

# An Expanded View of The Three Reflexes of Stress

**“We become how we live.”**

**I**n his book, *Somatics*<sup>1</sup>, Thomas Hanna described three neuromuscular reflexes of stress: the Landau Reaction<sup>2</sup>, the Startle Reflex<sup>3</sup>, and the Trauma Reflex<sup>4</sup>. He described his view of how, when repeatedly triggered, these reflexes lead to the formation of tension habits that create the pains and stiffness commonly attributed to aging.

This information might be of interest to you if you're wondering what's going on with you, particularly if you have chronic conditions that don't respond well to the usual therapeutic options -- or if you're a therapist or somatic educator and you're wondering what's holding up your client's progress.

Thomas Hanna also described the role of expectation in the aging process – how the expectation that aging leads to decrepitude leads to people limiting their lives so that they become unfit for life; their expectation becomes a reality. In popular parlance, “Use it or lose it.”

My own practice has substantiated his views. I have also seen that there are various attitudes and ways of operating in life that lead to a poor life experience and to formation of tension habits that lead to poor aging. In general, these ways of operating have to do with how we handle beginnings, middles, and endings of the events in our lives.

## **The Enigma**

Most people respond well and decisively to Hanna Somatic Education as a way of eliminating chronic muscular or musculo-skeletal pain resulting from aging, injury, or stress. But from time to time, I encounter people whose improvement is temporary, and for whom their initial complaint reappears – or who just don't respond as expected to the work.

For some of these, the explanation is simple: they have returned to the same activities that provoked the problem to begin with, not adding to their lives the regimen of somatic exercises that dispels the effects of those activities.

There have been others, however, for whom the return of the initial complaint, or its failure to resolve, was enigmatic.

## **The Insight**

Expanded insight into the psycho-physical workings of human somas (ourselves) seems to provide an explanation that intuitively resounds with an striking ring of truth. The ways we accept, reject, and participate in experience (or the ways in which we handle beginnings, middles, and endings in our lives) lead to the accumulation or release of tension.

Let's begin with a premise and see if it is intuitively acceptable.

**Every act of attention or any intention to act  
involves a rise of muscular tension.**

What this means is that paying attention and getting ready to act involve moving from a state of rest to a state of heightened muscular activity. Moving from a state of "not ready" (at rest) to a state of "readiness" (getting set) and into action all involve rising tension. ("Ready, get set, go!")

You might experience such a state of heightened tension as you work to understand what I'm getting at in this paper. The effort of understanding is both an act of attention (to these words) and an intention to make sense (of these words). Effort is tension. That's just an immediate example, perhaps the hardest one you will encounter in this paper.

For those who are unfamiliar with the reflexes of stress named above, I begin with a brief description. Then, I touch on attitudes and ways of operating so that you may consider them in your own case and, as a somatic explorer in your own right, determine for yourself whether those connections between behavior and tension hold good in your own case. I frame each of those ways of operating in terms of "beginnings, middles (or continuations), and endings (or

interruptions)” to help you tap into the type of intention that can change them for the better.

## **The Neuromuscular Reflexes of Stress**

### **THE LANDAU REACTION**

*The Landau Reaction is the movement into beginnings and the mood of continuing or sustained action.*

The posture of the Landau Reaction, though evident in people everywhere, goes largely unrecognized. It is the swayback and tight shoulders of people under stress. Its beginnings start in infancy.

At about three months of age, most infants start lifting their head to look around. They are developing a heightened state of alertness and awareness of their environment. This development is the key distinction of the Landau reaction, which involves both heightened alertness and activation of the erector muscles of the spine, the muscles that gather independent vertebrae into a functional unit that is recognizable as a spine – and making lifting the head, sitting up, crawling, creeping, standing, walking, etc., possible.

When an infant turns upon their belly, they are preparing to crawl. The act of crawling, itself, activates the gluteal muscles of the buttocks and the hamstrings (for leg movements) and the muscles that surround the shoulder blades (for arm movements).

So we have two distinctions for the Landau Reaction:

- coming to a heightened state of alertness (sensory awareness)
- activation of certain nerve pathways that control certain muscle groups in the back side of the body

### **THE STARTLE REFLEX**

*The Startle Reflex is the movement of withdrawal from total experience; it is the withdrawal of attention from experiencing via the cringing response.*

The movements of the cringing response are familiar to all of us. We see it when we hear a sudden noise (e.g., a door slams or someone yells, “Duck!”)

and we pull into a ducking position, or when something moves quickly toward our face and we shut our eyes and contract our face. We may possibly have read about people curling into fetal position when under emotional stress. The Startle Reflex is the reflex of fear.

The reflex involves a cascade of responses in which the individual closes themselves off from the environment, starting with the face, then the neck and chest, then the arms and shoulders, abdomen, and at last, the legs, as the knees are brought together and pulled toward the chest in a movement into collapse.

Where the Landau Reaction is the impulse to explore and participate in our environment, the Startle Reflex is a drawing away and withdrawal from our environment.

Where the Landau Reaction involves activation of the muscles of the back of the body, the Startle Reflex involves activation of the muscles of the front of the body.

So we have two distinctions for the Startle Reflex:

- withdrawal from **sensory awareness** of the environment
- activation of certain nerve pathways that control certain muscle groups in the frontal aspect of the body

### **THE TRAUMA REFLEX**

*The Trauma Reflex is the limiting of movement (or participation in experience) in order to maintain safety while participating in experience.*

There is a universal response to pain or injury: we contract away from the perceived source of the sensation.

The trauma reflex is another kind of “movement-away”. Unlike the Startle Reflex, which is wholesale withdrawal from contact with the individual’s environment, the trauma reflex is a selective withdrawal from an external event or stimulus. It is an act of self-preservation, while still staying in participatory contact with our environment.

Unlike the Startle Reflex, which has a consistent movement pattern, the trauma reflex involves patterns of movement unique to the situation. In general, injuries come from a single direction, usually from one side of the individual or the other; rarely do they come from a straight-forward direction. So the effects of trauma reflex show up as asymmetrical postural distortions.

So we have two distinctions for the Trauma Reflex:

- withdrawal **of sensory awareness** from a painful or shocking sensation
- activation of certain nerve pathways that control muscle groups involved in physical withdrawal from the direction from which pain or shock seems to come

### **SUMMARY OF THE NEUROMUSCULAR REFLEXES OF STRESS**

These descriptions show that there is a correlation of the emotional, cognitive, and sensory-motor realms. They all involve a simultaneous involvement of the senses and of movement.

Each has its proper moment. Problems occur when they persist beyond the moment as chronic, fixated, or habituated responses.

Somatic education, in general, and Hanna Somatic Education, in specific, is a way to get free of these responses when they have become habituated and chronic, to return to a free state of functioning appropriately responsive to the moment.

## **How Our Way of Operating in Life Triggers the Neuromuscular Reflexes of Stress**

### **PROCRASTINATION AND URGENCY** ***a disorder of beginning and a beginning of disorder***

Have you ever procrastinated? Have you noticed that resisting doing something you felt needed doing only added to your tension in life? That once you did it, you felt relieved?

Have you ever procrastinated for so long that now the matter you had put off constituted an emergency about which you felt some urgency? Would you

say that urgency involves a state of heightened tension? That's the Landau Reaction.

Consider the cumulative effects of habitual procrastination. What must the tension level be like in a person who habitually procrastinates? Always behind, always hurrying.

**LATENESS AND HURRYING**  
***a disorder of beginning and a beginning of disorder***

What about a person who is habitually late for appointments? Same thing, isn't it? Now that they're late, they're driven to be on time. Would such a person be tense? Another instance of the Landau Reaction

**BROKEN COMMITMENTS AND OVERLOAD**  
***a disorder of continuation***

How about the person who is late but doesn't care? Is it true that they really don't care, or are they just saying that? Their promise to be on time was a commitment they made (for whatever reason); now, they are denying their original commitment. So now they are opposing the thing with which they were at first sympathetic. Isn't this confusing?

Confusion costs us peace. It's a kind of disoriented state of heightened tension; we can't (or won't) choose one side or the other. It's a way of being stuck and wanting to get free.

What makes it more complicated is that another person is involved who stands for the thing with which we were originally sympathetic, but now oppose. So they seem to be our opponent – for asking us to do that for which we prepared (at least partially) to do by making a commitment.

To make a commitment is to enter a state of readiness to act. It's a heightened state of tension. It triggers the Landau reaction until the commitment is fulfilled.

Consider the person who habitually makes and fails to keep commitments – or makes too many commitments. What amount of tension they must be accumulating? How must their attention be split among the various directions of their unfulfilled commitments? Might they feel overloaded and tense?

**... on the receiving end of Broken Commitments and Overload:  
UNFULFILLED EXPECTATION AND ANGER  
*a disorder of continuation***

Suppose you're the person disappointed by someone who's made a commitment to you. You're in a state of readiness to fulfill what you both agreed to, in a state of suspense, even, and now it isn't happening. You're waiting for it to happen. More readiness, more Landau Reaction, more tension.

What of the person who habitually enters into agreements with a person who habitually breaks them? Might that not contribute to a person's stress level? Might they not go nuts, at times?

**SLOPPINESS  
*a disorder of endings or completions***

"A Clean Desk is a Sign of a Sick Mind" – perhaps you have seen this saying on a coffee mug in some office. This saying is a sign of a sick mind! Why?

Like procrastination, sloppiness leads to a sense of urgency – a sense of "overwhelm" – chronic fatigue. The mess seems too much to clean up and so only gets worse with time. Sporadic attempts at clean-up lead to getting bogged down in details. Eventually, one wishes for a dump truck – but among the detritus are usually things one wants!

So the mass preys upon one's attention.

Sloppy people have trouble ending things with a completion. Their attention goes off the situation before it is over. They put things down and forget where they put them. They make promises and forget they made them. The rooms they occupy become shrines to disorder and backlog, every square inch of surface area occupied with stuff. They live under the Sword of Damocles, too many things pending, and the consequences of their actions impending. They may be paralyzed by feelings of impending doom.

Because so much is pending, they exist in a state of chronic arousal, the tension of the Landau Reaction; because consequences are impending, they exist in a state of chronic anxiety, the tension of the Startle Reflex. Like the rooms they occupy, their minds are congested with clutter.

Ever worked in an office occupied by such a person? How do you feel, there? It's something like a kind of mental constipation, isn't it?

A sloppy desk is a sign of a sick mind. The cure? End things with a completion.

**SELF-DENIAL: UNMET NEEDS AND RESENTMENT**  
***a disorder of beginning***

Desire is the impulse to take action to get what we want or need – e.g., to go and talk to someone, to go get something – some physical action.

Consider the “polite” person who doesn’t ask for what they need or accept it when it is offered because (in their mind) it would inconvenience someone else or be impolite. They have dual motivations: to get what they need (beginning/Landau) and to avoid a “situation” (interrupting/Startle).

Might they be a little tense? Might they be a bit prone to angry resentment at those who do ask for (and get) what they need? (“If I shouldn’t ask for it, neither should they.”) Might they be feeling both needy and angry – and isn’t that a good definition of resentment?

And consider the person who acts that way as a matter of principle. Might they not accumulate the dual tensions of desiring to act to get what they want and opposing their desire? (... which is “the fault of others,” of course.)

**CHRONIC DISTRACTION: BEING DIVERTED (DIVERTING ONESELF) FROM ONES PRIORITIES**  
***a disorder of endings (or completions)***

A priority is a decided-upon intention. As a state of readiness-to-act, it involves heightened tension; complete relaxation is *unreadiness* to act.

Some people have a tendency to distraction. When we get distracted, our first priority remains as a frustrated (or delayed) impulse. The sense of frustration is a combination of arousal or readiness to act coupled with restraint (the sense of being delayed) as we involve ourselves with something else. In effect, we have three “programs” or intentions to act going on at once: readiness, delay, and the “off-purpose” action. Consider how wound up people get when delayed in traffic.

Since our priorities often involve other persons, consider, in addition, the tension involved in handling the reactions of others affected by our distraction. In effect, they remind us of our own state of readiness to act on our first priority; when we resist that reminder, we call it “nagging”, but it is our own heightened tension, our own readiness to act (Landau) on our first priority, that we are feeling and resisting.



People who commonly follow distractions get accustomed to heightened states of tension.

**RESISTANCE TO CHANGE: REGRET AND MISSED OPPORTUNITIES**  
***disorder of failed beginnings, ended before they began***

How many times have we agonized about missed opportunities – moments when we had the desire to act, but suppressed it?

The desire to act stands as a state of readiness; the suppression of action substitutes for relaxing and relinquishing the initial desire, which continues. The memory of the situation re-triggers the desire and intensifies the state of readiness to act (to begin: Landau) at a time when action is now impossible (so we believe).

It is a desire to begin meeting a belief in a premature end.

**VIOLATING TABOOS OR ONES OWN SENSE OF INTEGRITY**  
***a disorder of desiring to end what we are beginning***

A taboo is an injunction to refrain from certain types of actions. When we knowingly violate taboos, we feel a combination of fear of the consequences and desire to do it anyway. This combination of feelings triggers, at the same time, the Landau Reaction (readiness to act, involving the muscles of the back of the body) and the Startle Reflex (withdrawal from action, involving the muscles of the front of the body).

The same reflexes are triggered any time we engage in actions that we feel are wrong or for which we feel unprepared.

**PERPETRATIONS**  
***actions that we wish we had never begun***

A perpetration is any action about which we feel guilt, shame, regret, remorse, or any similar emotion. It is an action we wish we had not done, or an act of omission, for which we have not yet handled the consequences. Lies and secrets are included in this category.

Perpetrations involve both a memory of the action (maintained as a heightened state of tension in the musculature – a memory is a heightened readiness to experience something) and a desire to counteract the action (another heightened state of tension in the musculature – readiness to do the opposite action).

Since these states of readiness do not cancel or neutralize each other (since the emotion is persisting), they add to each other. One word for this state is torment. Tormented people are not relaxed, you may have noticed.

### **STUBBORNNESS AND FRUSTRATION** ***a disorder of prevented beginnings***

Frustration is no stranger to us; it has been described as “the universal disease”.

The opposite of procrastination, frustration involves a state of readiness that conflicts with our previous state of readiness to be some other way. It may involve (and be intensified by) a chronic desire for a beginning coupled with a refusal to end what has come before. When a great change is desired, rather than one intention dissolving into the next, it persists and conflicts with it. The “disowned” desire (for what has gone before) is then assumed to come from the environment or others, setting the stage for fruitless conflict and tension.

### **SELF-DECEPTION: RESISTED ROLES** ***disorders of denied beginnings and failed endings***

An role is a set of behaviors and feelings. Consider actors in the theater; what we respond to is not they, themselves, but the role they are playing.

Our system of morals, social mores, and taboos seeks to confine feelings and behaviors within certain accepted range. Greed, cruelty, stupidity, selfishness, and ignorance are (most of the time) taboo, except when the end “justifies” the means (see “Violating Taboos” above). I’m sure you can think of other attributes, as well.

Consequently, when we have impulses (or habits) that embody those forbidden attributes, we are likely to go into conflict with ourselves. This pattern is similar to that of perpetrations, except for the addition of one more feature: denial.

We tend to deny that we embody those forbidden attributes and suffer torment at the idea that we do embody them. We also tend to want to torment others who embody those attributes! Such is the origin of much righteous anger.

People who resist playing a certain role also tend to emphasize its opposite, giving power to their denial that they are that way. Another state of “readiness”, held as a desire not to experience being the way really we want to be. It is a combination of Landau and Startle. More tension.

## Summary

These are but a few examples of how people operate that lead to the heightened tensions of the three reflexes of stress. They show how the way we live triggers the neuromuscular reflexes of stress. A moment's consideration reveals how they also set the stage for injury. (Think of haste, inattention, and disordered environments.)

While clinical somatic education can do much to alleviate the effects of injury and stress, the effects of self-conflicted ways of living return as long as we continue to live as we have. No-contraction, no-problem is the natural condition of rest, and it is available only when we conduct our lives in such a way that our attention can move appropriately into beginnings and come to rest in appropriate endings. We must change our lives or suffer our own reactions.

## Postscript

Further reflection has led me to a couple of connections that might be worthy of your consideration in relation to:

- psychological models of interaction of self-and-world or self-and-other
- the emergence of Higher-self consciousness

## The Three Reflexes of Stress and Two Psychological Models

Purely for your consideration, may I offer the idea that Freud's model of individual consciousness and Eric Berne's Transactional Analysis model may have the following correlation to the Three Reflexes of Stress:

<b>Freud</b>	<b>Berne</b>	<b>Hanna-Gold</b>
Superego	Parental identity <i>conscience</i>	Startle Reflex <i>fear/resistence</i>
Ego	Adult <i>socialized/mature identity</i>	Trauma Reflex <i>concern/complication</i>
Id	Child <i>dependent identity</i>	Landau Reaction <i>desire</i>
Subconscious		Sensory-Motor Amnesia

If we consider that the Parental Superego is fear-based (that even the anger of the Superego is applied in service of the fear of loss of control and/or of consequences), we might see how it tends to instill fear in the pleasure-principle-

based Child/Id. (Thomas Hanna referred to the Landau Reaction as “the joy reflex”, when training us, his students.)

Perhaps the Adult Ego (the standard-model “independent individual” approved of in common society) is (as has been taught by many teachers in the Enlightenment Traditions) a “phantom entity” with no real self-existence (but lots of self-importance); perhaps it is an epiphenomenon resulting from the interface/interaction of the motivations underlying the Landau Reaction (desire) and the Startle Reflex (fear/resistance). It seems to me that the interaction of desire and fear/resistance creates a sense of self-contraction (concern) which is at least similar (if not identical to) the feeling of the self-protective Trauma Reflex. Perhaps this is a deeper dimension of the “dark vise”<sup>5</sup> spoken of by Thomas Hanna in Somatics.

This way of seeing things might indicate that the roles and styles of interaction named above reflect *functions* that are more properly momentary ways of operating than states of identity. The usual egoic sense of Ego-self is a “dark vise” complicated by Trauma Reflex (Freud’s “birth trauma”?). Unfortunately, we tend to be so used to these states of contraction that we identify them as “ourselves”, forgetting who we are in deep Sensory-Motor (or Attentional-Intentional) Amnesia.<sup>6</sup>

This consideration leads naturally to the next topic: the emergence of Higher-self consciousness – a suggestion as to what constitutes recovery from Sensory-Motor Amnesia.

### **The Emergence of Higher-self Consciousness**

I use the term, emergence, quite deliberately.

I point to what emerges as habituation of the three reflexes of stress – the Landau Reaction, the Startle Reflex, and the Trauma Reflex – ends.

I point to what emerges as intelligent management of life frees attention from chronic concerns.

I point to what emerges as the roots of the reflexes of stress – desire for experience, fear of experience, and concern about experience, are recognized as not-self and cease to trap attention in states of disturbance and solution-seeking.

I point to what emerges as non-concern/equanimity allows the free contemplation of experience, as well as free participation in experience.

I point to what emerges when attention comes *free from* experience.

I point to what emerges as we come free from the compulsive action of directing attention, as we come *free from* attention.

I point to what cannot be pointed to.

I point to Higher-self consciousness.

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Lawrence Gold is a certified **Hanna Somatic Educator**, practitioner of the **Dr. Ida P. Rolf method of Structural Integration**, and facilitator intern for **The Avatar Course**, a course for resourcefulness and the deliberate exploration of consciousness. He practices in Virginia. His website, Somatics on the WWWeb, exists at [www.somatics.com](http://www.somatics.com). He can be reached at 540 351-0874 and by e-mail at [awake@somatics.com](mailto:awake@somatics.com).

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<sup>1</sup> Hanna, Thomas, Ph.D. Somatics. Reading, MA: Perseus Books, 1988

<sup>2</sup> *ibid*, page 61

<sup>3</sup> *ibid*, page 49

<sup>4</sup> *ibid*, page 79

<sup>5</sup> *ibid*, page 74

<sup>6</sup> *ibid*, page 66