

# Slow Attending: The Art of Forming Intimacy

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## Abstract

In this article I present the argument that the human organism is attracted to the future and is therefore an anticipatory system; and that the act of attending is a motor activity, be it voluntary or involuntary. Motor activity generates sensation and is the foundation of awareness. Voluntary muscular effort done in a deliberate, slow, measured style not only generates sensation; it widens the field of synaptic connections. Voluntary effort anticipates motor and sensory responses. Needs, desires, emotions, and cognitions are motor acts that have specific intention and anticipation for connection because they are part of a system of being received and replied to. Voluntary muscular cortical effort supports this anticipatory connection and also influences its intention. Intensity and duration are essential for differentiating an act and its intention. In my Formative framework, the fast response and the slow response are interacting. Additionally, I argue that the glial network, especially astrocytes, interact with the neuronal system and also assert a regulatory function since it both regulates metabolism and conducts information. While the neuronal system is a fast response system of focused, anticipated intentions and flash memory, the glial system is a slower response organization that supports voluntary muscular effort and also regulates the neuronal excitatory pattern through its layers of myelin, helping to create long term memory. These two patterns, the fast and the slow, grow the cortex and our inherited instinctual and social patterns of behavior and experiencing. The slow, measured, deliberate style is an important aspect of the Formative Process for it not only alters neuronal responses and supports voluntary effort; it also generates a wider field of connections and differentiation and long term memories. Slow motoric acts influence inherited behavior and reorganize aspects of inherited behavior to form a personal motoric, self-regulating, self-forming entity which becomes our identity and is the foundation of a somatic formative awareness which generates satisfaction and a kinder life.

## Keywords

Formative – Attending – Anticipatory – Awareness – Motoracts – Voluntary Effort – Slow acts – Glial cells-networks

## Slow Voluntary Muscular Effort of Attending Generates the Awareness of Aliveness

The body's readiness to act, or the inhibition of an organization to act, is a muscular neural organization that sends feedback about its readiness to act. This feedback is the awareness of the aliveness of attending. This holds true for an act that is held up from completion or waiting for completion. This readiness to act generates excitation, kinesthetic tactile sensations, and cortical awareness of intention in the organism's field of experience. In this paper, I discuss how the readiness of attending is a motor act that generates excitement in different degrees. If the motor act is not completed, kept in its inhibitory organization, the sensations of its intent are perpetuated as a state of organismic awareness. In other words, awareness results from the inhibition or suspension of an action that is being formed or is ready to be performed.

The innate, inherited, involuntary, pulsatory process of extending and gathering is a primary motor activity that generates and sustains the excitatory seeking or avoiding of anticipated pleasure or danger. Voluntary muscular effort influences this muscular pattern of anticipation and attending and its accompanying awareness of too little or too much excitatory activity. Motor and cortical efforting is an anatomic continuum of motile-porous and rigid-dense structures and their excitatory patterns.

The dynamic of voluntary muscular effort reinforces the intent of a behavior by being able to influence its anatomic organization which becomes the basis of one's personal style of awareness of being bodily present in the world. This dynamic is the basis of personal and interpersonal intimacy which voluntary muscular effort influences. This paper addresses the process of a measured style of voluntary motor muscular effort that makes experiential the excitement between the body and its cortex and the surrounding world, and provides a way to influence these structures.

Voluntary muscular effort begins an organization of preparing to act that generates excitement which has gradations ranging from minimal awareness, to heightened interest, and intense alertness. To attend is muscular and cortical efforting that gives birth to the awareness of attending. As motoric behavior intensifies so does awareness, or the state of attention, which is experienced as alertness or alarm. The organism's preparation to reach generates an excitement, an awareness of its effort and intent. The effort of attending is a motoric pattern that invigorates cortical activity through heightened excitement. Think of two neural axons as focused excitement extending, reaching for each other to form a connection.

The organism's pattern of reaching is a focused, sustained effort to reach the expected. An infant reaches for an expected nipple that is also aroused to reach, to receive, expecting connection; the infant and mother are in a system of expected connections. The motoric pattern of reaching demands focused, constant muscular participation and an excitement that is an extended act of anticipation of connection. Reaching for connection alters anatomy and the excitatory experience of making a connection. This behavior elucidates how organismic motor activity of expected connection and excitement are a gestalt. In this extending to connect there is also the anticipation to be received, like two adults who are mutually attracted to each other simultaneously reaching to each other and receiving each other's excitement.

The body's pulsatory process of extending and gathering back (active receiving) is the organization of forming a connection. Just as the body reaches to its cortex expecting to be received, the cortex reaches to its body expecting to be received. This is a pulsatory process; both extend toward each other and receive each other's reaching, creating motor connections with sensory associations and memories. The mouth-nipple connection is an analog of how the body's excitement

extends itself, anticipating connecting to excitatory receptors in the cortex and how the muscle anticipates the cortex's extending message. Voluntary muscular and cortical efforts each play their part in altering the anatomy of connection and its intent. This process organizes attending and creates the qualities of attention, the awareness of aliveness.

Attention or being aware is rooted in the organism's involuntary and voluntary muscular cortical motor efforts and excitatory responses. The alteration of the muscular pattern's anatomy from a minimum muscular rigidity to an increasingly more intense spasticity generates a feedback awareness which might be categorized as a comfortable calm in one case, or an alarm in the other. This behavior can be both involuntary and voluntary.

Awareness grows from the body's striated and smooth organ muscles' intense and swift electrical responses and from the body's smaller, slower, swelling motoric efforts. Distinct motor management's slower organization makes widespread connections that help organize social interactions, sustain long-term metabolic and developmental goals, and stabilize new memories. We are encouraged in our current society to have quick, electric-like, neural and muscular responses. This encouraged pattern is closely aligned with distress. The slower, deliberate, muscular neural attending is rooted in the muscular organizations of gazing, grazing, investigation or curiosity and is accompanied by a slow pulsatory pattern of various intensities of attending and attention which sustain somatic moments of self intimacy between the cortex and its body and the organism and other bodies.

Using voluntary muscular effort to influence motoric attending gives duration to the development of the differentiated muscular organization which is accompanied by layers of excitement and related awareness. Voluntarily organizing a specific muscular behavior of attending, such as to inspect, to hold in sight, or concentrate on a sound, influences how the organism alters or differentiates the intent of its behavior and experience, thus developing new possibilities for being more or less intimate, with itself and others. Voluntary muscular effort is important in developing social and personal motoric patterns of attending and the resulting experiences of the multi-layered pulsatory pattern of relating. Voluntary self-management is about forming something other than what is.

Voluntary muscular cortical effort modifies the involuntary or learned muscular intensity of reflex attending, and reorganizes the reflex's intention by creating new excitatory connections and an accompanying awareness of aliveness. Voluntary muscular cortical effort thus personalizes a pattern and memory of awareness. As the organism applies voluntary muscular effort to alter its muscular cortical behavior and its original intent and resulting consequences, the organism also develops a formative awareness. The organism's formative pattern is a particular, ongoing, muscular cortical experience of developing differentiated muscular neural shapes and feelings that change the experiences of being bodily in the world. Voluntary muscular effort gives rise to feelings, images and a thought of what is forming and how forming is influenced.

Voluntary muscular cortical attending efforts influence the brain stem and emotional limbic system, as well as the glial neural system. The glia help regulate the neuronal system's electric-like excitatory currents by wrapping themselves around neuronal axons to form myelin sheaths in the central nervous system. This glial system helps make voluntary effort more efficient. With slow, voluntary, muscular cortical micro movements, the organism intensifies its kinesthetic and tactile experience and organizes a wider and deeper electrochemical pulsation of excitement and accompanying radiations that influence behavior, as well as emotions and thoughts. The voluntary practice of slower reorganization of the reflex patterns of the readiness to act grows a unique muscular cortical pattern of forming a personal bodily presence, and awareness of being in the world.

How we muscularly attend influences how we experience a specific style of being in the world. When we recognize our somatic organization, experience it kinesthetically and cortically, we experience the porosity, rigidity or density of how we approach or respond when approached: with porous shyness, or porous malleable receptivity, with empathy or rigid caution, or with assertive investigation.

Using voluntary muscular effort awakens the cortex and awakens us from the realm of the brainstem's certainty. Voluntary effort also organizes a personal knowing, an awareness of the organism's organization of behaviorally altered intention and possibilities. Voluntary muscular cortical effort develops motoric sensibility about when and how to moderate how the organism approaches or avoids receiving what is present. Formative work differentiates and reorganizes anatomic structure, its emotional and cognitive behavioral intentions, as well as its awareness. In this formative dialogue of voluntary muscular cortical effort, the organism develops a personal interior aliveness throughout its life.

Voluntary muscular effort connects the organism to its remembered past, present and possible future muscular acts, such as caution, reserve or optimism that extend the range of possible acts. As voluntary muscular cortical behavior develops a personal muscular cortical attending pattern and its different phases of aliveness and attention of being bodily engaged with how it is forming and experiencing its expressions, a formative orientation of being in the world is also developing.

As adults develop voluntary somatic self-forming skills, they affect immediate and long-term anatomic, motoric, emotional and cognitive changes that result in an enriched self-empowerment of being bodily in the world and of having a rich library of motoric, emotional and cognitive experiences and memories. This library that I call the personal self, some others call subjectivity.

### **The Formative Cortex is a Slower Cortex**

Humans start molding their body and brain early in life by differentiating and reorganizing fixed action patterns. This process continues throughout life. The cortex's plasticity is designed to manage unpredictable situations and to even create

behavior. To do this, the cortex has to recognize its organism's present behavioral situation and be able to reorganize and help make present motor memories. This voluntary process initiates motor plans for anticipated future situations. A cortex like this is not hardwired; it has evolved to respond to its own changing body's unique individual environmental situations to form a personal anatomic form of attending and attention in its self.

## The Slow Brain

Alongside the neuronal brain is an older network that does not communicate with itself or neurons through synapses, but rather through glial cells. These different types of glial cells influence synapses in the brain and body as well as neurons and axons by modulating the excitatory frequencies, amplitudes and rhythms, and the time sequences of excitement. Glial cells are part of a communication system that carries out important functions in managing neural transmitters, healing of neurons, and myelination, to support voluntary muscular effort as well as monitor neuronal excitement patterns by responding to nerve cell information to influence the command pattern's intent, thus influencing, remodeling, and growing synapses. This process of making myelin promotes voluntary muscular effort, supports the growth of communication in the cortex, learning, and making memories. The slower glial cells wrapping of myelin not only supports voluntary effort, but also regulates neural excitatory transmission. The glial cells communicate through a slower chemical process. This slower processing helps organize a wider field of synaptic connections that supports cortical muscular growth and its memories, which leads to the development of a personal anatomic personhood, a self regulating voluntary entity.

In the organism's organization of a behavior and its attending, the neural electric brain and its non-electric brain, associated with glial cells and their neurotransmitter chemicals which regulate neuronal firing patterns, prevent excitatory loss to facilitate more efficient voluntary effort and its intentions. Slow, deliberate, measured, voluntary muscular and cortical effort makes use of macro and micro muscle acts to mobilize non-linear responses. Slow, measured, voluntary muscular acts influence neuronal excitatory frequencies, thus supporting the cortex's differentiated motor acts and their remodeled synapses. Glial cells exert their influence by their slower but more direct organizing chemical signals that help stabilize new connections and memories. Glial cells, by wrapping themselves around neuronal axons, make myelin that helps ensure more efficient neural connections. This offers hints of why slow voluntary muscular attending is important for creating malleable and intimate zones of learning and for forming an intimate somatic dimension and cortical formative awareness.

Voluntary muscular practice increases glial myelin formation, making the neuron's long distance electrical transmission more effective. It also regulates impulse velocity and makes ATP available for protein manufacture for axon growth during stages of development, from the intense motile to the slower porous organizations, and the firmer rigid and dense organizations and experiences. Slow, deliberate, measured voluntary muscular cortical effort helps neural voluntary regulation of autonomic functions. An example would be cortical influence in disassembling danger alarm behaviors that send emergency speed-up signals to the heart and phrenic nerve stimulation for increased diaphragmatic excursions. Voluntary muscular cortical influence on the alarm motor patterns slows the heart, taking it to a quieter mode, a slower, elastic, semi porous-rigid organization where we can experience the pulsatory nature of patterns of social cooperation rather than just the alarm state. This formative interplay develops the cortical muscular voluntary management of reflex shapes to organize a unique human attending and awareness of how to be bodily different from the inherited way to be in the world in many situations.

## The Deepening Practice

Voluntary somatic management is an ongoing organizing process within the ocean of the organism. Voluntary muscular cortical effort invokes a response from the deep anatomic ocean which the cortex gives voice to. Formative awareness is the crest of the excitement arising out of the organism's motor acts.

Voluntary muscular cortical effort done in a measured manner develops the cortical awareness of a malleable structure. Voluntary efforts, where there is contact with the organism's semi motile porous thick liquids, form a boundary and a response time different than the quick, electric speed of focused neural excitement. There the connection within the deep layers of the organism brings forth the experience of slow time acting. This process of voluntary effort is developing an elastic time in the organism and an awareness of the malleable timelessness of the organism's forming process. The deep practice elicits the many layers of time in the organism, its time of division, of gastrulating, of differentiation, of assembling a behavior, of disassembling, its glacial time, its neural time, its hormonal time, species time, and personal time. This is the stuff of somatic interiority which forms a personal self within the inherited body.

The primal body structure is an ancient animate pulsatory sea with different currents of arousal that are consistent with generating and sustaining somatic existence. This animate, intercellular, complex matrix is an anatomic structural memory of ongoing and repeatable behavioral patterns. This is innate self-organizing behavior that embodies its history of learned and remembered responses. This same process is brought into action with voluntary muscular effort as we learn to use it to differentiate inherited reflex behaviors and their emotions and expressions. There is also the growth of this formative awareness growing out of the memory of past motor acts and of efforting to manage and differentiate forming new motor acts and a new time frame for how the organism knows itself.

The cortex can influence the emergency quick responsive alarm patterns, calming the heart and alarm pattern to bring about a slower response, a quieting calming, a slower, more inclusive social cooperating pattern instead of the inherited flight or fight pattern. Voluntary muscular effort's mobilization of the slow state, which is anatomically different than the alarm shape and behavior with its anxious awareness, forms a memory of the slower shape and how the organism can influence the alarm shape, thus forming a new style of acting and memory of being in the world. This is the growth of a new style of behaving, a voluntary self forming grounded in cortical anatomic reality.

The glial cell reads the activity of its neuronal linear axon's excitatory nerves that demand immediate body changes, and responds to these currents as if it were its food, regulating its frequencies and amplitudes. Using voluntary muscular cortical effort stimulates the glial cells, which organize sheaths of insulation around axons, making voluntary management of excitatory transmission that helps develop voluntary evolution in one's lifetime. This organismic process helps the organism's cortex form a long-term commitment to developing new behavioral structures. The sum total of glial cells forms a glial brain or system that has a slower processing speed, since it operates in a time frame of seconds or minutes rather than milliseconds, that helps the newer cortical messages transcend the organism's inherited millisecond reflexes and support voluntary behavior.

The organism using VME in a measured slow style to organize rigidity in the body wall can then differentiate the rigid structure into a semi-porous-rigid structure, forming a zone of anatomic malleability within its body wall. This voluntary development of an elastic boundary forms a distinct surface and a distinct interior. Using slow, micro voluntary muscular efforts develops a range of distinct anatomic layers within the body. This forms a zone of intimacy that has a slow simmering style of making connections and cortical knowing and is the basis of the organism's formative relationship with itself. The zone of intimacy is a personal organization, a subjective realm of somatic existing in which motor activity and kinesthetic experience are the fuel of personal satisfactions.

The deep practice consists of voluntary, muscular, cortical efforting in slow time that extends, broadens and deepens an anatomic excitatory field to make a complex intercellular field of interactions and connections that increase motor-emotional experiences and their cortical awareness. Slow, deliberate, voluntary muscular effort helps create another somatic organization within the organism, a distinct personal organization. It is a multi-layered dimension, a unique structural organization, a personal somatic style of existing. The Bodying Practice's<sup>1</sup> intent is to develop the voluntary muscular cortical effort which introduces a voluntary ability to influence living a daily life and having a personal relationship with the processes of evolution.

### **The Deepening Practice: The Learning Forming Zone**

The deep practice develops in a slow, measured style. It starts with a voluntary act that freezes a moment in the trajectory of an expression before its completion. This is the first phase of making a muscular model, a distinct shape that can be developed. Using voluntary muscular effort to assemble and disassemble this distinct pattern of expression begins to define personal slow time. The slow step-by-step assembling or disassembling, and waiting for organismic responses, recruits patterns that were originally initiated by the voluntary muscular effort's quicker excitatory signals. A slower, chemical, visceral swell begins to extend toward its anticipated receiver that is connected to the cortex. Slow, deliberate, voluntary muscular effort thus becomes cortical connection and effort. This is the organizing and experiencing of personal time. Voluntary muscular effort touching its own body is a reaching into the body, a reaching and an anticipation of being received and responded to. This zone of learning and forming is the dynamic of self intimacy and its accompanying feeling of knowing.

Slow muscular and cortical efforting and its kinesthetic, tactile responses are given support for their duration and voluntary repeatability by the glial network chemical scaffolding with its slower, thick pulses of a deep anatomic ocean. The organism's voluntary muscular cortical effort organizes an anatomic excitatory neural firing and is accompanied by a living map of the voluntary effort. A slow style of voluntary motor effort maps a new field of pulsatory excitement and meaning created by the glial pulsatory cellular field with its complex cortical associations and behavioral meanings.

Slowing a response using deliberate voluntary effort and the slower glial process is not a shutting down of activities, as seen in apathy and coma. Slow, deliberate, voluntary muscular and visceral effort generates a simmering metabolism, not a depressed metabolism: a runner's bradycardia with the slower and deeper amplitude heart beat, not the hibernation of depression. Voluntary slowing in the neural system stimulates the older glial structure of direct, physical, chemical contact and transmission. The slower, deep processes are where powerful reconstituted connections and deep motor memories are formed that allow for a wider, deeper, richer pulsatory field of interior connections, a timeless realm of relationships, and an enduring time that complements the cortical, neural dynamic of the electrical reflex time.

In doing the somatic exercises in a slow manner, we change the intensity of the organism's excitatory spikes' peaks, and its troughs of compressed excitatory density. A slow, deliberate, voluntary motor act increases the neuronal excitatory electrical spikes of the pulsatory tissue mass, changing it to a more diffuse undulation of excitement, from the quicksilver sap to a thickened, elastic, elongated peristaltic pulse with rounded peaks, whose stretching pulsatory dynamic is a primary experience of the warm to cooler awareness of existing.

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<sup>1</sup> Bodying Practice, as described by Stanley Keleman in USABP Journal Vol. 6, No. 1, 2007

The slower, deepened, and extended pulsatory field, organized and supported by the glial field of complex connections within the organismic ocean of bio-genesis, and grounded in the body proper and its cortex, is a similar dynamic to that of our planet's quicksilver light and slow motion generated by mass and gravity. The glial dynamic is an alternate, parallel, experiential reality of our somatic awareness of our deep and contemporary cortical reality that tells us about the many layers of the world that we are in and are from. The soma's deep, ancient structure is the glial matrix for the cortical second personal adult and its cortical awareness that helps form a future, instead of just repeating what was.

Slow, voluntary muscular cortical effort organizing the learning zone is similar to learning to ice skate; each step is a porous-rigid unstable risk needing voluntary muscular cortical attending and attention which stabilizes the range of behavioral ability. The learning zone is a malleable zone where voluntary micro-muscular efforts, with slow intentional acts, simmer attending and attention and bring past neural and glial associations into the present to make new maps. This muscular effort organizes a depth of plasticity that makes possible a continuous forming, experienced as a layered awareness of forming.

The learning zone is a malleable anatomic behavior; it demands constant voluntary participation which links motoric experiences in a continuum of minimum-medium-maximum intensities and durations which enriches experience and makes for a complex awareness of our existence.

Making a commitment to doing this *Bodying Practice*<sup>2</sup> exercise of voluntary muscular effort in a slow process takes our efforts out of the range of reflex experience and into the arena of voluntarily forming long-term personal expressions, values, and meaning. Recognizing when and how you enter the deep zone, giving it duration and recognizing when you exit it are all important for forming a cortical intimate zone of a layered pulsatory bodily existence and an awareness of the formative dynamics that are the nuts and bolts of our life.

### **Voluntary Acts for Forming Intimacy**

In the first stage of embryogenesis there are two tissue layers, the ectoderm and the endoderm. Following numerous cell divisions and the transformation of a solid ball into a hollow sphere, a process of migration, called gastrulation, occurs. The outer ectomorphic layer begins to migrate into the sphere forming a third layer, the mesoderm. The development of the mesoderm is connective tissue which is the movement support function. This mesomorphic layer originates from the ectoderm, showing that the neural and connective tissues are a singular tissue layer before differentiation occurs. The neuronal and the mesomorphic are linked; that is, muscle and neural tissues function as an integrated system for the regulation of motility. What is also significant is that the inward migration of the ectoderm also begins to give the outer neural layer interiority. With the development, through evolution, of voluntary muscular effort, a more deliberate, slower pattern of action, a regulator of reflex speed, is introduced. Voluntary efforts are slower than reflex acts giving the organism defined response patterns of speed, amplitude, and intensity of movement and expression that organize cortical and muscular growth and its accompanying patterns of somatic cortical awareness.

The internalized process which continues through life is grounded in the neuron's ability, through the neural crest cells, to spread itself throughout the whole body for a direct, external-internal organization. The glial cells are part of this two-speed dynamic. Glial cells have both a connective tissue function and a neural function. Glial cells help manage and regulate axon excitation speed, intensity, amplitude and frequency which make possible both voluntary muscular effort, and the establishment of motoric and neural excitatory memory. Voluntary muscular and cortical activity leads to a more differentiated life of expressions and relationships as we accumulate years. This personal style of differentiated responses makes possible a personal style for a kinder life through all the stages of our existence, including senescence.

A slow style is based upon the experience of our motor efforts' gradations of intensity and duration that organize an awareness of the time of how the organism assembles muscular tension and disassembles it, and of the pause time of waiting for the response, viscerally and cognitively, to the muscular effort. It is from the managing of the habitual response to react quickly that slow time emerges and forms its awareness. Slow organizing forms the person by the direct experience of what glial time is and what electric brain time is. A slow style of efforting brings to the fore the innate pulsatory dimension of the soma's formative process, its pre-personal and personal time. The times we spend living in slow time create an inclusive dimension of being intimate with the gastrulation of personal and collective experiences of somatic shapes coming into existence and leaving the field of personal existence. This is the arena of forming personal understanding and meaning in our life, and processing the cortical quick time and glial slow time of a personal formed reality from the outside in and from the inside out. It is the voice of our ever present, deep, anatomic voice.

In summary, the Voluntary Acts:

1-Define the structural situation: using voluntary muscular effort to define the amount of density, rigidity or porosity present and its pulsatory and excitatory grades and emotional associations.

2-Use voluntary effort to increase or decrease the range of muscular efforting, using minimum, medium and maximum muscular effort and increased and decreased muscular cortical excitement, intensity and duration.

<sup>2</sup> *Bodying Practice*, as described by Stanley Keleman in *USABP Journal* Vol. 6, No. 1, 2007

3-Through the use of voluntary effort, define your motoric experiences of an excitatory comfort-risk-danger zone and your responses to it.

4-Allow for the experience of how muscular effort stimulates and influences tactile, kinesthetic excitement as well as the experience of emotional responses or mental images, and how these help organisms enrich our subjective lives and relationships with others, making for a kinder life.

5-Allow for learning through slow voluntary muscular effort, forming a link from the brain stem to the cortex and the cortex to the brainstem, from the inner world to the outer, that applied in daily life also enriches our lives and quality of living.

6-As voluntary effort, generate zones of intimacy and the skill of managing and forming personal excitatory, emotional, muscular experiences and meaning.

### **Correspondence with a colleague regarding this paper:**

Hi Stanley,

I love your ideas about the deep zone, and the learning zone and the malleable zone and that these are anatomic behaviors. Your suggestion of the glial cell network as a candidate structure for the support of slow intimate self contact is an intriguing and bold idea. When I try to understand the function of cells I like to look at the cells evolutionary development and embryological development. Glial cells have an interesting history from what I've read. They use direct cell to cell communication that must have preceded the development of neurons, and embryologically glia precede neurons to act as a guiding scaffolding for neuron growth; however, in vertebrate evolution smaller simpler brains have fewer glial cells than more complex brains such as ours. In smaller animals there are more neurons than glia, and in our brain there are more glia than neurons. The nematode has about 1 glial cell for every 5 neurons, but the human brain has at least 10 glia for each neuron. So the glia seem to have features of evolutionarily older cell types, but also play a recently evolved function. Your idea that one of those recently evolved functions is to support voluntary evolution in one's lifetime is very interesting. They seem well suited in structure and function to a slow non-verbal state of non-linear self contact and self knowing that is independent of but closely interactive with neurons, with both glia and neurons influencing each other. One researcher commented that it is very difficult to look at glial activity by itself, so I think it will be difficult to establish experimentally to what extent glia facilitate voluntary effort, memory, and self intimacy as opposed to neuronal activity in general. It is certainly interesting to think that one can attend to a glial network state independent of a neuronal network state. I would think the glia have an anatomic structural memory and this memory may be older than neuronal structural memory. Could the glia be part of the animate matrix, the ancient animate pulsatory sea out of which neurons arose and which now sustains their existence?

Dear -----

Thanks for your response. Glial cells introduce an anatomic basis for the slow aspects of the organism which opens a whole new relationship between the quick neuronal electric brain and the slow hormonal cell-to-cell brain and which has something to do with the complexity of the relationship between VME and VMCE and VCME and the fast-slow dialogue, and even the connection between the right and left brain and the maturity of our behavior and experience as we acquire years. I agree with the suggestion that glial cells are part of the animate primary matrix. Here we enter into memory of the primal soup itself which we see happen in the early stages of embryogenesis. I do not think of the glial cells as more important than the neuronal tree but as a partnership since both are essential in the maintaining of older matrices and newer synaptic organizations and in the regulation and support of a complex organization. However, I do want to point to the importance of the slower system as a primary awareness of the organism, of the slower system as having a bigger range of connections and, more important, as a face of self contact and relationship and a time range of experience and self identity supported by the function of myelin grown through voluntary muscular effort.

Stanley

Further conversations with Stanley Keleman (interviewed guest in Serge Prengel's Somatic Perspective Series):

- <http://somaticperspectives.com/2008/03/keleman/>

- <http://somaticperspectives.com/2009/06/keleman-2/>

### **Biography**

**Stanley Keleman** is the director of the Center for Energetic Studies in Berkeley California, where he teaches a formative approach to human development. He maintains a private practice and teaches classes while continuing to research and develop his original method for influencing inherited behavior. In 2007 he was awarded an honorary Ph.D. from Saybrook Graduate School for his contributions to the field of Humanistic Psychology. He is Director of Research in Formative Psychology at the Center of Form and Development in Zurich, Switzerland and Solingen, Germany and visiting lecturer at Spectrum School of

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