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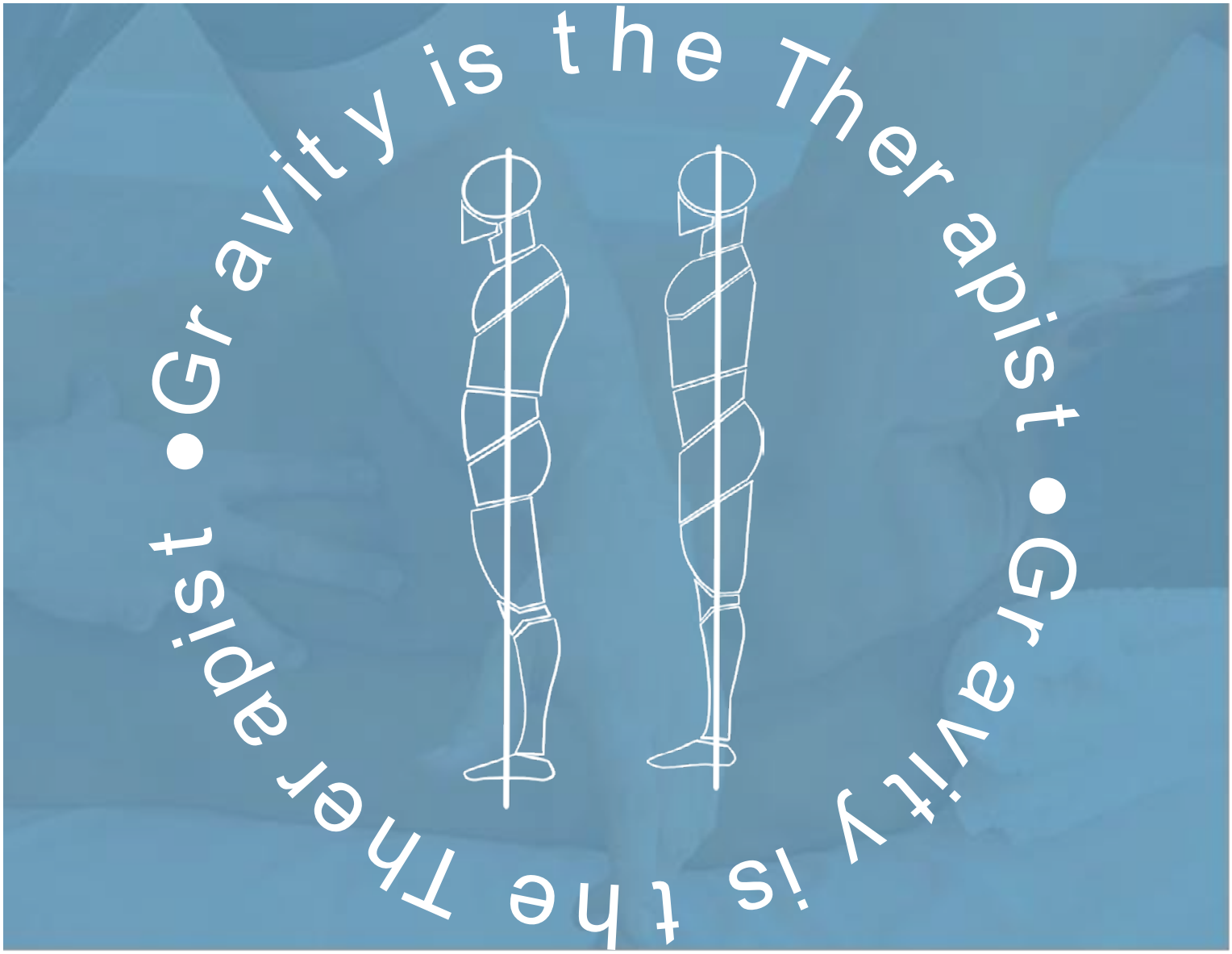

Yearbook of Structural Integration

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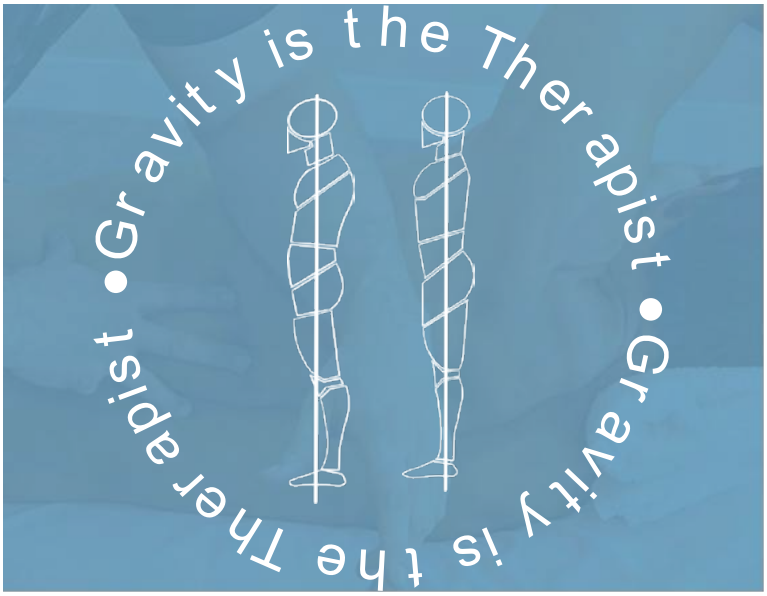

Yearbook of Structural Integration

About the Cover Art

Courtesy of Structura Institute, this artwork was done by Makenna Prince.

From the Artist

I am Jason Prince's daughter. My parents own Structura Institute and Structura Body Therapies. I received my first structural integration session the first hour I was born. Bodywork has been a crucial aspect of my health and wellness. I am passionate about my parent's practice but still wanted to pursue my talents, so I went into graphic design. I support my parent's school and business, supplying any graphics they require.

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2022/2023 Yearbook of Structural Integration: Volume 18

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GRAVITY ARTICLES

THE LIVED EXPERIENCE OF GRAVITY

By Aline Newton, Certified Advanced Rolfer®, Rolf Movement® Instructor

In 1990 Hubert Godard came to an annual meeting at the Rolf Institute and changed our understanding of the body in gravity. The following article is excerpted from the forthcoming book Reimagining the Body, an embodiment curriculum for the 21st century, by Aline Newton, Certified Advanced Rolfer, Chair of the Rolf Movement faculty, and a student of Godard's for many decades. The book describes the author's experience of learning from Godard as well as key concepts in his approach, embodiment experientials and applications to practice. The three excerpts below address the theme of the body in gravity as a dynamic interaction.

PART ONE

Meeting Hubert

Hubert Godard had been teaching movement for 20 years when I met him at the 1990 Rolf Institute International Conference. At the historic Boulderado Hotel on Pearl St. in Boulder, Colorado, Rolfers from around the world gathered. The conference started with yoga, and at 10 AM, the keynote speaker, "Hubert Godard, Rolfer and dancer."

During the talk, Hubert showed a slide of Van Gogh's painting, "First Steps."[1]

A farmer in a field, his shovel on the ground beside him. Across the yard from the farmer, just beyond the garden's gate, the mother and toddler. The father crouches, offers his waiting arms to the child a few yards away. The little child standing but still supported by the mother, reaches towards the father.

How much is there in that moment! All the possibilities that emerge from getting up on two feet, the familiar presence of the mother who provides support, while the outstretched arms of the farmer invite the child towards a great adventure, crossing the field. What will happen next? This is the story of standing up, the story of a living being who forms in relationship, with the surroundings, with the people, and with gravity, the invisible presence, the only constant.

In his talk, Hubert explained that in order to move, we needed first to be oriented in gravity — to know which way was up — and that finding our way in gravity was an activity we were always engaged in, whether we

Image courtesy of: https://images.metmuseum.org/CRDImages/ep/original/DP124808.jpg

realized it or not. He described this interaction with gravity as the foundation of our earliest human relationships and our own capacity for expression. As I listened to him, the idea of "body" transformed from a mechanical system divorced from thoughts and feelings to a meaning-filled reflection of relationship with each other and with gravity. This was something I wanted to understand more deeply! I knew right away that I wanted to study with him.

Dr. Rolf's view of gravity

Of course, Dr. Rolf was also a champion of gravity's importance for human beings. She wrote:

"The gravitational field of the earth is easily the most potent physical influence in any human life. When human energy field and gravity are at war, needless to say gravity wins every time. … Gravity is with us from the time of conception to the moment of death."[2]

When I first met Ida P. Rolf, I was eleven years old, and she was an old lady with a flower in her white hair. Little did I know then that this woman, known as "grandma" affectionately to her students would, through the power of her ideas, be a major influence on the course of my life and my choice of career. Dr. Rolf's description of us as small energy systems embedded in the larger system of gravity appealed to me from a young age.

Dr. Rolf's work came to prominence during the Human Potential Movement in the early 1970's. She was interested in transformation, in what allowed an individual full expression of her/himself. She witnessed time after time how the process of Rolfing, which led to better alignment and relieved physical symptoms, also seemed to translate into a change — for the better — in how a person felt psychologically. That was indeed my experience of Rolfing and what led me to enroll at the Rolf Institute in 1984.

Blocks in a bag

Dr. Rolf visualized the body in gravity as a stack of blocks. How are the major segments (head, chest, pelvis, legs) relating to each other? During my Rolfing training, we were asked to look at someone standing still and evaluate the person's alignment by seeing how far off the plumb line different segments lay. In this model, alignment looks like stacking the blocks so that gravity travels through an imaginary center line.

"The vastly greater energy field of the earth's gravitation can reinforce the smaller organic unit or destroy it, depending on the reciprocal interaction of the two in space." [3]

In a world with gravity such as our own, if something — a pile of bricks, a building — is straight, lined up, when gravity pulls down through the center it will support the whole system. In theory, the same principle would apply to a person: If the blocks stack up, the person would function better in terms of gravity, and that would translate into functioning better as a human being. The structural metaphor, "line the parts up and the body will work better in gravity," seemed tangible.

In Dr. Rolf's way of imagining, the stacked blocks were surrounded by a bag, a bag of connective tissue. Connective tissue was significant because it was ubiquitous, continuous, and plastic — able to be changed. Dr. Rolf called the body's web of fascia the organ of structure or support. She attributed the physical changes that people experienced through Rolfing to be an effect of the plasticity of connective tissue: it could be freed from accumulated restrictions so that the body could regain optimal function. In Dr. Rolf's theory, this was the Rolfer's task.

Along with the static image of alignment came an intuition of fascia as a moving, changing material that was fundamental to the organization of the body in relationship to gravity. [4] Yet, in her book she went on to state unequivocally:

"[Gravity] is so all-pervading that we cannot sense it, for humans perceive sensory stimulation only as it varies. (We recognize light because there are periods of darkness,

sound because we know quiet.) We do not sense gravity, but we do adjust to it. We must." [5]

Although she recognized its significance, Dr. Rolf saw gravity as a force affecting us from the outside, and Rolfing manipulation as something that could improve a person's function in it.

Stacking up in practice

Today the connective tissue network, the fascial web, remains an engaging image as does seeing the body in relationship with gravity. Even the idea of relating the major body segments to each other still works. But at the time of my first training, something was missing. Although deeply interesting, the theories about alignment and connective tissue did not help me understand my own experience of Rolfing, that included emotional experience and changed my sense of myself, how I felt and behaved. Surprisingly to me, there was not much focus on this aspect when I first began my training as a Rolfer. The Rolfer's task was to deliver order in gravity to the client. The client's ongoing experience of this relationship was not part of the discussion.

In my Rolfing practice, the goal of creating alignment produced mixed results. The structural metaphor seems potentially measurable, but I found it difficult to apply to the person in front of me in my office. People felt better, but they did not end up straight. To ask someone to stand up straight, or to try to make points in the body line up (e.g., knees, ankles and feet), has fundamental problems, as I encountered. Trying to keep the alignment ("holding the line") easily led to an idealized image of posture that was awkward and artificial. For a moment, people might hold a good posture, but often as soon as they moved they would go back to their old way of standing. Imagining the body aligned from a static point of view did not translate into sustainable movement.

In contrast, Hubert's words were an invitation to consider gravity from a phenomenological point of view: he invited us to discover our experience of gravity and the meanings we make of it. In each moment as we go about our day, with each breath and step, each of us establishes a relationship with gravity as a support or as an impediment. This is something we can feel and befriend.

Hubert's story

Like Ida Rolf, Hubert Godard started studying chemistry as a university student, but dance was his calling. Unfortunately, his body did not cooperate. Coming from a sports background, he didn't know better and forced his legs to get a good turn-out as the form for classical ballet requires. By age 23, he had seriously damaged his knees. After an operation to repair a torn meniscus, he was unable to dance and unable to even walk without crutches for over a year and a half. Determined to find a way through this obstacle, he began to delve into anatomy, biomechanics and movement analysis, exploring different approaches to movement and sparking what was to become his lifelong interest in rehabilitation techniques and research.

In a 1992 interview, he said, "My body was really unfair to me — I've never seen a worse body than mine when I started to dance. I was dancing a lot but everyone was telling me, 'You can dance as a hobby but you will never change your body enough to be a dancer.' I kept looking for other doctors or techniques of movement that would help me, and finally I succeeded in changing everything, and to have a good body for a dancer."

Hubert told us that getting Rolfed transformed his understanding of gravity. He said: "It is not the theory of Rolfing but being a client — I learned to rest."

Besides maintaining a Rolfing practice, Hubert was involved in teaching and research: He was one of the founders of Université Paris 8 Danse. He was influential in designing a program for dance education sponsored by the French government to protect young dancers from injury and also ran a movement laboratory with the National Orchestra in Liège, Belgium. He conducted research at the National Cancer

Institute in Milan, Italy. There he worked with the doctors on their own embodiment and to help them individualize breast cancer rehabilitation. He brought all this experience to his movement workshops.

Embodiment Practice

I had been a Rolfer for six years when I met Hubert at the conference in Boulder. Understanding the body's organization in gravity is supposed to be the trademark of our profession, based on Dr. Rolf's notion that a person "is something organized around a line." But Dr. Rolf had passed away in 1979. She was no longer present to elaborate on her idea. The concept of "the line" had become something static. Then Hubert came along. When he talked about orienting in gravity, he described a line that went in two directions, towards the heavens and into the earth, an activity without end. His formulation provoked my curiosity. After the lecture, Hubert held a workshop that introduced participants to his way of working in movement based on his synthesis of dance, Alexander Technique, Mezières method, and Rolfing.

Discovering G'

In one activity, Hubert gave us each a little marionette on a string. Following his instructions, I held the marionette by the string with an outstretched arm in front of my chest and ran across the room, stopping periodically and trying not to have the marionette swing. He introduced us in this way to the idea of G': a secondary, or partial, center of gravity, the center of gravity of the chest, arms, and head, located around the level of the fourth thoracic vertebra (T4). G' is seen in motion in reference to an imaginary line running from the head of one femur to the other. [6] Looking at a center of gravity of the trunk and upper body as we initiate movement? This was new! In contrast to the structural vision of a body built from the ground up, Hubert emphasized that a human being develops from the top down. Developmentally, reaching and sitting precede walking. The patterned movements of G' activated in these first actions will impact the way a child (and eventually the adult they become) organizes their standing and walking in gravity. In the movement exercise, the marionette's swing gave feedback about the responsiveness of G': stiffness here would cause the momentum to transfer into the puppet.

Another approach Hubert offered us to change G' was to pick up a rolled-up blanket as if we were picking up a baby. With the change in attitude came a subtle shift in the center of our chests, softening and opening to embrace the imaginary infant.

Waiting to be asked

Later in the day, in a different exercise, Hubert asked, "May I borrow your jacket?" He rolled it up and placed it in the middle of the circle of people sitting all around. Then he asked to borrow someone else's bag, and a book of someone else. He placed all the objects in the middle of the circle, not too far from each other. We were puzzled. Then he asked for a volunteer and instructed the volunteer: "Pick up the objects one by one and put them back." The person, still puzzled, went through those motions. Then Hubert said, "I want you to do it again, pick up the jacket, but this time wait for the jacket to call your hand." Following his request resulted in an approach that changed the action itself: it appeared to add space, breath. Waiting a moment before beginning to reach translated into a slight release in the arm and a more graceful gesture. A different way of imagining what we were doing brought a change in the movement: there was *listening* here.

"And now wait for the floor to call the jacket before putting it back," Hubert continued. One by one, the objects were moved as my classmate followed these new instructions. When I tried it myself, I could feel the difference, though I did not yet have language to describe or explain the experience.

Hubert said, "This is quite a powerful exercise, but so simple that it is hard to get people to do it. But try it every day, when you are washing

the dishes for instance, or getting dressed. See for yourself."

Although Hubert did not put it into words at the time, the change in relationship with the object is also a change in our own relationship with gravity. To be able to let the tension in my own arm release, to be able to pause before picking up the object — these actions depend on the capacity to find temporary stability in the gravitational field in more than one way. Without realizing it, most of us have become identified with whatever strategies we use most often. The simple exercises Hubert offered provided us with an opportunity to renegotiate our habits of creating stability and of creating relationship with objects and people.

PART TWO

How not to fall down

For a moving body in a gravitational field the fundamental problem is not how to stay straight, but *how not to fall down*. The experience of gravity is not alignment, but balancing. Balancing is not static (find it and keep it) but dynamic, an ongoing activity.

Stand up and experience this for yourself: Can you feel your feet on the floor? Where is the weight — more on your toes or your heels? Are your knees locked? Are you keeping yourself still? Is there any holding on you can let go of? You may find yourself swaying with the movement of breathing: exhaling, pausing, inhaling, how are you moved?

Standing and breathing are a balancing act, an interaction with gravity that we are engaged in, consciously or not. Balancing is not "holding a center," but finding and leaving, discovering a dynamic combination of variables that works for the moment.

Now begin to lift your arms. Can you detect the balancing act as your weight shifts, through the changing sensations in your neck or the soles of your feet as they touch the floor?

Biped Robots

How can we open our understanding to the body as a living system in gravity and not a machine or object? How can we shift from a structural viewpoint to a functional one? Over many years I have tried different approaches to explain the importance of our lived experience of gravity to different audiences. While Hubert's phenomenological poetry appeals to some, others find it too subtle to grasp. As an alternative, in talks I often turn to robotics. Mobile robots illustrate something that is hard to see in ourselves: how our relationship with gravity shapes our perceptual abilities and our movement capacities. Humanoid robots help bring to light these hidden dimensions of embodiment.

For bipeds like us, staying up is not easy! Navigating on two legs is harder than it looks—and more interesting. The biggest challenge for the designers of the most advanced robots has been how to make a robot that doesn't fall over. Maintaining balance on two legs is so difficult that many robotics companies have given up on creating bipedal machines altogether, and use, instead, quadrupeds or completely different styles of locomotion (like wheels). But some companies continue to work with the humanoid shape.

They all fall down

Some years ago while preparing a talk on perception for the Kahn Institute at Smith College I came across a video compilation of the numerous falls from the first day of the 2015 DARPA Challenge. [7] Set to lively piano music and dubbed "hilarious" by the press, the video quickly went viral. Though there has been a lot of progress in mobile robot design since then, the video offers a wonderful chance for movement analysis: what is missing in the robots' movements jumps out and reveals the underpinnings of our own movements. You can watch the video here:

https://youtu.be/g0TaYhjpOfo

The DARPA Challenge came about after the Fukushima nuclear power plant meltdown in Japan in 2011 that followed a terrible tsunami. U.S. Defense department specialists wondered if it would have been possible to change the course of events if a robot had existed that could have helped the first responders.

DARPA offered $3.5 million for three prizes to promote development of a robot with the necessary capabilities. The robots were given seven tasks, e.g., drive and get out of a buggy, turn a valve, cut a hole in a wall, walk over rubble, and climb a flight of stairs. 2015 was the culmination of this multi-year project, the result of a huge effort over four years, with 25 teams and hundreds of contributing engineers, scientists, and volunteers.

In all the early competitions the robots were tethered, but in the finals the robots had to complete their tasks with no safety line. It turned out to be harder than the teams expected: a lot of robots fell down. Some robots eventually completed the tasks. But at the end of the competition, Running Man, one of the winners, fell over while just waving to the crowd.

Gravity basics: The micro-movements of balance

In the video, a cheer goes up from the crowd in the bleachers as a red jeep inches across the black and white checkered finish line. It's a clear June day in Pomona, California. Color-coded courses on which the various teams compete are set up like a track and field event around the fairground. On the red course, the robot driver slides over to the jeep's doorway, begins to stand up very slowly, arms in the air, then lurches out of the vehicle and falls face first on the hard packed dirt, twitching uncontrollably. Meet Running Man, the robot from team IHMC — USA.

What's so hard about getting out of a car? Many of us do it daily without thinking. But the engineers reported that getting out of the buggy was one of the hardest tasks for the robots. It requires balance and coordination, and subtle weight shifts which are among the hardest to control. The micro-movements involved in keeping its balance while sliding on the seat toward the door require the robot's computer controller to send a multitude of messages: shift right, shift left, then right, etc. With all the weight shifts involved and then standing up, the computer can't cope. The robot shakes and falls over.

Now compare your experience: Count the number of weight shifts involved in your getting out of your chair. Be glad that things were a little easier for you when you learned how not to fall down! Running Man shows us what we don't usually appreciate about ourselves. Why don't we fall down more? Why are these tasks easy for us but complicated for a robot?

Even though the complex process of keeping our balance comes naturally, that doesn't mean we are doing it that well, even when we are just walking. Human movement that could be effortless is often accomplished with a lot of unnecessary tension. But at least the importance of an ongoing relationship with gravity in humans is revealed by the robots' failure!

Center of Gravity

In another video segment in the competition, Running Man takes on the stair challenge. The IHMC robot is humanoid, two legged and with two arms ending in a kind of gripper. It has a black torso and metallic limbs, and appears to be carrying a large white backpack — its power supply — connected by many tubes and wires. Just lifting its foot to climb the first step sends it sprawling over on its back, tipped over by the change in its center of gravity.

Center of gravity. That's one of the basic elements of balancing that we humans have a sense for in movement that the robots are mostly missing. Our sense for balance is so subtle and sophisticated that it is mostly able to manage all the changes induced by our own limbs, by our plan of action, and by

different environmental factors (like wind) without much conscious attention. Thanks to millions of years of evolution, our system knows what information to pay attention to and how to interpret it — body, intentions, and environmental factors — very quickly! Most of us spent our early years honing this inheritance into a personal skill.

Anticipation

For us, there is already a complex anticipatory process going on when we approach a stair. Below the level of consciousness, we predict from experience what changes will be needed: by the time the leg is lifting there has already been a compensation in the torso to manage the anticipated shift in balance. To climb a stair, the robot's programming merely lifts its leg from the hip. For us, following our gaze and intention to act, spine and trunk would already be involved. A complex coordination of limbs, torso and head would precede the action. A human being, even a young one, has had hours of practice learning from the consequences of falling, establishing the preparatory gestures needed to anticipate a change in balance.

Watching the robot, the missing movement is perceptible through its absence: through my own expectation/anticipation/feeling of the motion of a person climbing the stairs, I can tell this robot is going to fail at the instant the foot comes up, almost before it falls backwards. Watching other bodies is an additional source of information for us about our own bodies, from very early infancy. We feel in ourselves what we see in others. Body reflecting a relationship with gravity and a relationship with the people who surround us is a very different image than the body as a static structure and leads to a different kind of movement analysis and different interventions as a practitioner.

Pre-movement

V. S. Gurfinkel published research in the 1980's describing our capacity to predict the effect of a movement on our center of gravity. He called it "anticipatory postural activity" and carefully measured it with electromyography. [8] For instance, standing at the fridge, reaching for the milk to pour in your coffee cup, the first muscles to contract are not the ones that move your arm, but muscles in your calf that manage the shift in center of gravity engendered by the change in your arm position — and these muscles engage even before you begin to lift your arm. Not falling over must be managed first. The anticipation precedes the intended action. Hubert named the process "pre-movement." Any preparation to move must include the need to not fall over.

Our whole system prepares for the change in our balance to prevent a fall. In the robot, this preparation was obviously missing, but in ourselves, we don't give it any thought. Yet this management of our center of gravity goes on all day, for better or for worse in each of us. But it's not quite a 'reflex' because it's learned, not hard-wired. Not falling over hides the presence of a conversation with gravity, an active process we are engaged in below the level of consciousness. Unlike heartbeat and digestion, it is a process we are participating in, even as I write, and you read this material. Hubert introduced us to the term "tonic function" to describe this aspect of our experience.

Pre-movement In Practice:

How do you manage instability?

Common pre-movement strategies may involve fixing our gaze, tensing the front of the neck, pulling our weight up, settling the weight down with some tension in the back of the pelvic floor, to name a few. Habitual strategies are perceptible as we go into motion. What happens first?

The subtle contractions we engage to preserve stability precede and shape all our movements. Through repetition, they become limiting factors for action and expression. To change any pattern, physical, emotional, or otherwise, it is important to get to the pre-movement level. Once an action is underway, the process is harder to influence.

Gravity orients perception and action

On the yellow track, Team NEDO-JSK from Japan's robot Jaxon approaches the valve-turning task. Jaxon is the same humanoid design as Running Man, only with purple detailing on the arms and head. We see a robot, up on two legs that are bent where our knees would be, move toward a red valve shaped like a wheel. The robot pauses for a long time, preparing. Then it takes several steps in relatively quick succession. Its camera is whirling, the head component tilts and the camera (its head) whirls, and there is another long pause. The grippers prepare and the robot moves forward with very small steps, just to the left of the valve. The robot arm carefully reaches for the valve and misses it entirely. About a foot to the left of it, the robot goes through the motions of turning the valve in the air anyway. As it begins the slow movements to turn the wheel that isn't there, within fractions of seconds the momentum of its arms turning counterclockwise has toppled it right over. It slowly crashes down, the turn continuing into a pathetic partial cartwheel of its whole very expensive frame.

We take balancing (working with gravity) for granted in action and perception. The failure of these early robot designs brings into focus our own complex coordination of the cues from the environment (seeing the valve), information through touch (reaching the valve), and stabilizing in response to changing forces. An average toddler would certainly not miss the wheel; at only a few months old, a baby only reaches for objects within the space of its grasp — seeing and reaching, perception and action, come together in our development. An older child would automatically create some stability, subconsciously tensing different muscle groups or leaning in the opposite direction of the turn to manage the anticipated forces engendered by our arms' action.

In 2015, none of this was part of the robots' programming. It had not occurred to the engineers to factor into the robots' design how physical forces would affect their balance. Five years later, by 2020, biped robots had made amazing progress. Engineers had begun to understand balance: Boston Dynamics' robots could jump, twist, somersault and walk through snowy terrain. [9] Designers have even turned to specialists in infant learning to help them make better robots! [10] Infants are social learners, researchers say. Babies look at the people around them to figure out what is important to pay attention to. That's the upside of our awareness of others and one capacity that gives humans a head start over AI. The engineers are on the right track, while we humans spend more time sitting in front of computers. What's wrong with this picture?

For a human being, embodiment includes balancing, perceiving, and responding to the environment. Habits of perception influence our ability to stabilize and are an important element in working with gravity organization in ourselves and our clients. Of all the options presented by the environment, which ones do we select to help us find support? Meaning making comes in here, too: for example, weight, space, lightness and heaviness may have symbolic as well as biomechanical significance.

Gravity and Emotion

For robots to accomplish tasks presents researchers with a series of mechanical problems: controlling degrees of freedom, navigating the landscape, manipulating objects, all without falling over.

For us, navigating in gravity is tied up with our emotional arousal system. The feeling of falling or being out of control generally triggers an autonomic reaction, a sense of panic and an immediate righting response.

If you trip on the sidewalk, a series of emergency maneuvers immediately ensues in an attempt to keep you upright. You know through sensations, before thinking, that balance is in jeopardy and your startle reflex kicks in. Depending on the direction of your momentum, your inner ear and receptors in the soles of your feet signal your

trunk muscles, front or back, to quickly tense, counteracting the momentum and hopefully avoiding the anticipated fall. And if you sense failure in these uprighting maneuvers, in a fraction of an instant, your arms might stretch out to break the fall.

The feelings/sensations that help us manage our instability are related to what we experience as anxiety. The basic physical phenomenon becomes a metaphor. But the same feelings and sensations can be a source of information that we can learn to work with. Moving and feeling are intricately related. All these dimensions factor into what we call "body" when we see each other. Watching another human being, we see the physical management of balance as posture, and that posture reflects a habitual attitude, the way we meet the world. Staying upright goes far beyond a mechanical phenomenon. It is part of what shapes our sense of self. It goes far beyond just not falling over, into the whole human project.

As Hubert showed in the Van Gogh painting, most of us have learned to stand up in the company of others like ourselves. The subtle shifts in tone that allow us to stay upright in gravity, to use gravity as a constant in the midst of change, are part of our own expressive, meaning-making system, something we will explore in the rest of this book.

PART THREE

Tonic function/tonic dialogue

Hubert had adopted the name "tonic function" as short-hand label for his whole perspective.

From our first classes together, he introduced us to extensive research related to life in utero and the newborn's experience. Reflex muscle contraction — muscle tone or tonic postural activity [11] — is part of what allows us to maintain our uprightness. Hubert pointed out that tonic function is also part of a baby's expressive system.

This term, tonic function, was coined by French developmental psychologist Henri Wallon (1879-1962). [12] Wallon observed that during our first months of life, the small variations in muscle tone [13] that later help us stand up are not about intentional action. The subtle movements of changing tone were our earliest form of expression, our first communication channels with the people on whom we depend. Though a baby may not yet be able to control the movement of her leg for walking, she can kick faster or slower, for instance. Likely her caretakers will respond instinctively to her pace. De Ajuriaguerra (1911-1993), a Spanish-French neuropsychiatrist, called this exchange between the baby and the caretaker through changing qualities of muscle tone, a dialogue, a "tonic dialogue."

Like Wallon and De Ajuriaguerra, André Bullinger (1941-2015) was a champion in understanding development even before birth. From the very beginning in the womb's watery environment, every variation in the sensory flow, whether from inside or outside, causes an increase in tone in the developing organism. The fetus already responds to changes in the environment through withdrawal or approach, moving away or towards. For example, in response to irritants, one postural reflex causes extension in the back muscles. Interestingly, in utero this extension causes the fetus to encounter the wall of the uterus in a kind of meeting, the very first tonic dialogue. By the time a baby is born, she already has a repertory of reflexes, ways of responding, and postures that have been practiced.

The repertory of postures I have described are based in reflex: they happen of themselves, without intention. The work of the first year of a baby's life is to build on that repertory; to use the support the human environment provides and the innate talents with which each baby comes into the world, to begin to make sense of and take action in that environment.

Hubert emphasized from our very first workshops that the function of "tone," a key

element in our ability to keep our balance in motion, includes a complex human experience that connects a baby with their surroundings and caretakers and is the first communication channel. From the very beginning of life, the body is responsive and expressive.

A baby communicating with adults through subtle changes in tone is a very different image of the body from that of robots! Situating human beings in an emotional exchange through movement from even before birth allows us to imagine ourselves quite differently from a machine. Like the toddler in Van Gogh's painting, many of us have made the journey from a babe in arms to an autonomous upright individual, from the embrace of human arms to the embrace of the field of gravity. This point of view also opens us up to our vulnerability, a crucial aspect of changing patterns that needs acknowledgement when working with our clients.

Early on in our studies, Hubert mentioned Judith Kestenberg (1910-1999), another pioneer who explored the infant's experience in her research from the 1950s on. Kestenberg, a neuropsychiatrist and psychoanalyst who specialized in child development, was trained in the movement analysis of Rudolf von Laban. Over years interacting with babies and watching parents and infants move together, she described links among the movements of the physical body, emotional expression, and psychological development. Kestenberg saw the expressive process in the baby's moving toward something or shrinking away from it. Bound flow — when opposing muscle pairs of agonist and antagonist contract simultaneously —contrasted with free flow. Both capacities are needed in everyday movements, for example to pick up an object, but the two qualities of flow are also a means of expression: flinging our arms wide in a free flow welcome, or the careful control of bound flow to learn to shape letters. Kestenberg connected her observations of infants to the movements of the adults she worked with. The resulting psychological profile based on movement patterns, the Kestenberg Movement Profile, can describe an adult as well as an infant. For each one of us, the shaping of our body's tone — our use of tonic movements — begins in our first movements as an infant. These become familiar pathways that stay with us as we grow up, shaping our gestural style and our repertory of possible actions.

As practitioners, when we work with our clients' sense of organization in gravity, we may be addressing profound underpinnings of how they experience the world and the people they relate to, their potential of action, their sense of security and vulnerability.

As students of Hubert, we particularly appreciated his rare capacity to hold both perspectives when we worked together, the biomechanical and that of each of our personal experiences and meaning making.

Embodiment Practice: Pushing the chair

In 1993, we met for another workshop with Hubert in Philadelphia. Our classroom was a martial arts studio with blue plastic mats covering most of the floor and little light. In the small area not covered by the mats, Hubert took one of the cold metal folding chairs we were using and invited us to push it around the room. Such a simple idea, like pushing a cart at the supermarket. But there was so much to it! The instruction "push a heavy object" evoked enormous effort in our bodies before we even touched the chair. We felt the anticipation that launched us into tension: anticipating the amount of force that would be involved — which happened involuntarily — led to a tightening of the front of the body, a curling toward the chair along with the tension and preparation in the upper surface of hands and wrists. The chair was awkward, the floor resisted the movement.

Hubert suggested we let the feeling of the chair come into our hands, allowing ourselves to be touched by the chair, while staying with our own center of gravity. Instead of leaning forward onto

the chair back, we stayed over our own two feet, keeping the sense of the space behind us while accepting the cold metal into our hands. All of a sudden, the chair moved across the floor almost effortlessly. (This is a great practice for the supermarket with an actual shopping cart.)

Hubert explained that when we lean on the chair with tension, we inadvertently end up with one center of gravity between two separate entities. "You are trying to share a center of gravity," he said. He called that fusion. The alternative, where we stay centered over our own feet and in touch with the ground while at the same time making receptive contact with the chair, allows us to keep our center of gravity while affecting the other (the chair, in this case).

Hubert reminded us that another word for joint — where two bones meet and allow movement — is articulation. And to function, an articulation requires a separation. Recalling the image from the Van Gogh painting, Hubert said that a relationship requires a separation —otherwise, it is fusion. The key is being in relationship while maintaining your own center of gravity.

For Rolfers who do hands-on work, the exercise had layers of application far beyond the chair. In daily practice with our clients, we use a variety of touch: sometimes our hands are receiving and taking in information, sometimes we are exerting pressure, and at all times we need to find our own center and make space for the client's experience. Being in relationship and keeping our own center has continued significance for our work as well as our personal lives.

Author's note.

Almost half a century after Dr. Rolf's death (1979), her intuition of the importance of gravity for human beings in the terrestrial environment continues to resonate. Hubert Godard's phenomenological perspective has added immeasurably to the Rolfing community. Through the book Reimagining the Body, the author hopes to express her appreciation for Hubert's teaching and share with others the journey and pathways of practice that she learned over many years. With Rebecca Carli-Mills, she offers Tonic Function Study Groups both in person and on-line to further delve into this material. For more information: www.alinenewton.com.

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End Notes

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