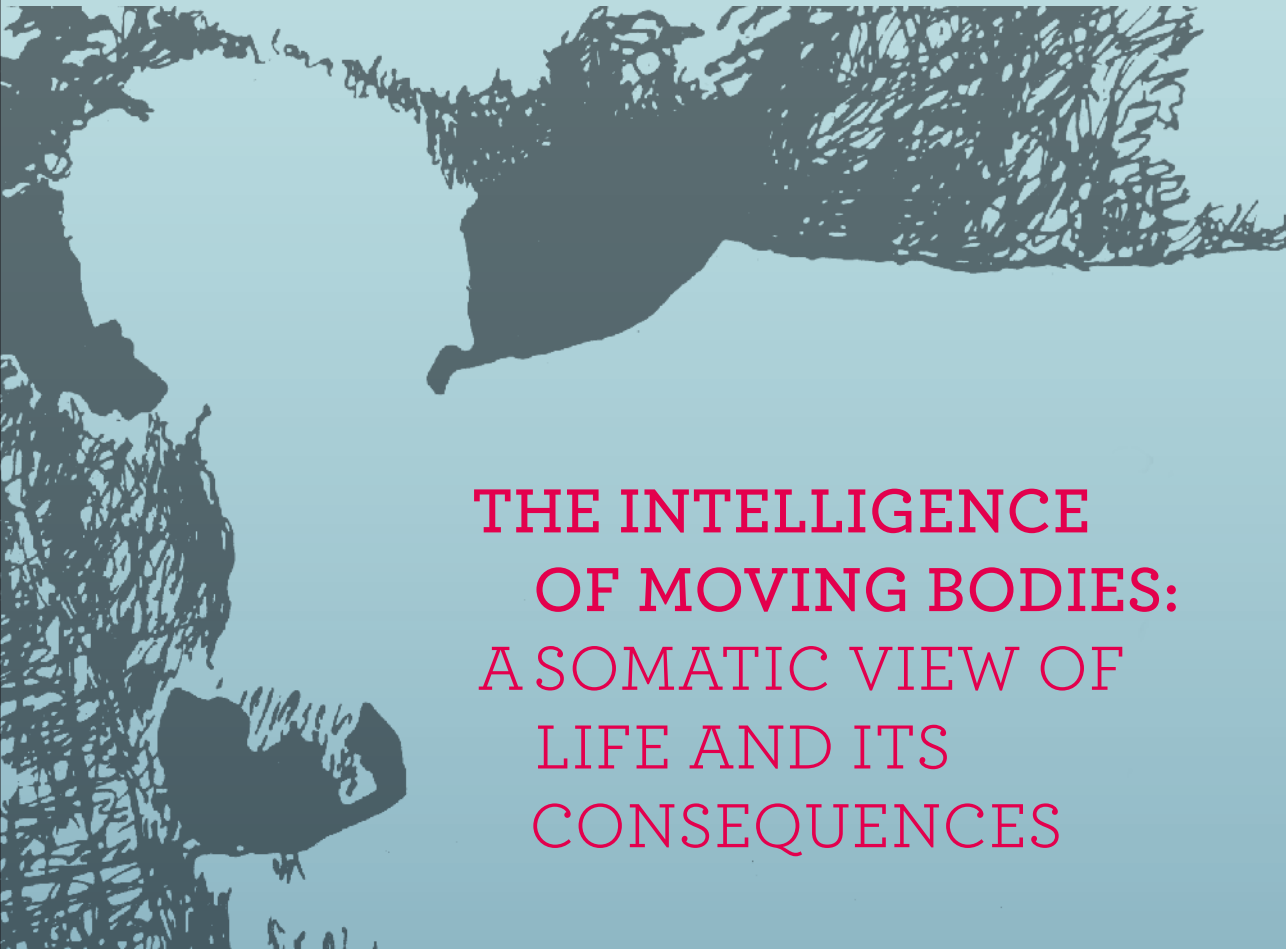


Carl Ginsburg

With contributions  
by Lucia Schuette-Ginsburg



**THE INTELLIGENCE  
OF MOVING BODIES:  
A SOMATIC VIEW OF  
LIFE AND ITS  
CONSEQUENCES**

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*In Memory of Moshe Feldenkrais who discovered  
a practice and new biological understanding to bring  
us to self-directed correction and growth. And to  
the many students and colleagues who can spread  
these ideas to those who can benefit.*

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## A PERSONAL PREFACE

As I sit at my desktop computer, I am aware of my fingers moving the keys, my breathing, the screen in front of me and the keyboard as I move my head to see it. The words come into my consciousness as I convert my intent into sentences, what I want to describe, and what I am aware of in my personal environment and in the space of my outside environment. I notice the movement of my breathing, which is smooth and shallow, without effort, the feeling of life in my legs, my trunk, my arms, my feet, my head, as well the pressure of my weight on the chair seat. And at the periphery I am aware of the nature outside the window, the growing chestnut tree and its blossoms, the breeze through the other bushes and trees, a bit of blue sky and a line of cloudiness. It is all very ordinary and yet special. I am about to write that it was not always like so in my life, and I notice that I wiggle my left knee from side to side. The thought reflects in a slight uneasiness that couples with my peripherally conscious moving of my leg. In the complexity of each present moment there are layers of awareness.

It was not always so. I think back on the beginnings of my present life, back to my professorship in inorganic chemistry at a small college connected to a larger university in the 1960s. Then my present moments were not so full. I am sure that the feeling and sensation of life in myself was far back in my awareness; habitual movements were not noticed; my environment was not experienced as present, but as a place of discomfort. I remember often a perception of not belonging to where I was, that I was a foreigner on Earth. The time teaching was tedious; that is, I experienced tiredness, a heaviness, and waited anxiously for the bell so that I could stop and go back to my desk. And I suffered from ailments, including repeated episodes of severe back pain and a chronic bowel irritation. Moving itself was experienced at times as a chore. I was best off with my nose in a book.

In those days I read avidly about psychology, alienation, politics, existentialism and related topics. I had read Freud, Norman O. Brown, Paul Goodman, Norman Mailer, Camus, Sartre, Martin Buber and Wilhelm Reich. I subscribed to *Commentary* and *Encounter*. These interests were extracurricular. I also read in the field of the philosophy of science and considered myself thoroughly rational. I believed in an objective truth that could be revealed best by experimental methods. I was sure that I was normal. And yet what was understood then in scientific psychology seemed to have only a weak

relationship to the experience of being alive. Limited as I was, I suspected there was much that I had not experienced and not understood. My readings did not make my life smarter or better. The path of life seemed to continue without choice.

Until pain became prominent, most of my conscious experience was involved in verbal thinking, or escaping into doodling. My life with friends was full of talk. With my wife at that time, there were many moments of struggle and anger. I rationalized that she imagined the slights and faults that brought us to conflict. It took a weekend with an encounter group to reveal myself to myself. It was a shock to realize that I was hiding myself from myself, and those around me. How did I do this? What was gained and what was lost? How did it distort my concepts, and perceptions?

My intent in bringing up these personal details is to reveal a condition that while personal to my own life at that time is actually an induced condition that affects many people in modern culture. While I projected a mask of calm (even to myself), I was very disconnected from feelings and emotions that were present in the fringe of my experience, but inhibited from expression. I did not fully experience the life in myself. I remember in the first experience of an encounter group feeling a kind of superiority in my calm as I watched others in the group becoming emotional at various points. During the second weekend I exploded in unsuspected rage. After the initial shock, I had a sense of relief and openness in breathing, a feeling of letting go. Wilhelm Reich started to make sense. He had postulated that what is hidden and resisted is embodied in the state of the musculature and body. Reich as a member of Freud's inner circle was eventually ejected from the group of psychoanalysis. Later he was considered a paranoid and unbalanced. Yet many of his insights and intuitions are no longer considered radical.

By the mid 1970s, I had abandoned my career as a professor and was in a training group in San Francisco with Moshe Feldenkrais, D.Sc. The doctorate in science was obtained for work done in the laboratory of Frederick Joliot-Curie in Paris in the 1930s and awarded just after WWII. Yet what Moshe Feldenkrais was presenting to us seemed far afield from physics and engineering. The theme was movement, but not from the external perspective. It was not dance, not performance, not aesthetics, not an external analysis of how we

moved, but an exploration of our own kinesthetic experience developing all the richness possible from that.

The year before I had the opportunity to experience his movement lessons with a teacher who had studied with Feldenkrais briefly in workshops. At this point I was acutely aware that the way in which I inhibited feeling was by controlling those movements of myself necessary to the expression of those feelings. This was not necessarily conscious on my part. However, having awareness of what I did and how I did it as revealed in the Feldenkrais lessons was an important step in resolving a number of life difficulties. The experience of a sense of freedom in moving, dancing, acting, opened further the possibility of an embodied life. The perception of not belonging, not connecting, lifted. I could now go to the floor and with the movement sequence processes I learned to relieve the pain producing tensions in the musculature. It took many years to better connect with life, nature, and other people. The journey I took in the late sixties, and throughout the seventies put me on a path unimaginable before I began. While I was guided by a number of other persons such as body psychotherapist Ron Kurtz, and gestalt therapist Jack Canfield, the work from 1975 to 1978 with Moshe Feldenkrais was instrumental to revising entirely my worldview and my process of thinking. What was personally practical now became what I would share with others the rest of my life. I became a practitioner and then trainer of the Feldenkrais Method. I abandoned completely my academic career, and work as a chemist.

There was another side to spending four summers with Feldenkrais. While my explorations into feeling and moving had resulted in a turning away from intellect, Feldenkrais was a thinker of the first order. He invited Stanford neuroscientist Karl Pribram to participate in three dialogs for our training group. Later we had visits from cybernetician Heinz von Foerster, and anthropologist Margaret Mead. We were encouraged to read widely in all areas relevant to the work we were doing experientially. And from the first session onward Feldenkrais spaced the experiential lessons with lectures and stories to convey the strong intellectual underpinning to his movement work. He opened up consideration of movement, not as some subsidiary system of a person or organism, but as the most essential aspect of being alive. What we were doing in explor-

ing movement would affect everything else in ourselves. Nothing in the process of living was conceivable without movement. While at first skeptical of the idea that changing patterns of moving would also change patterns of conceptualization and cognition, for example, it was clear after four years in training that this was a consequence for myself. What Feldenkrais presented intellectually cohered with everything we did on the experiential level. He encouraged us to learn as he did and not take anything for granted. We were immersed in a method of inquiry and self-generated discovery. Two aspects of his views on what we were doing were particularly attractive to me. First that thinking involved sensing, feeling and acting. Intellectual, verbal, thinking without grounding in the senses and experiential realm was sterile. Second each person had the ability to find out for him/herself and needed to, do so. Error often resulted in applying a predigested external idea of what was correct.

As human beings we tend to be hungry for the correct view, and the right answers. Feldenkrais' program was, despite my attraction to a search for autonomy and self-directed improvement, a challenge. I often wanted the correct answer to the puzzles that he presented. I knew on the other hand that human problems were often obscure; that is, direct cause-and-effect thinking did not lead to solutions or that such thinking was only partially valid and limited. We had to think outside the box of our learned cognitive structures. I began to separate from the idea that movement was an add-on, that as a person I had a motor apparatus that was responsible for my sensory motor skills. As I became adept with the method, my enhanced abilities brought me to a thinking that was powerful in its application, and at the same time convinced me that there was a strong middle path between working from educated pre-existing beliefs and the anarchism of anything goes. Living systems are highly complex and ultimately unpredictable in a strict sense. At the same time they are reasonably lawful in how they act and interact. Learning takes place in an environment in which action and interaction are the means whereby the nervous system and body develop in relation to the needs for sustenance, reproduction and protection. Life survives out of the activities that sustain it. Life is ongoing even if individual organisms are born, develop and die. Yet each organism 'knows' how to survive as long as is possible. Movement and intelligence are key threads of this ongoing

process. Somehow in our western culture we have tended to lose a living connection to these threads. Thinkers and scientists are only recently rediscovering movement and embodiment. Intelligence is only recently being rediscovered as a feature of all living things, including the most simple.\* Feldenkrais was in the forefront of this thinking and without the exposure to his methodology this book would not be possible. The methodology itself seemed a mystery to me, even after years of practice. The ideas he transmitted nevertheless percolated along with the experiencing and the scientific reading, which I continued. Thus I slowly grasped how this method lead to pattern change, and a different sense of life. With this insight it becomes clear how a somatic viewpoint involving mind ~ body ~ environment ~ world can lead to a praxis of awareness and engagement. The book that follows is an exploration of this radical biological view and the consequences that follow.

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\* See Frederick Prete, (ed.), *Complex Worlds from Simpler Nervous Systems*, MIT Press (2004) for many examples. “The authors ... explain how animals with small, often minuscule, nervous systems – jumping spiders, bees, praying mantids, toads, and others – are not the simple ‘reflex machines’ they were once thought to be. Because these animals live in the same world as do much larger species, they must meet the same environmental challenges. They do so by construting complex perceptual worlds within which they can weigh options, make decisions, integrate unique experiences, apply complex algorithms, and execute plans ...”.



# AN INTRODUCTION TO THE BOOK

## **The Importance of Movement as a Biological Dimension**

As Human observers, many things in the universe are seen by us to move. But only living things are seen to move themselves. Moshe Feldenkrais said, "Movement is the key to life." What could he have meant by this statement? A life form that sustains itself, and moves itself, must be sensitive to its surroundings, therefore the intelligence of (self) moving bodies. Everything alive is in movement and has at least some movement autonomy in relation to a wider environment. Science writer and anthropologist Jeremy Narby (2005) in his recent book, *Intelligence in Nature*, documents the scientific evidence and experiential evidence that intelligence exists at every level of life from the bacterium to the highest levels of evolution. By intelligence he means, as he hones this concept, adaptability and variability in response to the conditions of an environment in which life can be maintained. To achieve this, self-movement is essential.

Hard science as a modality of learning, thinking and exploring is constrained by established habits and norms of investigation. We more often think of this methodology as leading to the freedom of thought that established our modern world and do not notice its limitations. More politely you could say the activity we call *science* has developed certain rigorous procedures in order to establish what is so in our world. We want to know that our conceptions have validity. While the successes of physics, chemistry and the application of these conceptual realms to the engineering of our environment can be much admired, the application of its methodologies to living beings creates unexpected problems. The methodologies of hard science fixate the attention on isolating mechanisms, finding causes and effects, narrowing attention to limited areas, and constraining thinking to an artificial realm we call *objectivity*. This is not to say that the reductionist and objectivist program cannot yield knowledge of the living world. Many important discoveries about our selves and other living beings have followed. We now know many details about the biological mechanisms of genetics, cellular activity, nerve transmission, and how learning takes place in terms of structural changes in nerve cells. And we have established that many of these details are common to



organisms at vastly different levels of complexity. The complexity itself on the other hand has not yielded easily to reductive models. The point is that the integrative, and relational, aspects of living systems require more than simply adding the pieces together. We need a biology of coherence to improve our understanding. Yet we imagine that staying on the current popular pathway of trying to engineer our life's problems will lead to a far better life. We think we know much more about ourselves than our ancestors. On the other hand we continually produce new disasters and cover up for our lack of understanding. I remind myself of the statements of Albert Einstein,

“Insanity is doing the same old thing the same old way while expecting different results.”

and Moshe Feldenkrais:

“You see, so it's difficult for the first time too to have a thought, which is contrary to what everybody believes.”

To do the work of the Feldenkrais Method required that I put aside many habits of thinking and doing ingrained by my long apprenticeship in school. I evolved a very different perspective about life as a result and discovered the necessity of thinking simply: sensing, feeling and acting without the mediation of language. You might describe this as thinking directly in movement. Strict adherence to the objective stance simply interfered with successful exploration of the human situations I was faced with, both with myself and those who sought my help. Often solutions appeared indirectly and without figuring out what to do. This shift in thinking and the return to experience has practical consequences. In afterthought I could return to language, which is necessary for conceptual communicating. The essence of Feldenkrais' work was to take abstract concepts into concreteness. Everything in his work could be shown through demonstration.

Feldenkrais' work, while unique in its particular way of using movement exploration to expanding awareness and self-growth, was also part of a growing trend in modern thinking. Not all scientific approaches stayed within the realm of strict objectivism. What is of value should be observable to others and therefore discoverable. Feldenkrais had contact with a number of seminal thinkers and scientists who were pioneering new ways of thinking in biology, psychology

and neuroscience. Among them were Aaharon Katchalsky (Katsir), who helped begin the development of dynamic systems theory; Karl Pribram, who at the time developed a hologram model of brain functions; and some of the founders and elaborators of the cybernetics movement, Gregory Bateson, Margaret Mead, Heinz von Foerster and Francisco Varela. They all appreciated something in Feldenkrais' work that echoed their own new approaches. What we all found in watching him work was that people with many varied difficulties could find a way with his contact with them to improve in functioning even when all previous interventions had failed. It looked miraculous. Nevertheless he was simply using his extraordinary sensitivity and understanding of human complexity to guide people to self-correction. In doing so he trusted that a living person had this capacity as a consequence of the fundamental ability to learn. Many thinkers today now call this *self-organization*.

Human movement and the embodied life already had a practical tradition behind it in the oriental healing practices and martial arts, and in a growing development of somatic awareness practices based on the work of Elsa Gindler, Heinrich Jacoby, Ida Rolf and F.M. Alexander. Somatic awareness practices involve self-observation and self-awareness processes in moving and acting. Feldenkrais had interacted with the work of each of these teachers. In 1975, however, in most fields of thinking and study of the human being, movement was either ignored or relegated to a separate field of study such as motor learning and behavior. In the past century what now is labeled *embodiment* was taken seriously primarily by phenomenology, especially in the work of Edmund Husserl and Maurice Merleau-Ponty, and in the psychoanalytically related work of Wilhelm Reich and Paul Schilder. One notable exception in science was the pioneering work of Russian physiologist and psychologist Nicholai Bernstein. We will meet him in later parts of the book.

Today the situation is changing radically. Neuroscientists are now speculating that without dynamic connections to a living body and environment, the nervous system cannot function. Professor of Neuroscience at Rutgers University Georgy Buszaki writes in his recent book *Rhythms of the Brain* (2006, p. 221), "However, without the output interacting with body and environment, no amount of sensory stimulation can produce a useful brain." And Professor of

Neurophysiology Giacomo Rizzolati at the University of Parma and Associate Professor of Philosophy of Science Corrado Sinigaglia at the University of Milan write in *Mirrors in the Brain* (2008, p. xi), “The rigid divide between perceptive, motor, and cognitive processes is to a great extent artificial; not only does perception appear to be imbedded in the dynamics of action, becoming more composite than used to be thought in the past, but the *acting brain* is also and above all a *brain that understands*.”

The above comments are prompted by many new discoveries about the nervous system. But the whole question of body-mind has been reassessed in recent years from scientists and philosophers. The seminal book, which helped promote the idea of an embodied cognitive science, *The Embodied Mind: Cognitive Mind and Human Experience* (1991) by biologist and neuroscientist Francisco Varela, philosopher Evan Thompson, and psychologist Eleanor Rosch, moved the discussion forward in a very positive way. They describe their book as an “exploration of deep circularity” (p.12). Philosophers such as Shaun Gallagher with his book *How the Body Shapes the Mind* (2005), Alva Noe with *Action in Perception* (2004), and Evan Thompson with *Mind in Life: Biology, Phenomenology and the Sciences of Mind* (2007) have continued the discussion within the philosophy of mind. There is nevertheless deep resistance among many scientists and thinkers who wish to preserve a scientific quest for objective knowledge, as we have understood it. There is a belief that science depends on objectivism and must precede with a series of slow steps. Many scientists operate in their fields of inquiry as if each aspect of their study is a separate and independent entity with the idea that the accumulation of bits will create a storehouse of knowledge. Nonetheless there were many predecessors who suspected this approach was not enough, that we had to consider that we are embodied beings where the fact of embodiment challenges objectivism. I mention only a few of the other scientists and thinkers who had considered that embodiment and or movement are important for a more complete understanding of life in all its aspects and we ourselves are essential. There is no view from nowhere. I include psychologist J.J. Gibson and his associates, E.J. Gibson, Edward Reed and Michael Turvey; biologist Humberto Maturana; cognitive scientists George Lakoff and Mark Johnson; movement scientists Marc Jeannerod and J.A. Scott Kelso; develop-

mental psychologist Esther Thelen; philosopher and psychotherapist Eugene Gendlin; psychiatrist Daniel Stern; and neuroscientist and musician Manfred Clynes. Finally I would include in this list from the more distant past, Charles Darwin, Henri Poincare, William James and John Dewey.

Two recent books with movement as a central or major theme bring awareness to the very essential place of movement itself: *The Brain's Sense of Movement* (2000) by neuro-physiologist Alain Berthoz, and *The Primacy of Movement* (1999) by philosopher, biologist and dancer Maxine Sheets-Johnstone. They are important sources for further study of the issues brought forth in this book and for much more detail of the scientific basis and intellectual discourse in relation to the themes of this book. If movement is so essential, we have to consider it as integral to living beings and not just a separate aspect of life that can be studied independently.

Thus the theme of this book is movement in relation to everything else. There are many questions: How did we get to adulthood where we live with other human beings, interact with them, talk, make love, fight, and carry on with many activities? It is impossible to think that we can live without the matrix of other humans and the other life forms around us. How do we develop our capacities in relation to this matrix? We learn in intimate contact with caretakers whether they are our parents or not. We learn also in an environment, which includes the resources necessary for life. And the environment includes gravity, which makes a very special demand on growth and development. Development is a serious business in life for animate, interacting beings. Thus we will ultimately have to account for many levels of interaction from the molecular to the social and then to the ecological.

As I am no longer an active scientist, what I have to contribute comes much more out of my twenty-seven years of active practice and experience with the Feldenkrais Method. The contributions by my wife Lucia Schuette-Ginsburg equally come from the domain of active practice, especially with children. Much of Feldenkrais work is unique as will become apparent as the book proceeds. Thus this book will emphasize, as much as possible in book format, personal experience. It is to my mind a very good route to wisdom if used carefully and with training. Wisdom is not the same as technical and scientific

knowledge, which require the practice of specific methods of investigation differing from what I am proposing. But personal experience also requires a disciplined mode of investigation in order to arrive at a useful perspective. With this we can begin to sweep out the cobwebs of conceptualization that confuse our sensing, feeling, acting and thus our thinking. It is not a question of opposing knowledge developed in other ways. In fact it is essential not to do this. But a disciplined personal exploration can help clarify the conceptual confusions that arise from an attachment to third person accounts of ourselves, as well as how we understand our first person experience. Ultimately the two domains should interrelate. I hope thereby to engage you, the reader on a journey, to move away from an over-educated knowing and into the realm of finding out for yourself to whatever degree is possible. Our question is finding how. We can then ask how we perceive and how it is different from sensing, how conceiving takes perceiving to the level of thinking, how movement leads to perceiving and conceiving, and how perceiving ourselves accurately can lead to a better life and a better thinking for ourselves. Movement also takes us to another realm of living related to perceiving and thinking. And that is the realm of affect. Affect is more than what we can label emotion. Without affect, intelligence has no way to operate. The context of the investigation will be the matrix of interaction where we live and in which we developed.

The book is divided in three parts. In Part I we will explore the ground of a new thinking about life and its origins. We begin with the insight that in biological life the first living thing enclosed itself in a membrane and that within that boundary there was a structure and function that ensured self-propulsion. Nothing lives or survives without the separation and some form of sentience. We expand from this point to investigating intention, action, perception, and how this leads to concepts such as space and time.

In Part II the question of learning and development is brought to the foreground, as well as the vast topic of affect and emotion. We will follow with an emphasis of finding how movement is necessary for affect and how affect is necessary for thinking, learning and developing. We will touch on the question of language and the relation of affect to music and other art forms. We will explore how movement and embodiment are essential to the development of thinking, which

begins without words but becomes languaging in relation to living in an environment of speaking persons.

Part III will bring us to the practical aspects of this new thinking about life. We will through examples show it is possible to resolve particular problems within ourselves and discover that through thinking in movement we can find a way to free ourselves from habitual impasses. Specific movement explorations will be given so that the reader can experience directly the learning process. Hopefully then each person can find a path for acting more constructively in life and with greater pleasure and connectedness. And lastly we will sum up how the developing understanding of this new view of life leads to reconsidering many questions about learning, being and acting in modern life.

A Note for Readers: The book is organized with a developmental sequence of themes. However some readers may find Part I obscure on first reading. The authors suggest that the reader can skip ahead to Part II or even part III. If a section is difficult to understand, leave it and come back at a later time.

