THE EMBRYONIC ORIGIN OF VEGETATIVE ARMORING: PART II

PREFACE

The history of western man's insight into his own organismic nature is a record of fleeting last glimpses of increasingly fragmented wholeness, as vegetative armouring becomes ever more severe. In what may be the first written expression of this dramatic process, Empedocles (circa 455 B.C.) sensed the fragmentation of his wholeness, or to use an ancient term, the fragmentation of the 'rhizome'. He sensed himself as already divided into four roots of being, or rhizomata - earth, air, water, and fire. And he imagined how balancing these four essences might constitute a whole. Their imbalance, Empedocles wrote, creates that distortion of being, which may be the first western expression of an armouring process.[1]

As the observing consciousness becomes ever more detached from the organismic whole, as the sense of the whole increasingly fades away into unconsciousness, the individual who observes himself must speak in ever more allegorical terms, or what we now call archetypal terms, drawing from the depths whatever archetypal energy configurations might assist in energetically attracting back to consciousness and embodying the original sense of wholeness. "Archetypal image can (therefore) be taken metaphorically as intuitive concepts for physical phenomena", writes Jung.[2] It is no surprise that five hundred years after Empedocles, Philo of Alexandria can at best express internal sense intuitively, with imagery of archetypal proportion which reflects autonomous vegetative activity deep within. Philo makes a melancholy attempt to reanimate, to reincorporate the sense of soul. But internal sensation of being has become by his time an almost lost hope.[3]

With the sympathies of a pre-modern on the edge of one last epidemic wave of worldwide vegetative armouring, Caspar Friedrich Wolff (1733-1794), considered a father of modern embryology, made do with a primitive lens, attempting to capture the nature of animation of being, before all internal sense had numbed out. Wolff seemed no longer able to sense from within the nature of sentient being. Driven by an almost lost spirit, however, he did hint at the true essence of both animation of the organism, and the process by which the human being does lose that sense.

I hope in these essays to express and clarify the tradition Wolff sought to illuminate. The 'modern' atomistic approach to the human, which Wolff stood against, is an increasingly empty study of parts of the whole, fragmenting us ever further from the internally sensed truth.

INTRODUCTION

"…at all stages of development the embryo is a living organism capable of maintaining itself as such".[4]

At the germinal disc stage of embryonic development, the organism is in a position to either increase its potential for sentience, or move in the direction of self protection and self enclosure. All depends upon the nature of the maternal surround in which the conceptus is embedded. What had been an organism

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consisting of two germ layers in the second week after conception - an ectodermal layer of cells facing the maternal tissue, and an endodermal layer of cells establishing a vegetative core at some distance from the maternal surround - becomes during the third week a three dimensional organism with the spontaneous generation of mesodermal cells between ectoderm and endoderm. In a calm and nurturing choline dominant womb, the gentle vegetative interplay between these germinating layers leads to the organismic condition known in embryology as *non-specificity*.

In a naturally nurturing womb, no one germ layer will form any structure or organize any function. No one layer will naturally dominate development.[5] The endoderm establishes itself from the beginning as the ground of being. From the beginning endoderm guarantees the perpetuation of nature and of the species, as it spontaneously generates a yolk sac, in which primordial blood cells and sex cells begin forming. The yolk could be related to the embryo, as the earth is related to the plant.

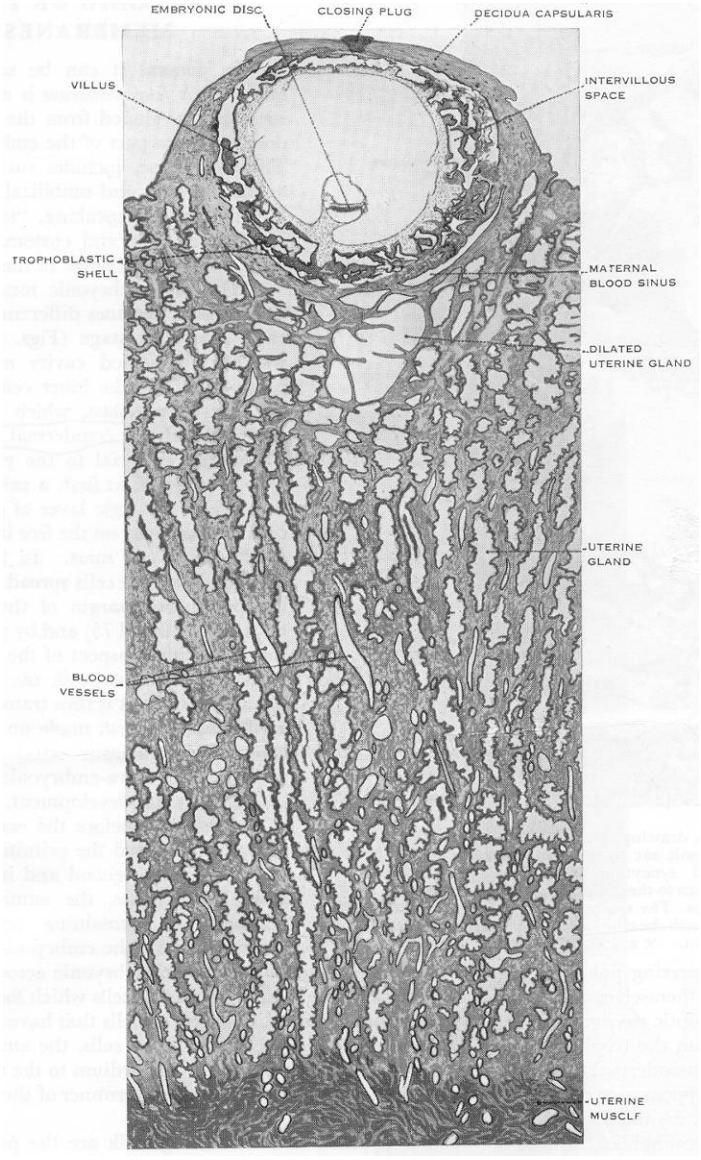

Figure 1: Embryonic disc is a flattish membrane early in third week. Yolk sac lies above it.

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The mesoderm will harbour and anchor this gradually differentiating endodermal vegetative core. It is the nature of mesoderm throughout life to gently accommodate and introduce the naturally interiorized endodermal function to external realities. It is the mesoderm where most blood flows. It is mesoderm during the third week which seems to ignite the neuralation process in the adjacent ectoderm. From mesoderm most muscles develop. Mesoderm forms bone, including the spine, which holds the organism erect and permits it to move through space.

As the more wounded of my own germ layers, ectoderm remains somewhat of a mystery to me. When ectoderm serves as direct intermediary between the embryonic organism and a choline dominant maternal surround - in other words, when not pressed into a defensive role to protect the embryonic organism - the ectoderm's true nature as it presents itself to consciousness is a reflection of how it transports and expresses the safely harboured endodermal sensations to external reality. Healthy ectoderm thus provides a resilient and responsive transition from gentle interplay of the embryonic whole with the maternal surround to gentle and distinct interplay with the post uterine worldly surround.

The full fruition of interplay of all three germinating layers during the embryonic period of development is the eventual "quickening" (*Oxford English Dictionary* 'to give or restore life to; to animate, as the soul the body') of the whole. The organism is animate and sentient.

". . . an embryo might live indefinitely at any particular stage if no change in itself or its environment rendered that level of organization inadequate".[6]

An alternative process - of vegetative armouring - can commence with formation of the three dimensional germinal disc during the third week of development in an adrenaline dominant womb. The germinal layers can contract onto each other in a defensive reaction to a continuing over-excitation transmitted from the maternal surround. Two events occur as the organism adapts to a potentially damaging energetic vibration.

First, the unified organism fragments into constituent parts to maintain the simplest and most primitive possible energy economy. The normal vegetative interplay between germ layers which would otherwise lead to animation of the whole ceases. The germ layers begin a process of movement towards specificity. Ectoderm develops as a shield to minimize and transform incoming stress to levels that are tolerable to the ongoing viability of the organism.

Endoderm retains and accentuates its interiorized nature to protect the vegetative core at all costs. And mesoderm becomes the dominant organizer of vegetative energy, forming structures and functions as development proceeds in such a way as to guarantee that increased differentiation at a morphological and libidinal level will not disrupt the basic encapsulated entropic condition first established by the germinal disc during the third week.

While the germ layers move towards specificity and separation of function in an adrenaline dominant womb, a simultaneous pathologically dominated unifying phenomenon occurs in the organism as a whole. In place of the soave, gentle, and chaotic fibrillating interplay between germ layers leading to quickening, there occurs instead a death defying alteration of internal energy flow towards the organized, the coherent, the consistent, and the controlled. What I shall describe below is the origin of what in the adult organism is a head dominant, cerebral dominant energy economy, a condition which has taken epidemic proportions in the industrialized societies, and deserves to be carefully understood.

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COHERENT EXCITATION

In a schema in which excitation is measured on a scale from one to ten, we can imagine a situation in which an embryonic organism could still thrive at an excitation level of three, but at an excitation level of five is in a highly disrupted and startled state. By the excitation level of seven the organism would be in such a startled contraction as to tend towards extinction. Therefore, once the excitation level has reached five, the organism switches over into a survival oriented mode of being - what later in development is called an adrenaline dominant mode of being. As much as is possible the organism will isolate itself from the over-excitation of the maternal surround. Spontaneously, the organism will tend to function in terms of fixed and controllable levels of excitation, or what we now call in modern physics, quanta. From that hypothetical moment the organism will permit only quantum leaps of excitation. In the hypothetical case in question here, an excitation level of five is one quantum. In this non-linear configuration", which defies rationality, the next potential quantum leap is to ten. A biological organism would die at that quantum level, the result of the organic contraction due to stress that Wilhelm Reich described as sequestration. The biological need to avoid such a contraction onto death will maintain an excitation level of five at all costs. The organism will initiate a vegetative armouring mechanism against the incoming charge, and establish its own source of excitation at the level of five. At first, as I explained in Part I of this series of essays (Energy and Character, August 1984) before the organogenic period beginning in the fifth week, the organism will utilize the metabolic capacity of its ectodermal shield to transform some of the incoming adrenaline to protein, which on its part will establish an excitation of high but tolerable level, and what is most important, a level that the organism has established, independent of the uncontrollable charge invading from the maternal surround. As we shall see below, once organogenesis has commenced, the embryo's adrenal gland along with the urogenital apparatus, becomes the internal source of excitation. The need to establish this internally generated coherent excitation, and the manner in which this coherent excitation becomes the functional core of the vegetative armouring process, becomes increasingly clear as we observe the problems generated by the progressive differentiation of the organism out of a simple germinal disc towards formation of a human form.

As I began to describe in my previous essay, from approximately the twenty-first day, the organism has a primitive cardiovascular system, the first organ system primordia to develop, even before the formation of a body. During this fourth week the organism moves away from a germinal disc form slowly towards preparation for the formation of the embryonic body. Red blood corpuscles are passing from the yolk sac to the differentiating germinal layers, as the organism as a whole begins forming a vascular network and a neural network. In a choline dominant womb this movement of erythrocytes (red blood corpuscles) is naturally chaotic, like a group of happy unarmoured one year olds at play. Such so-called Brownian movement ceases in an adrenaline dominant womb. As stress augments, the velocity of flow of the erythrocytes increases. Simultaneously, the energetic charge of the erythrocyte cell membrane will increase until it is forced by biological necessity to pass into a quantum mechanic condition. The cell membrane energetic charge will become coherent, that is, consistent, at our hypothetical level of five. Moreover, the excitation will spread coherently from cell membrane to cell membrane. The erythrocytes then have a tendency to begin gathering, stacking up one upon another, in what medical bio-physics terms a rouleaux, like coins in a roll.[7]

This gathering, or clogging, on one hand, can be attributed to the increased velocity of flow, somewhat like a traffic jam. But the organismic reaction to stress, as I must emphasize over and over again, is not

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simply a linear defenceless reaction to incoming charge, leading to startle reflex, sequestration, and extinction. In fact, from within the organism, and in this case from within the erythrocytes themselves, emerges a remarkable life and essence preserving phenomenon. The spreading coherent excitation between cell membranes seems to be the charge that first attracts the cells together. Then, thin fibrils, or *contractils*, emerge on the cell wall, attaching one cell to the next.[8] While some of the erythrocytes succeed in flowing past the spreading rouleaux jam, the remaining gathered and attached corpuscles establish a closed entropic interiorized network which transmits vegetative energy at a fixed quantum level. This energy skips along from cell membrane to cell membrane in what the most current biophysical research describes as a *second nervous system*.[9] The organism becomes increasingly dominated by the energy economy of these gathered *armoured* cells. Meanwhile, the core of these cells remains relatively inert, protected, one could say, by the shield of controlled quantum mechanic energy transmission of the cell membranes. This cell membrane coherent vibration or excitation, will spread, always at the same high but not catastrophic level, to different kinds of surrounding cells, in what embryology calls *cell-reciprocity*. Newly forming cells will enter into the same coherence, or 'gradience'. Evidence exists, for instance, that the spreading coherent excitation spreads to nervous tissue.[10] I am suggesting that during the late third and fourth week of embryonic life, before the formation of muscle and bone, the entire organism can become dominated by this 'second nervous system' of internally generated and tightly controlled vegetative transmission. As the organism prepares to form a body, the excitation of an adrenaline dominant maternal surround will become increasingly superfluous, as the energy economy isolates itself to preserve and maintain life.

What I have already described in this theory of the embryonic origin of vegetative armouring can be used by practicing psychotherapists in understanding aspects of the adult hysteric, the compulsive, the schizoid, and the border-line psychotic. The energetic adaptations to stress during embryonic life are transmitted as adult attitudes to internally and externally generated stress. In the tendency toward specificity of germ layer function, which is the first fragmentation of function that the organism can survive, lies the origin of hysterical panic. "What shall I do? Shield myself with ectoderm, armour myself with mesoderm, or withdraw to my endoderm?". At a deeper organismic level of hysterical panic lies the decision to contract and close all three germ layers onto each other, closing the adult organism to incoming stress, leaving the body entirely, displacing all metabolic energy to the head. The therapist can begin recognizing these involuntary and unconscious mechanisms, and gently and firmly assist the hysteric to bring them to consciousness and explore them, both through direct nurturing touch and verbal engagement.

The more conscious compulsive control of libido has an origin in the embryonic time of life. By its more complicated nature, it is a more wounded condition than the hysteric. There is a more active control of libido flow. Fragmentation into specificity of germ layer function is more than just a tendency. It is by the end of the embryonic period already an accomplished fact. Coherent excitation has been followed by establishment of a second nervous system. The overall energy economy is driven by an unconscious dread of any further contact between germ layers that might lead to differentiation of the sensation function, and thereby increased stress and pain. This unconscious dread is carried into adult life. Consequently, energy flow is more actively and consistently displaced to the head.

The *schizoid movement away from bodily sensation* has as its core the armouring of the cell membrane. The closing of the organism onto itself, and its progressive isolation during the embryonic period is a more global woundedness than the compulsive. As woundedness is more severe during the embryonic period, it is ever harder to find a vocabulary with which the adult condition can be described. In the adult schizoid condition, not only is there no interaction between the germ layers, there is no energy spent to keep the layers apart. This uterine woundedness, the result of frozenness or burnedness, has gone far beyond any act of defendedness that the adult organism might initiate. The war was already lost at the cellular level. It is

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each cell that has fragmented into functional aspects that could be likened to those of the three germ layers. The endodermal core of felt being still resides as a potential in the body proper, but hidden and totally encapsulated in each and every cell of the organism. The cell membrane assumes the mesodermal aspect, protecting, armouring, and isolating the endodermal essence. Thus the cell membrane provides an impermeable structure within which the endoderm unconsciously muses, unaffected by the passage of time, awaiting throughout life the catastrophic annihilation that will never come. Consciousness resides exclusively in the membrane to membrane displacement of vegetative energy, this "second nervous system". This is a distortion of the natural ectodermal function, dominated by displacement of all energy to the head.

The realm of psychosis, to this day, is shrouded in a mystery: the latitudes of woundedness that an organism can sustain and still remain viable. Here, the distance that the embryonic being must travel from the maternal excitation to protect its essence must be measured, for the moment, in terms of the labile response found in woundedness and armouring of lesser degree. This is so because there is no common vocabulary to describe the detachment between sensation and perception that characterizes psychosis. Suffice it to say that all explanations of psychosis to date that I am aware of are unsatisfactory. In psychosis, the germ layers are under such an intense attack, that they defensively separate and then seem to crystallize. Under such an assault, the essence of the being seems to figuratively never move from the yolk sac out into the germinal disc. The blood that does flow is totally armoured, lacking even the labile capacity to respond to stress. Nevertheless, thanks to the mechanisms of coherent excitation, a bodily vegetative flow in the developing neural system, however diminished, does establish itself, tenuously, along the surface of the nerve cell membranes. In the adult organism the energy flow moves upwards to the barely established false ego, maintaining what is called a cerebral dominant being. What often seems to be muscular armouring in the adult - a hard, desiccated, leathery like tissue - seemingly holding tight to the skelekature, is in fact the total absence of internally derived being in the body proper. The question that leaps to the mind, observing this most extreme case of pathology, the answer to which will help us to understand all the examples above of woundedness of lesser degree, is, how can an embryonic organism form a body when there is no internal sensation, except a tenuous neuralation?

THE FORMATION OF ENKEPHALIN* DOMINANT BEING

During the 1920's embryologists discovered that even if an embryo is fully narcotized with an injection of morphine during the germinal disc stage of development, the body forms.[11] How is this? I have described to this point some of the responses of the embryonic organism to incoming stress. I described the formation of the three germ layers during the third week, at the end of which on approximately the twenty-first day a primitive cardiovascular system appears. During the third week the organism moves from an ovular shape, elongating to establish cephalic and caudal ends. The cephalic more ovular end initially retains the mass of the tissue.

* En – toward ; kephalin – the head

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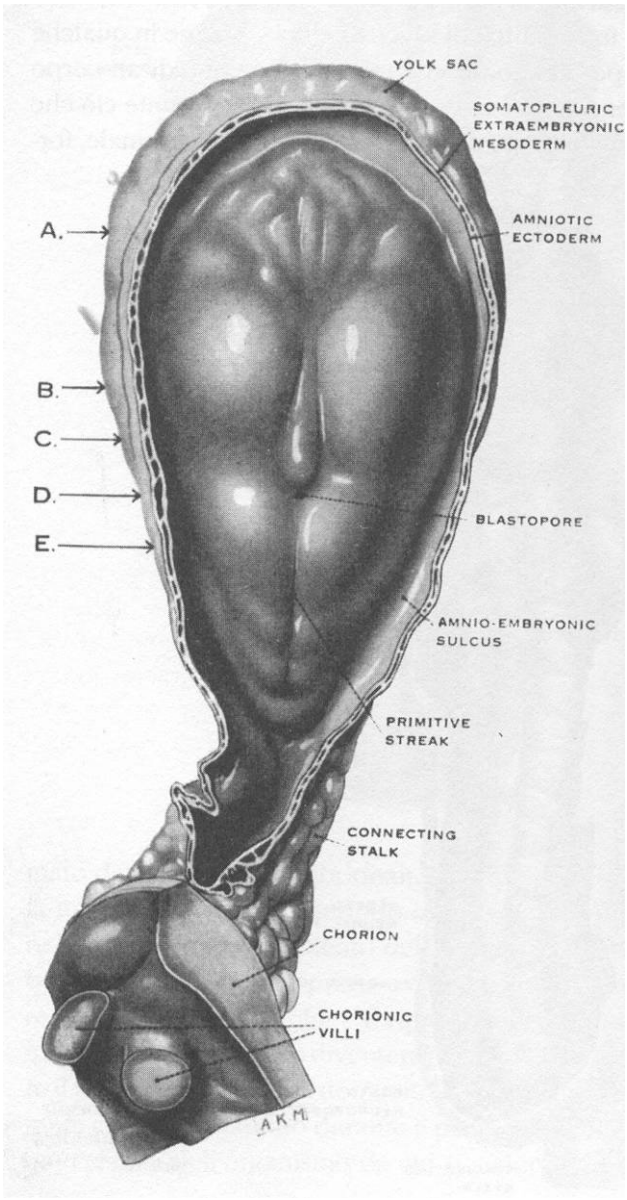

Figure 2: Dorsal aspect of 18 day embryo. Germinal disc elongates and establishes caudal and cephalic ends. This is a drawing of a model.

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Elongation is thus from the cephalic towards the caudal. By the end of the third week the neuralation process has begun. As the organism elongates, it simultaneously begins enfolding along the caudal-cephalic axis of neuralation. During the fourth week the enfolding longitudinal axis begins enclosing on the posterior side a neural tube. The anterior side faces the yolk sac, lingering behind somewhat in development.

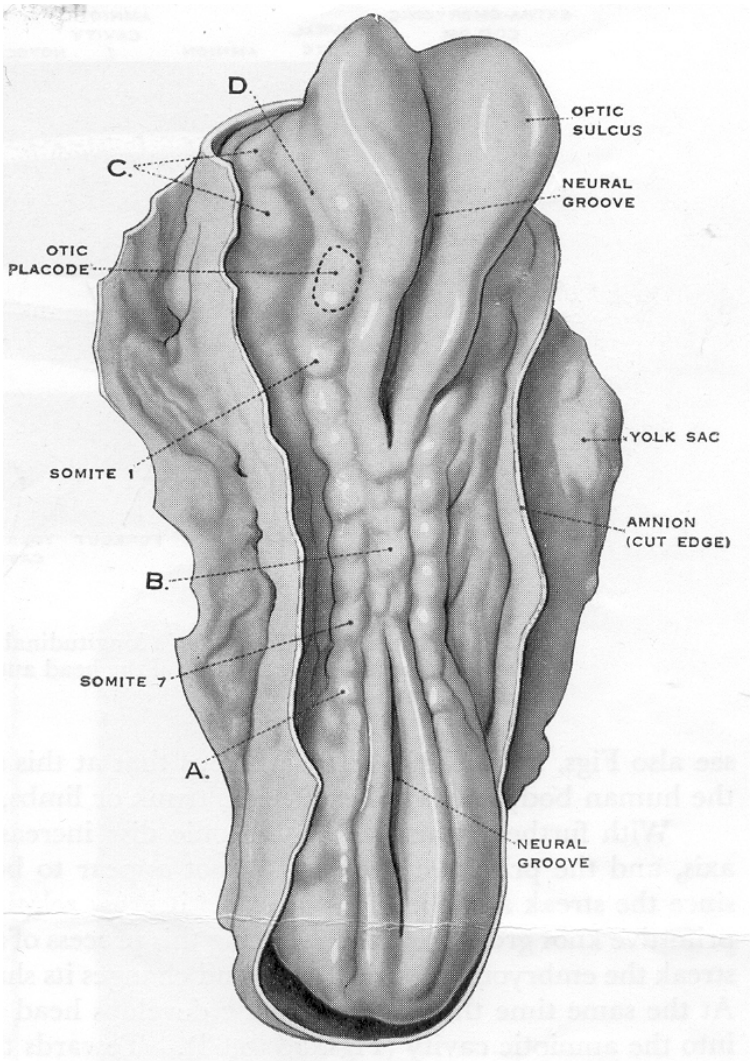

Figure 3: Dorsal aspect twenty-second day.

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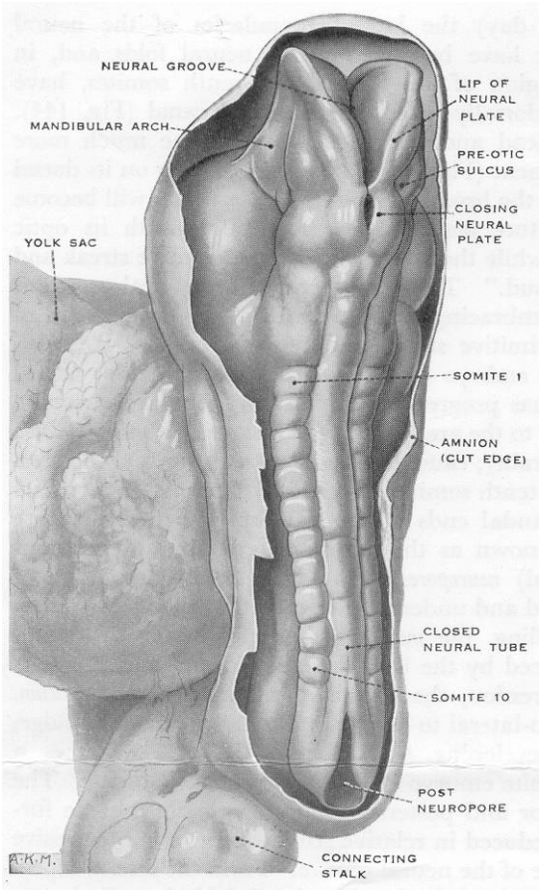

Figure 4: Dorsal aspect twenty-third day.

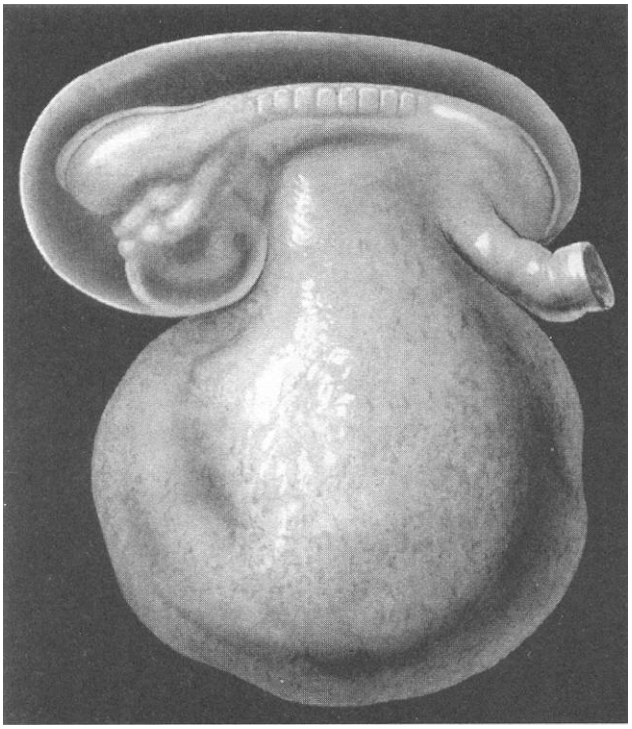

Figure 5: a drawing of a 23rd day 10-somite embryo to show the amnion, yolk sac and connecting stalk.

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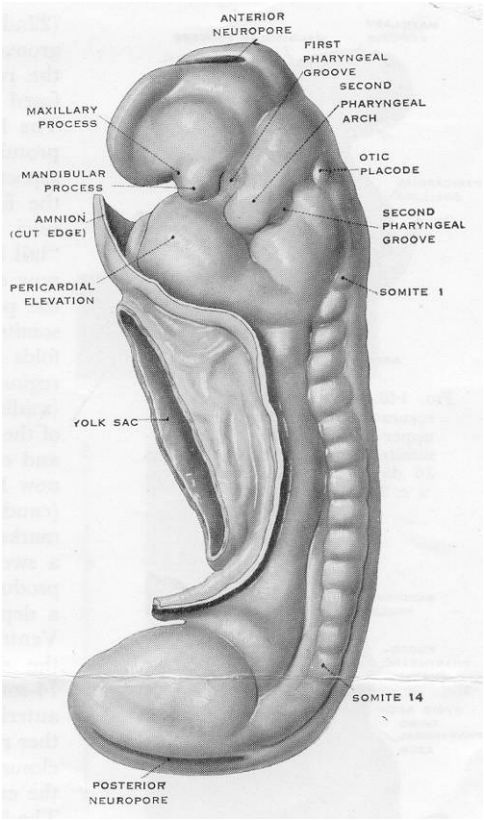

Figure 6: Twenty-fifth day.

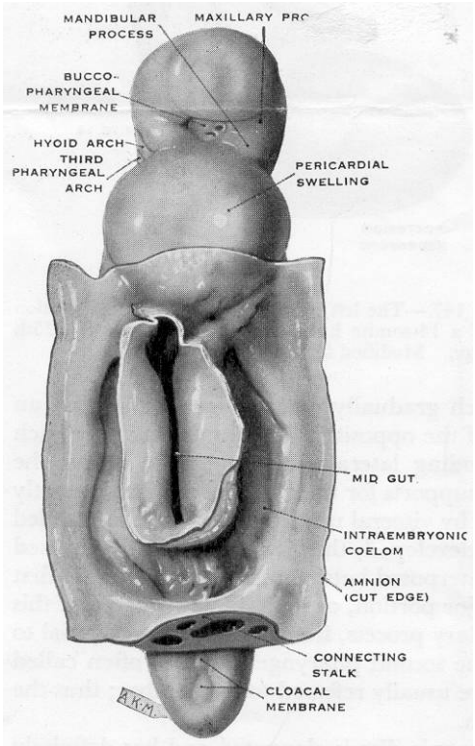

Figure 7: Ventral aspect twenty-sixth day.

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To understand the origin of an armoured and enkephalin dominant body, the following scenario needs to be kept in mind. In an adrenaline dominant womb, the germinal disc, consisting of three germ layers, has contracted onto itself early in the third week. Morphological differentiation is occurring in the extension of matter out of and away from that ovular form which had recently been the entire organism. If the contraction, emergency reaction, and adaptation, has already occurred in what a little later *then* becomes the cephalic end of the organism, then *all* future development will be dominated by the energy economy of coherent excitation established during the germinal disc stage. That end of the organism from which forming matter is developing will disproportionately dominate the energetic nature of all future matter generation. All vitality will tend to be drawn upwards towards that ovular entropic form which later is simply the cephalic end, in order to not upset the armoured energy configuration, or coherent excitation, first established to save the organism's life and maintain its essence.

The more differentiated becomes the organism, as the fourth week progresses, the more inadequate becomes the nurture provided by the yolk sac, requiring that the cardiovascular system differentiate to increase the organism's capacity to nurture itself and carry oxygen. Thus, along with neuralation, the pressures for differentiation are building during the fourth week.

Attention must at this point turn towards the practical effect that this increasing differentiation within an adrenaline dominant womb will have on the already compact and entropic energy economy that the tiny organism had established during the third week to mitigate stress. By the twenty-sixth day an organismic revolution of such consequence that I can hardly overestimate it naturally occurs. The cephalic and caudal ends of the organism begin drawing towards each other in a flexion or C curvature.

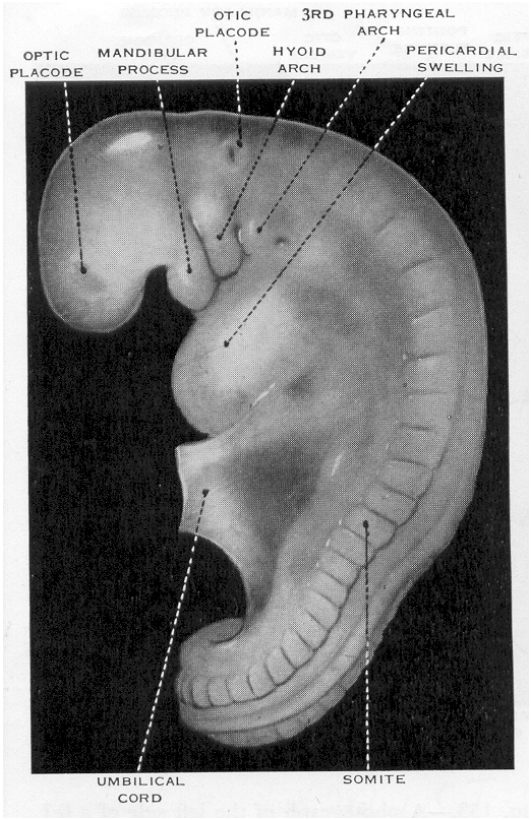

Figure 8: Twenty-eighth day: *Flexion*

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This seems to inaugurate the gathering of bio-energy or vegetative energy towards creation of the visceral interior of the embryo. The true embryonic period is about to begin on the twenty-eighth day and will proceed for the subsequent four weeks. Known in embryology as the period of organogenesis, this differentiation is clearly inaugurated by the curving of the organism around its umbilical region, progressively enclosing part of the yolk sac to form a gut. I call this process of flexion an orgonotic curl, adapting Wilhelm Reich's terminology. We can identify in this flexion an involuntary organismic action, which reminds me of the reflex Reich variously described in adult organisms as an orgonotic, a bio-energetic, or an orgasm reflex. Reich very tentatively tried to understand the meaning of the presence of this form in nature, for example, in the embryo, leaf buds, hurricanes, and galaxies.[12] To my mind Reich did not sufficiently ground these particular insights psychotherapeutically, which, after all, was the underlying motive of his research and creative imagination. The confusion that exists in the concept of the orgasm reflex lies in his lack of distinction between the ontogenetically primitive flexion of an organism building itself, and the involuntary spasm of a fully mature and differentiated human organism. I have repeatedly observed while working psychotherapeutically with people who had begun armouring before the organogenic period, and thus before the development of the musculature, dramatic spasms in which the head and the tail spontaneously flex toward each other while the subject lies on his or her back in a horizontal position. I am certain that this is an animating process, in which the organism, having finally found a peaceful and nurturing context, commences the formation of a sentient visceral core, thus initiating the process once arrested by the numbing out of the full organism prior to the organogenic period. This is not the reliving of a past experience, but rather the activation of a latent possibility for animation.

While working over the years with different forms of the borderline condition in individuals, I discovered a truth taught by Kurt Goldstein - that by observing carefully severe pathology, one can gain clear insight into the essence of the natural functioning of unwounded organisms. The borderline psychotic individual who has developed enough head dominated ego-consciousness to permit a little nurture is, in a certain sense, in a pristine organismic state. If, for example, the therapist proceeds very slowly with such an adult, listening for months and then inviting an occasional simple nurture of the limbs or head, what occurs is a clear manifestation of the human animating nature in action. Such a character has no muscular armouring, nor nervous system armouring other than a tenuous mentalized grip on the central nervous system. If the nurture is delicate enough, the organism of the recipient will spontaneously begin these flexions, at which time the therapist should simply back away and be present. While the work of assisting the severely uterus wounded organism is quite complex, and particularly that of assisting the healing of psychosis so complicated as to be the subject of another series of essays that I am preparing, the above is nevertheless illuminating to the point I am trying to make - that these flexions are a primordial sentient-organism-building process that will remain a latent possibility if the organism does not complete its animating process the first time around during organogenesis as a result of a numbing out prior to that time.

And these flexions are not the orgasm reflex of a differentiated adult organism. An unarmoured fully mature human being is endowed with the involuntary capacity for spasms that awaken and promote a suave and gentle interplay with a mate. The function of such mature and involuntary flexions is to promote a fully embodied, multi-levelled, and integrated contact with another human being. The distinction between this embryonic flexion and that flexion of an adult organism in lovemaking union with the beloved reminds me of a distinction between two aspects of organismic nature made by Malcolm Brown. In the newly awakened sensations of a blood bathed lower back there is an undifferentiated primitive passional quality of sensation which Malcolm metaphorically describes as the "phallic warrior" experience. The felt lower back is igniting and thrusting the organism into a primitive and haphazard sentience of its own various feeling

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functions. In contrast, the same lower back lumbar-sacral area, in a more differentiated sentient human being, functions, metaphorically speaking, as a “spiritual warrior”, mobilizing the organism towards a more refined encounter with the ‘self’ and with the other.

Returning now to the closing days of the fourth week of life, the following conditions prevail. Enormous vegetative forces are gathering in the orgonotic flexion of the embryo as a whole. Meanwhile, the cephalic end of the neural tube of the embryo has closed, though the caudal end of the tube will not close until the twenty-eighth day. The connection between the now forming endodermal midgut and the yolk sac lying anterior to it is constricting. Thus, just as the embryonic organism is preparing to fully enclose a centre, it is experiencing the potentially upsetting forces of a major differentiation signalled by the establishment of an orgonotic flexion, which will reach its apex on the thirty-first day. How the organism resolves the problem of potentially ever greater capacity to sense an adrenaline dominant womb brought on by the embryo’s own differentiation is perhaps the greatest mystery that I have ever seriously contemplated.

THE WOLFFIAN BODY ORGAN SYSTEM

Myself, I don’t believe in evolution, like a long string hooked on to a First Cause, and being slowly twisted in unbroken continuity through the ages. I prefer to believe in what the Aztecs called Suns: that is, Worlds successively created and destroyed. The sun itself convulses, and the worlds go out like so many candles when somebody coughs in the middle of them. Then subtly, mysteriously, the sun convulses again, and a new set of worlds begins to flicker alight.

D.H. Lawrence *Mornings in Mexico* (1927)

On the twenty-seventh day of development there appears an organ system about whose function embryologists remain mystified - the two wolffian bodies and their ducts and tubules. Located just anterior to the as yet unformed spine, they lie on both sides approximately mid-way between the caudal and cephalic ends of the recently flexed embryo. They have been described as the first abdominal viscera. They are mesodermal in origin. Their life coincides exactly with the organogenic period from the twenty-seventh to the fifty-sixth day. By the fifty-sixth day the wolffian bodies’ function ceases. They usually involute and disappear at that time.

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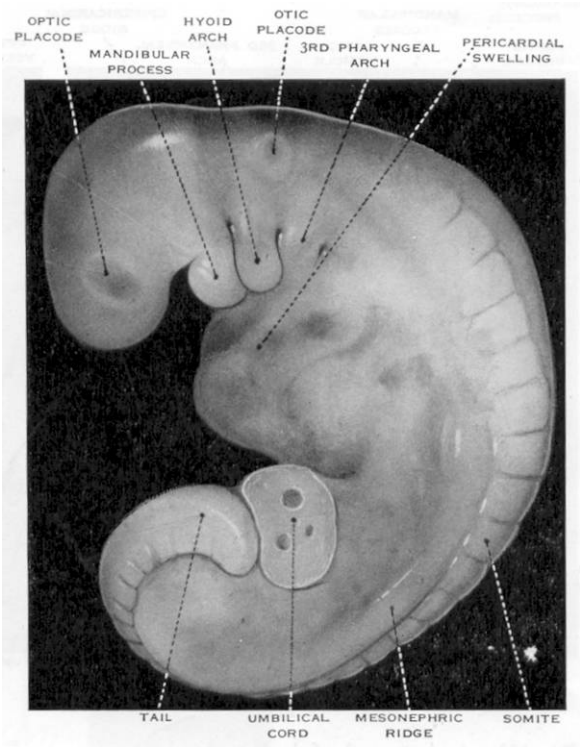

Figure 9: A twenty-eight somite human embryo of 4mm. C.R. length (estimated age: 30 days). The embryo is now more elongated and markedly curved than the embryo in Figure 8. Note size and great length of mesonephros induced "ridge" as embryo reaches full flexion.

First identified by Caspar Friedrich Wolff in 1759, the wolffian bodies, or mesonephroi, as they are sometimes called in the twentieth century, were thought by Wolff to be the primordial form of the permanent kidneys. At the age of twenty-six Wolff published his Theory of Generation which had been his medical doctoral dissertation. Considered too radical for Berlin, he accepted the protection of the court of Catherine the Great, moving and staying until the end of his life at St. Petersburg. Wolff (1733-1794) established his reputation on several fronts. He is considered the founder of the germ layer theory. He was first to describe accurately, as a universal process throughout all stages of organismic development, whether it be the germinal disc, or any given viscera, the movement from a flattish membrane, eventual enfolding along an axis, and finally, enclosing of a centre. Above all, he established his reputation in the defence of the principle of 'epigenesis'.

To this day epigenesis is an accepted and satisfactory explanation of generation and development. Epigenesis stands opposed to genetic theory and the tradition of evolutionary theory out of which genetic theory emerged. In its explanation that the origin of each new life is spontaneous, and that neither the origin of new life nor the direction of development of life is dependent on hidden or preformed factors, epigenesis stands opposed to much of the direction that current cerebralized and atomized exploration of our nature is taking us.

Epigenesis is a forerunner of the wholistic, organismic understanding of life, articulated in the nineteenth century by Goethe, and in the twentieth century by Kurt Goldstein, who, I might add, started out as a neuro-embryologist, and finished as a psychotherapist. In fact the three men preserve an historical tradition, an historical memory, one could say, of a former unarmoured time. Goethe eulogizes Wolff and Wolff's poetic sense of nature.[13] And Goldstein repeatedly refers to Goethe's sense of how to truly observe nature.[14]

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In that understanding of the nature of the human organism in which vegetative armouring is considered a possibility, and the dearmouring of the organism a necessity, evolutionary theory and genetic theory have no meaning. The historical context in which both evolutionary theory and its product, genetic theory, evolved, is the principle that the organism consists of pre-formed parts from which the being simply grows larger. In such a view there is no satisfactory explanation *for the fact* that an embryonic organism, complete in itself at any given stage, *can* labilely modify itself, shielding and maintaining its essence. Nor is there any explanation for the *fact* that when given the opportunity, the mature adult organism has a natural tendency towards recuperation and embodiment of that very essence the embryonic organism had encapsulated. Speaking allegorically, as one must when referring to embryonic life, which can *never* be observed directly because of the Heisenberg Uncertainty Principle, Jung writes, "…therapy must support the regression and continue to do so until the "pre-natal" stage is reached… For regression, if left undisturbed, does not stop short at the "mother" but goes back beyond her to the pre-natal realm of the "Eternal Feminine", to the immemorial world of archetypal possibilities, where, "thronged around with images of all creation", slumbers the "divine child", patiently awaiting his conscious realization. This son is the germ of wholeness, and he is characterized as such by his specific symbols".[15]

At an even deeper level 'evolution' contains a hidden error derived from its historical context: a cerebralized and idealized, or what I call an enkephalin dominant concept torn from the full organic reality of man, a hidden assumption that the full development of man is part of an historical process from lower to higher forms. Goldstein writes:

"The question of evolution is usually seen as a development from the lower to the higher creatures. An actual genetic emergence of the latter from the former is assumed… In principle… it remains implausible how "more perfect" should arise from the "less perfect". The opposite would be rather more intelligible. The fundamental thought which mature observation impressed upon us, and which we adopted as an orienting principle, is that the less perfect becomes intelligible as a variation and aberration of the "perfect", but not the opposite".[16]

This is a classic expression of the principle of epigenesis, in which the whole, at any given point in time, is complete. In the theories of pre-formation, on the other hand, the organism is controlled by isolated forces or factors. There always lies in the background an ungrounded psychic image of a particular future towards which the being is evolving. There is no present, only a future that can never be reached. Goethe writes:

"…even if it seems to us that one thing is brought forth by another, this is not so. Rather one living being occasions the being of another, and necessitates its existence in a definite condition. Thus, every being has its original existence within itself, and also therewith the intrinsic rule according to which it is".[17]

Embryologists had clearly established during the nineteenth century that the wolffian bodies were not the primordial form of the permanent kidneys, but rather organs with their own nature. Nevertheless, embryologists sought, and by 1900 had established that the wolffian bodies do have a certain purifying and excreting aspect. But since the placental system also served these functions increasingly during the

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embryonic period, doubt remained, as it still does, as to the essential nature of the mesonephroi. During the early twentieth century attention turned increasingly from the purely functional aspect towards the morphological. To the fact of the early appearance of the wolffian bodies and their role in the *evocation*, or *induction*, of surrounding tissues and structures: in particular, the male and female urogenital system, the adrenal gland, and in general the entire abdominal mesodermal field in which these organs form, and surrounding neurological and vascular development takes place. Anatomists slowly and meticulously identified patterns of development from the wolffian body organ system as an example of *anastomosis* - simple reciprocal contact during cell multiplication. In particular anatomists traced backwards chronologically from older to younger human embryos the origin of the urogenital apparatus establishing categorically by the 1930's a mesonephric origin.[18]

But this genre of modern anatomistic atomizing failed to give the natural picture of development, that quality of being which permeated the insight of Goldstein, Goethe, and Wolff. Wolff had clearly articulated that it is the whole that brings about formation of the parts, and not vice versa. Emphasizing in eighteenth century terms what could be a forerunner of the Heisenberg Uncertainty principle, Wolff claimed: *"No one has ever yet, with the aid of a stronger lens, detected parts which he could not perceive by means of a weaker magnification"*. Wolff saw blood flow. A solidifying process, *solidescibilitas*, formed a flattish membrane. First occurs an enfolding, followed by the enclosing. Wolff went further. From each spontaneously generating organ system, more blood flowed, *qualified*, as he said, by the condition of the previously spontaneously generated substance. (Goldstein says that *"one should attempt to understand each stage from the respective present condition… the effect of the former stage continues into the next"*.) The process of tissue and organ generation thus proceeds in a field of vegetable matter *qualified* by the organismic state of being of the whole in its prior condition. I would hazard a guess that this picture of how generation and development proceeds laid the groundwork out of which a vegetative armouring theory could form.[19]

As a result of the modern tendency to look atomistically rather than wholistically at the organism, too many observers have identified phenomena occurring in the cephalic end of the adult organism, the head, when in reality the entire organism is experiencing or has experienced a phenomenon whose effect is seen in the zone of the adult head. Thus, a bit of the whole, when seen under the lens of the observing cortex, is extrapolated to a general theory that draws us further and further from the actual three dimensional reality in which the cause first took place. For instance:

In a flurry of late twentieth century investigation, the race is on to identify and isolate the brain centred responses to organismic stress. *Science* is studying armoured organisms, that is, fragmented organisms, in which the head has become dominant, in which the fullness of sentient being is no longer being used to confront the normal stresses of life. And that overworked part of the whole becomes the locus of study. *Science* then wonders how the head, working alone, generates a mechanism that numbs out the senses. Instead of exploring how it is that being comes to depend upon the head in the first place, science looks at this numbing out phenomenon as natural functioning. It then proceeds to isolate the *substance* that is assumed to be doing the numbing out, probably with the intention of manufacturing more of these *endorphins* to aid the poor and isolated dried up head to numb out an organism screaming for exactly the opposite emphasis. (It is worth noting that when Wilhelm Reich ventured below the head in 1934, trying to direct the attention of his colleagues at the International Psychoanalytic Congress in Lucerne to the abnormality of penis and vagina anaesthesia, a phenomenon he had noted but which he admitted to little understanding, he was shortly thereafter expelled from the association).[20] The endocrine system, in ever more of a border line condition, will of course generate *endorphins*, these opiate like substances that numb out pain, as less and less of the organism is available to sense with. That nature has provided us with an

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organism, which in the fullness of unarmoured and differentiated being, is perfectly suited to almost any eventuality, becomes an ever more remote truth.

Just how pervasive is the inundation of this kind of thinking, can be seen by just a few diverse examples I have come across. This casual mis-emphasis directing us to the head for wrong reasons needs to be confronted. When medical researchers recently discovered that dendrites of brain cells of life-long schizophrenics turn 90 to 180 degrees off their normal transmission angle, conclusions drawn subtly mislead us. We read that the "disarray" is the probable result of "trauma in the womb… a lack of oxygen, a virus, or a genetic effect". That a living organism was able to maintain itself so creatively by creating new pathways of nervous transmission is not given valence. We read the newspaper article's cause and effect, departing with no sense of the dimension of living being involved. What is more pernicious, because the wound is found in the area of the adult brain, the medical scientist looks to the foetal brain as the locus for study of the origin of the wound.[21] While Jung had in a sense anticipated this *discovery* thirty years earlier, claiming that the origin of schizophrenia lies in a medical condition in which emotion is *exceeding the capacity of the brain cells* causing *dissociation*, he too leaves us dangling by the head.[22] This same incapacity to see beyond the head too often holds the rein in the body therapies. Arthur Janov is popularizing endorphin hunting, stating that organismic pain is handled by *Our Own Pain Killers*, endorphins, found in the brain.[23] It is not even true, if one were to scan the enormous amount of material being generated in the subject, that endorphins are peculiarly a product of the head, as, for instance certain Italian research has found, that the genitalia generate them as well. John Pierrakos falls into this *organologic trap*, recently discussing the brain, and its generation of *special chemical substances to alleviate that pain.*[24] This entire emphasis on the head gives me a pain.

An epigenetic embryological perspective on woundedness may help to recapture the truth. We are lead to assume by contemporary thinking that because the most apparent evidence of woundedness is in the area of the adult head, that the organismic woundedness must be resolved by giving primary attention to the formed adult head. But one could just as easily say that the wound occurred long before any body can be said to have even begun to form, when the organism was a disc like being. And that by the time the embryonic organism begins evolving a caudal portion, the being is energetically, at an organismic level, already encapsulated in what was formerly the whole, i.e. the former constituents of the disc contracted onto each other. Consequently, the organism which has armoured itself to one degree or another already before the body forms, will *qualify* future differentiation. As the body forms, flowing out from the cephalic towards the caudal, the cephalic will maintain its energetic dominance to prevent a destabilization of the original adaptation to an adrenaline dominant womb. Here, in my opinion, is an adequate explanation of the origin of head dominance. Morphological differentiation will proceed, but all libido must be drawn to the cephalic end and processed by the basic and original armouring configuration.

I am not saying, I should emphasize now before being misunderstood, that the adult organism has an encapsulated germ disc in the head. I *am* saying that in some manner the organism can under conditions of fragmentation retain, maintain, and fixate in the head archaic forces associated with the original undifferentiated germ layers. I do not feel that *cerebral armouring*, a term denoted by David Boadella, is sufficiently descriptive for this phenomenon, since the armouring occurred before the cerebral cortex appears. That the cortex is utilized by this armouring configuration I do not doubt.

Mesoderm, the appearance of which permitted the organism to armour in the first place, will dominate as the qualifier of all future differentiation. The particular capacity of mesoderm to qualify, organize, induce, or evoke development was already by the 1920's a subject of intense study. An entire school of research developed around the capacity of mesoderm to create so called *fields* and *gradients* in which development would proceed. Unfortunately, this *induction theory*, as it is called, survives to the present, as

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inducers are sought here and there.[25] Unfortunate, because the distinction was not made at the time, as it could have been, that the organizing nature of mesoderm is an organismic reaction to stress; and that this kind of *specificity* is a pathological and wounded condition that does *not* characterize natural functioning.[26] The current most prominent version of this misguided *organological* inducer hunting, apart from the former example of endorphin hunting, is the DNA gene splitting craze.

Historically, in the organologic view, specific bodily and or psychic functioning is associated with the activity of particular organs. The origin of organologic assumptions lies in the unacknowledged fact that during the embryonic period of development, the human organism as a developing-whole can break down under stress. The organ systems that can maintain equilibrium and on-going viability for the whole become dominant. Kurt Goldstein has shown conclusively that the wounded adult organism will spontaneously organize as primitive and simple an orientation to externally or internally generated excitation as is possible to maintain homeostatic processes.[27] This is so not only to blunt the incoming charge, but also to protect the core of being residing at the endodermal level. I will take this principle a step further, and state that the stressed and wounded embryonic organism has a tendency to maintain that ontogenetically primitive energy economy which will maintain equilibrium and groundedness. I re-emphasize here that I am speaking of energy economy fixation, *not* phylogenetic morphologic fixation. Normal morphologic differentiation will proceed in any case.

What are the means by which the embryonic organism maintains such a primordiality even as the whole enters the organogenic stage of morphologic and bio-energetic increase around the twenty-seventh day? In 1926 the Dutch anatomist Louis Bolk asked why such so-called phylogenetically recapitulating organs as the wolffian bodies appear in the human. The wolffian bodies are in form identical to the permanent kidney of the amphibian and the fish. In response, Bolk claimed that the continuing pressing forward of development is not necessarily of prime importance to the viability of the embryo. Rather, Bolk continued, the true purpose of this kind of structure (the wolffian body) in man may be found in its hormonal capacity to organize *regressive* forces which can anchor the organism as a whole to more primordial levels of being during the organogenic period.[28] Bolk does not take his discourse far beyond this provocative speculation, other than to repeatedly emphasized that during the period of the existence of the wolffian bodies, the organism is a full blown and complete being. The very presence of the wolffian bodies is sufficient reason to prove their value for the whole.

To be continued.

FOOTNOTES

[1] For background on Empedocles, see James Olney *The Rhizome and the Flower*, the Perennial Philosophy, Yeats and Jung, Berkeley, 1980, and F.A. Wilford “Embryological Analogies in Empedocles Cosmogony”, *Phronesis*, Vol. XIII, No. 2, 1968, pp. 108-118.

[2] See C.G. Jung’s *Collected Works*, Vol. 7, par. 151

[3] See Philo Judaeus *On The Creation*, Loeb Classical Library Series, London, 1971, p. 51, and C.G. Jung’s attempt to historically ground Philo’s use of imagery in the individual quest for wholeness, C.W. 14, par. 760 ff.

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[4] W.J. Hamilton and H.W. Mossman *Human Embryology, Prenatal Development of Form and Function*, London, 1978, p. 2.

[5] See Jane Oppenheimer "The Non-Specificity of the Germ Layers", *The Quarterly Review of Biology*, Vol. 15, No. 1, 1940.

[6] op. cit. Hamilton and Mossman, p. 2.

[7] See Stanley Rowlands "Coherent Excitations in Blood" *Coherent Excitations in Biological Systems*, Berlin, 1983, pp. 145-161. I am adapting Rowlands work to my theory. In none of his essays is he writing about embryology and vegetative armouring per se. See, as well, the extraordinary drawings of erythrocyte rouleaux formations in *Exempla hämorheologica*, Wiesbaden, 1980.

[8] Stanley Rowlands, C.P. Eisenberg, and C.S. Sewchand, "Contractils: Quantum Mechanical Fibrils", *Journal of Biological Physics*, Vol. 11, 1983, pp. 1-4.

[9] Stanley Rowlands "Some Physics Aspects for 21st Century Biologists", *Journal of Biological Physics*, Vol. 11, pp. 117-122, 1983.

[10] ibid

[11] see Joseph Needham *Chemical Embryology*, Cambridge, 1931, p. 1626, footnote.

[12] Wilhelm Reich *Cosmic Superimposition*, Man's Orgonotic Roots In Nature, Orgonon, Rangeley, 1951.

[13] Wolfgang Von Goethe *Zür Morphologie*, Stuttgart, 1817, pp. 80-83, 252-256.

[14] Kurt Goldstein *The Organism*, New York, 1939.

[15] C. W. Vol. 5, par. 508.

[16] op. cit. Goldstein page 494.

[17] Ibid page 15, Goldstein here quotes Goethe.

[18] I spent a year studying the mesonephros and urogenital system. There is neither space nor any point to citing all the historical sources. For seventeenth, eighteenth, and nineteenth century material see Howard B. Adelmann's massive *Marcello Malpighi and the Evolution of Embryology*, Ithaca, 1966. At the end of most text book chapters on the urogenital system appear the twentieth century material.

[19] Despite his position in the history of embryology, no work by Wolff has ever been translated to English in its entirety. The following are helpful, nevertheless. Adelmann's passages on Wolff, including long pieces of translation, William Morton Wheeler "Caspar Friedrich Wolff and the Theoria Generationis" *Biological Lectures of the Marine Biological Laboratory*, Woods Holl, 1898, pp. 265-284, and Shirley Roe *Matter, Life, and Generation*, 18th Century Embryology and the Haller-Woolf Debate, Cambridge,198l.

[20] See Wilhelm Reich *Character Analysis*, New York, 1972, p. 315.

[21] "Schizophrenia May Begin in the Foetal Brain", *Washington Post*, June 20, 1983.

[22] C.G. Jung's C. W. Vol. 3, par. 548

[23] Arthur Janov "Our Own Pain Killers" *Prisoners of Pain*, Los Angeles, 1980, p. 83.

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[24] John Pierrakos "Pain: The Pain We Cause Others and the Pain We Create for Ourselves" *Journal of Biodynamic Psychology*, No.3, Winter, 1982, p. 18.

[25] See Hans Spemann *Embryonic Induction and Development*, New Haven, 1937, and Goldstein's critique of this approach in *The Organism*, pp. 207 -209.

[26] See Goldstein "Hypostatizations of Tension", *The Organism*, pp. 332 ff.

[27] See Goldstein's *The Organism* and Goldstein's *Human Nature in the Light of Psychopathology*, New York, 1963.

[28] Louis Bolk "La Recapitulation Ontogenique Comme Phénomène Hormonique", *Archives D'Anatomie*, Vol. 5, 1926, pp. 85-97.

(Originally Printed in the British Journal *Energy and Character*, Abbotsbury, Vol. 17, n. 1, April 1986)

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