be wants to become pregnant. She intends to embrace and nurture a blastocyst. She has a good diet, a positive attitude about sexuality and procreation, and is emotionally balanced.

Barren/Arid

This uterus is not yearning to grow a baby: it could be an old uterus, an unhealthy uterus, or the uterus of a young unmarried girl who has no desire to mother. From the perspective of a blastocyst, a barren/arid uterus would look something like how a dust bowl or desert looks to a farmer. Compare this to a lush environment as exists in parts of Hawaii or Central America where clear streams run everywhere and fruit is falling off the trees.

Frigid

A frigid environment, because of its inherent chemistry, will literally feel cold, just as you do when you get chills down your spine in reaction to a chilling feeling or thought. Such a chemical stew arises, as it does in all the uterine environments, because of the emotional state of the mother and the physio-chemistry of her system. A frigid fallopian/uterine environment resides in the systems of women who are themselves cold by nature. Withdrawn, unemotional, ungiving, analytic, parsimonious women are likely to develop a frigid intra-fallopian environment.

Toxic

All sorts of teratogenic substances will make for a toxic womb. Bad foods and eating habits, excessive smoking and drinking, drug abuse, living in a polluted environment, and consuming preservatives all contribute to toxicity derived from exogenous sources. But emotional toxicity and the effects of neuropeptides must not be undervalued as womb-conditioning agents. Another form of toxicity is one that results from a condition referred to as a "haunted womb," describing one in which abortions or spontaneous miscarriages have occurred, resulting in the death of would-be siblings.

Each of these uterine types is identified by thematic qualities that are predominately physical in nature, yet it is important to understand that no uterus expresses only one theme. Most wombs express different levels and combinations of each type; depending upon the interactions between the blastocyst and womb, limitless chemical and emotional possibilities will combine to result, ultimately, in limitless and diverse psychological possibilities. The prevalence of mood-altering drugs reminds us that our neurochemistry dominates our psychological states.

In the forty years or so since prenatal psychology has been developing, many therapists have reported instances where the quality of the mother's womb has had an impact on the psyche of their patients. Most of the womb environments could be included within one or more of the types listed here. My friend, Dr. William Emerson, urged me to specifically acknowledge what he has identified as the "narcissistic womb" in which the mother's self-obsession creates an isolated, empty environment, an existential prison, for the pre-nate. Such a womb would be emotionally toxic

and could also have any of the various physical qualities in the foregoing list.

If a soul is present during the implantation journey, then exposure to the earthly realm must, at times, be quite shocking. Johannes Kepler in the first passage of *Harmony of the World* observes, "The faculty which perceives and recognizes the noble properties in what is given to the senses, and in other things situated outside itself, must be ascribed to the soul." John Davis (1999) depicts the soul thusly:

It is the soul that digests experience and that is transformed in the human being through experiences. The soul is the site and container of individual experience. It is the fabric of experience. The soul is the means through which Being experiences itself. All content of awareness is content of the soul. Sensations, perceptions, emotions, thoughts and concepts are all forms flowing within the soul.
(p. 46)

When we imagine the experience a soul has in its body, the classic myth of the "Fall" is conjured: the fall from heaven, the fall from grace, the fall of the soul into "entrapment in grossness, in vulgarity, in the noise and squalor of the world" (Thompson, 1981, p. 35). What is it like for the soul embodied, or embodying, in the material world of the flesh—a glistening clump of stem cells ripe with potential, but trapped in a solid state where gravity, time, and physical sensations are playing in the body relentlessly? If we as souls choose our parents because we are particularly attracted to them or to work out some kind of karmic issues, then we choose the chemistry of our mother's body. This means we choose whatever maneuvers are enacted upon our new cells by the armies of neuropeptides and waves of intra-fallopian biochemistry. So the soul, and not just the cells, is impacted, shaped, and modified by the fallopian tube journey.

What if a soul is not involved? One might argue that during the fallopian tube journey there is no brain or myelinated nervous system to report sensations to a consciousness...and therefore no consciousness yet. Do we need a brain, not a soul, to be considered human? In any case, we are discussing a living, responsive human organism. And such an organism acquires properties because it is subject to external influences. When a consciousness eventually forms in connection to an organism, then the preexisting properties of that organism manifest as a fabric through which the consciousness must be woven.

If humans are merely randomly (or logically) evolved

animals on earth, then how might the fallopian tube journey have impacted us? How could our decisions, our responses and reactions, our relationships to food, money, power and intimacy be impacted and shaped by this completely natural biologic process of the blastocyst? How could the events that brush our early cells impact the consciousness that comes to reside in them? From the chemical and molecular perspective the early cells are literally shaped by the absorption of exogenous material. Cells are extremely complex and sensitive. They contract in contact with astringent agents. They can recoil in reaction to substances with ionic properties just like a snail would if you dropped a grain of salt on its head. Our earliest cells are influenced by everything that happens to them. Resilient as they are, a biophysicist will tell us that in one way or another, an organism is permanently affected by whatever happens to it. Embryologic process is like the construction of a stone house. Each stone represents a stimulus and an event, and each stone in the foundation or the walls has an inherent effect on the whole system, resulting in a shape. Each event has a consequence and therefore each event nudges the system in some direction. All subsequent layers of stone are oriented by and built upon their predecessors.

Editor's Note: Parts II & III of this article will follow in upcoming issues.

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