



The Quantum Dynamic and the Formative Process Stanley Keleman:



Abstract: The human being is the source of self-creating realities of the meaning of its own processes. Using quantum dynamics to underscore the non-linear functioning of the brain's cortex, and the role of the body and its cortex as a creator of realities, defies the logic or reasoning we have relied on. This recognition has created a new frontier in which the human being is a voluntary participant in creating consequences and experiences that enrich life by preparing new patterns of acting and new understandings of embodied life. The Formative organizing process is a quantum process, a non-reductive function of possibility, prediction and organized differentiation capable of changing an existing pattern and creating a different anatomic organization of our human animate reality. Voluntary forming is an organizing anatomical function, a dynamic process of imaginative shaping and feeling, a kinetic, imagistic, tactile reality with internal patterns of arousal in a continuous wave and particle pattern of incompleteness-seeking-completion.

Our adult soma as it seeks to grow and mature is a magnificent creation of entangled anatomic structure and function, and of emotion, feeling and expression. It is an embodiment in the world that has within it under-formed, uncompleted bodying patterns that await differentiation and completion; internal multi-dimensional entanglements of tissue and excitatory connections, pulsatory patterns of experiencing that link the elastic, non-linear realities that form the body's interiority and which are the basis of its identity.

A personal perspective: To me a proper subject of physics is the body, as an expression of an animate primary process that is universal. Man's biological endeavor from the moment of conception is to form an adult body and a personal embodied life in the dynamic of $E=MC^2$. The body is an evolutionary process, an inherited anatomical structure from which a cortex has formed with the ability to differentiate itself and its body's inherited shapes. An instinctual formative process is seen in all animate life.

The human body and its cortex have a unique dialogue that is able to influence that which is inherited. This dialogue is a Formative dialogue and is an expression of $E=MC^2$, the relationship between the speed of excitation and the forming and stability of mass. Anatomical tissue mass and its behavior can be viewed as the relationship of excitation-speed and stability-mass. Human forming follows a continuum of more motility equals less stability of mass and therefore less shape, decreased motility equals more stability and more mass, which is to say there is a relationship between the body's excitation and its mass. The body has a forming pattern of incompleteness-seeking-completeness; this is a forming continuum of highly motile structure becoming more stable as excitement slows. For example, the rapid motile excitement of cortical imaging that is experienced as a dream figure is an example of an incomplete behavior shape, or what I call under-bodied. This is in contrast to a fuller bodied shape that has developed into reliable established behavior, the more substantial mass of a practiced muscular behavior.

The cortex formulates its organizing behavior from the architecture of its own forming process. We as human beings are a bodied dimension that is spatially, temporally and experientially involved in the evolutionary process. So what we ascribe to nature, to the biosphere, even to the cosmos, must be equally true of the body and its own cortex. The body, as a process of embodying experiencing, incorporates the Newtonian world, the world of Einstein's relativity and now the quantum world within its organismic self. The role of the body's developing cortex is to

articulate the animate process of human activity and experiencing; forming new possibilities not inherited is, for me, the forming of a human dimension within ourselves.

The body has grown its cortex, the structure that articulates its own quantum process. The body's animate process organizes structures of behavior and generates experiences and information from the relationship of its anatomy. Its expressive, emotional, cognitive and conceptual acts are the sub-organizations of forming behavior and understanding.

By quantum, I mean the body and its cortex in a continuous micro-macro organization of pulsatory stability and the experiencing of self-correcting. The pulsatory dynamic of arousal has smooth and choppy, multi-layered wave patterns, distinct frames of embodied existing that sustain the elastic, extended, animate process of the body and its cortex, as well as an entangled relationship between the body and the world as mutual self-evolution. This malleable, self-organizing behavior creates steady pulses of excitatory stimulation that sustain the wave patterns of behavior. The relationship of form organizing itself, which is incompleteness-seeking-completeness, is an expression of $E=MC^2$. This organizing process is self-generated stimulation and is an arousal dynamic of anatomical patterns that have an ongoing, steady range of being present in all aspects of involuntary and voluntary human functions and experiencing.

The organism's aliveness is a complex multi-dimensional arousal, a pulsatory pattern of possibilities that is entangled, interconnected throughout the whole organismic structure. It is

the involuntary and voluntary muscular-cortical interactions that promote development of a personal body and its experiences. Being bodied human mammals, capable of voluntary influence and forming a personal embodiment, we create new somatic shapes and narratives, giving body to organismic possibilities of behavior that are incomplete or under-formed, groping toward completion. States of under-formed behavior generate stimulation, arousal excitation that promotes differentiation and new experiential and imaginative dimensions of our formative urges.

The study of animate life reveals the engagement of the body with its own process of creating and embodying its experiences. The body and its cortex are entangled in a mysterious dimension of engagement with itself at all levels of its structure and functioning, resulting in what we call self-awareness or the experience of experiencing. The body's cortex understands its own and its body's quantum functions, and articulates this functional dimension, the physics of its own cortical behavior and its micro-world of entangled, interconnected, distinct sub-organizations, and their structures of entangled interactions. The body's cortex, like the originating animate process, has evolved micro-structures into networks of experiential information. This relationship of micro-levels of organization influences the macro-muscular action that we experience and remember by creating memory structures of them. These discrete micro-structures have tissue mass and are internalized neural, emotional and cortical acts.

As the cortex grows and forms connections

within itself and its body, it experiences this self-knowing. The body and cortex in relationship and the cortex in relationship to itself is known through the experiences of its acts, which is the understanding of one's self as an embodied creature. The generation of action, feeling, cognition and imagination that is the evolving human experience of arousal's quantum waves is both a personal and shared experiencing. These are quantum experiences of the waves and particles of a personal and collective embodied existence and is the same relationship of the waves of our individual life, and in the waves of existence in the field of others' bodies. Voluntary muscular-cortical effort brings these innate behaviors into the field of self-experiencing and is the basis of new understanding and meaning.

As individual organisms generating our own waves of connection and contact, we are also part of the evolutionary wave of the species and society. The organism at all levels is part of a process of incompleteness-seeking-completeness, even though that completeness is temporary. This incompleteness-seeking-completeness is the dynamic part of an ongoing process of asymmetry that is fundamental to the animate organism, making it an open-ended process with choice, probability and possibilities.

The organism's cortex is the supreme organ of a quantum process of functioning. It has an elastic, structural, experiential behavior of multi-layered collective wave tides, as well as individual wave patterns that generate and perpetuate distinct arousal patterns of the collective wave and the individual wave. These

multiple worlds of the organism are entangled with each other. By learning this truth experientially, the organism is able to make a personal embodiment from its inherited principle of continual morphogenesis and to understand the probability of its incompleteness being completed. In this way each person continues forming an elastic personal world that extends the primary animate formative process.

The modern human, able to be alert to its process of experiencing, seeks to link itself with a scientific framework. There seems to be an overwhelming need of present life to help make sense by growing concepts to help categorize experience and to influence acts in daily life, even if these concepts may be temporary tools to help guide actions toward rewarding experiences. Voluntary muscular-cortical effort as an operant influencing embodied life is an application of the Formative principle that places the human in a voluntary partnership with the biosphere, society and one's own body. We are co-creators in an animate process with responsibilities for creating what we experience.

Over the past 1000 years or so, man has lived in the time of the mechanization of nature, of Newtonian physics of cause-and-effect, as well as the industrial and digital revolutions. The power and applicability of Einstein's relativity, of electromagnetic and light waves, which birthed the technological and electronic age, has grown into a quantum world that is a new experience of the body's interiority as a multi-dimensional personal cosmos.

In the realm of human experiencing, life can be understood as a wave made up of discrete particles, each particle pulsing as it makes up the whole wave. Life and the mysteries of experiencing were previously understood differently than they are being addressed in our age and time. Now, challenges are being made to the categories of the human dimension, categories such as linearity, predictability and certainty, as well as the recognition of the human as a focus of self-creating realities of the meaning of its own processes.

Using quantum dynamics to understand the non-linear functioning of the brain's cortex and the role of the body and its cortex as a creator of realities defies the logic or reasoning we have relied on; it has brought the human to being a participant in creating consequences and experiences that enrich life by preparing new patterns of acting and understanding embodied life. I am pointing to the role of the cortex organized as a quantum process. By this I mean the emergence of the cortex and its ability to voluntarily alter inherited patterns of behavior and manage emotional acts, including those that are excessive and decorticalize the organism.

The Formative dynamic I use postulates that the body's voluntary muscular-cortical effort is the agent, the hero of personal embodied evolution. The incompleteness process is like being in different time-space dimensions: Past, present, extended present and the anticipated future. We recognize this in the fluid time-space realities of dreaming. Using a dream image as an example of an incomplete pattern seeking completion, voluntary muscular-

cortical effort is the operant for completion. In my Formative paradigm, dreaming is a dialogue between the cortex and its body about something, a pattern of action or a feeling shape, that is seeking future expression. If a dream image is a motile pattern of bodily excitation, it is also a shape behavior pattern that can be recalled, slowed and stabilized, to become repeatable experience that forms and reveals personal meaning.

A dream figure then is bodily excitation translated by the cortex into patterns of socially recognizable images. These excitatory transmissions in the form of dream images or feelings are signals to the soma about a behavior seeking completion. By voluntarily organizing the muscular shape of a dream figure and repeating it in steps of more and less muscular intensity, the patterns of action that are incomplete, that is less bodied, move toward completion by becoming more bodied. More bodied means using voluntary effort to differentiate a motile pattern of quickly changing behavior. Slowly organizing micro-movements in a series of related but discrete shapes stabilizes the motile behavior so it acquires mass, and can be repeated. We are animate, anatomical bodied creatures who have within us under-formed, incomplete bodying patterns that await differentiation. Voluntary differentiation is an accordion pattern of connection and experience linking the multiple, elastic, non-linear realities that form the organism's interiority and identity.

From this somatic self-interaction new behaviors and new meanings are formed that

are the basis of the many shapes we form and live during our lifetime.

The somatic realm is a quantum function different from the worlds of Newton and Einstein but inclusive of them. The soma's evolving cortical dimension is different than has been commonly portrayed. It is a hydraulic, pulsatory gel that has long and short tiding patterns; compressed sharp peaking waves, and undulating waves of longer duration; minimal organization of short and brief somatic structures, and long-term, enduring structures. Structures that are elastic and malleable, or change quickly, are accompanied by experiences of these morphing structures. Morphing structure giving rise to arousal feelings is the dynamic process of an imaginative feeling, an imagistic, kinetic, tactile reality. This emerging human cortical development embodies Newtonian, Einsteinian and quantum experiences of our animate reality.

We embodied creatures live our individual lives in a series of pulsating waves which is an organizing, formative dynamic of an elastic, stable sphere of embodied existing. These waves, organized by inherited and developed involuntary and voluntary interactions, create other waves that themselves generate their own experiencing.

The cortex influences these waves in an entangled labyrinth, an excitatory embodying field that makes the quantum reality available for experiencing as orderly interconnecting dynamics, where each organization influences itself and others to make life more manageable, more understandable in a way that enriches experience and brings satisfaction.

Interiority is an ongoing relationship of arousal, the relationship between under-form, forming and formed anatomical architecture. Arousal is malleable and elastic, a world with multiple possibilities where incompleteness is part of a process of making layers of different pulsatory shapes of swelling and gathering back. These pulsatory shapes of arousal are motile, porous, rigid and dense tissue states that are part and parcel of the interactive process, on the macro and micro levels, of form seeking completion that is the embodying process of interiority.

Asymmetry is an investigative response programmed into the cortex. It generates arousal and possibilities, it makes for continuous openings, adapting and forming as the ongoing principle of extending the animate process. Asymmetry precludes the perfection of completeness; it allows for choices that include the unknowns. Voluntary small micro-acts make discrete waves inside macro waves; this allows for multiple responses, rather than galvanized responses. Discreet fine motor acts are the agents of voluntary muscular-cortical effort that creates and brings about the experiencing we call interiority. The organism's readiness to act, and its actions, are structure-producing experiences. An act has feedback, and experience is information.

Entanglement declares that the body is always engaged with itself on multiple layers of organization. For example, the hands are connected and influence the body proper at multiple levels. Clenching the hand connects to the eyes and mouth; eyeballs may converge, throat tighten, diaphragm knot, arches of feet raise up in an expression of the attitude of self-gathering. These anatomical connections

organize an interior network that expresses itself in bodily patterns of expression. So when there is a multi-dimensional complexity of connections being made, or already made and influenced, there is also multi-dimensional experiencing of kinetic, tactile, olfactory, hearing and seeing, which includes pressure, texture, temperature and chemical exchanges.

The structure and behavior of the cortex is capable of a mechanical cause-and-effect, of temporal experiencing of then and now, as well as a relative relationship to a situation that we experience as a specific view or orientation. Newton taught us to think in terms of cause-and-effect, Einstein gave us relativity and Planck gave us quantum dynamics and the concept of timelessness that I call the extended present.

Voluntary application of the Formative process is a quantum organizing process, a non-reductive function of possibilities, prediction and organized differentiation to change the trajectory of an act and create a different anatomic organization. Voluntary influence of an involuntary act activates a non-linear somatic imagination that conceives new organizations. The trajectory of under-form seeking more form is a malleable, elastic, pulsatory octopi-like structure within a more firm dense structure with more reliable duration. Cortical organization in its elastic malleability is an associative morphogenesis of alternating frames of behavior and feedback experiences. These different organization patterns can be linked to form an extended present that allows the possibility of a future formed over time, an anticipated developmental future.

Relativity is a behavioral process that is associative and linking. The Formative dynamic is an ordering organization pulled toward a future. Both are created from the cortical structure's excitatory multi-dimensionality and its somatic patterns of imagination. These behaviors are grounded in the organism's motor experiences, muscular-cortical feedback, neural mapping and includes the dimension of personal feeling and meaning. All these contribute to creating a dimension of multiple possibilities. I call this forming an extended present, the ability to imagine a felt reality of an anticipated future.

Think of conception: What is conceived, a child or an adult? I think it's an adult that forms itself through stages of somatic shaping, organizing its mature adult self through all the phases of its changing body. The organism is pulled toward a future shape by an inherited bodying process and by its cortical imagination and voluntary muscular and cortical efforting. The voluntarily influenced personal body arises from the inherited body and is different from it. The cortex is able to both maintain its present somatic shape and imagine a future shape. It is able to maintain its inherited somatic architecture while its dream world reorganizes shapes of past figures or combines new shapes and possible future shapes — all to be the adult it wishes to be rather than only what it has to be.

Cortical reality is quantum-organized, able to be in several places or scenes or body shapes, angry and annoyed, rational and restrained, laughing and funny, able to be finite and experience timelessness, to function as a wave with peaks and troughs and as a pulsatory

continuum of somatic-emotional-cognitive feelings, in a non-linear, elastic, torquing, undulating wave of multiple layers of densities.

This pulsatory pattern of different metabolic activities and patterns of experiencing, of acting and imagining, of differentiated and established forms, of experience and the generation of information, of living to form a personal somatic cortical reality, occurs while defending established values. This is a continuum of different somatic, bodied possibilities and unpredictable thoughts, feelings and responses in a wave-particle pulsatory mix, forming a multi-dimensional time as well as timeless structural bodies, unformed bodies, and remembered historical patterns of shape, arousal and behavior.

Voluntary influence introduces the forces of change and differentiation into the soma's established responses. Motile, porous, rigid or dense behavioral experiences can be given Formative differentiations. Voluntary effort personalizes our embodied experiencing, including our unpredictable states, and brings a multitude of possibilities of being alive in an extended dynamic of lived and shared existence. An enriched experiential realm of multiple realities, along with its unpredictable experiential information, makes a life rich and full of meaning. As an incomplete organism, one that lives the long-term march to a formed completion of unpredictable form and knowing, we can find the unknown magical and promising, including our aging and dying.

Quantum Formative Man

Formative man develops a relationship with himself, a cortical, brainstem, midbrain relationship, grounded and experienced in the body and in the cortex. This Formative dynamic is close to the behavior seen in the quantum dynamics of a non-linear organizing process, of inter-organismic and biosphere entanglement, and of the possibilities of the organism's pulsatory appetite; its wave dynamic of motile, porous, rigid and dense expressions and experiences of forming and maturing its embodied life. We experience the Formative dynamic in our acting, feeling and thinking, in planning rehearsals and making memories, in recalling and editing. We make scenes of future behaviors that extend our present and enrich our inherited and personal levels of human experience. The extended present is grounded in the body's relationship with its cortex and in the differentiated internal sub-organizations, the interconnected micro-states that create a personal interior. We are a pulsatory embodied structure that is entangled with an individual body and with the body of the world.

Formative man voluntarily develops this articulation and its applicability through the cortex's ability to manifest within the body a vast, internal, anatomic micro-muscular-neural universe. This is the quantum dynamics of embodying experiences and of forming an interior identity from a history of voluntary muscular acting and experiencing.

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